

11 Selection versus Drift 383

Speciation by Selection 383

Natural selection 385

Sexual selection 386

Mathematical theories of selection-based speciation 387

Speciation by Drift 387

Peak shift models 388

Theoretical Criticisms 394

Recent Peak Shift Models 396

The Data 398

Evidence from the laboratory 398

Evidence from nature 401

Conclusions 410

12 Speciation and Macroevolution 411

Rates of Speciation 411

What is a speciation rate? 412

Theory and speciation rates 413

Calculating speciation intervals 416

Extreme rates of speciation 425

What is the effect of biogeography? 427

Conclusions 428

Factors Affecting Speciation Rates 429

Tests for the effects of key factors 431

Distinguishing speciation from extinction 435

The data 436

Conclusions 441

Species Selection 442

Appendix: A Catalogue and Critique of Species Concepts 447

Genotypic Cluster Species Concept 447

Recognition Species Concept 451

Cohesion Species Concept 452

Evolutionary Species Concept 456

Ecological Species Concept 457

Phylogenetic Species Concepts 459

References 473

Author Index 523

Subject Index 533