

the effectiveness of diversionary feeding of peregrines by establishing dovecotes on or near grouse moors.

With regard to the racing pigeon issue, research by the Hawk and Owl Trust estimated that peregrines take 3.5 per cent and sparrowhawks less than 4 per cent of the UK racing pigeon population each year. The Royal Pigeon Racing Association estimated higher total losses to raptors of 12.5 per cent annually. Annual losses through all causes are about 52 per cent. There are no legal provisions for issuing licenses for taking or killing raptors to protect racing pigeons. The group recommended research into a variety of measures (none of a type likely to harm welfare) that might help to limit raptor predation around pigeon lofts and on racing flights.

This report is an interesting and remarkably thorough review of a couple of relatively minor (in the present global context) conflicts between the interests of wild animals and humans. The report concludes: 'Compatibility between conservation and game management cannot be left to evolve by default: it must continue to develop by design – with the due support it so rightly deserves from all interested parties.'

Report of the UK Raptor Working Group. Chaired by the Department of the Environment, Transport and the Regions and the Joint Nature Conservation Committee (2000). The Department of the Environment, Transport and the Regions: London, UK. 123pp. Paperback. Obtainable from: the Department of the Environment, Transport and the Regions, Tollgate House, Houlton Street, Bristol BS2 9DJ, UK (ISBN 1853970786). Price £9.99.

Standards of modern zoo practice

The UK *Zoo Licensing Act 1981* established a system for the licensing of zoos by local authorities on the advice of government-appointed Zoo Inspectors with expertise in zoo animal care and zoo management. In carrying out their inspections, the Zoo Inspectors are required to have regard to a set of guidelines that set the ground rules for animal welfare and aspects of visitor safety in UK zoos – the *Secretary of State's Standards for Modern Zoo Practice*. These standards, published some 15 years ago, have been under review during the past year and, following extensive discussions and consultations, the new revised edition has now been published.

The meat of these standards is a comprehensive checklist of points of the sort: 'The condition, health and behaviour of all animals should be checked at least twice daily by the person or persons in direct charge of their care', and 'animals in outdoor enclosures must be provided with sufficient shelter for their comfort and wellbeing...'. These points, which provide a framework for the audit of zoo standards are laid out in a format linked to meeting the 'five freedoms', under the headings: provision of food and water, provision of a suitable environment, provision of animal health care, provision of an opportunity to express most normal behaviour, and provision of protection from fear and distress. There are 13 appendices which expand on the context and detail of the standards.

The revised standards take into account the requirement of the European Union Zoo Directive (1999/22/EC) that zoos must contribute to conservation through research, education and/or captive breeding – and one of the appendices provides a framework for the assessment of zoos' activities in these fields. Another of the appendices discusses ethical aspects and states that 'zoos should have some sort of ethical review process, particularly in situations where the use of animals (eg acquisitions, management or dispersal for conservation, education or research) may be in conflict with the best interests of the animal or animals involved'. Other appendices deal with such matters as animal transactions, veterinary facilities and the training of animals.

This document sets the standards for zoos in the UK and will be essential reading for all involved in zoo work here. The previous edition had wider influence through going on to form the core of the standards adopted by the European Association of Zoos and Aquaria. These new standards also set out ideas and ideals that deserve consideration by the zoo community internationally. The standards came into force in the UK in April 2000.

Secretary of State's Standards of Modern Zoo Practice (2000). The Department of the Environment, Transport and the Regions: London, UK. 156pp. Paperback. Obtainable from: the Department of the Environment, Transport and the Regions, Eland House, Bressenden Place, London SW1E 5DU, UK; or via the website <http://www.detr.gov.uk>. Single hard copies available free to interested parties.

The Use of Wildlife for Research

In response to alarming rates of decline in koala, *Phascolarctos cinereus*, populations across Australia earlier this century, animals were relocated to a number of safe sites. In one such programme, 18 koalas were introduced to Kangaroo Island. The population grew and has now reached about 5000 and, since good habitat is limited, this has resulted in numerous tree deaths from over-browsing. To address this problem of habitat degradation and its potential effect on the health of the koala population, the Koala Management Program was initiated in 1997. The approach it adopted to tackle the problem included large-scale fertility control to reduce koala birth rates (by vasectomy of males and sectioning of the oviducts of females) and relocation of animals from the worst-affected areas. In the first 18 months of the programme, over 2500 animals were sterilized and over 1100 were relocated to areas within their former range in the south east of Australia.

This story, told by Drew Laslett of the Department for Environment, Heritage and Aboriginal Affairs, is one of the five case studies included in the Proceedings of the Australian and New Zealand Council for the Care of Animals in Research and Teaching (ANZCCART) Conference, *The Use of Wildlife in Research*, held in May 1999. It illustrates well the many scientific, ethical and public relations challenges that can arise in wildlife conservation and management programmes. With such species and ecosystem management problems becoming common around the world, there has been a proliferation of research aimed at helping to solve the problems. Ethical and welfare issues associated with research involving wild animals have tended to receive less scrutiny than those relating to research using laboratory animals. The proceedings of this conference, the first held by ANZCCART on wildlife, helps to redress the balance.

The papers cover a variety of topics including the ethics of zoology (V Monamy), wild animals in the laboratory (D Cooper), zoo-based research in Australia (R Woods), ethical issues in vertebrate pest management (C Marks), and the consequences of employing an ecological ethic to guide wildlife research (G Albrecht). B Warburton and D Choquenot, in their chapter on animal welfare and pest control, argue that the humanity of pest control techniques should be judged not against a zero-suffering standard (which is generally the aim in the husbandry of domestic animals) as this may be an unrealistic ideal in many cases, but in comparison with the suffering the animal would be likely to incur from natural mortality agents if left undisturbed. They review data on causes of death in free-living animals and discuss the welfare consequences of these in comparison with the harm caused by pest control techniques and conclude: 'Most tools in use for controlling possums in New Zealand act sufficiently rapidly to exceed the time to death that is possible with natural mortality factors.'

There are few easy answers in balancing human, species conservation and animal welfare interests but we are becoming more familiar with the questions. This book illustrates a range of