

individuals and have been used in research for decades, particularly in the field of genetics.

The aim of the website, as set out on the home page, is to reduce the number of animals used in research and to improve the quality of such research through the choice of more appropriate strains of animals. The website consists of 10 web pages (including the home page) which explore the arguments in more detail: Overview, Ethical Considerations, Isogenic Strains, Outbred Stocks, Multi-strain Experiments, Derived Strains, FAQs, Literature, and About. The toolbar on the left-hand side of each page contains links to all pages, thus aiding navigation around the site.

The page entitled 'Overview' sets out the reasons why isogenic strains are preferable to outbred stocks in biomedical research, describes the properties of both, and explains how isogenic strains should be used. The author states that "... the use of outbred [strains of] rats and mice is no longer ethically, scientifically or economically acceptable unless specifically justified. It leads to poorly designed experiments which waste animals, money and scientific resources, and slows the pace of research." There then follows a list of reasons why using outbred strains can often be considered 'wrong', and a brief discussion of each of the four major classes of mice and rats used in research: outbred stocks; isogenic strains; mutants and polymorphisms; and genetically modified animals.

The page entitled 'Ethical Considerations' examines the use of isogenic strains in the context of animal welfare, through discussion of the Three Rs principle. Much of the focus is on 'reduction', which is the most relevant given the assertion that the use of isogenic strains reduces the numbers of animals required for experiments. Both pages relating to 'Isogenic Strains' and 'Outbred Stocks' define the terms more clearly and include details of the nomenclature and general properties of each, whilst the page on 'Multi-strain Experiments' is rather complex and is perhaps best reserved for those actively involved in this type of research.

A useful FAQs page is included which answers the most common questions posed on this subject in a clear and logical manner. Such questions include 'How can I use more than one inbred strain without increasing the total number of animals which I use?', 'What if the inbred strain I chose were to be genetically resistant to the chemical [being tested for toxic effects]?', 'Is the use of outbred stocks ever justified?', and 'Is there any type of research for which inbred strains are unsuitable?'

Further information including a list of peer-reviewed papers (including the abstracts) can be found on the page entitled 'Literature', whilst the page 'About' contains detailed notes on the website's author. Given that the website is aimed primarily at those using mice and rats in biomedical research, those less familiar with this field may find some of the concepts and discussions rather complex, particularly the section on multi-strain experiments. It is, however, a very useful tool for those in this field and sets out clearly the benefits to animal welfare of using isogenic strains.

Festing M (2005) Website on the use of isogenic strains of mice and rats: www.isogenic.info

NB This website is still under construction and as such its contents is subject to change.

K Parkes

UFAW

A guide to animal welfare and its assessment in zoos

Conceived as a supplement to the UK Secretary of State's Standards of Modern Zoo Practice (SSSMZP), the Zoo Forum Handbook seeks to act as a 'living' document that reflects new developments in animal management and best practice. Like previous chapters, which dealt with 'The ethical review process', 'Conservation and education and research' and 'Sustainability initiatives in UK zoos', the latest — on 'Animal welfare and its assessment in zoos' — does not seek to be an exhaustive source of information. Rather, it aims to assist zoos and zoo inspectors through the addressing of key animal welfare issues that should be of concern to the zoo community, and by providing guidance on where further information on these can be sought.

The first section of the chapter lays out the principles and concerns that inform what follows, including the authors' premise that concern for animal welfare is based on 'the quality of subjective feelings' experienced by an animal and that the welfare goals of zoos should be: "to minimize risks of poor welfare, to recognize and deal promptly with welfare problems and to play a role in advancing knowledge of zoo animal welfare".

The chapter then addresses the means by which animal welfare can be assessed. The SSSMZP specifies many resource (or environmentally) based indices that could be used to assess welfare, but as the chapter points out the use of animal based indices, although more subjective and difficult to obtain, offer a direct means of assessing the welfare of the animal itself. A variety of 'tools' that could be used to assess welfare — characterized as behavioural, physiological or clinical and pathological — are then described, including why each may be useful, an example of how each has been used and any caveats and/or limitations of the tool. Tools detailed include: assessment of approach/avoidance behaviour and apathy as indicators of welfare status; heart rate and immune measures as tools of welfare assessment; and the use of health and husbandry records.

Another area of note outlined in the chapter are the recommended roles and responsibilities of keepers, senior keepers, curators and zoo inspectors in the assessment and auditing of welfare. The Handbook argues that to maintain high standards, best practice indicates that a welfare audit should be carried out as a biannual or annual event, with the core activity of such an audit being the review of records of veterinary and husbandry matters by senior management so that priority areas of action to address welfare concern are highlighted. Also outlined is the need for staff to keep abreast of scientific developments in our understanding of animals and their needs and the role for zoos in refining such

developments, so that they better reflect species-specific needs. To achieve this, the authors encourage zoos to take advantage of the growth of interest in animal welfare science at universities through greater collaboration.

Despite the many important points raised by the above, it is likely that the section of this informative and worthwhile addition to the Handbook that will be referred to most often is Appendix 2, which outlines the animal welfare audit systems of the Zoological Society of London and of Chester Zoo and which gives examples of the documentation used by both.

Chapter 4. Animal welfare and its assessment in zoos. Addendum to Zoos Forum Handbook (September 2005). Produced by the Zoos Forum. 79 pp A4 loose. Published and available from the Global Wildlife Division of Defra, 1/16 Temple Quay House, 2 The Square, Temple Quay, Bristol BS1 6EB, UK; telephone 0117 3728686; website: www.defra.gov.uk/wildlife-countryside/gwd/zoosforum/handbook/index.htm

S Wickens

UFAW

Recommendations on the use of snares in the UK

As part of a review of the use of snares, the UK's Department for Environment, Food and Rural Affairs (Defra) published a Code of Practice on the *Use of Snares in Fox and Rabbit Control* in October 2005. Based on the principle that snares and traps should remain available to land managers as a legal method of dealing with particular species, this review is the first of the area in the UK since the introduction of the 1981 Wildlife and Countryside Act. Also published at this time were two related reports: from the Independent Working Group on Snares (IWGS), set up to identify and address areas of practice of particular concern regarding the use of traps and snares and to produce recommendations to improve their humane use, and the UK Government's action plan published in response to the IWGS report, which includes details of future research priorities in the area.

In the UK, snares are used as a means of restraining an animal prior to its dispatch, rather than as the primary means of killing it. The new Code of Practice details the legal obligations for people using snares in England and Wales, and gives specific guidance on the siting, setting and subsequent inspection of snares. As stated in the Code, section 11 of the UK Wildlife and Countryside Act requires that when setting a snare it must be free running, ie it must relax when the animal stops pulling, and forbids the use of self-locking snares, which continue to tighten by a ratchet action as the animal struggles. The Code also states that snares must only be set at sites likely to be used by the species that is to be controlled and that care must be taken to avoid areas where there is evidence of regular non-target species usage. To aid with this requirement, information on how to detect and distinguish between usage by different species is listed. Additionally, to reduce the chances of the target animal detecting the presence of a snare, the Code gives guidance on how to prepare a snare, recommending

that it is boiled prior to use to reduce its odour and that, subsequently, any exposure to human or other strong odours through handling or other contact is minimised. Once set, it is recommended that a snare is checked twice per day, ideally at dawn and dusk, and humane methods of dispatch of any rabbit or fox snared are detailed. Also detailed, is species-specific advice on how the legal requirement that non-target species that have been caught be immediately released might best be achieved.

The element of the Code that is likely to have the most far-reaching impact, however, is the establishment of the principle of carrying out a cost/benefit analysis prior to the deployment of any snare. It suggests that this analysis should seek to assess the need to control the population, the humaneness of the method of control and the probable welfare impact on the target species, and possible risks to non-target species of the use of snares. Whilst such analyses have been required for some time in other areas of UK legislation, eg relating to the use of animals in scientific procedures, the recommendation that this principle be used in the area of wildlife management is new, and one that may prove to be influential. Anyone seeking further guidance on how to carry out such an assessment is directed, however, not to the Defra Code of Practice — which omits this guidance — but to section 3 of the Independent Welfare Group on Snares report from which it came.

The IWGS report also contains recommendations relating to amendments to legislation and areas of further research. Legal amendments suggested include: making it a requirement to use a stop on a snare and to remove or dispatch a snared animal immediately on their detection, and the rewording of the section of the Wildlife and Countryside Act that concerns the frequency of inspection of snares. With respect to research, further research on the use of snares, especially on the scale of their use in trapping rabbits, on their impact on welfare — on both target and non-target species — and on improving their design was called for. Amongst the other areas highlighted was the need for more research into novel humane control methods.

Responding to the IWGS report and its recommendations, the Defra action plan is generally supportive and indicates that some of the proposed legislative changes are already being addressed and that work with the IWGS will continue to ensure the recommendations are reflected in the on-going review of the Wildlife and Countryside Act. In addition, when priorities for future wildlife management research are reviewed, it seems likely that funds will be made available to carry out a survey of the use of snares in the UK and for an assessment of the humaneness of the use of snares. Funds will also be directed towards increasing the take up of places on training courses on the use of snares.

Defra Code of Practice on the Use of Snares in Fox and Rabbit Control; Defra snares action plan; Report of the Independent Working Group on Snares (All October 2005). Published by the Department for Environment, Food and Rural Affairs. 14 pp, 7 pp, 101 pp, respectively. Copies of these reports are available from Wildlife Management Policy, Room 1/09A, Defra,