Book Reviews

Zoo Animals: Behaviour, Management and Welfare

G Hosey, V Melfi and S Pankhurst (2009). Published by Oxford University Press, Great Clarendon Street, Oxford OX3 6DP, UK. 614 pp Paperback (ISBN 978-0-19-923306-9). Price £27.99.

Zoos are diverse establishments with a huge variety of mainly wild and exotic animals. They therefore provide a unique source for education, research and conservation as well as attract huge numbers of people from the general public and professionals worldwide. Because of the diversity of different animal species the appropriate management of a zoo requires a wide range of knowledge about the specific needs and issues of each species to guarantee the welfare of all animals.

This book gives an excellent overview of important topics such as animal identification and record-keeping, animal behaviour, health, feeding and nutrition, housing and husbandry, enrichment as well as breeding and how they affect the welfare of different zoo animal species. In addition, the chapter about human and animal interaction in a zoo shows what impact visitors can have on zoo animals and their behaviour and welfare.

Besides the information about the day-to-day management of the animals in a modern zoo, the book gives an interesting general review of the history and development of zoos during the centuries, starting with the origin of zoos in Ancient Egypt through many changes of their appearance and philosophy to the modern zoo. Following this, it shows how zoos as scientific institutions today are involved in *ex situ* and *in situ* conservation and in ways which national and international organisations and networks zoos work together to improve their success rate. A thorough explanation of the laws, regulations, guidelines and codes of practice for zoological gardens in the UK and abroad follows on from this.

Finally, the authors give an outlook for the future and critically analyse the situation, surmising that, despite the huge progression in animal welfare and conservation standards made in zoos during the last few decades, the process of development of zoos remains ongoing and many zoos worldwide are still below the desired standard. Also, the authors show in a thought-provoking way how limited our knowledge of our zoo animals still is and suggest where further research would be needed and most useful.

Each chapter is written in an easy-to-understand style in just the right amount of detail and using a well thought-out format, which manages to provide a lot of information, while still being very enjoyable to read. Interesting examples, case studies, clear statistics and diagrams as well as many cross references to other chapters make it easy to dip in and out of.

Although this book is aimed primarily at knowledgeable specialists like zoo professionals and college/university students, who study zoo animals as part of their course, the writing style and the good explanations make it also recommendable for members of the public who have an interest in zoos and want to learn more about this field. It gives a very good idea about relevant topics concerning zoo animals and how a zoo operates. For readers who want to investigate in more depth about a specific topic there is further reading; websites or other resources conveniently listed at the end of each specific chapter. There is also a considerable list of references at the end of the book.

Wendy Hildebrandt
Bristol, UK

Perfecting the Pig Environment

P Smith, H Crabtree and N Bird (2009). Published by Nottingham University Press, Manor Farm, Church Lane, Thrumpton, Nottingham NG11 0AX, UK. 84 pp Paperback (ISBN 978-1904761-81-5). Price £28.00.

It is relatively uncommon to find books written by those at the 'sharp end' of pig production technology. The authors of this volume, whilst academically trained, have been working for many years in the consultancy and supply sector of the industry and thus have a very practical grasp of events occurring on pig farms. This book is the successor to an earlier publication by the same authors, in which they described the scientific principles underlying management of the pig environment. It builds on this earlier version, assuming a basic knowledge of both theory and practice, by addressing the issue of environmental monitoring for a target audience comprising students, pig farmers and those working within the allied industries. It is therefore beneficial that it relies heavily on case study material from the authors' own experience "to demonstrate how systematic monitoring can expose shortcomings, their effects on profitability and support cost-effective solutions".

The book comprises eight short chapters, preceded by a substantial introduction outlining the reasons for common problems and the role of environmental monitoring in ensuring pig welfare. It emphasises the point that inadequate pig environments are both commonplace and costly. The opening chapter discusses the theory, common practice and best practice of environmental monitoring. It describes how monitoring technology has developed, and explains the principles of real-time monitoring and remote data downloading systems. Whilst written from the perspective of IT-expert proponents of such technology, it clearly describes in simple terms how such equipment functions and the possibilities it offers.

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The following six chapters are largely a collection of case studies illustrating different themes linked to monitoring aspects of the environment in pig buildings. The second chapter diverts to describe some basic issues associated with stocking density, using a case study to illustrate the fluctuation in building utilisation which occurs in practice, before returning in the third chapter to discuss interpretation of data from IT-based monitoring systems. This chapter introduces the basics of feed and water monitoring, and is intended to act as a gateway to the more complex case studies in subsequent chapters. The fourth chapter deals with temperature monitoring, and includes case studies which range from incorrect setup of ACNV systems for finishing pigs to investment appraisal of creep-heating control for piglets. The following chapter extends the discussion to ventilation monitoring, explaining the impact of changing ventilation rate on air quality and the trade-off with building temperature. Case studies are supplemented by practical advice on fan management. The book then reverts to discussion of feed and water monitoring, with detailed case studies illustrating the consequences of interruptions to supply and highlighting the potential role for water monitoring in early detection of health problems. The final case study chapter returns to the issue of temperature, illustrating the detrimental consequences of high temperatures arising from ventilation failure. It highlights the extent to which monitoring systems are only as good as the people that operate them, and emphasises the importance of correct set-up of temperature alarms for both production and animal welfare. The book concludes with a chapter re-emphasising the potential value of IT systems on pig farms in the future.

Overall, this short book provides an accessible window into the world of IT on the pig farm. It is written in a chatty, narrative style that will draw in the practically-minded student or farmer, but may be rather verbose and superficial in places for those more academically inclined. The organisation of material can seem a bit disjointed, with the order of chapters perhaps not being the most logical for all readers. A few annoying typographic errors have also crept in, such as an incorrect running page header and some missing axis labels on figures. However, overall, the figures are clear and informative despite the complexity of lines and lack of colours. The case studies provide good examples for the dos and don'ts of building management and, together with their illustrative figures, would enrich lectures in environmental control which students might otherwise find rather dry.

There is no doubt that a good quality environment is one of the most important factors in providing for pig welfare. This book highlights common mistakes occurring in day-to-day farm practice that will lead to welfare compromise. By drawing the attention of practical pig keepers to these risks and providing solutions, it can play an important role in reducing the likelihood that housed animals will be subject to suboptimal environmental conditions.

Sandra Edwards
Newcastle University, UK

The Economics of Animal Health and Production

J Rushton (2009). Published by CAB International, Wallingford, Oxfordshire OX10 8DE, UK. 364 pp Hardback (ISBN 978-1-84593-194-0). Price £85.00, US$170.00, €130.00.

This is a substantial book which is in part written by the author but with various chapter contributions from some 16 other authors. The book is structured into three main parts but with an introductory preface — with some (largely historical) background, major questions that that the author feels need to be addressed and the objective and structure of the book — and a relatively short chapter on the history of livestock and animal health economics. Part I then considers the theory and tools for the economics of animal health and production, Part II provides some review of the application of economics to animal diseases and health problems and Part III gives some examples from around the world of economic analyses and policy-making. There is a substantial and very useful bibliography running to some 56 pages.

The stated aim of the book is to "provide the theoretical and practical basis to assess livestock production systems and animal disease control for farm, private enterprise and government policy through the provision of data collection and analysis methods and examples of their application in decision making". The "major questions for the economics of animal health and production" include, in two of them, explicit mention of animal welfare. However, there is little explicit consideration of animal welfare as such within the book but rather a concentration on disease control issues. Moreover, the book focuses very much on farm livestock rather than companion, wildlife or zoo animals or those used in research and so perhaps would have been better titled the economics of livestock health and production.

Chapter 1 provides a useful review of the history of livestock health economics, research units and of individual researchers with a bibliography of what the author considers to be important books and papers with regard to the economics of livestock disease. In Part I, after a brief introduction, the author provides a very brief, two-page Chapter 2 addressing the question "what is economics and why is it useful?" Although perhaps a useful introduction for the layperson, this chapter does not really do justice to economics as a social science discipline and the value of an economic perspective to the consideration of animal health and animal production issues. Chapter 3, on livestock production economics, provides some basic production economics material with useful livestock production examples. This is followed by a short, three-page chapter by Clem Tisdell — the first of the contributory authors — who presents some basic economic theory applied to the control of livestock disease. The chapter could certainly have been more comprehensive, since it provides the briefest and most basic of introductions. The issue of the need for appropriate and sufficient empirical data to be able to apply the theory in practice and the general paucity of such data is not really addressed, which would have provided a useful link to

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