

## References

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### *International Zoo Yearbook, Volume 35*

Edited by P J S Olney and F A Fiskén (1997). The Zoological Society of London: London. 539pp. Hardback. Obtainable from the publishers, Dept IZY, Regent's Park, London NW1 4RY (ISSN 0074-9664). Price £63.00 (plus £4.50 post and packing outside the UK).

The Zoological Society of London has published this valuable collection of essays and technical notes annually since 1960. Each edition features a special subject in addition to articles of more general interest on captive animal biology, as well as detailed appendices listing fish, amphibia, reptiles, birds and mammals bred in captivity. It also includes a census of rare animals in captivity, a list of international studbooks and a list of regional zoo associations.

Volume 35, edited by Peter Olney and Fiona Fiskén, features 29 articles dealing with felids and covering a wide range of species. It opens with a guest essay by the late Dr John Kelly, Chief Executive Officer (until his death in October 1997), of the Zoological Parks Board of NSW, which administers Taronga Zoo in Sydney and the Western Plains Zoo in Dubbo, NSW. Kelly's paper: 'Effective conservation in the twenty-first century: the need to be more than a zoo. One organization's approach', describes the conservation activities of the Board since 1968 and emphasizes its active involvement in the World Zoo Conservation Strategy and in cooperative research programs.

The overview paper on felids by Peter Jackson addresses the conservation status of cats in the wild. Found on all continents except Australia and Antarctica, most of the 36 wild felid species live in tropical and subtropical forests, but some inhabit grasslands, wetlands and deserts. Although papers in the yearbook do not address animal welfare per se, it is inherent in the new science of conservation biology. For example, Jackson's paper describes the continued decline in numbers of many species of cats in the wild, of which the best known is probably the tiger. Some of its subspecies have already been hunted to extinction, while the numbers of those extant have fallen to very low numbers.

Animal welfare is touched upon in five papers, through consideration of environmental enrichment – an essential factor in management of captive animal husbandry. Mellen and Shepherdson from Washington Park Zoo, Portland, Oregon stress the need to understand the critical role played by environmental factors in determining the behavioural and physiological responses of animals to captivity. Understanding these factors is integral to environmental enrichment and includes evaluation of social structure, enclosure design, husbandry style, training and diet. A similar approach is taken by Wooster, from Woodland Park Zoo in Seattle, in her description of enrichment techniques for small felids. Enrichment improved the cats' welfare and reduced or eliminated some stress-related behaviours. It has also led to improved reproduction in some species.

The second main section of the yearbook includes 16 articles, covering a wide range of issues relating to 'The Developing Zoo World'. These papers cover reproduction, quarantine, exhibits, genetics, behaviour and introduction of captive animals to the wild.

This section includes a paper by Poole (formerly of UFAW) and others on 'Social behaviour and breeding physiology of a group of Asian elephants, *Elephas maximus* at the Pinnewala Elephant Orphanage, Sri Lanka'. The authors emphasize the improved welfare of the elephants when several adult males and females were kept together, with access to plenty of open space with vegetation, opportunities for bathing and a warm climate. The authors recommend that zoos keep Asian elephants in mixed-sex groups to improve herd behaviour and increase reproduction. This is a problem for most zoos, due to constraints of climate, space and labour, but Poole *et al* stress the importance of the welfare to the individuals concerned, and to the maintenance of captive populations of *Elaphus maximus*.

The *International Zoo Yearbook* is always interesting, covering the science of the husbandry and conservation of such a wide range of animal species. This volume with its focus on wild felids, many species of which are threatened or endangered, highlights the fact that their conservation is physically difficult and expensive and requires cooperative management programs between zoos and other wildlife bodies.

Australian zoos have been at the forefront of cooperative captive management for the past 20 years and now play a major role internationally. This is possible because of the recognition of its vital importance by management and by Zoological Boards. As Kelly observes in his paper's conclusion: 'the present and projected future conservation activities of innovative, well-managed zoos will distinguish such institutions from the zoos of yesteryear'.

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***Handbook of Trout and Salmon Diseases, 3rd edition***

R J Roberts and C J Shepherd (1997). Fishing News Books: Oxford. 192pp. Hardback. Obtainable from the publishers, Blackwell Science Ltd, Osney Mead, Oxford OX2 OEL, UK (ISBN 0852382448). Price £39.50.

It is a real pleasure to see the *Handbook of Trout and Salmon Diseases* in its third edition. This handy farmers 'bible' has matured with the industry.

The expected basic format of the previous edition is unchanged, beginning with simple information dealing with anatomy and husbandry, including simple water chemistry – although the latter is fairly limited in scope to the major parameters of oxygen, pH and ammonia. Infectious diseases are introduced before being reviewed in the context of practical production phases; this section has always been deservedly regarded as useful and popular. New and useful photographs are included which enhance the overall value of the book to the farmer.

Unfortunately, the topic of fish welfare doesn't get much of an airing. It would have been valuable to introduce this properly to the latest generation of fish farmers, highlighting stocking levels and slaughter as major areas where work is ongoing with regard to fish welfare.

Although major problems in the trout industry are perhaps sidelined a little, the salmon information is well updated. However, more recent understandings of Proliferative Kidney