

British Veterinary Zoological Society



Proceedings of the Spring Meeting 2014

26th and 27th April, 2014

Marwell Zoo

FOCUS ON EXOTIC PETS: **(with *expert-led* debate** **“Exotic pets: welfare and trade”)**

Editors: Fieke Molenaar, Mark Stidworthy, Victoria Roberts

BVZS GUIDELINES FOR MEETING ABSTRACTS

PLEASE NOTE: *From the November 2007 meeting all abstracts and extended abstracts will be linked to CABI. This is an important step in helping the Society and members' work reach a wider audience. While the society encourages authors to include as much relevant data as possible, it is the author's own responsibility to restrict their data as necessary in order not to prejudice any future peer-reviewed publications they may have planned. While previous humorous biographies have been included, inline with the links with CABI, please adhere to the biography guidelines and keep these to a professional nature. At present BVZS meetings and abstracts are NOT peer-reviewed.*

Submissions should preferably be in Word (.doc) format, 12 font Times New Roman, single line spacing, not justified.

Biography: This should include the author's qualifications and institution/ practice/ affiliations, as well as a summary of any particular achievements, career, highlights, or relevant current projects. Please keep the biography to a professional nature. Maximum of 100 words.

Title: Submission should include a title of not more than 15 words, and the names, qualifications and affiliation/ institution of each author.

Abstracts: Abstracts should be a minimum of 200 words, and a maximum of 750 words. A reference list may also be included. Abstracts, with references should not be longer than 1 page.

Extended Abstracts: These should be in the format: SUMMARY, INTRODUCTION, MATERIALS AND METHODS, RESULTS, DISCUSSION, REFERENCES; or if this is a case report or case series: SUMMARY, INTRODUCTION, CASE REPORT, DISCUSSION, REFERENCES. Review articles should preferably be in the format: SUMMARY, REVIEW, CONCLUSION. This may be altered depending on the reviews nature, but must include a SUMMARY and CONCLUSION. The text should be concise and should be a maximum of 2000 words, and not exceed 4 pages in length, including illustrations and references. The summary should not exceed 200 words.

Tables and illustrations: Tables should be kept to a minimum and should be created in Word. The legend should clearly explain what data the table is presenting, without the need to refer back to the text. Tables should not duplicate information presented in figures. Digital images should be GIF, TIFF, or JPEG files, at a minimum resolution of 300 dpi. Please label them to correspond with the list of numbered figure captions; for example 'Figure 3.jpg' or 'Figure 7B.jpg', etc.

Style: Measurements should be expressed in the metric system or in SI units. Temperatures should be given in °C. Centrifugation speeds should be given in g. All abbreviations should be spelt out in full the first time they are used in the text. Medicines should be referred to by the generic name (Recommended International Non-Proprietary Name), as used in the sixth edition of The Veterinary Formulary (London, Pharmaceutical Press 2005) and listed on the website of the Medicines and Healthcare Products Regulatory Agency, followed by the proprietary name and manufacturer in brackets when first mentioned; eg, fenbendazole (Panacur; Intervet). Parasitic infections should be referred to according to the Standardised Nomenclature of Parasitic Diseases (SNOPAD) guidelines, which are summarised by the World Association for the Advancement of Veterinary Parasitology. Spelling should be in British English. Manuscripts should be written in the third person.

References: In the text, references should be cited as follows: Smith (1995) described.../...recorded earlier (Brown and Jones 1994, Smith and others 1997). Lists of references should be given in date order in the text, but alphabetically in the reference list. In the reference list, all authors' names and initials should be given followed by the date, title of the paper, full title of the journal, volume number and full page range, eg: SMITH, A. B., JONES, C. D. & BROWN, E. F. (1995) How to list your references. *Veterinary Record* xxx, 71-76. **Book references** should include the chapter title if appropriate, the full title of the book, the edition, the editors, the town of publication, publisher and page numbers of material referred to, eg: SMITH, A. B., JONES, C. D. & BROWN, E. F. (1993) How to list your references. In *Getting It Right*. 3rd edn. Eds S. Adams, J. Alexander. London, Society of Reference Publishers. pp 23-37. **Proceedings** should include the title of the paper given at the meeting, proceedings title, the editors (if applicable), town, country, month date a to b, year, and page numbers (if applicable), eg: MILLER, W. (1976) A state-transition model of epidemic foot-and-mouth disease. *Proceedings of an International Symposium: New Techniques in Veterinary Epidemiology and Economics*. Reading, UK, July 12 to 15, 1976. p 56. **Websites** should include the title of the page, website address and date accessed, eg: DEFRA (2001) Explanation of Foot and Mouth Restrictions. www.defra.gov.uk/animalh/diseases/fmd/disease/restrictions/explanation.asp. Accessed August 24, 2001. Personal communications should be cited within the text and follow the form 'A. B. Smith, personal communication'.

British Veterinary Zoological Society

BVZS is the specialist division of the British Veterinary Association (BVA) recognised as having responsibility for exotic pets, companion avian species and zoo animals. Founded in 1961, the BVZS nowadays has an international membership and finds itself involved in almost every aspect of the care and welfare of exotic pets, zoo animals and wildlife.

The aims of the society are to promote the advancement of veterinary knowledge and skill in the maintenance of the health and welfare of non-domesticated animals and to encourage proper housing and conditions for such animals; to encourage full use of veterinary services by wild animal establishments and by the owners of exotic animals; to promote the international exchange of veterinary knowledge of non-domesticated animals.

Information to the membership is provided by:

- Twice-yearly scientific meetings held at different venues throughout the UK e.g. university veterinary field stations and zoological collections. *Proceedings* from each of these meetings are published with hard copy for attending delegates and a CD with all *Proceedings*, 2001-2014, for all other members
- For 6 years BVZS held a Satellite Day at BSAVA in Birmingham. All details of this along with *Proceedings* are on the BVZS website at www.bvzs.org, plus an exotics stream at LVS, November 2013 and 2014.
- BVZS website has a password-protected members' only area for specific member information, student members and those electing to receive online publications access this for our publications
- Quarterly *Wild Times* newsletter in the members' area
- Contact with individual veterinary surgeons and with recognised student branches in our veterinary schools
- Specialist courses to aid in CPD
- An e-mail list open to BVZS full and associate veterinary members only, plus email lists for Nurses and Wildlife.

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Time	FRIDAY
11:45	General tour of Marwell Wildlife
14:00	Meet the rhinos Primate enrichment Scatter feed walkthrough aviary
14:45	Giraffe feed Carnivore training Tropical house tour
15:30	ZEBRA Foundation – Council Meeting Long Room, Marwell Hall

Time	SATURDAY	Page
08:00	Registration	
09:00	Welcome by the BVZS President Michael Stanford	
09:15	Session 1	NOVEL TECHNIQUES 15 (Chair: Peter Kettlewell)
	Michael Fehr	Dental disease in small mammals <i>Invited speaker</i> - 30 minutes
	Craig Hunt	The normal ECG in bearded dragons
	John Chitty	Positive contrast sinography in birds
	Michael Lierz	Assisted reproduction techniques in psittacine conservation breeding programs
	Richard Saunders	Use of plain and contrast CT in rabbits and rodents
10:45	COFFEE BREAK	
11:30	Session 2	INFECTIOUS DISEASE 22 (Chair: Mark Stidworthy)
	Michelle O'Brien	Management and diseases of small wetland mammals in the UK
	Kathryn Perrin	Disseminated mycosis caused by <i>Chamaeleomyces granulomatis</i> in veiled chameleons (<i>Chamaeleo calyptrotus</i>)
	Michael Lierz	Update on avian bornavirus in psittacines – recent advances and clinical experiences – an overview
	John Cooper	Diagnosis and treatment of avian aspergillosis
	Matthew Rendle	Chytridiomycosis in caecilians - diagnosis and treatment
12:45	LUNCH	
13:50	Session 3	WELFARE AND LEGISLATION (Chair: Fieke Molenaar) 27 <i>Sponsored by Mazuri Zoo Foods</i>
	Heather Bacon	Zoo animal welfare and the EU 'good practice' guidance
	Matt Hartley	Legal responsibilities of a zoo veterinarian - zoo licensing, Balai Directive and more – 30 minutes
	Rebeca Garcia Pinillos	Animal Welfare Teams' involvement with exotic pets 20 minutes

15:30	TEA BREAK		
16:15	Session 4	DISCUSSION SESSION	31
	Mike Jessop	EMODE	
	Martin Whitehead	Pet reptile welfare and positive lists	
	Chris Newman	Reptile trade	
	Paul Miley	Why non-traditional companion animals may be the answer	
	Open discussion	Led by Michael Stanford 45 minutes	
17:45		BVZS GENERAL MEETING	
20:00	DINNER	Marwell Hotel Wine kindly sponsored by Bayer Award winning ceilidh band: d'Arcy Spice	

Time	SUNDAY		Page
09:30	Session 5	CLINICAL and ANATOMICAL PATHOLOGY (Chair: Andrew Routh)	35
	Mark Stidworthy	A retrospective review of pathological findings in elasmobranchs submitted to International Zoo Vet Group Pathology by Sea Life Centres	
	Caroline Robinson	The wobbly water buffalo: An outbreak of acute neurological disease in farmed buffalo (<i>Bubalus bubalis</i>) in Scotland	
	Vic Simpson	<i>Eufilaria delicata</i> (Family: Onchocercidae) infection associated with cardiomyopathy in a blackbird (<i>Turdus merula</i>)	
	Will Justice	Amur and Sumatran tiger mortality database	
	Stamos Tahas	Multiple mycobacterial infections in a zoo aquarium	
10:45	COFFEE BREAK		
11:30	Session 6	SURGERY AND ANAESTHESIA (Chair: Jane Hopper)	40
	Michael Fehr	Acute abdomen in rabbits and rodents <i>Invited speaker</i> - 30 minutes	
	Phillipa Dobbs	Management of a lateral condylar humeral fracture in a brown nosed coati (<i>Nasua nasua</i>)	
	John Chitty	Anaesthetic monitoring in birds	
	Andrew Routh	In-country anaesthesia for endoscopic sexing of the ploughshare tortoise (<i>Astrochelys yniphora</i>) – Avoiding rumbles in the jungle	
12:45	LUNCH		

14:00	Session 7	DIAGNOSTICS AND MEDICINE (Chair: Michael Stanford)	47
	Craig Hunt	Investigation and treatment of limb oedema in a cane toad	
	Elisabetta Mancinelli	Husbandry risk factors associated with hock pododermatitis in UK pet rabbits (<i>Oryctolagus cuniculus</i>)	
	Kathryn Perrin	Devils up-over: Veterinary care in the Northern hemisphere	
	Phillipa Dobbs	Veterinary care of the elderly animals at Twycross Zoo	
	Matthew Rendle	Investigation and supportive treatment of cachexia in a Galapagos tortoise	
Both days		POSTER SESSION	53
	Justine Shotton (MSc WAH student)	Hormonal imbalance in a Red Titi monkey (<i>Callicebus cupreus</i>)	
	Sarah Pellet	Squamous cell carcinoma in an Inland bearded dragon (<i>Pogona vitticeps</i>)	
15:30	PRIZE GIVING AND FAREWELL		

CPD Certificates will be issued: Saturday=7 hours, Sunday=5 hours, total 12 hours

TRAINS	Day	Time
Hotel → Zoo	Saturday	07:45
		08:00
		08:15
		08:30
	Sunday	08:30
		08:45
Zoo → Hotel	Saturday	09:00
		09:15
		17:30
		17:45
	Sunday	18:30
		18:45
		15:30
		15:45
		16:00
<i>Pick-up point Hotel: roundabout</i>		
<i>Pick-up point Zoo: rhinos</i>		

Heather Bacon, BSc(Hons), BVSc, CertZooMed MRCVS

Heather Bacon is the Veterinary Welfare Education and Outreach manager at the University of Edinburgh's Jeanne Marchig International Centre for Animal Welfare Education (JMICAWE), a position co-funded by Animals Asia. She runs courses within MSc programmes on captive and free-ranging wild animal welfare and works internationally to develop capacity in this area. Heather has worked with the FVE and European Commission to develop continuing education on captive wildlife welfare in Europe, and continues to partner with the European Association of Zoos and Aquaria and the China Association of Zoo Gardens to improve zoo animal husbandry and welfare. Heather is a member of the BVA Ethics and Welfare Committee and of the BVZS Council. She is a Director of Bear Care (www.bearcaregroup.org), an international bear management organisation that works to improve the care and management of captive bears around the world. Previously, she was the Veterinary Director at the Animals Asia Foundation, an NGO working to end the trade in bear bile across Asia.

John Chitty, BVetMed CertZooMed MRCVS

John qualified from the Royal Veterinary College in 1990 and gained RCVS Certificate in Zoological Medicine in 2000. He is the director of a small animal/exotics practice in Andover, Hampshire, with a 100% avian/exotics/small mammal caseload, both referral and first opinion. John is the co-editor of two texts on avian medicine, one on rabbit surgery and co-author of a new textbook of tortoise medicine. He is also the author of various book chapters and papers on a range of species. John is the Secretary of European Association of Avian Veterinarians and Journal co-editor and board member of the Association of Exotic Mammal Veterinarians. And last but not least he is the veterinary consultant to the Great Bustard Re-introduction Project.

John Cooper, DTVM FRCPath FSB CBiol FRCVS**Diplomate of the European College of Veterinary Pathologists****European Veterinary Specialist in Zoological Medicine**

John Cooper, who has had a lifelong interest in natural history, graduated in veterinary science at Bristol University in 1966. He is a specialist pathologist, with particular interests in wildlife and exotic species, tropical diseases and comparative medicine. John is married to Margaret, a lawyer (non-practising solicitor) who has made a special study of the law relating to animals and conservation. The Coopers have spent over ten years in Africa, including a period in Rwanda with the mountain gorillas. In 2009 they returned to the UK after nearly seven years at the University of the West Indies in Trinidad and Tobago. The Coopers are currently involved in teaching at various universities and pursuing their professional interests, especially in animal law and forensics. They continue their overseas travel and lecturing, including work with wildlife, domesticated animals and communities in East Africa.

Phillipa Dobbs, BSc(Hons) BVetMed(Hons) MRCVS

Phillipa started her career in zoo medicine in 2003 at Paignton Zoo. During her four years at Paignton Zoo she worked as an animal keeper and general assistant in the veterinary department helping with everyday procedures and paperwork. During this time she undertook a degree in Animal Science at Plymouth University. Phillipa qualified in July 2011 from The Royal Veterinary College. She initially worked in small animal practice in Hertfordshire for one year. During this year she set up exotic clinics and saw many different small mammals and reptiles alongside cats and dogs. In September 2012 she started work as Veterinary Associate at Twycross Zoo.

Michael Fehr, Prof. Dr. DVM DipECZM (small mammals)

Michael graduated from the Veterinary University of Hannover, Germany, in 1979 and started his veterinary career at the Small Animal Clinic of the Veterinary University Hannover. After completing an internship and residency, he first became an assistant, then a lecturer and finally a professor in small animal diseases at the small animal clinic of the veterinary university Hannover, Germany, in 1996. He is the Founder and Director of the Clinic of exotic pets, reptiles, pet and wild birds of the Hannover University (est. 2006). Michael is the Head of the Section for Exotic Pets (Small mammals) of the German Small Animal Veterinary Association (DGK). He is married and has two daughters.

Rebeca Garcia Pinillos, DVM PhD MRCVS

Rebeca is a Veterinary Advisor to the Department of Food, Environment and Rural Affairs (DEFRA). She specialises in Animal Welfare, Veterinary Public Health, Policy Development and Delivery, Disease Surveillance, Control and Depopulation and Related legislation. Rebeca is currently studying towards her RCVS Certificate in Animal welfare, ethics and law. In her spare time she likes to play the classical guitar.

Matt Hartley, BVetMed MAppSc CertZooMed DipECZM CBiol MSB MCMI MRCVS

Matt qualified from the Royal Veterinary College in 1998. Following three years as a clinical zoo veterinarian in large UK collections he completed a Masters degree in Wildlife Health and Population Management at the University of Sydney. Matt was then Manager of Veterinary Services at Johannesburg Zoo. He returned to the UK in 2005 and became the Wildlife Veterinary Advisor for Defra, formulating the England Wildlife Health Strategy. Following promotion in 2007 Matt became Head of Wildlife and Zoological Animal Health, which included policy negotiation in Brussels, leading disease control response for four notifiable disease outbreaks and redesigning implementation of the BALAI directive and rabies policy for zoo animals and developing the licensing regulations for circuses. In 2011, Matt left Defra to establish Zoo and Wildlife Solutions, a specialist consultancy focusing on legislation implementation, evidence based science and zoo management. He is a zoo inspector, circus inspector, member of the UK Elephant Welfare Group, Veterinary Advisor for four EAZA TAGS and ESB Co-ordinator for Burmese Brow Antlered Deer.

Craig Hunt, BVetMed CertSAM DZooMed MRCVS**RCVS Recognised Specialist in Zoo and Wildlife Medicine**

Following graduation from the RVC in 1997 Craig worked for 5 years in mixed practice in East Sussex, followed by 3 years in small animal/exotic practice in Gloucestershire before settling at Chine House Veterinary Hospital in Leicestershire. His caseload is almost exclusively exotic companion animal with a roughly equal proportion of avian, reptile and mammal patients. Current interests include falconry, beekeeping, gardening and tending a modest menagerie at home.

Mike Jessop, BVetMed MRCVS

Mike is a small animal practitioner in the South Wales Valleys. He developed an interest in exotic animal medicine, with a chelonian bias, 25 years ago. Mike was closely involved in the BSAVA for 15 years serving as president in 2007. He was the UK rep for UEVP for five years. It was during this time that he became involved in regulation. Mike is now involved in forensic veterinary work and regularly carries out inspection for licensing, including Pet Vending.

Will Justice, BVSc MSc MRCVS

Will graduated from the University of Bristol in 2003 and started his career at a mixed practice on the Devon/Cornwall border where he quickly gained an interest in wildlife medicine. In 2007 he completed the MSc in Wild Animal Health in London and went on to do voluntary work for the wildlife epidemiology department at ZSL, while also helping develop a first opinion exotic pet practice in London. He subsequently went on to work in an exotic animal referral clinic, covering several zoological collections. In 2010 Will became the full time on-site veterinarian at Marwell Zoo in Hampshire, where he currently works as Head of Veterinary Services.

Michael Lierz, Prof. Dr. DZooMed DipECZM (WPH) DECVPS

Michael is the Director of the Clinic for Birds, Reptiles, Amphibians and Fish of the Justus-Liebig University in Giessen, Germany. He achieved his doctorate thesis on diseases of free-ranging birds of prey. From 1997-2001 he was the Director of the Abu Dhabi Falcon Research Hospital, UAE before he went to the Free University of Berlin to perform his habilitation. In 2009 he moved to his present position. His scientific work focusses on new pathogens as well as assisted reproduction techniques in birds. He is the current president of the European Committee of the Association of Avian Veterinarians. He published more than 90 peer-reviewed scientific papers and held more than 100 presentations. He is Diplomate of the European College of Poultry Veterinary Science, Diplomate of the European College of Zoological Medicine (WPH), Diplomate of the Royal College of Veterinary Surgeons (Zoological Medicine), Certified Specialist in Poultry and Avian Medicine, Certified Specialist in Zoo- Wild- and Park Animals, Certified Specialist in Microbiology and Certified in Species Conservation.

Elisabetta Mancinelli, DVM CertZooMed MRCVS

Elisabetta graduated from the University of "Federico II" of Naples, Italy, in 2002. Her interest in exotics became clear shortly after her graduation and her career started in an exotic only private practice in Italy. She completed an externship program at the Angell Animal Memorial Hospital in Boston (USA) focusing on exotic animal medicine and surgery. In 2007 she moved to UK where she initially worked in private practice and wildlife charities. She started the first ECZM Residency (small mammal) in June 2009, which she recently completed at The Royal (Dick) School of Veterinary Studies, Edinburgh. She holds the RCVS Certificate in Zoological Medicine and she's waiting to sit the board exam to hopefully become the first ECZM (small mammal) Diplomat by examination.

Paul Miley

Paul has been the CEO of Burgess Pet Care since 2006, re-launching the company to position the food brand Burgess Excel as a science-led driver for improving the welfare of pet 'fibrevores'. Paul is past-Chairman of the Pet Food Manufacturers Association, the industry trade association, its member companies representing 92% of the UK pet food market. He pushed for inclusion of fish, reptile, small animal and bird food companies as well as specialist ingredient suppliers. This led to initiatives such as the Pet Education Resource website and the publication of the first non-cat/dog European nutrition guidelines. Paul represented the UK at FEDIAF (the European federation of pet food trade associations) to lobby regulatory affairs and ensured UK initiatives were adopted throughout the EU. Paul is the current Chairman of The Pet Charity (formerly the Pet Care Trust/ Pet Industry Federation, the UK's specialist pet business trade association), collaborating with various organisations and investing in research in the positive influence of pet ownership on public health. Additionally, it is involved in the education of the public to the correct selection and on-going care of their pets. The Pet Charity encourages pet ownership and is securing not only public backing but also from commercial businesses and trade associations. Previously, Paul served as Commercial Director, Mars Europe from 2004 to 2006, responsible for the European Dry Petfood business.

Michelle O'Brien, BVetMed CertZooMed MRCVS

Michelle O'Brien is the Veterinary and Wildlife Health Officer (job-share) for the Wildfowl & Wetlands Trust (WWT) based at Slimbridge in Gloucestershire. After graduating from the Royal Veterinary College in 1999 she spent six and a half years in general practice, seeing a mix of small animal and exotic species. She gained the RCVS certificate in Zoological Medicine in 2005. Michelle has been working in the wildlife health department at WWT since 2006, and, together with Katie Beckmann, has responsibility for overall veterinary care at six of the nine WWT centres in the UK and provides veterinary advice to the Great Crane Project and the Spoon-billed sandpiper conservation breeding programme.

Chris Newman

Chris is currently the Chair of the Federation of British Herpetologists and the European Union Association of Reptile Keepers. Since 2005 he has been a consultant for the Reptile & Exotic Pet Trade Association. Chris has vast experience with reptile keeping having kept over 250 species of reptiles and also numerous non reptilian species. His current projects include working to improve animal welfare and defending the right for people to keep animals in captivity. Chris is a passionate advocate that both humans and animals benefit from good animal husbandry and the keeping of animals as companions. He is directly involved with many governmental Working Groups and legislative reviews, such as the Dangerous Wild Animals Act, CITES, Non-native Species and sat on the working group producing the new Pet Shop Model Licence Conditions.

Sarah Pellett, BSc(Hons) MA VetMB CertAVP(ZooMed) MRCVS

Sarah Pellett graduated from University of Cambridge in 2006. During her degree she spent time in exotic practices and zoos both in the UK and abroad. She spent three years working at a first opinion and referral exotic animal practice in Manchester where she completed the RCVS certificate in advanced veterinary practice (Zoological Medicine). Sarah now works at Animates Veterinary Clinic, Thurlby, in Lincolnshire, seeing a wide range of first opinion and referral exotic animal cases.

Kathryn Perrin, BVetMed

Kathryn graduated from the Royal Veterinary College in London in 2009 and started her career in small animal practice in the UK. As an undergraduate Kathryn completed several externships in South Africa, working with captive and free-ranging wildlife. She returned as a qualified vet to work at Johannesburg zoo before completing a 12 month internship at Bristol Zoo Gardens in the UK. In October 2013 she started a three-year European and American College of Zoological Medicine residency program at Copenhagen Zoo in Denmark.

Matthew Rendle, RVN

Matt started his veterinary nursing career at The Park Veterinary Centre, Watford in September 1989, a busy mixed and exotics 13-vet practice, where he completed his veterinary nursing qualification. In 1994 he was made Senior Theatre Nurse. He left in 2003 to pursue his interest in zoo and wildlife nursing at the Zoological Society of London, where he is currently the Senior Clinical Veterinary Nurse for London Zoo. Matt has experience in the nursing care for many species from ants to elephants (and most things in-between) and has been fortunate to travel as part of his role. He regularly lectures to veterinary nursing and veterinary surgeon undergraduates at the RVC as part of their core modules on topics such as herpetological husbandry, zoo and wildlife diagnostic imaging and anaesthesia. He also lectures extensively on herpetology throughout Europe and America. Matt is on the British Veterinary Nursing Association Council, which allows him to promote and raise the profile of veterinary nursing in the UK.

Caroline Robinson, BVMS MRCVS

Caroline graduated from University of Glasgow in 2006 and started her career in a mixed practice in Cumbria, followed by a move to Falkirk a couple of years later. The challenges of varied mixed practice sparked an interest in atypical disease presentations and the emergence of novel disease among other things, which led her to join SAC Consulting as a veterinary investigation officer in Perth. Caroline's work now includes farmed and wild animal disease surveillance, interpretation of clinical pathology and provision of specialist post-mortem examination to a variety of different organisations. These include the police, SSPCA, RSPB and several wildlife parks and exotics collections around Scotland, as well as routine daily referrals from large or companion animal veterinary practices. The caseload can include an unexpected variety of exotic and wild species, with post-mortem examinations of all sizes from elephants and rhinoceroses down to newborn primates or garden finches.

Andrew Routh, MRCVS

Andrew is Head of Veterinary Services at Durrell Wildlife Conservation Trust and is based in Jersey.

Richard Saunders, BSc (Hons) BVSc MSB CBiol CertZooMed DZooMed (Mammalian) MRCVS**RCVS Recognised Specialist in Zoo and Wildlife Medicine**

Richard graduated from the University of Liverpool in 1994, with an intercalated degree in Zoology also. He worked in general small animal practice for two years before joining the RSPCA at Norfolk Wildlife Hospital, working with British wildlife, including seals. After that, he has worked in increasingly exotic animal practice, obtaining his Certificate in Zoological medicine in 2001, and his Diploma (mammalian) in 2010. He joined Bristol Zoological Gardens as a resident in 2008, and as a Staff vet in 2011. He currently works part time for Bristol Zoo, consults in private referral practice in Bristol, along with the other members of the Bristol Zoo veterinary Department Team, teaches on undergraduate and post-graduate courses at the University of Bristol and is the Rabbit Welfare Association and Fund's Veterinary Adviser.

Vic Simpson, BVSc DTVM FIBiol Hon FRCVS

Vic qualified in 1964 and, after a period in mixed practice in the Midlands, spent nearly ten years working in Africa. He worked in the MAFF/VLA Veterinary Investigation Service in Nottingham in 1973-4 and then in Cornwall from 1979-2001. His main interest had always been wildlife and in 'retirement' he set up the Wildlife VIC. Main career achievements include diagnosis of lead poisoning in swans due to anglers' weights, investigations into marine mammal mortality and detailed studies into the health status of otters and red squirrels. Ongoing projects include studies on polecats and other small mustelids, bats and birds in general.

Mark Stidworthy, MA VetMB PhD FRCPath MRCVS**RCVS Recognised Specialist in Veterinary Pathology (Zoo and Wildlife)**

Mark has run the pathology section of International Zoo Veterinary Group since 2003, providing dedicated full-time anatomic pathology services (post-mortem examinations and histopathology) for zoo, exotic and wildlife species including fish. Cases derive from collections and aquaria served by IZVG's clinical veterinarians and by referral from specialist practitioners and other pathology laboratories. Mark graduated from Cambridge in 1996 (taking pathology as his intercalated degree); received pathology residency training and diagnostic experience at Liverpool and Cambridge Veterinary Schools and holds a Cambridge PhD investigating remyelination in the central nervous system. He is a Fellow of the Royal College of Pathologists (Veterinary Pathology) and an RCVS Recognised Specialist in Veterinary Pathology (Zoo and Wildlife). He speaks and publishes regularly in the field of zoo, wildlife and aquarium species pathology.

Justine Shotton, BSc BVSc MRCVS

Justine graduated from Bristol in 2008, having completed an intercalated degree in Veterinary Pathology in 2005-6. Following graduation, she travelled to Guatemala to volunteer at a wildlife rehabilitation centre. She then spent five years in a large mixed practice in Oxfordshire, developing a particular interest in camelids. She attended the 2012 International Camelid Health Conference and writes regular advice articles for Llama Link and Alpaca Magazine. She embarked on the MSc Wild Animal Health in London in September 2013 and her research project will involve GPS-collaring cheetahs in farmland areas of Botswana, assessing habitat usage compared to cheetahs in protected areas.

Stamos Tahas, DVM MSc MRCVS

Stamos graduated with distinction from the Aristotle University of Thessaloniki (Greece) in 2011. He completed his military service as a veterinary surgeon in the Hellenic Army and briefly worked in private practice before receiving a scholarship to study for a Master of Science at the University of Liverpool. He is currently a Junior Clinical Training Scholar at the University of Nottingham. Stamos has actively volunteered at the Attica Zoological Park and the Hellenic Wildlife Hospital in Greece and has been further educated at Barcelona Zoo.

Martin Whitehead, BSc PhD BVSc CertSAM MRCVS

Martin is a Director of Chipping Norton Veterinary Hospital in Oxfordshire, a first-opinion mixed practice with additional exotic animal referrals and zoo work. After a PhD for research on comparative auditory biophysics in vertebrates, Martin worked in basic and clinical research in US medical school ENT departments, before switching to veterinary medicine, graduating from Liverpool veterinary school in 1999. His particular interests are evidence-based veterinary medicine, small-animal internal medicine, and exotic-animal medicine, especially reptiles. He has published many articles on the biophysics of hearing and on veterinary topics, and is a member of the BSAVA's Scientific Committee and Exotic Pets Subcommittee.