

Contents

Introduction	1
 Chapter 1	
Internal Factors	5
 A. Hunger: Expression through Overt Behavior . .	5
I. Predatory Schedules	7
1. Patterns of Satiation	7
2. Feast and Famine	10
II. Hunger and Diel Rhythms	11
III. The Ramification of Hunger Effects . .	12
1. Capture-eliciting Prey Stimuli	12
2. Search Behavior	13
IV. The Motivation Underlying Feeding Responses	14
1. Hunger Thresholds of Feeding Response Components	14
2. The Complexity of Predatory Motivation	18
V. The Diversity of Foraging Tactics . . .	20
VI. Feeding Components Affected and not Affected by Hunger	20
 B. The Control of Feeding Responses by Factors Other than Hunger	21
I. The Readiness to Hunt	21
II. Prey Storing	22
III. Providing Food for Dependent Family Members.	25
 C. The Problem of Specific Hungers	28
I. Switching of Prey	29
II. The Prey-density Predation Curve . . .	32
III. Swamping the Appetite of Predators . .	33
 D. Daily and Annual Rhythms in Predator-Prey Interactions.	34
I. Daily Rhythm of Predation	35
II. Daily Activity Patterns of the Prey . . .	38
III. Annual Rhythm of Predation	41

Chapter 2

Searching for Prey	42
A. Path of Searching and Scanning Movements . .	42
B. Area-concentrated Search	46
I. Short-term Area Concentration	46
1. Living Scattered and Area-concentrated Search	46
2. The Nature of the Path Changes . .	49
3. Search Behavior after the Disappearance of Prey	54
II. Long-term Area Concentration	55
III. One-prey : One-place Association . . .	57
C. Object-concentrated Search	58
I. Existence and Properties of "Searching Image"	58
1. Ecological Evidence	58
2. Experimental Evidence	61
II. Social Facilitation of Searching Image Formation	67
III. Searching Image and "Training Bias" . .	68
IV. Searching Image and Profitability of Hunting	70
1. Ecological Evidence for Profitability of Hunting	70
2. Experimental Evidence for Profitability of Hunting	77
V. Prey-specific Expectation	80
VI. Ecological Implications of Searching Image	81

Chapter 3

Prey Recognition	85
A. The Stimulus-specificity of Prey Capture . . .	85
I. Capture-eliciting Prey Stimuli	85
II. Capture-inhibiting Prey Stimuli	93
B. One-prey : One-response Relationships	95
C. The Assessment of the Circumstances of a Hunt	96
D. Prey Recognition by Prey-related Signals . . .	97
E. Prey Stimulus Summation	100
F. Novelty Versus Familiarity	103
I. The Rejection of Novel Prey	103
II. Familiarization with Prey and Its Consequences.	106
G. The Multi-channel Hypothesis of Prey Recognition	109

Chapter 4	
Prey Selection	113
A. Preying upon the Weak and the Sick	113
B. Preying upon the Odd and the Conspicuous . . .	117
C. The Mechanics of Prey Selection	128
D. Evolutionary Implications	130
 Chapter 5	
Hunting for Prey	132
A. Modes of Hunting	132
I. Hunting by Speculation	132
II. Stalking and Ambushing	136
1. Stalking	136
2. Ambushing	138
III. Prey Attack under Disguise	140
IV. Pursuit of the Prey	144
1. Changes of Velocity of Attack (Pursuit).	144
2. Interception of the Flight Path	148
3. Counteradaptations of the Prey	152
V. Exhausting Dangerous Prey	156
VI. Insinuation	158
VII. Scavenging and Cleptoparasitism	159
1. Modes and Extent	159
2. Cleptoparasitism and Competition	161
3. Counter-measures of the Robbed	163
VIII. Tool-use	164
IX. Mutilation	166
B. The Diversity of Hunting Methods	169
I. Prey-specific Methods	169
II. Situation-specific Methods	177
III. Mechanisms and Causes of Predatory Versatility	180
1. General	180
2. Individual Predatory Repertoires	181
3. The Persistence of Individual Traits	185
4. Predatory Specialization and Structural Modification	188
5. Predatory Versatility in Relation to Prey Availability	191
C. Behavioral Aspects of Hunting Success	193
I. A Comparison of Hunting Success across Predator Species	193
II. Variables Influencing Hunting Success within Predator Species	196

III. Aspects of Communal Hunting	199
1. Modes and Properties of Communal Hunting	199
2. Factors Conducive to Communal Hunting	203
3. Benefits of Communal Hunting	204
References	211
Subject Index	237
Scientific Names of Animals and Plants	243