

# **Animal Welfare**

**ISSN 0962-7286**

**Volume 3 1994**

## **INDEX**

Universities Federation for Animal Welfare  
8 Hamilton Close, South Mimms, Potters Bar, Herts EN6 3QD, UK  
Tel: 0707 658202 Fax: 0707 649279



## LIST OF ARTICLES

Volume 3 Number 1	February 1994
<b>Efficacy of mole scarers.</b> <i>M Gorman and A Lamb</i>	3
<b>Foraging device for chimpanzees.</b> <i>S P Lambeth and M A Bloomsmith</i>	13
<b>Enrichment and veterinary treatment.</b> <i>S J Schapiro and D Bushong</i>	25
<b>Effect of housing on dairy cows.</b> <i>C J C Phillips and S A Schofield</i>	37
<b>Scaling of stimuli in preference tests.</b> <i>I R Inglis</i>	45
Volume 3 Number 2	May 1994
<b>How matters of mind inform matters of welfare.</b> <i>M Bekoff</i>	75
<b>Spatial behaviour of sows.</b> <i>N Walker and D J Kilpatrick</i>	97
<b>Models for ethical evaluation compared.</b> <i>Tj de Cock Buning and E Theune</i>	107
<b>Induction of mouth movements in cattle.</b> <i>H B Simonsen</i>	129
<b>Training of rhesus macaques.</b> <i>L Luttrell, L Acker, M Urben and V Reinhardt</i>	135
Volume 3 Number 3	August 1994
<b>Rehabilitation of juvenile hedgehogs.</b> <i>P A Morris and H Warwick</i>	163
<b>Behaviour of broiler chickens.</b> <i>C A Weeks, C J Nicol, C M Sherwin and S C Kestin</i>	179
<b>Body rocking in chimpanzees.</b> <i>R P Spijkerman, H Dienske, J A R A M van Hooff and W Jens</i>	193
<b>Individual variation in response to stressors.</b> <i>X Manteca and J M Deag</i>	213
<b>Effects of poaching on badgers.</b> <i>H I Griffiths</i>	219
<b>Portable handling facilities for farmed red deer.</b> <i>W J Hamilton</i>	227
Volume 3 Number 4	November 1994
<b>Welfare of free-living wild animals.</b> <i>J K Kirkwood, A W Sainsbury and P M Bennett</i>	257
<b>Swimming as enrichment for rhesus macaques.</b> <i>J R Anderson, A Rortais and S Guillemain</i>	275
<b>Behaviour and killing times of pilot whales.</b> <i>D Bowles and J Lonsdale</i>	285
<b>Tail-biting in mink.</b> <i>G J Mason</i>	305
<b>Nest choice by caged laying hens.</b> <i>C M Sherwin and C J Nicol</i>	313
<b>Ameliorating laboratory conditions for pigeons.</b> <i>L Huber</i>	321
 <i>Animal Welfare 1994, 3: 341-355</i>	 343



## AUTHOR AND SUBJECT INDEX

### A

**Acker L**, *see* Luttrell L

Alternatives, *see* replacement, reduction and refinement

**Amelioration of laboratory conditions for pigeons (*Columba livia*) (T)** . . . . . 321

**Analysis of behaviour and killing times recorded during a pilot whale hunt** . . . 285

**Anderson J R, Rortais A and Guillemin S** Diving and underwater

swimming as enrichment activities for captive rhesus macaques (*Macaca mulatta*) 275

**Animal rights**

- animal rights: issues for the nineties (R) . . . . . 54

- animal welfare information (R) . . . . . 53

- *Zoos & Animal Rights: The Ethics of Keeping Animals* (B) . . . . . 329

### B

**Badgers**

- badgers and bovine tuberculosis in the UK: a reappraisal needed (L) . . . 253,(L,340)

- badgers: sociobiology and sett protection (L) . . . . . 159

- bovine tuberculosis in badgers (R) . . . . . 325

- effects of poaching on badgers (S) . . . . . 219

- tuberculosis in cattle and badgers (L) . . . . . 340,(L,253)

**Bekoff M** Cognitive ethology and the treatment of non-human animals:

how matters of mind inform matters of welfare . . . . . 75

**Bennett P M**, *see* Kirkwood J K

**Birds**, *see also* poultry

- ameliorating laboratory conditions for pigeons (T) . . . . . 321

- *Octopus vulgaris* and *Coturnix coturnix* (R) . . . . . 51

- rearing pheasants for shoots (R) . . . . . 237

- welfare of birds of prey and owls (R) . . . . . 52

**Bloomsmith M A**, *see* Lambeth S P

**Boredom**

- *Animal Boredom: Towards an Empirical Approach of Animal Subjectivity* (B) . . . 57

**Bowles D and Lonsdale J** An analysis of behaviour and killing times

recorded during a pilot whale hunt . . . . . 285

**Bushong D**, *see* Schapiro S J

### C

**Cattle**

- badgers and bovine tuberculosis in the UK: a reappraisal needed (L) . . . 253,(L,340)

- bovine tuberculosis in badgers (R) . . . . . 325

- *Cattle Ailments: Recognition and Treatment, 6th edition* (B) . . . . . 61

KEY: (B) book review, (L) letter, (R) report and comment,

(S) short communication, (T) technical contribution,

(V) video review

345

## Index

---

- *Cattle Lameness and Hoofcare: An Illustrated Guide* (B) ..... 145
- effect of housing on dairy cows ..... 37
- induction of mouth movements in cattle ..... 129
- tuberculosis in cattle and badgers (L) ..... 340,(L,253)
- Causes of body rocking in chimpanzees (*Pan troglodytes*)** ..... 193
- Cervus elaphus*, see deer
- Cetaceans
  - behaviour and killing times of pilot whales ..... 285
  - stranded cetaceans (R) ..... 236
- Chimpanzees, see also primates
  - body rocking in chimpanzees ..... 193
  - foraging device for chimpanzees ..... 13
- Cock Buning Tj de and Theune E A comparison of three models for ethical evaluation of proposed animal experiments** ..... 107
- Cognitive ethology and the treatment of non-human animals: how matters of mind inform matters of welfare** ..... 75
- Columba livia* (pigeons), see birds
- Comparison of the behaviour of broiler chickens in indoor and free-range environments** ..... 179
- Comparison of three models for ethical evaluation of proposed animal experiments** ..... 107
- Coturnix coturnix* (quail), see birds
- Cows, see cattle
  
- D**
- Deag J M, see Manteca X
- Deer
  - portable handling facilities for farmed red deer (T) ..... 227
- Dichotomy in choice of nest characteristics by caged laying hens** ..... 313
- Dienske H, see Spijkerman R P
- Diving and underwater swimming as enrichment activities for captive rhesus macaques (*Macaca mulatta*)** ..... 275
  
- E**
- Education
  - campaigning against cruelty (R) ..... 327
  - education without exploitation (R) ..... 51
  - *NORINA: A Norwegian Inventory of Audiovisuals* (B) ..... 248
  - video dissection guides (R) ..... 327
- Effect of cubicle and straw yard housing on the behaviour, production and hoof health of dairy cows** ..... 37

<b>Effects of enrichment on veterinary treatment of laboratory rhesus macaques (<i>Macaca mulatta</i>)</b> . . . . .	25
<b>Effects upon badgers (<i>Meles meles</i>) of the activities of a single, persistent poacher (S)</b> . . . . .	219
<b>Environmental enrichment</b>	
- ameliorating laboratory conditions for pigeons (T) . . . . .	321
- enrichment and veterinary treatment . . . . .	25
- foraging device for chimpanzees . . . . .	13
- swimming as enrichment for rhesus macaques . . . . .	275
<i>Erinaceus europaeus</i> , see hedgehogs	
<b>Ethics</b>	
- <i>Animal Minds and Human Morals: The Origins of the Western Debate</i> (B) . . .	330
- <i>Animals &amp; Human Society: Changing Perspectives</i> (B) . . . . .	246
- <i>Animal Welfare and Human Values</i> (B) . . . . .	146
- <i>The Great Ape Project: Equality Beyond Humanity</i> (B) . . . . .	149
- how matters of mind inform matters of welfare . . . . .	75
- models for ethical evaluation compared . . . . .	107
- 'unnecessary' cruelty (L) . . . . .	71
- <i>Zoos &amp; Animal Rights: The Ethics of Keeping Animals</i> (B) . . . . .	329
<b>F</b>	
<b>Farm animals</b>	
- behaviour of broiler chickens . . . . .	179
- <i>Cattle Ailments: Recognition and Treatment, 6th edition</i> (B) . . . . .	61
- <i>Cattle Lameness and Hoofcare: An Illustrated Guide</i> (B) . . . . .	145
- effect of housing on dairy cows . . . . .	37
- food animal well-being (R) . . . . .	143
- <i>Fourth European Symposium on Poultry Welfare</i> (B) . . . . .	63
- individual variation in response to stressors . . . . .	213
- induction of mouth movements in cattle (S) . . . . .	129
- <i>Lamb Survival</i> (V) . . . . .	66
- <i>Livestock Handling and Transport</i> (B) . . . . .	151
- mechanical stunning of livestock (R) . . . . .	52
- nest choice by caged laying hens (S) . . . . .	313
- pig welfare (R) . . . . .	143
- portable handling facilities for farmed red deer (T) . . . . .	227
- spatial behaviour of sows . . . . .	97
- tail-biting in mink (S) . . . . .	305
- <i>Valuing Farm Animal Welfare</i> (B) . . . . .	333
- welfare of sheep (R) . . . . .	238

KEY: (B) book review, (L) letter, (R) report and comment,  
 (S) short communication, (T) technical contribution,  
 (V) video review

## Index

---

- Fish  
- *Fish: An Enthusiast's Guide* (B) ..... 60
- G**  
Genetics  
- genetic engineering (R) ..... 235  
- genetic manipulation of animals (R) ..... 141  
**Gorman M and Lamb A** An investigation into the efficacy  
of mechanical mole scarers ..... 3  
**Grass foraging device for captive chimpanzees (*Pan troglodytes*)** ..... 13  
**Griffiths H I** The effects upon badgers (*Meles meles*) of the activities  
of a single, persistent poacher ..... 219  
**Guillemein S**, see Anderson J R
- H**  
**Hamilton W J** Portable handling facilities to improve the welfare of farmed  
red deer (*Cervus elaphus*) (T) ..... 227  
Handling  
- *Livestock Handling and Transport* (B) ..... 151  
- portable handling facilities for farmed red deer (T) ..... 227  
- *Practical Animal Handling: 1 – Small Mammals* (V) ..... 334  
Hedgehogs  
- rehabilitation of juvenile hedgehogs ..... 163  
**Hooff J A R A M van**, see Spijkerman R P  
Housing  
- *Captive Invertebrates: A Guide to their Biology and Husbandry* (B) ..... 62  
- effect of housing on dairy cows ..... 37  
- refinements in rabbit husbandry (R) ..... 53  
- spatial behaviour of sows ..... 97  
**Huber L** Amelioration of laboratory conditions for pigeons (*Columba livia*) ..... 321  
Hunting  
- behaviour and killing times of pilot whales ..... 285
- I**  
**Individual variation in response to stressors in farm animals:**  
implications for experimenters ..... 213  
**Inglis I R** Testing for uni-dimensional scaling of stimuli  
used in preference experiments (S) ..... 45  
Invertebrates  
- *Captive Invertebrates: A guide to their Biology and Husbandry* (B) ..... 62  
**Investigation into the efficacy of mechanical mole scarers** ..... 3



**J**Jens W, *see* Spijkerman R P**K**Kestin S C, *see* Weeks C AKilpatrick D J, *see* Walker NKirkwood J K, Sainsbury A W and Bennett P M The welfare of  
free-living wild animals: methods of assessment ..... 257**L**

## Laboratory animals

- *Action for Animals: Animals in Research* (B) ..... 153
- the alternatives – sources of information (R) ..... 328
- ameliorating laboratory conditions for pigeons (T) ..... 321
- enrichment and veterinary treatment ..... 25
- laboratory animal welfare and science (R) ..... 326
- *Man & Mouse: Animals in Medical Research, 2nd edition* (B) ..... 154
- *Octopus vulgaris* and *Coturnix coturnix* (R) ..... 51
- perspectives on medical research (R) ..... 142
- *Principles of Laboratory Animal Science* (B) ..... 242
- *Refinement and Reduction in Animal Testing* (B) ..... 244
- refinements in rabbit husbandry (R) ..... 53
- responsibility in use of animals in medical research (R) ..... 54
- rodents and rabbits in research (R) ..... 326
- scaling of stimuli in preference tests (S) ..... 45
- vivisection controversy (R) ..... 238

Lamb A, *see* Gorman MLambeth S P and Bloomsmith M A A grass foraging device for captive  
chimpanzees (*Pan troglodytes*) ..... 13

## Legislation

- *Octopus vulgaris* and *Coturnix coturnix* (R) ..... 51
- summary of new animal welfare regulations (R) ..... 325

Livestock, *see* farm animalsLonsdale J, *see* Bowles DLuttrell L, Acker L, Urben M and Reinhardt V Training a large troop of  
rhesus macaques to co-operate during catching: analysis of the  
time investment (S) ..... 135

KEY: (B) book review, (L) letter, (R) report and comment,  
(S) short communication, (T) technical contribution,  
(V) video review

## Index

---

### M

#### Macaques

- enrichment and veterinary treatment ..... 25
- swimming as enrichment for rhesus macaques ..... 275
- training of rhesus macaques (S) ..... 135

#### Manteca X and Deag J M Individual variation in response to stressors

- in farm animals: implications for experimenters ..... 213

#### Mason G J Tail-biting in mink (*Mustela vison*) is influenced by age at

- removal from the mother (S) ..... 305

*Meles meles*, see badgers

#### Mink

- *The Mink* (B) ..... 152
- tail-biting in mink (S) ..... 305

#### Moles

- efficacy of mole scarers ..... 3

#### Morris P A and Warwick H A study of rehabilitated juvenile hedgehogs after

- release into the wild ..... 163

*Mustela vison*, see Mink

### N

Nicol C J, see Sherwin C M, see Weeks C A

#### New Zealand

- animal welfare in New Zealand (R) ..... 144
- codes of animal welfare (R) ..... 236
- New Zealand animal welfare committee (R) ..... 328

### O

#### Octopuses

- *Octopus vulgaris* and *Coturnix coturnix* (R) ..... 51

#### Otters

- *Otters* (B) ..... 64

### P

*Pan troglodytes*, see chimpanzees

#### Phillips C J C and Schofield S A The effect of cubicle and straw yard

- housing on the behaviour, production and hoof health of dairy cows ..... 37

#### Pigs

- pig welfare (R) ..... 143
- spatial behaviour of sows ..... 97

#### Portable handling facilities to improve the welfare of farmed

- red deer (*Cervus elaphus*) (T) ..... 227

<b>Poultry</b>	
- behaviour of broiler chickens . . . . .	179
- <i>Fourth European Symposium on Poultry Welfare</i> (B) . . . . .	63
- nest choice by caged laying hens (S) . . . . .	313
- <i>Poultry at Home: A Guide to Poultry Health and Management</i> (V) . . . . .	67
<b>Primates</b>	
- audiovisual resources in primatology (R) . . . . .	54
- <i>The Great Ape Project: Equality Beyond Humanity</i> (B) . . . . .	149
<b>R</b>	
<b>Rabbits</b>	
- <i>The European Rabbit – The History and Biology of a Successful Colonizer</i> (B) . . . . .	329
- refinements in rabbit husbandry (R) . . . . .	53
- rodents and rabbits in research (R) . . . . .	326
<b>Reinhardt V, see Luttrell L</b>	
<b>Replacement, reduction and refinement (3Rs)</b>	
- The alternatives – sources of information (R) . . . . .	328
- <i>Refinement and Reduction in Animal Testing</i> (B) . . . . .	244
<b>Research</b>	
- <i>Action for Animals: Animals in Research</i> (B) . . . . .	153
- <i>Man &amp; Mouse: Animals in Medical Research, 2nd edition</i> (B) . . . . .	154
- <i>Naturalistic Environments in Captivity for Animal Behavior Research</i> (B) . . . . .	240
- perspectives on medical research (R) . . . . .	142
- responsibility in use of animals in medical research (R) . . . . .	54
- rodents and rabbits in research (R) . . . . .	326
- vivisection controversy (R) . . . . .	238
<b>Rortais A, see Anderson J R</b>	
<b>S</b>	
<b>Sainsbury A W, see Kirkwood J K</b>	
<b>Schapiro S J and Bushong D</b> Effects of enrichment on veterinary treatment of laboratory rhesus macaques ( <i>Macaca mulatta</i> ) . . . . .	25
<b>Schofield S A, see Phillips C J C</b>	
<b>Sheep</b>	
- <i>Lamb Survival</i> (V) . . . . .	66
- welfare of sheep (R) . . . . .	238
<b>Sherwin C M and Nicol C J</b> Dichotomy in choice of nest characteristics by caged laying hens (S) . . . . .	313

KEY: (B) book review, (L) letter, (R) report and comment,  
 (S) short communication, (T) technical contribution,  
 (V) video review

<b>Sherwin C M, see Weeks C A</b>	
<b>Simonsen H B Skin stimulated induction of mouth movements in cattle</b> .....	129
<b>Skin stimulated induction of mouth movements in cattle</b> .....	129
Sows, <i>see</i> pigs	
<b>Spijkerman R P, Dienske H, Hooff J A R A M van and Jens W Causes of body rocking in chimpanzees (<i>Pan troglodytes</i>)</b> .....	193
<b>Stereotypies</b>	
- body rocking in chimpanzees .....	193
- induction of mouth movements in cattle (S) .....	129
<b>Study of rehabilitated juvenile hedgehogs after release into the wild</b> .....	163
<b>Study of spatial behaviour of pregnant sows housed in pens with various feeding and dung disposal systems</b> .....	97
<b>Stunning</b>	
- mechanical stunning of livestock (R) .....	52
<b>T</b>	
<b>Tail-biting in mink (<i>Mustela vison</i>) is influenced by age at removal from the mother (S)</b> .....	305
<b>Tapirs</b>	
- <i>Management Guidelines for the Welfare of Zoo Animals: Tapirs</i> (B) .....	155
<b>Testing for uni-dimensional scaling of stimuli used in preference experiments (S)</b> .....	45
<b>Theune E, see Cock Buning Tj de</b>	
<b>Training</b>	
- training of rhesus macaques (S) .....	135
<b>Training a large troop of rhesus macaques to co-operate during catching: analysis of the time investment (S)</b> .....	135
<b>Transport</b>	
- <i>Livestock Handling and Transport</i> (B) .....	151
- transport of live animals (R) .....	141
<b>Trapping</b>	
- trapping animals for fur (R) .....	235
<b>U</b>	
<b>Urben M, see Luttrell L</b>	
<b>W</b>	
<b>Walker N and Kilpatrick D J A study of spatial behaviour of pregnant sows housed in pens with various feeding and dung disposal systems</b> .....	97
<b>Warwick H, see Morris P A</b>	

<b>Weeks C A, Nicol C J, Sherwin C M and Kestin S C Comparison of the behaviour of broiler chickens in indoor and free-range environments</b> .....	179
<b>Welfare of free-living wild animals: methods of assessment</b> .....	257
Whales, <i>see</i> cetaceans	
<b>Wildlife</b>	
- badgers: sociobiology and sett protection (L) .....	159
- behaviour and killing times of pilot whales .....	285
- effects of poaching on badgers (S) .....	219
- efficacy of mole scarers .....	3
- <i>The European Rabbit – The History and Biology of a Successful Colonizer</i> (B) .....	329
- <i>Managing Set-aside Land for Wildlife</i> (B) .....	335
- <i>Otters</i> (B) .....	64
- rehabilitation of juvenile hedgehogs .....	163
- stranded cetaceans (R) .....	236
- welfare of free-living wild animals .....	257
 <b>Z</b>	
<b>Zoos</b>	
- <i>Management Guidelines for the Welfare of Zoo Animals: Tapirs</i> (B) .....	155
- <i>Zoos &amp; Animal Rights: The Ethics of Keeping Animals</i> (B) .....	329

KEY: (B) book review, (L) letter, (R) report and comment,  
 (S) short communication, (T) technical contribution,  
 (V) video review

## REPORTS AND COMMENTS INDEX

<i>Animal Welfare Advisory Committee Report for 1993</i> (AWAC publication) . . . . .	328
<i>Animal Welfare Handbook, The</i> (Fourth Estate) . . . . .	53
<i>Animal Welfare in New Zealand</i> (NZMAFF publication) . . . . .	144
<i>Animal Rights: Issues for the Nineties</i> (Independence) . . . . .	55
<i>Animals (Scientific Procedures) Act (Amendment) Order 1993</i> . . . . .	51
<i>Audiovisual Resources in Primatology</i> (WRPRC publication) . . . . .	54
<i>Bovine Tuberculosis in Badgers</i> (MAFF publication) . . . . .	325
<i>Campaigning Against Cruelty: A Teaching Resource Pack</i> (CIWFT publication) . . .	327
<i>Captive-Bolt Stunning of Livestock</i> (HSA publication) . . . . .	52
<i>Code of Recommendations and Minimum Standards for the Welfare of Horses; ...Bobby Calves; ...Care of Animals in Boarding Establishments</i> (AWAC publications) . . .	237
<i>Code of Welfare and Husbandry of Birds of Prey and Owls</i> (BFSS publication) . . . .	52
<i>Food Animal Well-Being</i> (USDA Conference proceedings) . . . . .	144
<i>Genetic Engineering</i> (Independence) . . . . .	235
<i>Good Science Guide, The</i> (NAVS publication) . . . . .	51
<i>Hook Versus Hoof: The Drive Behind the Increasing Shipment of Live Lambs to the Continent</i> (RSPCA publication) . . . . .	141
<i>How to Win Debates with Vivisectors</i> (EMJ) . . . . .	239
<i>Johns Hopkins Center for Alternatives to Animal Testing Newsletter, Volume 11 No 3</i> (CAAT publication) . . . . .	328
<i>No to Genetic Manipulation of Animals</i> (DSPA publication) . . . . .	141
<i>Perspectives on Medical Research</i> (MRMC publication) . . . . .	142
<i>Pig Welfare Advisory Group Publications</i> (MAFF publications) . . . . .	143
<i>Rearing Pheasants for Shoots: The Disturbing Facts</i> (FAWN publication) . . . . .	238
<i>Refinements in Rabbit husbandry</i> (BVAAWF/FRAME/RSPCA/UFAW publication) . . .	53
<i>Report on the Welfare of Sheep</i> (FAWC publication) . . . . .	238
<i>Responsibility in the Use of Animals in Medical Research</i> (MRC publication) . . . . .	54
<i>Rodents and Rabbits: Current Research Issues</i> (SCAW/WARDS publication) . . . . .	326
<i>Stranded Whales, Dolphins and Porpoises: A first Aid Guide</i> (RSPCA publication) . . . . .	236
<i>Summary of New Animal Welfare Regulations</i> (SCAW publications) . . . . .	325
<i>Trapping Animals for Fur</i> (Care for the Wild publication) . . . . .	235
<i>Welfare and Science</i> (FELASA publication) . . . . .	327
<i>Welfare Argument, The</i> (CIWF Trust resource pack) . . . . .	142
<i>Video Dissection Guides</i> (Portsmouth Productions) . . . . .	327

## LETTERS INDEX

Hancox M, Badgers and bovine tuberculosis in the UK: a reappraisal needed . . . . .	253
Hancox M, Badgers: sociobiology and sett protection . . . . .	159
Rodenburg F, 'Unnecessary' cruelty . . . . .	71
Tumbull A, Tuberculosis in cattle and badgers . . . . .	340

## BOOK AND VIDEO REVIEWS INDEX

Bennett R M 1994 <i>Valuing Farm Animal Welfare</i> .....	333
Blowey R 1993 <i>Cattle Lameness and Hoofcare: An Illustrated Guide</i> .....	145
Bostock S St C 1993 <i>Zoos &amp; Animal Rights: The Ethics of Keeping Animals</i> .....	329
Boyle P B 1993 <i>Fish: An Enthusiast's Guide</i> .....	60
BVA Animal Welfare Foundation 1994 <i>Practical Animal Handling:</i>	
<i>1 – Small Mammals (V)</i> .....	334
Cavalieri P and Singer P (eds) 1993 <i>The Great Ape Project:</i>	
<i>Equality Beyond Humanity</i> .....	149
Chanin P 1993 <i>Otters</i> .....	64
Dunstone N 1993 <i>The Mink</i> .....	152
Firbank L G, Arnold H R, Eversham B C, Mountford J O,	
Radford G L, Telfer M G, Treweek J R, Webb N R C	
and Wells T C E 1993 <i>Managing Set-aside Land for Wildlife</i> .....	335
Frye F L 1992 <i>Captive Invertebrates: A Guide to their Biology and Husbandry</i> ....	62
Gibbons F Jr, Wyers E J, Waters E and Menzel E W (eds) 1994 <i>Naturalistic</i>	
<i>Environments in Captivity for Animal Behavior Research</i> .....	240
Grandin T (ed) 1993 <i>Livestock Handling and Transport</i> .....	151
Henderson D C 1993 <i>Lamb Survival (V)</i> .....	66
Lee A R 1993 <i>Management Guidelines for the Welfare of Zoo Animals: Tapirs</i> ....	155
Manning A and Serpell J (eds) 1994 <i>Animals &amp; Human Society:</i>	
<i>Changing Perspectives</i> .....	246
Moyle P B 1993 <i>Fish: An Enthusiast's Guide</i> .....	60
Niemi S M and Willson J E (eds) 1993 <i>Refinement and Reduction</i>	
<i>in Animal Testing</i> .....	244
Paton W 1993 <i>Man &amp; Mouse: Animals in Medical Research, 2nd edition</i> .....	154
Preece R and Chamberlain L 1993 <i>Animal Welfare and Human Values</i> .....	146
Roberts V 1993 <i>Poultry at Home: A Guide to Poultry Health and Management (V)</i> ..	67
RSPCA 1993 <i>Action for Animals: Animals in Research</i> .....	153
Savory C J and Hughes B O (eds) 1993 <i>Fourth European Symposium</i>	
<i>on Poultry Welfare</i> .....	63
Smith K, Smith A and Fosse R (eds) 1992-1994 <i>NORINA:</i>	
<i>A Norwegian Inventory of Audiovisuals</i> .....	248
Sorabji R 1993 <i>Animal Minds and Human Morals:</i>	
<i>The Origins of the Western Debate</i> .....	330
Straiton E 1993 <i>Cattle Ailments: Recognition and Treatment, 6th edition</i> .....	61
Thompson H V and King C M (eds) 1994 <i>The European Rabbit –</i>	
<i>The History and Biology of a Successful Colonizer</i> .....	329
Wemelsfelder F 1993 <i>Animal Boredom: Towards an Empirical Approach</i>	
<i>of Animal Subjectivity</i> .....	57
Zutphen L F M van, Baumans V and Beynen A C (eds) 1993 <i>Principles</i>	
<i>of Laboratory Animal Science</i> .....	242

KEY: (V) video review

355