1

2

3

Cambridge University Press & Assessment 978-1-108-47506-8 — Zoo Studies Paul A. Rees Table of Contents <u>More Information</u>

## **Contents**

Prefe	ace	<i>page</i> xiii
Ackn	owledgements	xiv
List o	of Abbreviations	xvi
Zoos	and Research	1
1.1	Introduction	1
1.2	The Advent of Dedicated Journals for Zoo Research	1
1.3	What Do Zoo Researchers Research?	5
1.4	The Rise of Research as a Core Activity of Zoos	8
1.5	The Grey Literature	10
1.6	Zoo Research Is Not Just About Animals	10
1.7	Conclusion	11
Defin	ing Zoos, Their Culture and Visitors	12
2.1	Introduction: What Is a Living Collection?	12
2.2	What Are Zoos For?	13
2.3	Mission Statements	15
2.4	Who Goes to the Zoo, and Why?	16
2.5	How Often Do Visitors Visit?	18
2.6	Visitor Preferences: Which Species Do Visitors Want to See?	19
2.7	The Psychological Benefits of Zoo Visits	23
2.8	Zoos, Culture and Social Identity	24
2.9	Animal Personalities and Cultural Heritage	28
2.10	Zoo Landscapes and Culture	33
2.11	When Do Visitors Go to the Zoo?	38
2.12	Zoo Economics	39
2.13	Conclusion	42
Zoos	and Education	43
3.1	Introduction	43
3.2	Historical Perspective	44
3.3	Mission Statements and Education	45
3.4	Do Zoo Visitors Want to be Educated?	46
3.5	Does Participation Data Tell Us if Education Takes Place?	47

Cambridge University Press & Assessment 978-1-108-47506-8 — Zoo Studies Paul A. Rees Table of Contents <u>More Information</u>

viii	Cont	ents	
	2.6		4.6
	3.6	Educational Visits and Biological Education	48
	3.7		49
		Zoos Are 'Certain' That They Have an Educational Value	52
		Testing the Value of the Educational Impacts Claimed by Zoos Educational Outreach Work	52 60
		Interpretation and Conservation Messages	61
		Accessibility	64
		Animal Shows, Tricks and Fundraising	65
		Zoos and Higher Education	66
		Zoos, Technology and Education	67
		Are Zoos Educationally Redundant?	69
		Conclusion	70
4	Anth	rozoology and Visitor Behaviour	71
	4.1	Introduction	71
	4.2	The Effect of Visitors on the Behaviour of Zoo Animals	71
	4.3	Keeper-Animal Relationships	77
	4.4	Keeper Education and Motivation	79
	4.5	Using Caregivers and Visitors to Collect Data	81
	4.6	Health and Safety: Accidents and Incidents	82
	4.7	Accidents and Illnesses among Zookeepers, Veterinarians and Other Zoo Staff	85
	4.8	Visitor Behaviour: Dwell Time, Orientation and Circulation	88
	4.9	Conclusion	96
5	Zoo	Organisation and Regulation	97
	5.1	Introduction	97
	5.2		97
		Zoo Registrars and Animal Assets	98
	5.4	Zoo Legislation	103
	5.5		110
	5.6	The Animal Protection Index	112
	5.7	Private Animal Collections: The Consequences of Poor Regulation	113
	5.8	Legal Cases	116
	5.9	Conclusion	118
6		s, Zoos and Public Attitudes	120
	6.1	Introduction	120
	6.2	Zoos and Ethics	120
	6.3	Public Attitudes	126
	6.4	Sentience and Animal Dignity	133
	6.5	Are Elephant, Ape and Cetacean Exhibits the New 'Human Zoos'?	137
	6.6	Conclusion	139

Cambridge University Press & Assessment 978-1-108-47506-8 — Zoo Studies Paul A. Rees Table of Contents <u>More Information</u>

		Contents	i)
7	The Contribution of Zoos to Zoology		140
	7.1 Introduction		140
	7.2 Zooarchaeology		140
	7.3 Zoos as Sources of Biological Knowledge	ge	142
	7.4 Cognition		151
	7.5 Behaviour Methods		156
	7.6 The Integration of Zoo Exhibits and Res	search Facilities	157
	7.7 Developing and Testing Technology for	Field Studies	160
	7.8 Conclusion		162
8	Animals and Their Enclosures		163
	8.1 Introduction		163
	8.2 Enclosure Design		163
	8.3 Animal Escapes		169
	8.4 How Large Should an Enclosure Be?		169
	8.5 Usable Space		170
	8.6 Enclosure Shape		173
	8.7 The Effect of Expanding an Enclosure of	n Behaviour	174
	8.8 Rotational Exhibits		174
	8.9 Enclosure Use		175
	8.10 Multi-species Exhibits		188
	8.11 Substratum and Welfare		189
	8.12 Shade, Temperature and Air Quality		190
	8.13 Visibility and Visitor Effects		193
	8.14 Using Signage to Control Visitor Behav	iour	196
	8.15 Conclusion		197
9	Animal Welfare		198
	9.1 Introduction		198
	9.2 Historical Perspectives		198
	9.3 What Is Welfare?		201
	9.4 How May Welfare Be Measured?		201
	9.5 The Opportunity to Exhibit Most Norma	al Behaviour	205
	9.6 Effects of Social Structure on Welfare		207
	9.7 Stress and Reproduction		208
	9.8 Maternal Deprivation		208
	9.9 Personality and Welfare		209
	9.10 Condition Scoring		210
	9.11 Abnormal Behaviours		212
	9.12 Intraspecific Aggression		218
	9.13 Noise and Welfare		219
	9.14 Transportation and Welfare		224
	9.15 Stress Caused by Handling and Capture	Myopathy	229

CAMBRIDGE

Cambridge University Press & Assessment 978-1-108-47506-8 — Zoo Studies Paul A. Rees Table of Contents <u>More Information</u>

Х	Contents	
	9.16 Invertebrate Welfare	230
	9.17 Conclusion	230
10	Enrichment and Training	232
	10.1 Introduction	232
	10.2 What Is Enrichment?	232
	10.3 Historical Perspectives	233
	10.4 Is Enrichment a Scientific Concept?	234
	10.5 Can Simple Objects Provide Enrichment?	235
	10.6 Enrichment and Welfare	236
	10.7 Social Interactions as Enrichment	237
	10.8 Food Selection, Preference and Presentation	240
	10.9 Cognitive Enrichment	246
	10.10 Television, Computers and Motion Illusions	248
	10.11 Music and Auditory Stimulation	249
	10.12 Enrichment and Personality	250
	10.13 Enrichment and Invertebrates	250
	10.14 Sometimes Enrichment Does Not Work or Goes Wrong	252
	10.15 Why Are Enrichment Practices Difficult to Implement?	252
	10.16 Training	253
	10.17 Conclusion	261
11	Conservation Breeding, Reproduction and Genetics	262
	11.1 Introduction	262
	11.2 Cooperative Breeding Programmes	263
	11.3 Population Biology of Zoo Animals	265
	11.4 Assisted Reproductive Technologies	275
	11.5 Population Management	282
	11.6 Do We Always Need an <i>Ex-Situ</i> Breeding Programme?	290
	11.7 De-extinction: The Resurrection of Lost Species	291
	11.8 Zoos and Plant Conservation	292
	11.9 Conclusion	293
12	Restoration, Rehabilitation and In-Situ Conservation	294
	12.1 Introduction	294
	12.2 Reintroduction	294
	12.3 In-Situ Conservation	318
	12.4 Conclusion	328
13	Animal Nutrition and Conservation Medicine	329
	13.1 Introduction	329
	13.2 One Health	329
	13.3 Nutrition and Health	330
	13.4 Applied Epidemiology and Disease Surveillance	337
		207

CAMBRIDGE

Cambridge University Press & Assessment 978-1-108-47506-8 — Zoo Studies Paul A. Rees Table of Contents <u>More Information</u>

		<b>Contents</b> xi
	13.5 Quarantine	338
	13.6 Anaesthesia	340
	13.7 In-Situ Wildlife Disease Management	341
	13.8 Infectious and Zoonotic Diseases	342
	13.9 Animal Injuries	345
	13.10 Gait Analysis	345
	13.11 Causes of Death and Post-Mortem Records	346
	13.12 Morphological Effects of Captivity	349
	13.13 Skeletal and Dental Problems	350
	13.14 Diagnostic Predictors	352
	13.15 Veterinary Care of Invertebrates	353
	13.16 Conclusion	354
14	The Past and Future of Zoos	356
	14.1 Introduction	356
	14.2 The Politically Correct Zoo?	357
	14.3 The Compassionate Zoo	359
	14.4 The Technological Zoo	360
	14.5 The Financially Secure Zoo	361
	14.6 The COVID-Secure Zoo	361
	14.7 The Homogenised Zoo	362
	14.8 Conclusion	365
	Bibliography	366
	References	369
	Subject Index	441
	Animal Species Index	452

Colour plates can be found between pages 238 and 239.