**UFAW Annual Report 2000**

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**UFAW'S OBJECTIVES**

UFAW is an internationally respected animal welfare charity. Its formal objectives are set out in detail in the memorandum of association. The Federation seeks to achieve these by:

**Changing attitudes and perceptions**

UFAW promotes a humane, caring attitude towards domestic and wild animals to reduce any stress, pain or fear inflicted upon them by humans.

**Encouraging care and consideration**

UFAW encourages consideration for the physical and mental needs of all animals under human stewardship: on the farm, in laboratories, in zoos, in the wild, and those kept as pets.

**Providing funds and enlisting expertise**

UFAW funds animal welfare research and enlists the help of animal handlers and research workers to discover the needs of different species and the ways in which such needs can best be met.

**Publishing and disseminating information**

UFAW publishes animal care handbooks, videos, leaflets, reports, and the journal Animal Welfare, to make information available to people who work with, are responsible for, or simply care about animals.

**Giving balanced and impartial advice**

UFAW provides balanced technical information and advice about animal welfare matters to other animal charities and organizations, educators, religious bodies, and Government departments.

**Care without confrontation**

UFAW promotes the use of non-animal alternatives in experimentation, the refinement of techniques to minimize discomfort and a reduction in the overall number of animals used. UFAW does not engage in public controversies relating to the general legitimacy of biomedical experimentation and use, as confrontation often prevents practical progress.

**UFAW meetings 1999-2000**

The UFAW Symposium on 'Consciousness, Cognition and Animal Welfare' was held at the meeting rooms of the Zoological Society of London on 11-12 May 2000. It generated a great deal of interest, with demand for places exceeding the numbers available. The conference was attended by 200 delegates from 17 countries and was introduced by the Lord Soulsby of Swaffham Prior. The meeting addressed scientific approaches to judging the range of taxa that may have the capacity for consciousness and to determining the range of phenomena of which they might be conscious - and which might affect their welfare (see p 5 for a more detailed report). The proceedings will be published as a supplementary issue of the journal, Animal Welfare.

UFAW organised a meeting at the British Association for the Advancement of Science 'Festival of Science' in London on September 2000. UFAW's session was entitled 'Animal welfare: how do we know when we have got it right?' The speakers were:

Dr Michael Appleby (University of Edinburgh), on 'Farm animal welfare: whose life is it anyway?'

Dr Christine Nicol (University of Bristol), on 'Stop doing that! Abnormal behaviour of chickens, pigs and horses.'

Dr James Kirkwood (UFAW), on 'Homo sapiens and the welfare of wild animals.'

On 28 October 2000 a Symposium on 'Releasing Wildlife Casualties - Ethical, Practical and Welfare Considerations' was held at the meeting rooms of the Zoological Society of London. This is being jointly organized by the British Wildlife Rehabilitation Council (BWRC) and UFAW. The survival upon release of wildlife casualties is of primary concern to anyone interested or involved in wildlife rehabilitation. The Symposium brought together leading experts in the study of wildlife health and ethics to discuss recent findings and current practice in wildlife rehabilitation - and to consider their ethical, practical and welfare implications for the wildlife rehabilitation community.

**From little acorns great oaks grow**

A three-year project by William Russell and the late Rex Burch at UFAW in the 1950s, resulted in their book The Principles of Humane Experimental Technique (copies of the 1992 reprinted edition of this work are available from UFAW). The key idea they advanced in their book, that of the '3Rs' approach to the use of animals in research, gradually took root and has grown both in the UK and more widely. The idea is now well-established as the cornerstone in the development of humane treatment of laboratory animals around the world, as was recently highlighted by the 'Declaration of Bologna', adopted at the 3rd World Congress on Alternatives and Animal Use in the Life Sciences (see box, p 4) at which Professor Russell was an honoured guest and speaker.

**THE YEAR IN VIEW**

**UFAW strategy and priorities**

UFAW's activities focus on the priorities identified in the 1997 review of its activities, namely:

i) encouragement and support of high quality research likely to lead to substantial advances in animal welfare;

ii) promotion of education about animal welfare particularly at the tertiary level; and

iii) promotion of animal welfare by provision of advice, dissemination of information, development of guidelines and legislation, and organization of workshops and meetings.

In 1998, UFAW established the Animal Welfare Research Training Scholarship scheme, making four awards in the past three years. This year (2000), a further scheme to support animal welfare research at the post-doctoral level was launched - the Animal Welfare Research Fellowship (see below). Advances in animal welfare science are also supported through the research and small project awards and some of the projects undertaken under these schemes are described in the following pages. (See pp 19-20 for details of all UFAW awards.)

The UFAW journal, Animal Welfare, now into its ninth year, has become a well-established, international periodical. It is currently taken up in 36 countries and subscribers include 147 university and college departments and libraries. It has a remarkably high 'impact factor' (an independent index of the quality of scientific journals) in view of its youth, and is ranked 24th out of 139 journals in the veterinary science category and 32nd out of 116 in the zoology category. This is a tribute to the efforts of the authors, referees, editorial board and staff involved. The journal is an important component of UFAW's endeavours to disseminate information on animal welfare. In demonstrating the scientific approach to tackling animal welfare problems, it has an important role around the world. This year, the first special issue - on the subject of genetics and animal welfare - was published (see p 16).

UFAW continues to put great effort into developing guidelines and codes for animal welfare. Our staff work with a number of other organizations and working groups in pursuit of practical and achievable advances. This year, staff have been active through the membership of various groups including: Council of Europe Expert Groups revising standards for laboratory animal care, BVAAWF/FRAME/RSPCA/UFAW Joint Working Groups on Refinement, the Zoos Forum and the Companion Animal Welfare Council. In addition, staff have provided information and advice to many other organizations in the UK and overseas including the Ministry of Agriculture Fisheries and Food, the Department of Environment, Transport and the Regions, and the Home Office.

Through championing the rational, sympathetic but unsentimental approach charted by UFAW's founder, the late Major Charles Hume, the charity plays a key role in the development of animal welfare in the UK and internationally. It is able to do this thanks to the generosity and loyalty of its supporters, whose help we most gratefully acknowledge on behalf of the charity.

**UFAW launches Animal Welfare Research Fellowship**

This year, UFAW launched a new award scheme to support developments in animal welfare science at the post-doctoral level. Applications were encouraged in the fields of design of housing for the welfare of laboratory animals and detection or alleviation of pain in animals. However, it was made clear that projects covering other aspects of animal welfare science would also be considered. There has been considerable interest in the scheme and the applications, which are currently under consideration, have been of a high standard. The grant panel hopes to announce the winner of the first award later in the year.

**UFAW Animal Welfare Research Training Scholarship**

We are delighted to announce the award of the 2000 Animal Welfare Research Training Scholarship to Ms Naomi Latham. Her project, 'Refining the role of stereotypic behaviour in the assessment of welfare: stress, general motor persistence and early environment in the development of abnormal behaviours', will be undertaken at the Department of Zoology, University of Oxford under the supervision of Dr Georgia Mason. The recipients of the award in previous years are:

1998 Ms Emma Harding, Dept of Clinical Veterinary Science, University of Bristol

1999 Mr Kenneth Rutherford, Roslin Institute, Edinburgh

1999 Ms Emma Smith, School of Biological Sciences, University of Bristol

**EDUCATION AND TRAINING**

Offering advice and practical help to those interested in improving animal lives remains a key UFAW objective. Other important objectives include providing platforms for the exchange of reasoned and balanced information about animals and their care, and the training of the next generation of animal welfare scientists. These are met through UFAW's programme of publications, workshops, symposia, visits and training scholarships.

**UFAW Symposium on 'Consciousness, Cognition and Animal Welfare'**

The first day of this successful Symposium was devoted to papers exploring consciousness, the second day to cognition. One popular view is that consciousness evolved because it gives the organisms that possess it some competitive advantage. Professor Marian Dawkins subscribed to this view in her talk and outlined six common pitfalls relating to definitions, inferences and assumptions about consciousness encountered by people working in this field. Her graphic image of crossing a river (representing the explanatory gap between what we know about how the brain works and the implications of this) from its left bank of firm scientific observation to the 'mysterious' right bank of consciousness via a series of 'shaky' analogies or arguments ('bridges'; see Figure below) made a resonant analogy which was picked up by many subsequent speakers.

Other speakers concerned themselves with the issue of which animals are likely to be conscious. Many of the speakers differed in where they felt the line could be drawn. Professor Bernard Baars argued for the early evolution of consciousness (in mammals) and discussed some of the difficulties in distinguishing conscious brain functions. He presented considerable evidence that he felt placed the burden of proof for the absence of subjectivity in mammals onto those who are sceptical of such a conclusion. Dr Bob Bermond, presented one such sceptical, opposing view, arguing that consciousness is a late-evolving feature. Professor Larry Weiskrantz discussed how findings which indicate that an animal can report on its own experience of its behaviour, eg that the animal is aware it has blindsight (a condition in which the subject can discriminate visual events but is not aware that it can do so), strengthen arguments for conscious experience. Professor John Taylor detailed what neural network models of the mind indicate about animal consciousness and concluded that the parietal lobes of the brain are essential sites for animal consciousness.

Dr Chris Sherwin presented a thought-provoking talk describing how invertebrates often behave in a strikingly analogous way to vertebrates, showing short- and long-term memory, complex spatial, associative and social learning etc. He argued (if argument by analogy is robust) that they may, therefore, be capable of suffering in a similar way to vertebrates. Dr Alain Tschudin reported an elegant set of experiments demonstrating that dolphins seem to be capable of attributing mental states to other animals. Dr Mike Mendl explored what the welfare implications are for animals which are able to form links between environmental cues and negative events. He argued that the welfare of such animals, which are capable of possessing emotionally labelled memories, may be less compromised if they possess higher cognitive abilities (as they might be able to see an end to the suffering) than if they possess little cognitive ability (where their suffering would be all-consuming). Many other interesting talks were also presented. The full proceedings will be available as a supplement to the journal Animal Welfare.

The task of summarizing the two days fell to Professor Ian Duncan, who concluded that the Symposium had shown that there was plenty of evidence on Professor Dawkins' left bank - ie scientific 'fact' - but still relatively few guides for those working on the right bank (of consciousness). He also pleaded for more research on the subject of where, in ontogenetic development, sentience starts; and for more studies investigating animal emotions (especially pleasure), rather than the information-handling capacities of animals.

**Vacation Scholars' meeting**

The Vacation Scholars' meeting, which gives Scholars the opportunity to talk about their studies and the implications of their findings, is becoming an established part of the UFAW calendar. The 1999 Vacation Scholars' meeting took place at the University of Bristol's Veterinary School in February. Professor John Webster welcomed the scholars, who presented their talks to an audience of animal welfare scientists, second year veterinary students and other interested parties. UFAW was privileged to welcome Professor William Russell to address the meeting on the topic of 'The 3Rs'. The panel of judges (which included Professor Russell and last year's winners) awarded the prize for best speaker to Laura Quirey (Queen's University of Belfast) who discussed 'The effect of enclosure size on the behaviour and physical characteristics of the corn snake'. Professor Russell kindly presented the prize (£100 and a year's free subscription to Animal Welfare) to Laura Quirey on behalf of UFAW. He also gave signed copies of his seminal work The Principles of Humane Experimental Technique to her, and to Kirsten Howard (University of Aberdeen) for her highly commended talk on 'Effect of pre-natal nutrition on hoof tissue development in sheep'. UFAW would like to extend its congratulations to all the Scholars who maintained the high standard of presentation set by last year's inaugural meeting.

The next Vacation Scholars' meeting will be held at Anglia Polytechnic University on 1 February 2001. If you wish to attend or require further details please contact Stephen Wickens (e-mail: wickens@ufaw.org.uk) at UFAW.

**Developing carers and careers in animal welfare**

The Vacation Scholarship scheme continues to prove popular with students, generating a substantial number of high quality applications each year. One of the goals of the Vacation Scholarships was to encourage an interest in animal welfare science among university and college students. This has been achieved with considerable success - many previous Scholars have gone on to pursue related careers and/or conduct further research into animal welfare issues. UFAW was pleased to hear that 1998 Scholar, Deborah Ottway is now a postgraduate at Anglia Polytechnic University; and that 1999 Scholars Kirsten Howard and Francesca Di Marco have both lined up animal welfare research posts for when they graduate this year. Lisa MacDonald is to have a paper on the subject of her 1998 Vacation Scholarship project ('The effect of increased visual horizons on stereotypic weaving in the horse') published in the journal Applied Animal Behaviour Science.

**UFAW's programme of lectures and visits**

UFAW staff visit universities and colleges across the country, talking about UFAW's work and contributing to undergraduate and postgraduate teaching on the animal welfare sciences. In the past year Anglia Polytechnic University, Bicton College, Brinsbury College, Broomfield College, Capel Manor, De Montfort University, Royal Veterinary College, University of Birmingham, University of Bristol Veterinary School, University of Cambridge, University of Liverpool, University of Southampton and Sparsholt College were among those visited. Talks were given to various other groups with an interest in finding out more about animal welfare eg the British Veterinary Nursing Association, the National Canine Defence League, Leighton Buzzard Rotarians, Hoddesden and Bushy Meade Women's Clubs, and University of the Third Age groups in Harpenden, Stevenage and Welwyn/Hatfield.

**Any university, college or organization, interested in hearing more about UFAW's work and/or animal welfare science is invited to contact UFAW's Development Officer, Stephen Wickens (e-mail: wickens@ufaw.org.uk), to discuss possible lectures or talks.**

**UFAW Vacation Scholars - 2000**

Among this year's 42 applications, proposals to investigate the welfare of farm animals were the most numerous, with studies on wild animals (captive or otherwise) coming a close second. Given that some 2.5 million animals are used in scientific procedures each year, it is perhaps surprising that relatively few applications were received to investigate the welfare of these animals. This is an area that UFAW hopes will be of greater interest to potential Scholars next year.

As in previous years, the applications of the following successful applicants all showed a great degree of detailed planning and had clearly identified goals. We look forward to receiving their reports:

**For more information about the UFAW Vacation Scholarships or to obtain an application form contact UFAW's Scientific Officer. Applications are invited from undergraduates on veterinary, biology, agriculture, and other animal-related science course as well as from students of law, philosophy or economics who wish to pursue animal welfare-related issues within these subjects.**

**FARM ANIMALS**

One of the major ways in which UFAW contributes to developments in farm animal welfare is through the publication and dissemination of the journal, *Animal Welfare*. The journal carries many papers on investigations of farm animal needs and how these can be met. The charity also contributes by supporting research and through promoting education on farm animal husbandry and welfare. UFAW's book, *Management and Welfare of Farm Animals, 4th edition* (edited by R Ewbank, F Kim-Madslien and C B Hart, published in 1999, and available from UFAW), is used widely in veterinary, agriculture and animal care courses.

**Stone chewing in outdoor pigs...**

Prolonged and repetitive stone chewing is common in adult pigs kept in outdoor units. The Farm Animal Welfare Council, in its report on the welfare of pigs kept outdoors, recommended that research be undertaken to discover its causes. In a recent study funded by UFAW, Dr Ian Horrell of the Department of Psychology, University of Hull, investigated stone chewing behaviour. He found that the amount of stone chewing varied with environment and sex: from very little (0.8% of time) in wild boar kept in semi-natural conditions to 46 per cent of time in sows kept in rectangular paddocks on arable land with little vegetation. His observations led him to suggest that the behaviour is a stereotypy. He found that the incidence of stone chewing peaked 45-75 minutes after animals had eaten their brief daily meal and that, at this time, at least 50 per cent of pigs kept in paddocks were stone chewing at any moment. He also noted that the amount of stone chewing greatly increased if daily rations were reduced. Dr Horrell concluded that stone chewing may be a reflection of a thwarted need to forage or chew and is a sign of sub-optimal welfare, reflecting persistent hunger and restricted opportunities to forage and chew. He suggested two practical approaches that might result in welfare improvements. First, (if economics do not allow an increase in feed level) it may be possible to increase foraging opportunities through environmental enrichment; and second, it may be beneficial to disperse feed to increase the amount of foraging needed to ingest meals.

**...and its development**

Under Dr Horrell's supervision, Alexandra Hamblin (University of Hull) pursued one aspect of this work as a UFAW Vacation Scholarship project during 1999. She investigated the development of stone chewing behaviour in outdoor-reared piglets. If the stone chewing stereotypy is a reflection of a 'need to chew' then it would be unlikely to be seen in young piglets while they are still receiving adequate nutrition from their mothers. To investigate the possibility that the emergence of stone chewing was influenced by the social 'lead' set by the mother, its incidence was compared throughout the 4-week suckling phase between piglets that were free to follow their mothers and those confined to an area at the entrance of their accommodation. Alexandra observed stone chewing in piglets as young as 7 to 14 days old. However, she found no correlation between the amounts of time spent stone chewing by the sows and by the piglets. Her results suggested that stone chewing is not a socially learned behaviour and that the stone chewing in young piglets is not the same stereotypic behaviour as that seen in the adults.

**Welfare of draught animals in Pakistan**

It is estimated that some 300 million animals are used worldwide for draught purposes and play a pivotal role in many developing countries. In Pakistan there are about 11 million draught animals drawn from a variety of species including cattle, buffalo, camel, donkey and horse. They are used in ploughing 70 per cent of the total cultivated area of the country - about 12 million hectares per annum - and for pulling carts and carrying loads.

In 1999, supported by UFAW funds, Dr Syed Hassan Raza of the Department of Livestock Management, University of Agriculture, Faisalabad, undertook a study of draught animal use and welfare in rural and urban areas of Pakistan. Dr Raza was prompted to undertake this study by concern over the lack of knowledge about draught animals. As he put it: 'the welfare aspects of domestic and draft animals have been seriously ignored and neglected in Pakistan from the inception of the livestock industry'. He found that overloading was a common cause of stress and attributed the majority of cruelties to financial constraints (61% of cases) or to poor education (23% of cases). Dr Raza's recommendations include: the establishment of standards for loading in relation to species, sex and working method; provision of education on draft animal management and health; and improvements in vehicle design.

**Welfare effects of clipping dirty cattle in lairage**

Under the UK's *Fresh Meat (Hygiene and Inspections) Regulations* 1995, the slaughtering of dirty animals is prohibited since it is impossible to avoid contamination of the carcase during skinning if the hide is heavily contaminated. Public health concerns have led to strict enforcement of these regulations and, in some meat plants in Northern Ireland, facilities have been installed to clip cattle in lairage. Clipping involves restraint and subjecting animals to a procedure involving handling and noises with which they are not familiar. Concern that this might not be in line with the Farm Animal Welfare Council's (1985) recommendations that animals should be allowed 'unimpeded movement forward in a calm, unhurried atmosphere and with the risk of physical damage and stress being kept to a minimum', prompted David Donnelly (Division of Food Animal Science of the University of Bristol School of Veterinary Science) to study the impact of clipping in lairage as a UFAW Vacation Scholarship project.

David compared various behavioural indices and cortisol levels in blood collected at slaughter from 100 animals that had been clipped in lairage with results from 100 animals that had not. He found that clipped animals slipped or jumped significantly more than unclipped animals and considered that this put them at a greater risk of injury. He also found significantly higher cortisol levels in clipped animals. In the light of these results, David emphasized that the obligation lies with farmers to send animals to slaughterhouses in a clean condition and his report includes suggestions to help them ensure that the necessary hygiene standards are attained.

**LABORATORY ANIMALS**

The use of animals in research is controversial, but is an area in which UFAW has a major impact in advancing animal welfare. UFAW achieves this by avoiding sterile debates. We concentrate instead on advancing the '3Rs' (**R**eplacement, **R**eduction and **R**efinement) originally conceived by the UFAW researchers Russell and Burch in *The Principles of Humane Experimental Technique*. UFAW achieves this by funding research to gain information, by publishing guides on refining animal housing (notably the recent, 7th edition of the *UFAW Handbook on the Care and Management of Laboratory Animals*) and by visiting research institutions to provide advice on animal welfare. In the last year, staff have been invited to several breeding and supplying organizations and asked to comment on animal house plans by a contract research organization. In response to a request by a large pharmaceutical company, UFAW provided a detailed report on their animal housing standards. UFAW staff are also active in advancing the ethical review process, which is now required for all establishments carrying out animal experimentation. UFAW staff serve on several Ethics Committees and the Deputy Director has given presentations on the lay member's role and requirements to a forum organized by the RSPCA (see, Jennings M and Smith J (eds) (2000) *Notes from a Lay Member's Forum - an Inaugural Meeting Held on Friday 5 November 1999*. RSPCA: Horsham).

**Laboratory animal breeders' workshop**

In January 2000, UFAW organized a small workshop, hosted by SmithKline Beecham to identify the impact of the user/breeder interface on animal welfare. Potential problems include purchasers' requirements for perfect animals, which may result in unnecessary deaths of animals that do not comply. Unreasonable expectations concerning supply time may also result in breeders maintaining larger stocks than necessary to meet unexpected demands. Other issues included the degree of health screening required (just because a test exists does not mean that it is necessary); and the effects of competition with breeders in other countries (some of whom may not have to comply with welfare standards as high as those in the UK).

There have been a number of recent closures of breeding and supplying organizations. For example, this last year saw the closure of the UK's major primate importer. Some animal rights organizations see this as a victory, but global animal welfare is not necessarily advanced by such events. This closure is unlikely to lead to a reduction in non-human primate use worldwide, even if it does in this country. If primate use is exported to countries with lower welfare standards, this will reduce their welfare. Transport times for primates into the UK will probably increase, which could also affect their welfare. UFAW is currently collaborating on a project to provide objective data to establish the effects of transportation on non-human primates.

**Laboratory animal husbandry refinement meetings**

UFAW has continued to encourage the spread of best practice in laboratory animal husbandry by organizing special interest meetings for veterinarians, animal care staff and animal house managers. In December 1999, the UFAW/RSPCA Rabbit Behaviour and Welfare Group met at Merck Sharp & Dohme. Its sister group, the RSPCA/UFAW Rodent Welfare Group, met in September 1999 at the University of Cambridge. Encouraged by the success of these meetings, UFAW organized a new Carnivore Welfare Group, which held its first meeting at Pfizer UK in Kent in March 2000. This meeting was so popular that demand for places far exceeded capacity. In addition to scientific presentations on animal care and housing systems, these groups offer an excellent chance to exchange experiences in an informal atmosphere, and there is often the opportunity to tour a facility. For further details of these groups please contact Dr Robert Hubrecht at UFAW (or e-mail: hubrecht@ufaw.org.uk).

**Revision of the European convention for the protection of laboratory animals**

The *Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes* (ETS 123) provides recommendations on minimum standards of housing and husbandry for laboratory animals. While these are not mandatory, they do influence European Commission Directives, and some Member States' national legislation, and are therefore important. The work of revising the convention has continued throughout this year, with UFAW making a significant contribution to the process. UFAW staff have been providing active input as members of working groups charged with drawing up proposals for changes to *Appendix A*, and the Deputy Director attended the Working Party meeting in Strasbourg which received these proposals. Although the UK has been complying with the Convention for many years, it only became a signatory to the Convention in the last year, and this has given it much greater influence within the Working Party. The process of revision is long, but will probably end at the next Multilateral Consultation in December 2001. However, even at this early stage, some of the draft proposals for different species groups already represent considerable improvements on the original 1986 version. Instead of bare tables of minimum cage dimensions, and temperature and humidity guidelines, the proposals contain information and advice on species-specific needs and natural history. There is much more emphasis on providing appropriately enriched environments for the animals, and it is likely that changes in cage dimensions will be set which reflect these needs. UFAW intends to continue with its work in this area.

**BVAAWF/FRAME/RSPCA/UFAW Joint Working Group on Refinement**

This productive group has recently completed two reports - on the refinement of substance administration, and on bird husbandry - which should be published in the coming year. The group is currently working on a report concerning refinements in the production and husbandry of transgenic mice.

**Liaison with the pharmaceutical industry**

The Pharmaceutical Housing and Husbandry Steering Committee (PHHSC) established by UFAW in 1998 is currently funding a PhD position at the University of Edinburgh. The post holder is conducting research into rabbit husbandry by measuring the motivation of rabbits for various types of social contact. This funding not only advances animal welfare science but also helps to train the next generation of animal welfare scientists. It is, therefore, very pleasing that the PHHSC plans to build on the success of this project and has advertised for applications for another PhD position. (The deadline is 27 October 2000, please contact the UFAW office for further details.)

**COMPANION ANIMALS**

Anyone who keeps and cares for a companion animal does so in the belief that they have the best interests of the animal in mind, and yet large numbers of them are abandoned or given up for rehoming each year and many animals die or suffer through their owners' lack of knowledge. Surgical procedures to better fit companion animals into the environment or aesthetic image in which we wish to keep them are commonplace, yet often not in their best interests. While poor standards of husbandry in farms or laboratories are rightly criticized, failures by pet owners to reach similar standards often pass unremarked. As Professor Bernard Rollin, the animal ethicist, has stated, 'issues of companion animal welfare are often too close to home to be seen by members of the general public'.

If the welfare of companion animals is to be improved, it is important that owners are educated as to the needs of their particular pet and that they consider carefully whether they can provide a suitable environment for the animal to live in before they take on responsibility for its care. As companion animals may interact with native wildlife, it is also important for owners to be aware of and balance the welfare interests of wild and companion species.

Some of the varied projects UFAW has supported this year on aspects of companion animal husbandry and welfare are outlined briefly below.

**Feeling stressed? Try a good groom**

Next time you think your horse is stressed and want to relieve this condition, try a quick grooming session. This is the suggestion made by 1999 Vacation Scholar Susan Hannaby in her report on 'Implications of grooming for the behaviour and welfare of domestic horses'. In her study, Susan investigated the effects of grooming horses at three different sites on their bodies: the loins, shoulder and base of the neck. She discovered that grooming a horse at the base of the neck had a temporary but significant effect on heart rate. The decrease in heart rate that she detected, did not occur when horses were groomed at the other two sites, and was not significantly affected by the length of the grooming session (3 or 9 minutes). Her report concluded that while grooming at a preferred site cannot be said to improve the general welfare of the horse, it may be a technique by which horses can be accustomed to human contact and by which (potential) stress could be attenuated.

**Is mixed-species housing a good idea?**

Pet rabbits and guinea pigs are often housed together, yet little is known about the effects (good or bad) of mixed-species housing. Alan Wolfe, a 1999 Vacation Scholar from the University of Glasgow, examined whether co-housing these animals represents a practical way of saving space while maintaining welfare. He found that the practice was not obviously detrimental to the health and welfare of either species - as very little fighting was observed in mixed groups. It was not clear from his study whether co-housing (in companion or laboratory animals) might actually be beneficial: weight gains were higher among animals in mixed-species enclosures. The reason for this difference proved hard to determine, but did not seem to be due to differences between the housing conditions or in the animals' food intake or activity. Alan also suggested that co-housing might provide some form of enrichment, as guinea pigs in mixed accommodation investigated their environment more than those kept in single species groups.

**Belling the cat - is it effective?**

There are an estimated 8 million domestic cats in Britain. A recent survey by the Mammal Society suggested that these cats have a significant impact on wildlife, being responsible for some 300 million wild animal and bird deaths a year. In addition, the welfare impact on prey species that escape alive can be severe. One traditional method employed by concerned owners in attempts to reduce predation is to attach a bell to the collar of their cat, hoping to alert potential prey to their cat's presence. However, evidence from previous studies on cat predation suggested that wearing a bell might actually be counter-productive and increase predatory success. Jessica Wright, a 1999 Vacation Scholar, decided to investigate how effective a bell was in reducing predation.

Jessica, who is studying at the Glasgow University Institute of Biomedical and Life Sciences, asked 22 cat owners in Cumbria and Argyll to record the number and type of prey items returned by their cats between May and July 1999. The predatory success of each cat with and without a bell was compared; each cat wearing a bell for 4 of the 8 weeks of the study period. She found that birds and mammals were the commonest prey, but that significantly fewer birds and mammals were returned during those periods when the cats were wearing a bell. There was no such inhibiting effect of the bell for amphibian prey, although amphibians experienced lower levels of predation than birds and mammals. During the course of the study, Jessica did not find any evidence that the effectiveness of the bells in decreasing predation success declined, as would be expected if the cats were able to adapt their hunting style to compensate for the presence of the bell. Her study strongly suggests that the predatory impact of cats on wildlife could be reduced if more owners attached bells to their cats.

**Spaying for mañana**

Spay and neuter programmes are recognized as the most effective and humane means of controlling the number of unwanted feral companion animals. UFAW, through its Lorna Gascoigne Trust Fund, is able to provide occasional support to smaller charities to help implement such programmes. This year, UFAW gave a small grant to PAD (Protección de Animales Domésticos) to support one such programme directed primarily at feral cats in the Mijas and Fuengirola area of southern Spain.

**The Companion Animal Welfare Council (CAWC) gets down to business**

UFAW continues to contribute financial support the work of the Companion Animal Welfare Council (CAWC). Now in its second year, CAWC is working to address its goals which are: i) to provide advice on the welfare of companion animals and the publication of findings; ii) to further the fuller understanding of companion animal welfare and the role of companion animals in society; and iii) to assess existing legislation affecting the welfare of companion animals, and make recommendations regarding amendments or additions thereto. In the last year UFAW has received and responded to CAWC's calls for evidence on: companion animal identification and registration (either voluntary or mandatory); and on the setting of standards of operation for rescue centres and methods for their control and regulation. UFAW keenly awaits CAWC's reports on these investigations, and looks forward to helping CAWC continue to work towards its goals in the future.

**ZOO AND WILD ANIMALS**

UFAW is concerned with the welfare of wild animals in captivity and also with preventing or alleviating welfare problems caused by humans in free-living wild animals. A few examples of UFAW's many and varied initiatives in these fields during the past year are given below.

**Wildlife health**

During 1998 and 1999, UFAW's Scientific Director organized and acted as Secretary at a series of meetings of a group brought together under the auspices of the Environment Agency to discuss the investigation and monitoring of wildlife disease and mortality incidents in the UK. In February 1999 this Working Group on Wildlife Health submitted a report to the Department of the Environment, Transport and the Regions (DETR) arguing the need for greater effort and better coordination of work in this area to improve the detection of anthropogenic threats to the conservation and welfare of wildlife in the UK. We are pleased to note that the report appears to have been persuasive and that the DETR has now indicated its intention to fund a study into the feasibility of establishing a centre for wildlife disease, pathology and forensic investigations.

**Zoo Animal Welfare Awards**

Each year UFAW offers prizes for improvements and innovations in housing, equipment or husbandry which enhance zoo animal welfare (see p 20). We received 14 applications for this year's awards from UK zoos, and a single award was made for the best new animal accommodation. The judges congratulate all entrants on the high standard of submissions.

This year's winner was Bristol Zoo Gardens, for its new exhibit: 'Seal and Penguin Coasts'. This exhibit houses African, gentoo and king penguins (*Spheniscus demersus, Pygoscelis papua and Aptenodytes patagonia*) as well as Inca terns, common eider ducks, and great cormorants (*Larosterna inca, Somateria mollissima and Phalacrocorax carbo*) in one enclosure; a second enclosure houses South American fur seals, Arctocephalus australis. The walk-through exhibit provides visitors with a series of varied and spectacular viewpoints of the animals and their enclosures. Starting above ground, with a view of a rocky coast inhabited by penguins, terns, ducks and cormorants, the trail continues through an information centre, housed in a shipwreck, to the fur seals. Visitors then descend below water level, where the grace and agility of these animals is displayed through viewing windows. UFAW's zoo awards are given for exhibits that advance animal welfare - and in the view of the judges this one met the needs of the animals and was also well designed and flexible, facilitating animal management for health (or other) reasons.

Important features were the use of salt water, which is better for the animals' eyes than chlorinated water, and the choice of substrates and microhabitats. Although the site is small, the design maximizes the space available to the animals and allows them a choice of substrate and levels. The judges considered that this exhibit encouraged a feeling of respect for the animals, was easy to manage and provided a dramatic improvement in welfare over the previous enclosure. An award ceremony will be arranged at Bristol Zoo Gardens, later in the year.

**Social status and welfare in captive mara**

With the mara, *Dolichotis patagonum*, under threat in its natural environment in South America, captive management of this species may play a role in its future conservation. Previous studies of captive mara have indicated that unpaired 'bachelor' males might be at a welfare disadvantage - and post-mortems of these individuals have revealed markedly enlarged adrenal glands (a sign of stress). In 1999, UFAW Vacation Scholar Francesca di Marco (Anglia Polytechnic University) set out to investigate whether bachelor males were more stressed than other males. Unfortunately, her attempts to measure another indicator of stress (faecal corticosteroid levels) using a standard assay technique were unsuccessful. Francesca did, however, observe that unpaired males had a significantly higher intensity of infestation with gastro-intestinal parasites; but, contrary to expectations, she found that bachelor males experienced less male-male aggression than those paired with females.

**Zoo Outreach Organisation India**

During the year, the Zoo Outreach Organisation (ZOO), which has received support from UFAW over several years, produced six issues of its publication *Zoo Zen* on animal welfare themes, drawing on papers published in *Animal Welfare*. These issues were distributed to welfare organizations, veterinary colleges and policy-makers in India. With UFAW's support, ZOO runs an information exchange network providing literature on animal care, husbandry and medicine to the zoo and wildlife community in India and more widely in Asia. In the coming year, ZOO is planning to organize a workshop on zoo animal nutrition in Nepal. We would like to thank to all those who responded to UFAW's Spring Appeal for funds to further assist the work of ZOO.

**Environmental enrichment for fruit bats**

In 1998, UFAW supported a study by Kirstine O'Connor (Glasgow University Institute of Biomedical and Life Sciences) into the use of mealworm dispensers as environmental enrichment for captive Rodrigues fruit bats, *Pteropus rodricensis*. Despite their name, these bats are not exclusively frugivorous. Her study, undertaken at the Jersey Wildlife Preservation Trust, has now been completed and its results were recently published (Mealworm dispensers as environmental enrichment for captive Rodrigues fruit bats, *Pteropus rodricensis. Animal Welfare 9*: 123-127). The dispensers released mealworms in an unpredictable manner and, in encouraging the bats to look for the food, approximated the contingent nature of foraging in the wild. When the dispensers were in use there was a marked decrease in the number of observations of aggression and an increase in foraging behaviour.

**UFAW promotes zoo animal welfare in Brazil**

UFAW was delighted to grant permission to the Fundaçao Zoo-Botanica de Belo Horizonte, Brazil to translate the UFAW video *Environmental Enrichment: Advancing Animal Care* into Portuguese for distribution at the XXIVth Congress of the Brazilian Zoo Society and Vth International Zoo Meeting, held at Belo Horizonte in May 2000. Animal welfare was further promoted at this meeting through a series of workshops for Brazilian and other zoo professionals on 'Animal behaviour and animal welfare in captivity'. These were run by Dr Robert Young of De Montfort University, to whom UFAW had awarded travel funds for attendance.

**INFORMATION SERVICES**

Creating and disseminating animal welfare-related information is an important part of UFAW's work. Animal welfare problems often arise from a lack of appropriate knowledge about the needs of animals and how these can best be met. Changes in legislation, technology and husbandry can resolve old problems - and also create new ones; and our understanding of animal welfare science is advancing all the time. Information about new developments of relevance to animal welfare must be passed on to those working directly with animals or concerned with policy-making, but it also needs to be explained to the wider community. UFAW aims to provide information to all who require it, working across a range of media

**Books, videos and leaflets**

UFAW produces, or supports the production of, numerous publications to raise general awareness of the issues involved in and importance of animal welfare - and which provide practical information about animals and their handling, management and care. While UFAW is perhaps best known for its handbooks, aimed mainly at students and animal technicians, some of its other publications are proving of enduring and widespread appeal: this year, saw UFAW's video *Environmental Enrichment: Advancing Animal Care* translated into Portuguese for the benefit of Brazilian zoo professionals. A full list of UFAW's publications and productions is available on request.

**The journal *Animal Welfare***

*Animal Welfare* was established in 1991 to disseminate information on the latest research and developments in animal welfare. For the third successive year its ranking rose among the top 25 per cent of international veterinary/zoological journals covered by the *Science Citation Index* - attesting to the quality and impact of its contents. The November 1999 issue (8:4) of Animal Welfare, was published as our first special issue, on 'Genetics and Animal Welfare' (single copies available from UFAW, priced at £15.00 or US$30.00). The final selection of nine, stimulating papers ranged from considerations of the ethical aspects of breeding and transgenics through to very applied discussions of the problems and potentials presented by genetic techniques in sheep, poultry and dogs. As expected, this new venture attracted further, well-deserved interest in the journal from the academic constituency and there has been an increase in the number of subscriptions and submissions to the journal. Following the success of the special issue, UFAW now plans to publish the full proceedings of the UFAW Symposium 'Consciousness, Cognition and Animal Welfare' (see overleaf) as a supplement to Volume 10 of the journal.

**UFAW's 75th anniversary**

The year 2001 will mark UFAW's 75th anniversary. We are still considering the possibility of producing a brief history of the charity, to mark this milestone in its development. We thank all those who responded to the appeal in the spring *News-sheet* for publications, anecdotes, pictures etc illuminating UFAW's past - and we would welcome further material or information. Please contact the UFAW office if you are able to help.

**Enquiries and resources**

UFAW is widely consulted on matters relating to the biology, management, health and welfare of domestic and wild animals; on the drafting of legislation and codes of practice; and on other legal and ethical matters. Enquiries reach us from all parts of the globe. Although we are a small organization, UFAW has a large and cosmopolitan network of contacts - and if we don't know the answer to a query ourselves, we almost certainly know someone who can help. UFAW's Scientific Officer, Jenny Lynch, recently constructed a very useful research tool for dealing with enquiries. This is a searchable database of all the Vacation Scholars' reports and all publications produced by UFAW or those associated with the charity since 1927. To further support UFAW's role as an information resource, we have a small but appropriately stocked library, which our members are welcome to visit (by appointment).