

# **Animal Welfare**

**ISSN 0962-7286**

**Volume 2 1993**

## **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 2 Number 1	February 1993
Social manipulation of captive primates. <i>E Visalberghi and J R Anderson</i>	3
Tamarin responses to faecal scents. <i>H M Buchanan-Smith, D A Anderson and C W Ryan</i>	17
The human-animal relationship in farming. <i>P H Hemsworth, J L Barnett and G J Coleman</i>	33
Behaviour of rehabilitated hedgehogs. <i>P A Morris, K Meakin and S Sharafi</i>	53
Laying cages: ban or modify? <i>M C Appleby</i>	67
Preference tests with rodents. <i>H J M Blom, V Baumans, C J A H V Van Vorstenbosch, L F M Van Zutphen and A C Beynen</i>	81
Volume 2 Number 2	May 1993
Fearfulness of hens in cages and aviaries. <i>I Hansen, B O Braastad, J Storbråten and M Tofastrud</i>	105
Stereotyped rocking in chimpanzees. <i>K A Pazol and M A Bloomsmith</i>	113
Assessing hunger in chickens. <i>C J Savory, K Maros and S M Rutter</i>	131
Pre-feeding agonism in chimpanzees. <i>S M Howell, M Matevia, J Fritz, L Nash and S Maki</i>	153
Mesh ceiling as food puzzle for macaques. <i>V Reinhardt</i>	165
Volume 2 Number 3	August 1993
Stress and animal welfare. <i>P R Wiepkema and J M Koolhaas</i>	195
Release to free-ranging in lemurs. <i>L K Garrison and F J White</i>	219
Behaviour and welfare of pigs. <i>D S Arey</i>	235
Individual differences in temperament. <i>X Manteca and J M Deag</i>	247
Behaviour of solitary and group-housed budgerigars. <i>C J Nicol and S J Pope</i>	269
Volume 2 Number 4	November 1993
Measuring animal welfare. <i>G Mason and M Mendl</i>	301
Pets and humane attitudes. <i>E S Paul and J A Serpell</i>	321
Social roles in cattle. <i>X Manteca and J M Deag</i>	339
Gut passage times in small monkeys. <i>E C Price</i>	347
Microchip implants in macaques. <i>S E Wolfensohn</i>	353
<i>Animal Welfare 1993, 2: 379-397</i>	381



---

**AUTHOR AND SUBJECT INDEX**
**A**

- Alternative housing, *see also* poultry  
 - laying cages: ban or modify? . . . . . 67
- Anderson D A, *see* Buchanan-Smith H M
- Anderson J R, *see* Visalberghi E
- Animal rights  
 - advocates for animals (R) . . . . . 173  
 - *Animal Welfare and The Environment* (B) . . . . . 366  
 - *Equal Rights for Animals* (B) . . . . . 367  
 - *The Young Person's Action Guide to Animal Rights* (B) . . . . . 285
- Annual reports  
 - advocates for animals (R) . . . . . 173
- Apes, *see also* primates  
 - pre-feeding agonism in chimpanzees . . . . . 153  
 - social manipulation of captive primates . . . . . 3  
 - stereotyped rocking in chimpanzees . . . . . 113
- Appleby M C Should cages for laying hens be banned or modified? . . . . . 67
- Arey D S The effect of bedding on the behaviour and welfare of pigs . . . . . 235
- Assessment of hunger in growing broiler breeders in relation to a  
 commercial restricted feeding programme . . . . . 131
- Aviaries  
 - behaviour of solitary and group-housed budgerigars . . . . . 269  
 - fearfulness of hens in cages and aviaries . . . . . 105
- B**
- Badgers  
 - badger persecution (L) . . . . . 102
- Barnett J L, *see* Hemsworth P H
- Bats  
 - bats in captivity (R) . . . . . 281
- Baumans V, *see* Blom H J M
- Bears, *see also* polar bears  
 - *Management Guidelines for Bears and Raccoons* (B) . . . . . 286
- Bedding  
 - behaviour and welfare of pigs . . . . . 235
- Behaviour  
 - behaviour and welfare of pigs . . . . . 235  
 - behaviour of rehabilitated hedgehogs . . . . . 55

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

383

- *The Behaviour of Sheep: Biological Principles and Implications for Production* (B) . . . . . 370
  - behaviour of solitary and group-housed budgerigars . . . . . 269
  - *The Behaviour of the Domestic Cat* (B) . . . . . 184
  - *Ethics in Research on Animal Behaviour* (B) . . . . . 180
  - human-animal relationship in farming . . . . . 33
  - individual differences in temperament . . . . . 247
  - *Poultry Production Systems: Behaviour, Management and Welfare* (B) . . . 371
  - pre-feeding agonism in chimpanzees . . . . . 153
  - release to free-ranging in lemurs . . . . . 219
  - social manipulation of captive primates . . . . . 3
  - the 'needs' of birds and mammals in the science of animal welfare (L) . . . 101
  - Behaviour and survival of rehabilitated hedgehogs (*Erinaceus europaeus*) . . . . . 53
  - Beynen A C, *see* Blom H J M
  - Biotechnology
    - commercialization of new life-forms (R) . . . . . 175
    - computer-directed livestock farming (R) . . . . . 174
  - Birds, *see also* poultry
    - behaviour of solitary and group-housed budgerigars . . . . . 269
    - blood removal from laboratory animals (R) . . . . . 362
    - the 'needs' of birds and mammals in the science of animal welfare (L) . . . 101
  - Blom H J M, Baumans V, Van Vorstenbosch C J A H V, Van Zutphen L F M and Beynen A C Preference tests with rodents to assess housing conditions . . . . . 81
  - Bloomsmith M A, *see* Pazol K A
  - Braastad B O, *see* Hansen I
  - Broiler chickens, *see also* poultry
    - assessing hunger in chickens . . . . . 131
    - poultry slaughter (R) . . . . . 173
  - Buchanan-Smith H M, Anderson D A and Ryan C W Responses of cotton-top tamarins (*Saguinus oedipus*) to faecal scents of predators and non-predators . . . . . 17
  - Budgerigars
    - behaviour of solitary and group-housed budgerigars . . . . . 269
- C**
- Cages, *see also* poultry
    - behaviour of solitary and group-housed budgerigars . . . . . 269
    - fearfulness of hens in cages and aviaries . . . . . 105
    - laying cages: ban or modify? . . . . . 67
  - Callitrichidae*
    - tamarin responses to faecal scents . . . . . 17

Cats	
- <i>The Behaviour of the Domestic Cat</i> (B)	184
- <i>How to Talk to Your Cat</i> (B)	96
- <i>Wildcats</i> (B)	96
Cattle, <i>see also</i> farm livestock	
- slaughter of pigs, cattle and sheep (R)	364
- social roles in cattle	339
Childhood pet keeping and humane attitudes in young adulthood	321
Chimpanzees, <i>see also</i> primates	
- pre-feeding agonism in chimpanzees	153
- stereotyped rocking in chimpanzees	113
Coleman G J, <i>see</i> Hemsworth P H	
Companion animals, <i>see also</i> budgerigars; cats; horses; human-animal interactions	
- the humane side of human/non-human animal interactions (R)	92
- pets and humane attitudes	321
Comparison of the behaviour of solitary and group-housed budgerigars	269
Cotton-top tamarins, <i>see</i> tamarins	
<b>D</b>	
Deag J M, <i>see</i> Manteca X	
Deer	
- <i>Deer</i> (B)	98
Development of stereotyped body rocking in chimpanzees ( <i>Pan troglodytes</i> )	
reared in a variety of nursery settings	113
Differences in fearfulness indicated by tonic immobility between laying	
hens in aviaries and in cages	105
Discomfort/distress/suffering	
- <i>Recognition and Alleviation of Pain and Distress in Laboratory Animals</i> (B)	183
Dogs	
- <i>Caring for Your New Puppy</i> (V)	189
<b>E</b>	
Effect of bedding on the behaviour and welfare of pigs	235
Environment	
- <i>Animal Welfare and The Environment</i> (B)	366
- <i>Equal Rights for Animals</i> (B)	367
Environmental enrichment	
- environmental enrichment for captive animals (R)	89
- mesh ceiling as food puzzle for macaques	165
- release to free-ranging in lemurs	219
KEY: (B) book review, (L) letter, (R) report and comment, (S) short communication, (V) video review	385

## Index

---

- social manipulation of captive primates ..... 3
- Erinaceus europaeus*, see hedgehogs
- Ethics**
  - *Animal Pain: Ethical and Scientific Perspectives* (B) ..... 181
  - commercialization of new life-forms (R) ..... 175
  - *Ethics in Research on Animal Behaviour* (B) ..... 180
  - the future of medical research using animals (R) ..... 176
  - student booklets on animal research (R) ..... 176
  
- F**
- Faecal scents**
  - tamarin responses to faecal scents ..... 17
- Farm livestock**, see also cattle; horses; pigs; poultry; sheep
  - computer-directed livestock farming (R) ..... 174
  - emergencies on livestock farms (R) ..... 93
  - *Farm Animals and the Environment* (B) ..... 179
  - *Farm Animal Welfare* (V) ..... 90
  - heat stress in farm animals (R) ..... 364
  - human-animal relationship in farming ..... 33
  - individual differences in temperament ..... 247
  - *Lameness in Farm Animals* (V) ..... 292
  - *Stockmanship: Improving the Care of the Pig and Other Livestock* (B) ... 369
  - stress and animal welfare ..... 195
  - UK farm animal welfare law (R) ..... 90
- Fear**
  - behaviour of solitary and group-housed budgerigars ..... 269
  - fearfulness of hens in cages and aviaries ..... 105
- Feeding**, see also environmental enrichment
  - assessing hunger in chickens ..... 131
  - gut passage times in small monkeys ..... 347
  - pre-feeding agonism in chimpanzees ..... 153
- Fritz J**, see Howell S M
  
- G**
- Gallus gallus var domesticus*, see poultry
- Garrison L K and White F J** Group formation and behavioural changes with release to free-ranging in red ruffed lemurs, *Varecia variegata rubra* ..... 219
- Golden lion tamarins**, see tamarins
- Group formation and behavioural changes with release to free-ranging in red ruffed lemurs, *Varecia variegata rubra*** ..... 219



**H****Handling**

- blood removal from laboratory animals (R) ..... 362
- care of laboratory animals in transit (R) ..... 363

**Hansen I, Braastad B O, Storbråten J and Tofastrud M** Differences in fearfulness indicated by tonic immobility between laying hens in aviaries and in cages ..... 105

**Hedgehogs**

- behaviour of rehabilitated hedgehogs ..... 53

**Hemsworth P H, Barnett J L and Coleman G J** Human-animal relationship in agriculture and its consequences for the animal ..... 33

**Horses, see also farm livestock**

- *Caring for Horses, Ponies and Donkeys* (V) ..... 294
- horse disposal (R) ..... 282

**Housing, see also poultry**

- behaviour and welfare of pigs ..... 235
- behaviour of solitary and group-housed budgerigars ..... 269
- environmental enrichment for captive animals (R) ..... 89
- fearfulness of hens in cages and aviaries ..... 105
- laying cages: ban or modify? ..... 67
- preference tests with rodents ..... 81

**Howell S M, Matevia M, Fritz J, Nash L and Maki S** Pre-feeding agonism and seasonality in captive groups of chimpanzees (*Pan troglodytes*) ..... 153

**Human-animal interactions, see also companion animals; stockmanship**

- human-animal relationship in farming ..... 33
- the humane side of human/non-human animal interactions (R) ..... 92
- *The New Anthropomorphism* (B) ..... 187,(L,296)
- pets and humane attitudes ..... 321
- research in anthrozoology (R) ..... 174

**Human-animal relationship in agriculture and its consequences for the animal** ..... 33

**Hunger**

- assessing hunger in chickens ..... 131

**I**

**Individual differences in temperament of domestic animals: a review of methodology** ..... 247

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

**K**

**Koolhaas J M**, *see* Wiepkema P R

**L**

**Laboratory animals**

- *Animal Pain: Ethical and Scientific Perspectives* (B) . . . . . 181
- *Assessment of Stress in Laboratory Animals* (B) . . . . . 368
- bibliography on laboratory animal welfare (R) . . . . . 89
- blood removal from laboratory animals (R) . . . . . 362
- care of laboratory animals in transit (R) . . . . . 363
- *Handbook for the Animal Licence Holder* (B) . . . . . 97
- microchip implants in macaques . . . . . 353
- non-human primate use (R) . . . . . 97
- *Recognition and Alleviation of Pain and Distress in Laboratory Animals* (B) 183
- research animal well-being (R) . . . . . 279
- the workings of the *Animals (Scientific Procedures) Act 1986* (R) . . . 90,(L,191)

**Lameness**

- *Lameness in Farm Animals* (V) . . . . . 292

**Law**, *see* legislation

**Laying hens**, *see also* poultry

- fearfulness of hens in cages and aviaries . . . . . 105
- laying cages: ban or modify? . . . . . 67

**Legislation**

- animal welfare legislation in Europe (R) . . . . . 361
- commercialization of new life-forms (R) . . . . . 175
- *Handbook for the Animal Licence Holder* (B) . . . . . 97
- laying cages: ban or modify? . . . . . 67
- UK farm animal welfare law (R) . . . . . 90
- the workings of the *Animals (Scientific Procedures) Act 1986* (R) . . . . . 90

**Lemurs**

- release to free-ranging in lemurs . . . . . 219

**M**

*Macaca fascicularis* (crab-eating macaques), *see* macaques

*Macaca mulatta* (rhesus macaques), *see* macaques

**Macaques**

- mesh ceiling as food puzzle for macaques . . . . . 165
- microchip implants in macaques . . . . . 353

**Maki S**, *see* Howell S M

**Mammals**

- the 'needs' of birds and mammals in the science of animal welfare (L) . . . 101

- Manteca X and Deag J M** Individual differences in temperament of domestic animals: a review of methodology ..... 247
- Manteca X and Deag J M** Social roles in cattle: a plea for interchange of ideas between primatologists and applied ethologists ..... 339
- Marmosets, *see* primates
- Maros K, *see* Savory C J
- Mason G and Mendl M** Why is there no simple way of measuring animal welfare? ..... 301
- Matevia M**, *see* Howell S M
- Meakin K**, *see* Morris P A
- Measuring
- gut passage times in small monkeys ..... 347
  - measuring animal welfare ..... 301
- Measuring gut passage times in small New World monkeys ..... 347
- Mendl M**, *see* Mason G
- Microchip implants
- microchip implants in macaques ..... 353
- Monkeys, *see* primates
- Morris P A, Meakin K and Sharafi S** The behaviour and survival of rehabilitated hedgehogs (*Erinaceus europaeus*) ..... 53
- N**
- Nash L**, *see* Howell S M
- New Zealand
- animal welfare in New Zealand (R) ..... 281
- Nicol C J and Pope S J** A comparison of the behaviour of solitary and group-housed budgerigars ..... 269
- O**
- Organizations
- life science directory (R) ..... 363
  - research in anthrozoology (R) ..... 174
- P**
- Pain
- *Animal Pain: Ethical and Scientific Perspectives* (B) ..... 181
  - *Recognition and Alleviation of Pain and Distress in Laboratory Animals* (B) 183
- Pan troglodytes*, *see* chimpanzees
- Paul E S and Serpell J** A Childhood pet keeping and humane attitudes in young adulthood ..... 321

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

<b>Pazol K A and Bloomsmit h M A</b>	The development of stereotyped body rocking in chimpanzees ( <i>Pan troglodytes</i> ) reared in a variety of nursery settings .....	113
<b>Pets</b>	<i>see</i> companion animals	
<b>Pigs</b>		
-	behaviour and welfare of pigs .....	235
-	<i>Outdoor Pig Production</i> (B) .....	373
-	<i>Practical Outdoor Pig Production</i> (V) .....	373
-	slaughter of pigs, cattle and sheep (R) .....	364
-	<i>Stockmanship: Improving The Care of The Pig and Other Livestock</i> (B) ..	369
<b>Polar bears</b>		
-	<i>A Review of Captive Polar Bears in Great Britain and Ireland</i> (B) 290,(L,376)	
<b>Pope S J</b>	<i>see</i> Nicol C J	
<b>Poultry</b>		
-	assessing hunger in chickens .....	131
-	fearfulness of hens in cages and aviaries .....	105
-	laying cages: ban or modify? .....	67
-	<i>The Laying Hen</i> (B) .....	94
-	poultry production (R) .....	283
-	<i>Poultry Production Systems: Behaviour, Management and Welfare</i> (B) ...	371
-	poultry slaughter (R) .....	173
<b>Predators</b>		
-	tamarin responses to faecal scents .....	17
<b>Pre-feeding agonism and seasonality in captive groups of chimpanzees (<i>Pan troglodytes</i>)</b>	.....	153
<b>Preference tests with rodents to assess housing conditions</b>	.....	81
<b>Production</b>		
-	<i>The Behaviour of Sheep: Biological Principles and Implications for Production</i> (B) .....	370
-	<i>Outdoor Pig Production</i> (B) .....	373
-	<i>Practical Outdoor Pig Production</i> (B) .....	373
-	<i>Poultry Production Systems: Behaviour, Management and Welfare</i> (V) ...	371
<b>Price E C</b>	Measuring gut passage times in small New World monkeys .....	347
<b>Primates</b>		
-	<i>Biology, Rearing and Care of Young Primates</i> (B) .....	95
-	gut passage times in small monkeys .....	347
-	mesh ceiling as food puzzle for macaques .....	165
-	microchip implants in macaques .....	353
-	non-human primate use (R) .....	280
-	pre-feeding agonism in chimpanzees .....	153
-	release to free-ranging in lemurs .....	219
-	social manipulation of captive primates .....	3

- stereotyped rocking in chimpanzees .....	105
- tamarin responses to faecal scents .....	17
Primatologists	
- social roles in cattle .....	339
Psychological well-being, <i>see</i> environmental enrichment	
<b>R</b>	
Raccoons	
- <i>Management Guidelines for Bears and Raccoons</i> (B) .....	286
Reasons and risks associated with manipulating captive primates' social environments .....	3
Rehabilitation	
- behaviour of rehabilitated hedgehogs .....	53
Reinhardt V Using the mesh ceiling as a food puzzle to encourage foraging behaviour in caged rhesus macaques ( <i>Macaca mulatta</i> ) .....	165
Replacement, reduction and refinement (3Rs), <i>see also</i> Ethics	
- audio-visuals on animal welfare (R) .....	280
- refinement alternatives (R) .....	279
Research	
- <i>Animal Pain: Ethical and Scientific Perspectives</i> (B) .....	181
- animals in medical research (R) .....	365
- <i>The Assessment of Stress in Laboratory Animals</i> (B) .....	368
- <i>Ethics in Research on Animal Behaviour</i> (B) .....	180
- the future of medical research using animals (R) .....	176
- research animal well-being (R) .....	279
- student booklets on animal research (R) .....	176
Responses of cotton-top tamarins ( <i>Saguinus oedipus</i> ) to faecal scents of predators and non-predators .....	17
Rodents	
- preference tests with rodents (S) .....	81
Rutter S M, <i>see</i> Savory C J	
Ryan C W, <i>see</i> Buchanan-Smith H M	
<b>S</b>	
<i>Saguinus oedipus</i> , <i>see</i> tamarins	
Savory C J, Maros K and Rutter S M Assessment of hunger in growing broiler breeders in relation to a commercial restricted feeding programme .....	131
Serpell J A, <i>see</i> Paul E S	
Sharafi S, <i>see</i> Morris P A	

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

<b>Sheep</b>	
- <i>The Behaviour of Sheep: Biological Principles and Implications for Production</i> (B) . . . . .	370
- <i>Manual of Sheep Production in the Humid Tropics of Africa</i> (B) . . . . .	287
- <i>Sheep Ailments (TV Vet Sheep Book, 6th edition)</i> (B) . . . . .	186
- slaughter of pigs, cattle and sheep (R) . . . . .	364
<b>Should cages for laying hens be banned or modified?</b> . . . . .	67
<b>Slaughter</b>	
- poultry slaughter (R) . . . . .	173
- slaughter of pigs, cattle and sheep (R) . . . . .	364
<b>Social behaviour</b>	
- behaviour of solitary and group-housed budgerigars . . . . .	269
- pre-feeding agonism in chimpanzees . . . . .	153
- social manipulation of captive primates . . . . .	3
- social roles in cattle . . . . .	339
<b>Social roles in cattle: a plea for interchange of ideas between primatologists and applied ethologists</b> . . . . .	339
<b>Statistics</b>	
- the workings of the <i>Animals (Scientific Procedures) Act 1986</i> (R) . . . . .	90, (L,191)
<b>Stockmanship, see also farm livestock</b>	
- emergencies on livestock farms (R) . . . . .	93
- human-animal relationship in farming . . . . .	33
- the humane side of human/non-human animal interactions (R) . . . . .	92
- <i>Stockmanship: Improving the Care of the Pig and Other Livestock</i> (B) . . . . .	369
<b>Storbråten J, see Hansen I</b>	
<b>Stress and animal welfare</b> . . . . .	195
<b>Stress, see discomfort</b>	
- <i>The Assessment of Stress in Laboratory Animals</i> (B) . . . . .	368
- heat stress in farm animals (R) . . . . .	364
- human-animal relationship in farming . . . . .	33
- social manipulation of captive primates . . . . .	3
- stress and animal welfare . . . . .	195
<b>Suffering, see distress</b>	
<b>Survival</b>	
- behaviour of rehabilitated hedgehogs . . . . .	53
<b>T</b>	
<b>Tamarins</b>	
- gut passage times in small monkeys . . . . .	347
- tamarin responses to faecal scents . . . . .	17
<b>Temperament</b>	
- individual differences in temperament . . . . .	247

<b>Tofastrud M, see Hansen I</b>	
<b>Transportation</b>	
- care of laboratory animals in transit (R) . . . . .	363
<b>U</b>	
<b>Use of microchip implants for identification in two species of macaque . . .</b>	<b>353</b>
<b>Using the mesh ceiling as a food puzzle to encourage foraging</b>	
behaviour in caged rhesus macaques ( <i>Macaca mulatta</i> ) . . . . .	165
<b>V</b>	
<i>Varecia variegata rubra, see lemurs</i>	
<b>Visalberghi E and Anderson J R Reasons and risks associated with</b>	
manipulating captive primates' social environments . . . . .	3
<b>Vorstenbosch C J A H V Van, see Blom H J M</b>	
<b>W</b>	
<b>White F J, see Garrison L K</b>	
<b>Why is there no simple way of measuring animal welfare? . . . . .</b>	<b>301</b>
<b>Wiekema P R and Koolhaas J M Stress and animal welfare . . . . .</b>	<b>195</b>
<b>Wildcats</b>	
- <i>Wildcats</i> (B) . . . . .	96
<b>Wildlife</b>	
- badger persecution (L) . . . . .	102
- bats in captivity (R) . . . . .	281
- <i>Wildcats</i> (B) . . . . .	96
- wildlife rehabilitation (L) . . . . .	191
<b>Wolfensohn S E The use of microchip implants for identification in two</b>	
species of macaque . . . . .	353
<b>Z</b>	
<b>Zoos, see also environmental enrichment; housing</b>	
- <i>The Good Zoo Guide: The What, Where, Why and How of Britain's</i>	
<i>Best Zoos and Wildlife Parks</i> (B) . . . . .	288
- gut passage times in small monkeys . . . . .	347
- <i>A Review of Captive Polar Bears in Great Britain and Ireland</i> (B) 290,(L,376)	
<b>Zutphen L F M Van, see Blom H J M</b>	

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

## REPORTS AND COMMENTS

<i>Animal Experimentation and the Future of Medical Research</i> (RDS conference proceedings) . . . . .	176
<i>Animals and the Advancement of Science</i> (BAAS publication) . . . . .	365
<i>Animal Welfare</i> (WVA proceedings) . . . . .	361
<i>Animal Welfare and Computer-Directed Livestock Farming: 12th Report of the Study committee in Intensive Farming</i> (Dutch SPA Publication) . . . . .	174
<i>Animal Welfare in New Zealand</i> (Foundation for Continuing Education publication) . . . . .	281
<i>Annual Pictorial Review 1993</i> (Advocates for Animals Annual Report) . . . . .	173
<i>Anthrozoology Institute</i> . . . . .	174
<i>Audio-Visuals Relating to Animal Care, Use, and Welfare</i> (USDA publication) . . . . .	280
<i>Chicken and the Egg, The</i> (NFU video and leaflets) . . . . .	283
<i>Emergencies on Livestock Farms</i> (MAFF publication) . . . . .	93
<i>Ethics and Intellectual Property: Should we Create and Commercialise New Life-forms?</i> (paper) . . . . .	175
<i>Farewell - Making the Right Decision</i> (HSA booklet) . . . . .	282
<i>Guidelines for the Care of Laboratory Animals in Transit</i> (LABA/LASA publication) . . . . .	363
<i>Guidelines on Bats in Captivity</i> (BCT leaflet) . . . . .	281
<i>Heat Stress in Pigs</i> (MAFF publication) . . . . .	364
<i>Heat Stress in Poultry</i> (MAFF publication) . . . . .	364
<i>Hens to the Slaughter</i> (CIWF video) . . . . .	173
<i>Implementation Strategies for Research Animal Well-Being: Institutional Compliance with Regulations</i> (SCAW conference proceedings) . . . . .	279
<i>IPS International Guidelines for the Acquisition, Care and Breeding of Nonhuman Primates</i> (IPS publication) . . . . .	281
<i>Issues: Animal Experiments</i> (FRAME publication) . . . . .	177
<i>Laboratory Animal Welfare. Current Bibliographies in Medicine</i> (USDept of Health and Public Services publication) . . . . .	89
<i>Life Science Pages 1993/94</i> (Life Science Press directory) . . . . .	363
<i>Removal of Blood from Laboratory Mammals and Birds</i> (BVA/FRAME/ RSPCA/UFAW publication) . . . . .	362
<i>Report of the Animal Procedures Committee for 1991</i> (HMSO publication) . . . . .	90
<i>Search for Health: Medical Research in Action, The</i> (RHCG publication) . . . . .	176
<i>Shape of Enrichment, The</i> (Newsletter) . . . . .	89
<i>Society and Animals</i> (Journal) . . . . .	92
<i>Statistics of Scientific Procedures on Living Animals. Great Britain 1991</i> (HMSO publication) . . . . .	90
<i>Summary of Legislation Relative to Animal Welfare at the Levels of the European Community and the Council of Europe</i> (Eurogroup publication) . . . . .	361



---

<i>Summary of the Law Relating to Farm Animal Welfare</i> (MAFF publication) . . . . .	90
<i>UC Alternatives in Education, Research and Testing</i> (Newsletter) . . . . .	279
<i>Understanding Animal Research</i> (AMRIC publication) . . . . .	365
<i>Welfare at Slaughter of Broiler Chickens, The</i> (CIWF publication) . . . . .	173
<i>Welfare of Pigs, Cattle and Sheep at Slaughter, The</i> (CIWF Trust report) . . . . .	364

## BOOK REVIEWS

Appleby M C, Hughes B O and Elson H A 1992 <i>Poultry Production Systems: Behaviour, Management and Welfare</i> . . . . .	371
Bessant C 1992 <i>How to Talk to Your Cat</i> . . . . .	96
Bradshaw J W S 1992 <i>The Behaviour of the Domestic Cat</i> . . . . .	184
Bunyan J (ed) 1991 <i>Handbook for the Animal Licence Holder, 2nd edition</i> . . . . .	97
Carter V and Carter H (eds) 1992 <i>The Laying Hen: Proceedings of a Seminar Organised by the European Conference Group on the Protection of Farm Animals</i> . . . . .	94
Chapman N 1991 <i>Deer</i> . . . . .	98
Charray J, Humbert J M and Levif J 1992 <i>Manual of Sheep Production in the Humid Tropics of Africa</i> . . . . .	287
Dawkins M S and Gosling M (eds) 1992 <i>Ethics in Research on Animal Behaviour</i>	180
English P, Burgess G, Segundo R and Dunne J 1992 <i>Stockmanship: Improving the Care of the Pig and Other Livestock</i> . . . . .	369
Ironmonger J 1992 <i>The Good Zoo Guide: The What, Where, Why and How of Britain's Best Zoos and Wildlife Parks</i> . . . . .	288
James B 1992 <i>The Young Person's Action Guide to Animal Rights</i> . . . . .	285
Kennedy J S 1992 <i>The New Anthropomorphism</i> . . . . .	187
Kerven R 1992 <i>Equal Rights for Animals</i> . . . . .	367
Kirkwood J K and Stathatos K 1992 <i>Biology, Rearing and Care of Young Primates</i> . . . . .	95
Kuchel T R, Rose M and Burrell J 1992 <i>Animal Pain: Ethical and Scientific Perspectives</i> . . . . .	181
Lynch J J, Hinch G N and Adams D B 1992 <i>The Behaviour of Sheep: Biological Principles and Implications for Production</i> . . . . .	370
Manser C 1992 <i>The Assessment of Stress in Laboratory Animals</i> . . . . .	368
National Research Council 1992 <i>Recognition and Alleviation of Pain and Distress in Laboratory Animals</i> . . . . .	183
Ormrod S A 1992 <i>A Review of Captive Polar Bears in Great Britain and Ireland</i>	290
Partridge J (ed) 1992 <i>Management Guidelines for Bears and Raccoons</i> . . . . .	286
Phillips C and Piggins D (eds) 1992 <i>Farm Animals and the Environment</i> . . . . .	179
Ryder R D (ed) 1992 <i>Animal Welfare and The Environment</i> . . . . .	366
Straiton E 1992 <i>Sheep Ailments (TV Vet Sheep Book, 6th Edition)</i> . . . . .	186
Thornton K 1990 <i>Outdoor Pig Production</i> . . . . .	373
Tomkies M 1991 <i>Wildcats</i> . . . . .	96

---

## VIDEO REVIEWS

Bower J M 1990 <i>Caring for Your New Puppy</i> .....	189
FAWC 1991 <i>Farm Animal Welfare</i> .....	100
MAFF 1992 <i>Lameness in Farm Animals</i> .....	292
Thornton K 1993 <i>Practical Outdoor Pig Production</i> .....	373
UVCE 1991 <i>Caring for Horses, Ponies and Donkeys, Part 1 Purchase &amp; Maintenance. Part 2 Nutrition (Food &amp; Feeding)</i> .....	294

## LETTERS

Bekoff M, Anthropomorphism and animal welfare revisited: Slater's challenge ..	296
Bradshaw R H and Bubier N E, The 'needs' of birds and mammals in the science of animal welfare .....	101
Eames M, Statistics of scientific procedures on living animals .....	191
Kourik S, Badger persecution .....	102
Stocker L, Wildlife rehabilitation .....	191
Warwick C, Captive polar bears .....	376