

Cambridge University Press 978-0-521-29906-0 - Biology of Behaviour: Mechanisms, Functions and Applications Donald M. Broom Table of Contents More information

Contents

	The behaviour of farm animals and pests	vii
	Preface	ix
1	Introduction	1
	Questions about behaviour	1
	General themes	3
	Optimality and fitness	8
	Behavioural diversity and reproductive	
	strategies	12
	The universality of environmental	
	effects on behaviour	13
	Behaviour development	17
	Rhythms of activity	21
	Economic and social aspects of	
	behaviour study	21
2	Sensory function: behavioural and	
	physiological evidence	23
	Principles of receptor function	23
	Behavioural studies and sensory	
	function	31
	Behavioural evidence for sensory	
	analysers	33
	Visual pattern recognition: the toad as	
	an example	42
	Visual pattern recognition mechanisms	
	in mammals	48
	Effects of experience on visual analysis	53
	Centrifugal effects on sensory function	55
3	The control of movement	56
	How do mice groom?	56
	Other grooming and preening studies	59
	General ideas about action patterns	62
	Escape swimming by Tritonia	64

	Sound production by crickets	67
	Other examples of action patterns	71
	Sensory-motor co-ordination	75
4	The allocation of resources	79
	Assessing biological priorities	80
	Causal factor space	82
	Motivation terminology	85
	The assessment of motivational state	89
	Describing behaviour sequences	91
	Mechanisms for switching from one	
	behaviour to another	92
	Stereotypies	98
	The control of rhythms	100
5	Body regulation, maintenance and	
	hazard avoidance behaviour	103
	Obtaining oxygen	103
	Regulating body-water levels	104
	Thermoregulation	108
	Body surface maintenance	113
	Resting and sleeping	115
	Avoiding physical and chemical hazards	117
	Overload, pain and stress	120
6	Feeding	124
	Decisions, diets and the optimality	
	approach	124
	Finding food	128
	Eating: energy, nutrients and dangers	138
	The control of food intake	143
	Feeding by hummingbirds	147
	Grazing by cattle	150
7	Anti-predator behaviour	157
	Defensive mechanisms and their	
	evolution	157
	Defence behaviour before predator	
	detection	158
	Defence behaviour after predator	
	detection	162
	Exploration and fear responses	168
8	Functions of social behaviour and	
	dispersal	176
	Modifying the local environment	178
	Food finding and acquisition	179
	Avoiding capture by predators	183
	Improving mate-finding and breeding	
	success	188
	The evolution of social behaviour	191



Cambridge University Press 978-0-521-29906-0 - Biology of Behaviour: Mechanisms, Functions and Applications Donald M. Broom Table of Contents More information

Contents

	Territories and home ranges	195
	Migration and other types of dispersal	201
9	Reproductive behaviour, including	
	parent-offspring interactions	202
	Sexual reproduction and mating systems	202
	Behaviour leading to mating	205
	The control of courtship and mating	217
	Parent-offspring interactions	222
	Promoting reproductive success in farm	
	animals	233
	Restricting reproduction in pests	237
10	The organisation of social groups	239
	The description of social groups	239
	The size and composition of social	
	groups	242
	Leaders, initiators and controllers	248
	Competition within social groups	249
	The development of social skills	256
	The effects of crowding	258
	The significance of social organisation	
	studies for animal husbandry	259
	References	263
	Author Index	305
	Subject Index	311