



Fifth Edition

# ECOLOGY

Concepts and Applications

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## ECOLOGY: Concepts and Applications 5th edition

### About the Cover

Where distinctive ecosystems meet, environmental conditions—including soils and water availability—can change substantially over small distances. Reflecting those environmental changes, the kinds of plants and animals also change, with each species generally living within a restricted range of conditions. The cover shows a landscape that includes a forest dominated by deciduous trees in fall colors, a band of shrubs, and a pond, with wetland plants along its shores. Each of these patches in the landscape, with its own characteristic, dominant plant growth forms, supports a distinctive community of birds, small mammals, insects, and other invertebrate animals. Consequently, transition zones, such as this one, are often areas rich in biodiversity.



The heterogeneous landscape shown on the cover is the result of dynamic processes that have gone on for millennia. Soils have built up under the forest and shrub communities, which have been periodically disrupted by severe weather and outbreaks of insect pests. Erosion has moved inorganic and organic materials down the slope where they have been deposited in and around the pond. Meanwhile, forest birds and mammals feeding around the pond have carried inorganic and organic materials back up the slope to the forest. Many of these changes are recorded in the pond sediments and forest soils, which trained scientists read much like we read the pages of this book.

Studies of the relationships between organisms and the environment make up the science we call *ecology*. This book was written to introduce this complex and fascinating discipline and to provide a conceptual foundation that will prepare the reader to look out onto a landscape, and see the broad outlines of the intricate connections that weave all living beings and their environments on this planet into a vast web of ecological interactions.

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# Contents

Preface xiii

<b>Chapter 1</b>	<b>Introduction to Ecology:</b>
	<i>Historical Foundations and Developing Frontiers</i> 1
	Overview of Ecology 2
	The Ecology of Forest Birds: Old Tools and New 3
	Forest Canopy Research: A Physical and Scientific Frontier 5
	Climatic and Ecological Change: Past and Future 6
	<b>Investigating the Evidence 1:</b> The Scientific Method—
	Questions and Hypotheses 8
	The Scope of Ecology 9

## Section I NATURAL HISTORY AND EVOLUTION

<b>Chapter 2</b>	<b>Life on Land</b> 10
	Terrestrial Biomes 11
<b>Concepts</b>	<b>11</b>
2.1	Large-Scale Patterns of Climatic Variation 12
	Temperature, Atmospheric Circulation, and Precipitation 12
	Climate Diagrams 15
	<i>Concept 2.1 Review</i> 15
2.2	Soil: The Foundation of Terrestrial Biomes 15
	<b>Investigating the Evidence 2:</b> Determining the Sample Mean 17
	<i>Concept 2.2 Review</i> 18
2.3	Natural History and Geography of Biomes 18
	Tropical Rain Forest 19
	Tropical Dry Forest 20
	Tropical Savanna 23
	Desert 24
	Mediterranean Woodland and Shrubland 27
	Temperate Grassland 29
	Temperate Forest 31
	Boreal Forest 32
	Tundra 35
	Mountains: Islands in the Sky 37
	<i>Concept 2.3 Review</i> 39
<b>Applications:</b>	Climatic Variation and the Palmer Drought Severity Index 39

## **Chapter 3** Life in Water 44

<b>Concepts</b>	<b>45</b>
3.1	The Hydrologic Cycle 45
	<i>Concept 3.1 Review</i> 45
3.2	The Natural History of Aquatic Environments 45
	The Oceans 45
	Life in Shallow Marine Waters: Kelp Forests and Coral Gardens 51
	<b>Investigating the Evidence 3:</b> Determining the Sample Median 52
	Marine Shores: Life Between High and Low Tides 55
	Estuaries, Salt Marshes, and Mangrove Forests 59
	Rivers and Streams: Life Blood and Pulse of the Land 63
	Lakes: Small Seas 68
	<i>Concept 3.2 Review</i> 72
<b>Applications:</b>	Biological Integrity—Assessing the Health of Aquatic Systems 72
	Number of Species and Species Composition 73
	Trophic Composition 73
	Fish Abundance and Condition 73
	A Test 73

## **Chapter 4** Population Genetics and Natural Selection 77

<b>Concepts</b>	<b>79</b>
4.1	Variation Within Populations 79
	Variation in a Widely Distributed Plant 79
	Variation in Alpine Fish Populations 80
	<i>Concept 4.1 Review</i> 83
4.2	Hardy-Weinberg 83
	Calculating Gene Frequencies 83
	<i>Concept 4.2 Review</i> 85
4.3	The Process of Natural Selection 85
	Stabilizing Selection 85
	Directional Selection 87
	Disruptive Selection 87
	<i>Concept 4.3 Review</i> 87
4.4	Evolution by Natural Selection 87
	Evolution by Natural Selection and Genetic Variation 87
	<b>Investigating the Evidence 4:</b> Variation in Data 88
	Adaptive Change in Colonizing Lizards 89
	Rapid Adaptation by Soapberry Bugs to New Host Plants 91
	<i>Concept 4.4 Review</i> 92

- 4.5 Change Due to Chance 92  
 Evidence of Genetic Drift in Chihuahua Spruce 92  
 Genetic Variation in Island Populations 93  
 Genetic Diversity and Butterfly Extinctions 94  
 Concept 4.5 Review 95  
 Applications: Evolution and Agriculture 95  
 Evolution of Herbicide Resistance in Weeds 95

## Section II

### ADAPTATIONS TO THE ENVIRONMENT

#### Chapter 5 Temperature Relations 100

##### Concepts 101

- 5.1 Microclimates 101  
 Altitude 101  
 Aspect 101  
 Vegetation 102  
 Color of the Ground 102  
 Presence of Boulders and Burrows 103  
 Aquatic Temperatures 103  
 Concept 5.1 Review 104  
 5.2 Temperature and Performance of Organisms 104  
 The Principle of Allocation 104  
 Temperature and Animal Performance 105  
 Investigating the Evidence 5: Laboratory Experiments 107  
 Extreme Temperatures and Photosynthesis 107  
 Temperature and Microbial Activity 108  
 Concept 5.2 Review 110  
 5.3 Regulating Body Temperature 110  
 Balancing Heat Gain Against Heat Loss 110  
 Temperature Regulation by Plants 111  
 Temperature Regulation by Ectothermic Animals 113  
 Temperature Regulation by Endothermic Animals 115  
 Temperature Regulation by Thermogenic Plants 119  
 Concept 5.3 Review 119  
 5.4 Surviving Extreme Temperatures 120  
 Inactivity 120  
 Reducing Metabolic Rate 120  
 Hibernation by a Tropical Species 121  
 Concept 5.4 Review 122  
 Applications: Climatic Warming and the Local Extinction of a Land Snail 122

#### Chapter 6 Water Relations 126

##### Concepts 127

- 6.1 Water Availability 128  
 Water Content of Air 128  
 Water Movement in Aquatic Environments 129  
 Water Movement Between Soils and Plants 130  
 Concept 6.1 Review 132

- 6.2 Water Regulation on Land 132  
 Water Acquisition by Animals 132  
 Water Acquisition by Plants 134  
 Water Conservation by Plants and Animals 136  
 Investigating the Evidence 6: Sample Size 137  
 Dissimilar Organisms with Similar Approaches to Desert Life 139  
 Two Arthropods with Opposite Approaches to Desert Life 140  
 Concept 6.2 Review 142  
 6.3 Water and Salt Balance in Aquatic Environments 142  
 Marine Fish and Invertebrates 144  
 Freshwater Fish and Invertebrates 144  
 Concept 6.3 Review 146  
 Applications: Using Stable Isotopes to Study Water Uptake by Plants 147  
 Stable Isotope Analysis 147  
 Using Stable Isotopes to Identify Plant Water Sources 147

#### Chapter 7 Energy and Nutrient Relations 150

##### Concepts 152

- 7.1 Photosynthetic Autotrophs 152  
 The Solar-Powered Biosphere 152  
 Concept 7.1 Review 156  
 7.2 Chemosynthetic Autotrophs 156  
 Concept 7.2 Review 156  
 7.3 Heterotrophs 156  
 Chemical Composition and Nutrient Requirements 157  
 Concept 7.3 Review 163  
 7.4 Energy Limitation 163  
 Photon Flux and Photosynthetic Response Curves 163  
 Food Density and Animal Functional Response 164  
 Concept 7.4 Review 166  
 7.5 Optimal Foraging Theory 166  
 Testing Optimal Foraging Theory 166  
 Optimal Foraging by Plants 167  
 Investigating the Evidence 7: Scatter Plots and the Relationship Between Variables 169  
 Concept 7.5 Review 170  
 Applications: Bioremediation—Using the Trophic Diversity of Bacteria to Solve Environmental Problems 170  
 Leaking Underground Storage Tanks 170  
 Cyanide and Nitrates in Mine Spoils 171

**Chapter 8 Social Relations 174****Concepts 176****8.1 Mate Choice 176**

Mate Choice and Sexual Selection in Guppies 177

Mate Choice Among Scorpionflies 181

Nonrandom Mating Among Wild Radish 184

*Concept 8.1 Review 186***8.2 Sociality 186**

Cooperative Breeders 186

**Investigating the Evidence 8: Estimating Heritability Using Regression Analysis 190***Concept 8.2 Review 193***8.3 Eusociality 193**

Eusocial Species 193

Evolution of Eusociality 195

*Concept 8.3 Review 197***Applications: Behavioral Ecology and Conservation 197**

Tinbergen's Framework 197

Environmental Enrichment and Development of Behavior 197

**Section III****POPULATION ECOLOGY****Chapter 9 Population Distribution and Abundance 201****Concepts 203****9.1 Distribution Limits 203**

Kangaroo Distributions and Climate 203

A Tiger Beetle of Cold Climates 204

Distributions of Plants Along a Moisture-Temperature Gradient 205

Distributions of Barnacles Along an Intertidal Exposure Gradient 206

*Concept 9.1 Review 208***9.2 Patterns on Small Scales 208**

Scale, Distributions, and Mechanisms 208

Distributions of Tropical Bee Colonies 208

Distributions of Desert Shrubs 209

*Concept 9.2 Review 211***9.3 Patterns on Large Scales 211**

Bird Populations Across North America 211

**Investigating the Evidence 9: Clumped, Random, and Regular Distributions 212**

Plant Distributions Along Moisture Gradients 214

*Concept 9.3 Review 214***9.4 Organism Size and Population Density 215**

Animal Size and Population Density 215

Plant Size and Population Density 216

*Concept 9.4 Review 217***Applications: Rarity and Vulnerability to Extinction 217**

Seven Forms of Rarity and One of Abundance 217

**Chapter 10 Population Dynamics 222****Concepts 223****10.1 Dispersal 223**

Dispersal of Expanding Populations 224

Range Changes in Response to Climate Change 225

Dispersal in Response to Changing Food Supply 225

Dispersal in Rivers and Streams 227

*Concept 10.1 Review 228***10.2 Metapopulations 228**

A Metapopulation of an Alpine Butterfly 228

Dispersal Within a Metapopulation of Lesser Kestrels 229

*Concept 10.2 Review 230***10.3 Patterns of Survival 230**

Estimating Patterns of Survival 230

High Survival Among the Young 231

Constant Rates of Survival 233

High Mortality Among the Young 233

Three Types of Survivorship Curves 234

*Concept 10.3 Review 234***10.4 Age Distribution 234**

Contrasting Tree Populations 234

A Dynamic Population in a Variable Climate 235

*Concept 10.4 Review 236***10.5 Rates of Population Change 236**

Estimating Rates for an Annual Plant 236

Estimating Rates When Generations Overlap 238

*Concept 10.5 Review 239***Investigating the Evidence 10: Hypotheses and Statistical Significance 240****Applications: Using Population Dynamics to Assess the Impact of Pollutants 240****Chapter 11 Population Growth 245****Concepts 246****11.1 Geometric and Exponential Population Growth 246**

Geometric Growth 246

Exponential Growth 247

Exponential Growth in Nature 248

*Concept 11.1 Review 249***11.2 Logistic Population Growth 250***Concept 11.2 Review 252***11.3 Limits to Population Growth 252**

Environment and Birth and Death Among Galápagos Finches 253

**Investigating the Evidence 11: Frequency of Alternative Phenotypes in a Population 254***Concept 11.3 Review 256*

**Applications: The Human Population 257**

Distribution and Abundance 257

Population Dynamics 258

Population Growth 259

**Chapter 12 Life Histories 263****Concepts 264****12.1 Offspring Number Versus Size 264**

Egg Size and Number in Fish 265

Seed Size and Number in Plants 266

Seed Size and Seedling Performance 268

*Concept 12.1 Review 270***12.2 Adult Survival and Reproductive Allocation 271**

Life History Variation Among Species 271

Life History Variation Within Species 272

*Concept 12.2 Review 275***12.3 Life History Classification 275***r* and *K* Selection 275**Investigating the Evidence 12: A Statistical Test for Distribution Pattern 276**

Plant Life Histories 276

Opportunistic, Equilibrium, and Periodic Life Histories 279

Reproductive Effort, Offspring Size, and Benefit-Cost Ratios 280

*Concept 12.3 Review 282***Applications: Using Life History Information to Restore Riparian Forests 282****Section IV INTERACTIONS****Chapter 13 Competition 287****Concepts 289****13.1 Intraspecific Competition 289**

Intraspecific Competition Among Plants 289

Intraspecific Competition Among Planthoppers 290

Interference Competition Among Terrestrial Isopods 291

*Concept 13.1 Review 291***13.2 Competitive Exclusion and Niches 291**

The Feeding Niches of Galápagos Finches 292

The Habitat Niche of a Salt Marsh Grass 292

*Concept 13.2 Review 294***13.3 Mathematical and Laboratory Models 294**

Modeling Interspecific Competition 294

Laboratory Models of Competition 296

*Concept 13.3 Review 297***13.4 Competition and Niches 297**

Niches and Competition Among Plants 298

Niche Overlap and Competition Between Barnacles 298

Competition and the Habitat of a Salt Marsh Grass 299

Competition and the Niches of Small Rodents 300

Character Displacement 301

**Investigating the Evidence 13: Field Experiments 304**

Evidence for Competition in Nature 305

*Concept 13.4 Review 305***Applications: Competition Between Native and Invasive Species 305****Chapter 14 Exploitative Interactions: Predation, Herbivory, Parasitism, and Disease 309****Concepts 310****14.1 Complex Interactions 310**

Parasites and Pathogens That Manipulate Host Behavior 310

The Entangling of Exploitation with Competition 312

*Concept 14.1 Review 314***14.2 Exploitation and Abundance 314**

A Herbivorous Stream Insect and Its Algal Food 314

An Introduced Cactus and a Herbivorous Moth 315

A Pathogenic Parasite, a Predator, and Its Prey 318

*Concept 14.2 Review 318***14.3 Dynamics 319**

Cycles of Abundance in Snowshoe Hares and Their Predators 319

**Investigating the Evidence 14: Standard Error of the Mean 320**

Experimental Test of Food and Predation Impacts 322

Population Cycles in Mathematical and Laboratory Models 323

*Concept 14.3 Review 326***14.4 Refuges 326**

Refuges and Host Persistence in Laboratory and Mathematical Models 326

Exploited Organisms and Their Wide Variety of "Refuges" 327

*Concept 14.4 Review 331***Applications: Using Predators to Control a Parasite 332****Chapter 15 Mutualism 336****Concepts 337****15.1 Plant Mutualisms 337**

Plant Performance and Mycorrhizal Fungi 338

Ants and Swollen Thorn Acacias 341

A Temperate Plant Protection Mutualism 345

*Concept 15.1 Review 347***15.2 Coral Mutualisms 347**

Zooxanthellae and Corals 347

A Coral Protection Mutualism 348

*Concept 15.2 Review 349***15.3 Evolution of Mutualism 349****Investigating the Evidence 15: Confidence Intervals 350**

Facultative Ant-Plant Protection Mutualisms 352

*Concept 15.3 Review* 353

**Applications: Mutualism and Humans** 353

Guiding Behavior 353

## Section V COMMUNITIES AND ECOSYSTEMS

### Chapter 16 Species Abundance and Diversity 358

**Concepts** 359

#### 16.1 Species Abundance 360

The Lognormal Distribution 360

*Concept 16.1 Review* 361

#### 16.2 Species Diversity 361

A Quantitative Index of Species Diversity 361

Rank-Abundance Curves 362

*Concept 16.2 Review* 363

**Investigating the Evidence 16: Estimating the Number of Species in Communities** 364

#### 16.3 Environmental Complexity 365

Forest Complexity and Bird Species Diversity 365

Niches, Heterogeneity, and the Diversity of Algae and Plants 366

The Niches of Algae and Terrestrial Plants 366

Complexity in Plant Environments 367

Soil and Topographic Heterogeneity and the Diversity of Tropical Forest Trees 367

Algal and Plant Species Diversity and Increased Nutrient Availability 369

Nitrogen Enrichment and Ectomycorrhizal Fungus Diversity 369

*Concept 16.3 Review* 370

#### 16.4 Disturbance and Diversity 370

The Nature of Equilibrium 370

The Nature and Sources of Disturbance 370

The Intermediate Disturbance Hypothesis 370

Disturbance and Diversity in the Intertidal Zone 371

Disturbance and Diversity in Temperate Grasslands 372

*Concept 16.4 Review* 373

**Applications: Disturbance by Humans** 373

Disturbance by Humans and the Diversity of Chalk Grasslands 374

### Chapter 17 Species Interactions and Community Structure 378

**Concepts** 380

#### 17.1 Community Webs 380

Detailed Food Webs Reveal Great Complexity 380

Strong Interactions and Food Web Structure 380

*Concept 17.1 Review* 382

#### 17.2 Indirect Interactions 382

Indirect Commensalism 382

Apparent Competition 383

*Concept 17.2 Review* 383

#### 17.3 Keystone Species 383

Food Web Structure and Species Diversity 383

Experimental Removal of Sea Stars 385

Snail Effects on Algal Diversity 387

Fish as Keystone Species in River Food Webs 389

**Investigating the Evidence 17: Using Confidence Intervals to Compare Populations** 391

*Concept 17.3 Review* 393

#### 17.4 Mutualistic Keystones 393

A Cleaner Fish as a Keystone Species 393

Seed Dispersal Mutualists as Keystone Species 393

*Concept 17.4 Review* 394

**Applications: Human Modification of Food Webs** 394

The Empty Forest: Hunters and Tropical Rain Forest Animal Communities 394

Ants and Agriculture: Keystone Predators for Pest Control 395

### Chapter 18 Primary Production and Energy Flow 399

**Concepts** 401

#### 18.1 Patterns of Terrestrial Primary Production 401

Actual Evapotranspiration and Terrestrial Primary Production 401

Soil Fertility and Terrestrial Primary Production 402

*Concept 18.1 Review* 403

#### 18.2 Patterns of Aquatic Primary Production 403

Patterns and Models 403

Whole Lake Experiments on Primary Production 404

Global Patterns of Marine Primary Production 404

*Concept 18.2 Review* 406

#### 18.3 Consumer Influences 406

Piscivores, Planktivores, and Lake Primary Production 406

Grazing by Large Mammals and Primary Production on the Serengeti 408

**Investigating the Evidence 18: Comparing Two Populations with the *t*-Test** 410

*Concept 18.3 Review* 411

#### 18.4 Trophic Levels 411

A Trophic Dynamic View of Ecosystems 412

Energy Flow in a Temperate Deciduous Forest 412

*Concept 18.4 Review* 414

**Applications: Using Stable Isotope Analysis to Trace Energy Flow Through Ecosystems** 414

Trophic Levels of Tropical River Fish 414

Using Stable Isotopes to Identify Sources of Energy in a Salt Marsh 415

Food Habits of Prehistoric Human Populations 415

## Chapter 19 Nutrient Cycling and Retention 419

### Concepts 420

#### 19.1 Nutrient Cycles 420

The Phosphorus Cycle 421

The Nitrogen Cycle 422

The Carbon Cycle 423

*Concept 19.1 Review* 424

#### 19.2 Rates of Decomposition 424

Decomposition in Two Mediterranean Woodland Ecosystems 424

Decomposition in Two Temperate Forest Ecosystems 425

Decomposition in Aquatic Ecosystems 427

**Investigating the Evidence 19: Assumptions for Statistical Tests** 428

*Concept 19.2 Review* 429

#### 19.3 Organisms and Nutrients 429

Nutrient Cycling in Streams 429

Animals and Nutrient Cycling in Terrestrial Ecosystems 431

Plants and the Nutrient Dynamics of Ecosystems 432

*Concept 19.3 Review* 434

#### 19.4 Disturbance and Nutrients 434

Disturbance and Nutrient Loss from the Hubbard Brook Experimental Forest 434

Flooding and Nutrient Export by Streams 435

*Concept 19.4 Review* 437

**Applications: Altering Aquatic and Terrestrial Ecosystems** 437

## Chapter 20 Succession and Stability 441

### Concepts 443

#### 20.1 Community Changes During Succession 443

Primary Succession at Glacier Bay 443

Secondary Succession in Temperate Forests 444

Succession in Rocky Intertidal Communities 445

Succession in Stream Communities 445

*Concept 20.1 Review* 447

#### 20.2 Ecosystem Changes During Succession 447

Ecosystem Changes at Glacier Bay 447

Four Million Years of Ecosystem Change 447

Recovery of Nutrient Retention Following Disturbance 449

Succession and Stream Ecosystem Properties 451

*Concept 20.2 Review* 452

#### 20.3 Mechanisms of Succession 452

Successional Mechanisms in the Rocky Intertidal Zone 454

Successional Mechanisms in Forests 455

*Concept 20.3 Review* 456

#### 20.4 Community and Ecosystem Stability 456

Some Definitions 456

Lessons from the Park Grass Experiment 457

Replicate Disturbances and Desert Stream Stability 458

**Investigating the Evidence 20: Variation Around the Median** 460

*Concept 20.4 Review* 460

**Applications: Using Repeat Photography to Detect Long-Term Change** 460

## Section VI LARGE-SCALE ECOLOGY

## Chapter 21 Landscape Ecology 466

### Concepts 468

#### 21.1 Landscape Structure 468

The Structure of Six Landscapes in Ohio 468

The Fractal Geometry of Landscapes 470

*Concept 21.1 Review* 471

#### 21.2 Landscape Processes 471

Landscape Structure and the Dispersal of Mammals 472

Habitat Patch Size and Isolation and the Density of Butterfly Populations 473

Habitat Corridors and Movement of Organisms 474

Landscape Position and Lake Chemistry 475

**Investigating the Evidence 21: Comparison of Two Samples Using a Rank Sum Test** 476

*Concept 21.2 Review* 477

#### 21.3 Origins of Landscape Structure and Change 477

Geological Processes, Climate, and Landscape Structure 477

Organisms and Landscape Structure 480

Fire and the Structure of a Mediterranean Landscape 484

*Concept 21.3 Review* 484

**Applications: Restoring a Riverine Landscape** 485

Riverine Restoration: The Kissimmee River 486

## Chapter 22 Geographic Ecology 491

### Concepts 493

#### 22.1 Area, Isolation, and Species Richness 493

Sampling Area and Number of Species 493

Island Area and Species Richness 493

Island Isolation and Species Richness 495

*Concept 22.1 Review* 496

#### 22.2 The Equilibrium Model of Island Biogeography 496

Species Turnover on Islands 497

Experimental Island Biogeography 498

Colonization of New Islands by Plants 499

Manipulating Island Area 500

Island Biogeography Update	501
Concept 22.2 Review	501
<b>22.3 Latitudinal Gradients in Species Richness</b>	<b>501</b>
Area and Latitudinal Gradients in Species Richness	503
Continental Area and Species Richness	504
Concept 22.3 Review	505
<b>22.4 Historical and Regional Influences</b>	<b>505</b>
Exceptional Patterns of Diversity	505
Investigating the Evidence 22: Sample Size Revisited	506
Historical and Regional Explanations	506
Concept 22.4 Review	508
Applications: Global Positioning Systems, Remote Sensing, and Geographic Information Systems	508
Global Positioning Systems	509
Remote Sensing	509
Geographic Information Systems	511
<b>Chapter 23 Global Ecology</b>	<b>514</b>
The Atmospheric Envelope and the Greenhouse Earth	515
Concepts	516
<b>23.1 A Global System</b>	<b>516</b>
The Historical Thread	517
El Niño and La Niña	518
El Niño and Marine Populations	519
El Niño and the Great Salt Lake	521
El Niño and Terrestrial Populations in Australia	522
Concept 23.1 Review	523
<b>23.2 Human Activity and the Global Nitrogen Cycle</b>	<b>523</b>
Concept 23.2 Review	524
<b>23.3 Changes in Land Cover</b>	<b>524</b>
Tropical Deforestation	524
Investigating the Evidence 23: Discovering What's Been Discovered	528
Concept 23.3 Review	528
<b>23.4 Human Influence on Atmospheric Composition</b>	<b>529</b>
Depletion and Recovery of the Ozone Layer	532
The Future	532
Concept 23.4 Review	533
Applications: Cooperative Research Networks for Global Ecology	533
Appendix Statistical Tables	537
Glossary	541
References	551
Credits	562
Index	563