
Contents

Preface ix

Outline of the Contents xiii

Contributors xxi

SECTION ONE Experimental Methods in Ecology 1

Chapter 1 Overview: Laboratory Experiments, Field Experiments, and Natural Experiments 3
Jared Diamond

Chapter 2 The Assembly of a Laboratory Community: Multispecies Competition in *Drosophila* 23
Michael E. Gilpin, M. Patricia Carpenter, and Mark J. Pomerantz

Chapter 3 Experimental Community Ecology: The Desert Granivore System 41
James H. Brown, Diane W. Davidson, James C. Munger, and Richard S. Inouye

SECTION TWO Species Introductions and Extinctions 63

Chapter 4 Overview: Introductions, Extinctions, Exterminations, and Invasions 65
Jared Diamond and Ted J. Case

- Chapter 5** The Extent of Competition in Shaping an Introduced Avifauna 80
Michael P. Moulton and Stuart L. Pimm
- Chapter 6** Evolution of Ecological Segregation in the New Guinea Montane Avifauna 98
Jared Diamond
- Chapter 7** Patterns of Change in Plant Communities Through Geological Times 126
Andrew H. Knoll

SECTION THREE Space and Time 143

- Chapter 8** Overview: The Importance of Spatial and Temporal Scale in Ecological Investigations 145
John A. Wiens, John F. Addicott, Ted J. Case, and Jared Diamond
- Chapter 9** Spatial Scale and Temporal Variation in Studies of Shrubsteppe Birds 154
John A. Wiens
- Chapter 10** Interspecific Competition in Fluctuating Environments 173
P. R. Grant
- Chapter 11** Patchiness, Dispersal, and Species Interactions: Consequences for Communities of Herbivorous Insects 192
Peter Kareiva
- Chapter 12** Problems Posed by Sparse and Patchily Distributed Species in Species-Rich Plant Communities 207
Peter J. Grubb

SECTION FOUR Equilibrium and Nonequilibrium Communities 227

- Chapter 13** Overview: Nonequilibrium Community Theories: Chance, Variability, History, and Coexistence 229
Peter L. Chesson and Ted J. Case
- Chapter 14** Environmental Variation and the Coexistence of Species 240
Peter L. Chesson
- Chapter 15** Density Vagueness: Abiding the Variance in the Demography of Real Populations 257
Donald R. Strong
- Chapter 16** Climatic Instability, Time Lags, and Community Disequilibrium 269
Margaret Bryan Davis

- Chapter 17** Climatic Cadences and the Composition of Chihuahuan Desert Communities: The Late Pleistocene Packrat Midden Record 285
Thomas R. Van Devender
- Chapter 18** Response of Mammalian Communities to Environmental Changes During the Late Quaternary 300
Russell W. Graham
- Chapter 19** Biology, Chance, and History and the Structure of Tropical Rain Forest Tree Communities 314
Stephen P. Hubbell and Robin B. Foster

SECTION FIVE Forces Structuring Communities 331

- Chapter 20** Overview: The Role of Species Interactions in Community Ecology 333
Jonathan Roughgarden and Jared Diamond
- Chapter 21** Species Interactions in Freshwater Fish Communities 344
Earl E. Werner
- Chapter 22** Evolution and Differentiation in Terrestrial Plant Communities: The Importance of the Soil Resource : Light Gradient 359
David Tilman
- Chapter 23** Structural Niches in Plant Communities 381
Martin L. Cody
- Chapter 24** Community Biology and Sexual Selection: Lessons from Hummingbird Flower Mites 406
Robert K. Colwell
- Chapter 25** On the Population Consequences of Mutualism 425
John F. Addicott
- Chapter 26** Adaptive Indirect Effects 437
David Sloan Wilson
- Chapter 27** Communities of Species with Parasitic Life-styles 445
Catherine A. Toft

SECTION SIX Kinds of Communities 465

- Chapter 28** Overview: Kinds of Ecological Communities—Ecology Becomes Pluralistic 467
Thomas W. Schoener

- Chapter 29** Competition, Mortality, and Community Structure 480
Peter Yodzis
- Chapter 30** A Comparison of Food-Limited and Space-Limited Animal Competition
Communities 492
Jonathan Roughgarden
- Chapter 31** Competition and Community Organization on Hard Surfaces in the Sea 517
Leo W. Buss
- Chapter 32** Relative Importance of Competition and Predation: Early Colonization by
Seaweeds in New England 537
Jane Lubchenco
- Chapter 33** Patterns in Terrestrial Vertebrate Versus Arthropod Communities: Do Systematic
Differences in Regularity Exist? 556
Thomas W. Schoener
- References 587
- Index 649