



3rd edition

# Concepts in Animal Welfare



# Foreword

## Professor Donald M Broom

Animal welfare is one of the key factors that influence people's decisions about whether or not procedures or products are acceptable and sustainable. Purchasing habits are modified in order to avoid poor welfare in animals and retail companies set standards as a result of consumer pressure with this aim. As a consequence, consumers and those involved in production and sales want accurate scientific information about the subject. This course will help veterinary students, who are expected to be able to advise on animal welfare in their professional capacity, as well as informing those who simply want to find out about animal welfare. This course material is presented by a leading animal protection society and contains good quality information from animal welfare scientists, offered in an unbiased way.

The first modules of the course explain why the study of animal welfare is important, and what the terms used in the scientific discipline mean. Health is a key aspect of welfare so the links between welfare and disease are discussed. It is important to understand that the biology of an individual affects its needs, and hence its welfare. Careful consideration needs to be taken to include natural behaviour wherever it will improve welfare as some natural factors may lead to poor welfare. There follows a series of modules about how to assess welfare, both for those carrying out research on the subject and for farmers, veterinary inspectors or other animal users. Those who wish to know more about terms and assessment than can be provided in this course can read further on the subject but the major issues are introduced here.

In the next set of modules, the ethical concepts that underlie issues relevant to animal usage are briefly explained. After this, an extensive series of examples of welfare issues in the farming of animals is presented. This includes the rapidly expanding area of fish farming as, in many countries, fish species are the second most commonly farmed animals after chickens. Housing systems, transport and slaughter procedures all have effects on the welfare of animals and detailed evidence for this is provided.

The welfare concepts and methodologies are useful for all animals, so further modules deal with companion animals, working animals, laboratory animals and those used in entertainment. In addition, human-animal interactions and the role of the veterinarian are considered. The material in these modules is international in nature and will be of value to all who teach the subject, as well as to those starting to learn about it.



**Professor Broom is Colleen Macleod Professor of Animal Welfare at the Centre for Animal Welfare and Anthrozoology of the University of Cambridge**

# Messages of support

## World Organisation for Animal Health Dr Bernard Vallat

It is my pleasure to commend to you this impressive teaching resource, *Concepts in Animal Welfare*, produced by the World Animal Protection.

Animal welfare is a complex, multi-faceted public policy issue that includes important scientific, ethical, economic and political dimensions. Its growing importance to society means that animal welfare must be addressed in a scientifically credible manner. It is essential to engage with stakeholders on the development and implementation of animal welfare standards, to ensure that cultural and religious sensibilities are taken into account, as well as economic issues.

This latest edition includes a module specifically about the work of the World Organisation for Animal Health (OIE) in relation to animal welfare.

Since it was created, the OIE has played a key role in its capacity as the sole international reference organisation for animal health and zoonoses, enjoying established international recognition and benefiting from direct collaboration with the Veterinary Services of all its Member Countries. Animal welfare was first identified as a priority in the OIE Strategic Plan 2001-2005. At this time, the OIE was mandated by its Members to elaborate standards and guidelines on animal welfare, reaffirming that animal health is a key component of animal welfare.

Now in its third edition, *Concepts in Animal Welfare* is well recognised as a very valuable resource for supporting the education and engagement of new students to this subject, who will very likely contribute to future developments of our animal welfare standards.



**Dr Vallat is Director General of the World Organisation for Animal Health (OIE)**



## World Veterinary Association

The World Veterinary Association (WVA) recognises and supports the role veterinarians play in delivering services that enhance the welfare of animals, participating in developing animal welfare standards and providing community leadership in attaining an appropriate state of welfare for all animals. To accomplish these objectives, specific, comprehensive and visible undergraduate education in the field of animal welfare is an essential part of the training of all veterinarians. To this end, WVA recognises World Animal Protection's Concepts in Animal Welfare as a valuable resource.



## Federation of Veterinarians of Europe

The Federation of Veterinarians of Europe (FVE) believes veterinarians have a professional and ethical responsibility to use their scientific knowledge and skills to protect the health and the welfare of animals. All veterinarians should educate and influence animal owners, caretakers, handlers, and policy makers to protect and improve animal welfare. Veterinarians must not only work to implement existing animal welfare standards, but must also contribute to making sure these standards are continually improved.

To accomplish these objectives, all veterinary schools should produce graduates who are educated, trained and competent in the topics of animal welfare science, veterinary ethics and law, as well as the wider ethical issues involving the use of animals by society.

In the past decade, we have seen the multi-disciplinary subject of animal welfare become a rapidly evolving component in the veterinary curriculum. However little consensus exists on how animal welfare should be addressed in terms of teaching method, content, time and place, and assessment of knowledge and competence.

However, several well-developed electronic tools are appearing to assist educators. World Animal Protection's Concepts in Animal Welfare is an excellent example of a very useful and publicly available resource. It is also an example of the benefits of cross-sector working: the initial idea and the earlier editions were the result of collaboration between a veterinary faculty, the Department of Clinical Veterinary Science at the University of Bristol and an animal welfare organisation, World Animal Protection.

The FVE recognises Concepts in Animal Welfare as a valuable resource and advises all to explore and enjoy the different modules.

The third edition of the World Animal Protection Concepts in Animal Welfare resource has also been endorsed by the following veterinary associations:



" The SEAVSA Committee Members have agreed to support the third edition of CAW Syllabus. The previous edition of this teaching resource has been intensively used for animal welfare teaching of veterinary students in most of SEAVSA members. Furthermore language translation of the syllabus...should contribute significantly to the enhancement of our veterinary students' understanding of animal welfare from point of views of science, ethics as well as law and regulation. "



" FAVA councillors have agreed to support the resource, the 3rd edition of CAW. This resource is such a great contribution among the veterinary education not only in Asia but also globally. "



" Take this opportunity to express the satisfaction we feel when we see "Concepts in Animal Welfare" by World Animal Protection published in its third edition. The first two editions... have been a useful reference tool for students who are currently studying to be Veterinarians. World Animal Protection has produced a publication with great content and as president of the Mexican Association of Schools and Colleges of Veterinary Medicine I am pleased to sign support World Animal Protection and institutions involved to continue to increase awareness in animal welfare. "



" Recognising that veterinarians have to play a key role in guarding the principles of animal welfare in addition to their responsibility of taking care of the health of animals, the Commonwealth Veterinary Association endorses the 3rd edition of Concepts in Animal Welfare produced by the World Animal Protection for introduction in the school curricula of veterinary education. This tool has been well recognised as a very valuable resource in supporting education and in engaging undergraduate veterinary students. [CAW is] also a very valuable resource in equipping veterinary educators with the skills to teach the subject effectively. "



" Amvbeeba endorses World Animal Protection CAW resource. "



" We take this opportunity to affirm favourable institutional support for World Animal Protection. The emergence of this innovative edition of "Concepts in Animal Welfare" represents a teaching tool of great relevance and scope for the training of Brazilian veterinarians and animal scientists, since these professionals are key players in maintaining health and improving the welfare of animals. "



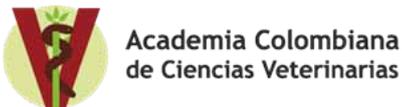
" The modules ....are very useful for teaching and learning processes in the Veterinary School Curricula in Asia. Therefore, I recommended that the Animal Welfare modules can be used as the teaching learning material for veterinary school students to achieve day one competence.. "



" Thanks for introducing the 3rd edition of Concepts in Animal Welfare syllabus, a very excellent teaching resource to China. This edition includes up-to-date scientific findings on animal welfare, which is more comprehensive and objective. It deserves to read by people who not only care about animal welfare issues but also engage with animal welfare education. The new edition is a valuable reference to the animal welfare textbook which is developed by CVMA and targeted at Chinese veterinary undergraduates. "



" We believe that this educational tool can be used to educate students of veterinary medicine and animal husbandry of today, in where it issues like One health are considered integrally with the needs and animal welfare of the animals and where the use of animals in educational settings or research is addressed in line with the three R's of animal use policy. "



Academia Colombiana de Ciencias Veterinarias



Consejo Profesional de Medicina Veterinaria y Zootecnia de Colombia



Asociación Colombiana de Médicos Veterinarios y Zootecnistas ACOVEZ



Asociación Colombiana de Médicos Veterinarios y Zootecnistas ACOVEZ



Sociedad de Medicina Veterinaria República Argentina



Federación de Veterinarios del Ecuador



Asociación Nacional de médicos veterinarios de Colombia



Sociedad de Médicos Veterinarios de Uruguay

## Introducing Concepts in Animal Welfare

Welcome to the third edition of Concepts in Animal Welfare. At the World Animal Protection we work proactively with people, seeking to move them to improve the welfare of animals and alleviate animal suffering. We have created this tool to enable veterinary teaching staff to effortlessly include animal welfare within their taught curriculum, and ultimately to improve both people's experience of delivering and animals' experience of receiving veterinary care.

It is widely accepted that the veterinary curriculum is overloaded with content, so adding a new subject is a challenge. However, animal welfare science is gaining ever-wider acceptance and credibility, and veterinary practitioners worldwide are beginning to feel the pressure of expectation to be at the forefront of ensuring good welfare for the animals in their care. The World Organisation for Animal Health (OIE) has recommended that animal welfare is a 'Day 1 Competency' and should therefore become a fundamental pillar in veterinary training, ensuring that all graduating vets the world over qualify with a sound understanding of the subject.

Therefore, despite a crowded curriculum, animal welfare should be embedded within the taught content of veterinary training. This can be achieved in a number of ways, ranging from introducing it as a standalone subject to a fully integrated one, taught within other traditional elements of the veterinary course. We have designed this edition of Concepts in Animal Welfare to support the inclusion of animal welfare in whatever format is most appropriate for individual vet schools.

## Past and current editions

World Animal Protection created the first edition of *Concepts in Animal Welfare* – the world’s first comprehensive animal welfare curriculum for veterinary trainees – in 2003, in collaboration with the Department of Clinical Veterinary Science of the University of Bristol (UK). We then updated and expanded the resource in 2007; it remains the main support tool for our Advanced Concepts in Animal Welfare programme, which seeks to promote the inclusion of animal welfare in veterinary curricula. This programme also aims to train lecturers in animal welfare and ensure the integration of the ‘3Rs’: the replacement, refinement and reduction of animals in educational scenarios. To date the *Concepts in Animal Welfare* resource has been delivered by lecturers in over 200 faculties in more than 23 countries. It has been translated into Spanish, Portuguese, Chinese, Korean, Japanese, Thai and Indonesian.

This third edition streamlines some of the existing content and includes an exciting new module on veterinary disaster management. In addition, we have restructured the modules and clustered them into chapters to form a cohesive teaching syllabus. In this edition, we have included the latest developments in animal welfare science, up-to-date reference lists and academically robust arguments to encourage debate. In short, we have created a much expanded and even more comprehensive set of support materials to equip you with the tools you need to teach animal welfare effectively.

## Teaching animal welfare

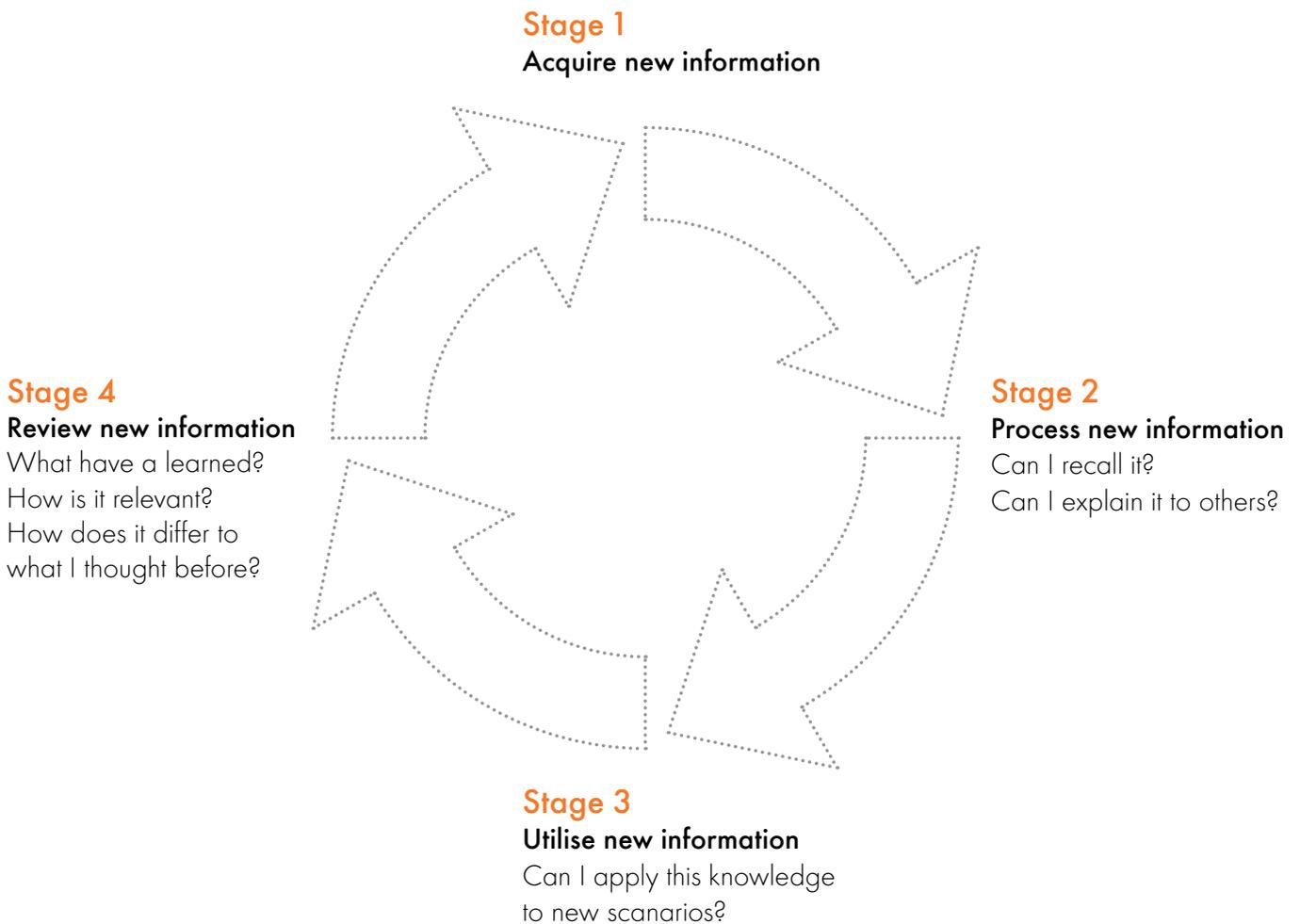
Animal welfare is a science, and as such, can be taught like any other tertiary subject area. However, it also comes with a requirement to assess and question internal ethics and moral values, and possibly change attitudes towards animals that students and teaching staff will have developed throughout their lives. With this in mind, we recommend that an interactive and inclusive approach to teaching this content is likely to be most effective.

The theory of multiple intelligences (Gardner, 1983) states that individuals of all ages possess seven 'intelligences' or skills that contribute to their overall intelligence. Each individual varies in terms of which skills are strongest, and the strongest preferences shown by individuals correlate to the easiest ways for that individual to learn (Jacobson et al., 2006). The table below presents the seven intelligences and suggests the types of activities that can best engage each.

<b>Intelligence</b>	<b>Ideal activities</b>
Linguistic	Writing, reading, discussing (using language)
Logical-mathematical	Calculating, using data, looking for patterns, applying informal logic
Spatial	Diagrams, using maps, designing plans
Bodily-kinaesthetic	Learning through action, role play
Musical	Using music, sounds and words to simulate ideas
Interpersonal	Group activities, working with others
Intrapersonal	Working independently, devising own strategies, applying concepts to personal experience

Many aspects of these intelligences might be seen in education provision for younger students, but the variety tends to disappear in place of more teacher-led techniques as students get older. However, in order for animal welfare education to be effective in changing the attitudes and behaviour of older individuals, we suggest you include experiential learning and hands-on activities as a matter of course.

We have designed this resource to enable you to provide a comprehensive learning experience for your students. First there are the modules (provided as PowerPoint presentations), which contain the curriculum content and act as a framework. Secondly, the lecturer support materials provide you with a number of options to enable the students to pass through the learning cycle (see below).



## How to use this resource

In this resource we present 35 modules on a range of animal welfare topics. We have structured Concepts in Animal Welfare to be flexible; its application will depend on how you choose to teach animal welfare. Each faculty will vary in when (as well as how) they opt to teach animal welfare; many select the first year of teaching. This is desirable, although we recommend that animal welfare content should be included throughout all years of veterinary training, revisiting content taught earlier in the student experience to cement knowledge.

In an ideal scenario, the modules should be taught from start to finish, including question and answer sessions, debates, student presentations and applied learning opportunities. However, the flexibility of the resource means that individual modules can be selected and taught at an appropriate time by integrating the content into existing subject areas.

Both approaches have benefits. Taught as a standalone topic, animal welfare gains credibility and is recognised by staff and students alike as an academic subject along with the rest of the taught curriculum. However, if fully integrated into what is currently taught, the impact of animal welfare science will be felt across all pillars of veterinary training and it will truly become a subject that underpins all others.

The comprehensive inclusion of animal welfare within your veterinary curriculum requires the replacement of animals or the reduction and refinement of their use throughout the faculty if the actions and words of your department are to be consistent. When you consider how to implement the curriculum in this resource, bear in mind the alternatives to animal use that are available: many have been proven to offer students an enhanced learning experience and better skills development than the traditional practice of using animals in the classroom.

### Curriculum A

If animal welfare is to be taught as a standalone subject, the modules should be taught in the sequence laid out in the table below.

This edition of Concepts in Animal Welfare is clustered in six chapters. The first, **Introduction to Animal Welfare Science**, contains six introductory modules which form the core content and should be taught first. If there is restricted time available for the inclusion of animal welfare within your curriculum, these are the modules that should be prioritised.

The six modules of the second chapter, **Applying Animal Welfare: Measurement and Assessment**, describe how to measure and assess welfare in practical scenarios. In these modules we suggest which assessment tools, checklists and audits can be used to monitor welfare, as well as describing how theoretical ethics can be put into practice in real-world situations.

The third chapter, **Welfare Management**, contains five modules that describe practical methods of achieving higher welfare standards and maintaining them. Many of these modules relate to topics covered in the second chapter.

**Welfare in Focus**, the fourth chapter, consists of eight modules that highlight welfare issues in unusual places. In these modules we take the opportunity to draw students' attention to some of the less obvious groups of animals and scenarios that give rise to welfare concern.

In the five modules of the fifth chapter, **Society and Animal Welfare**, we focus on the more human elements of animal welfare. We describe how different societies view animals and how this affects the treatment and consideration they receive.

The sixth and final chapter, **Animal Welfare and You**, contains four modules in which we outline why animal welfare should be personally important to your students. The modules explore the influence animal welfare should have on them as they study, and as qualified professionals. It also explores their role as animal welfare advocates.

Chapter	Module number	Module title
<b>Introduction to Animal Welfare Science</b>	1	Introduction to Animal Welfare
	2	Welfare Assessment and the Five Freedoms
	3	Behaviour and Animal Welfare
	4	Introduction to Animal Welfare Ethics
	5	Improving Animal Welfare through Legislation and Incentives
	6	Assessing Animal Welfare - Physiological Measures
<b>Applying Animal Welfare: Measurement and Assessment</b>	7	Behavioural Measures of Animal Welfare
	8	Disease and Production Measures of Animal Welfare
	9	Assessing Welfare in Practice
	10	Livestock Welfare Assessment (Part 1)
	11	Livestock Welfare Assessment (Part 2)
	12	The Application of Animal Welfare Ethics
<b>Welfare Management</b>	13	Diet, Feeding and Animal Welfare
	14	Companion Animal Management
	15	Environmental Enrichment
	16	Livestock: Slaughter and Killing Animals for Disease Control Purposes
	17	Euthanasia and Emergency Killing
	18	Welfare of Working Animals
<b>Welfare in Focus</b>	19	Welfare of Animals used in Education, Research and Testing
	20	The Welfare of Animals Used in Entertainment
	21	Wild Animal Welfare: Management of Wildlife
	22	Wild Animal Welfare: The Commercial Use of Wildlife
	23	Welfare of Wild-Caught and Farmed Fish (Fish Welfare Part 1)
	24	Welfare of Farmed Fish and Aquatic Invertebrates (Fish Welfare Part 2)
	25	Livestock: Transport and Markets
	26	Companion Animal Welfare
<b>Society and Animal Welfare</b>	27	Religion and Animal Welfare
	28	Human Conflict and Animal Welfare
	29	Veterinary Disaster Management
	30	Human Animal Interactions
	31	Economics and Animal Welfare
<b>Animal Welfare and You</b>	32	The Role of the Veterinarian in Animal Welfare
	33	Animal Welfare Organisations
	34	Veterinarians as Animal Welfare Educators
	35	The World Organisation for Animal Health and its Role in Animal Welfare

## Curriculum B

You can see from the table above that many of the modules overlap in terms of target species or subject area. For example, modules 8, 10, 11, 16 and 25 all deal with livestock and farm animal welfare. As the resource is designed to be flexible, it is possible to group these modules and teach them according to subject area. The table in the appendix provides a quick reference tool for grouping modules according to subject.

## Modules

We have designed every module to be comprehensive and universally applicable. However, we recognise that a diverse audience will have different needs and cultural sensitivities. If certain images or content are not applicable or appropriate for your students we advise that you remove the content or exchange it for more appropriate subject matter by editing the relevant slides.

## Lecturer support pack

Each PowerPoint module is accompanied by a lecturer support pack. In this pack we provide **lecture notes** and **student activities**. Collectively, these materials will allow your students to progress through the learning cycle (see diagram above).

The lecture notes for each module are included on the relevant PowerPoint slide and have been collected together in a separate document to assist you in preparing and delivering your lecture(s). They can be read directly to the students if the content is new to you, or used as prompts if you are more confident in the subject matter. This delivery of information allows the students to enter Stage 1 of the learning cycle: 'acquire new information' (see Figure 1, above).

The student activities contain a variety of tasks to enable you to enhance your students' learning experience and enjoyment of these modules. As a general rule, these activities begin with questions and answers. These assess whether the students can recall the information they have been taught: the second stage in the learning cycle. These can be supplied to students as individual activities, applied to the class in a group setting, or extracted and applied to examination papers. In some modules the subject matter is of a more practical nature and therefore comprehension questions are not appropriate. The student activities for these modules (33 and 34) do not have questions and answers. (Please note that Module 35 - about the OIE - is for information and does not have activities attached.)

The questions and answers are followed by in-class activities that usually include debate and discussion topics as well as individual or group presentations (it is expected that students will have access to whole class or group seminars where these activities can take place). By tackling challenging discussion topics students may discover that there is no right or wrong answer to the issue, but rather a need for debate, clear vision and actions based on values.

They will learn to argue their opinions, tolerate other views and potentially go through the experience of having their views changed by the persuasive argument of another.

In most cases, 'notes to the lecturer' and 'key prompts' are included to ensure that discussions remain active and on track, and that you are well-informed from the outset. In some cases, research outside of the classroom

is required prior to the debate or presentation. Guidelines for good quality reports and presentations can be found in the instructions for the individual activities.

Finally, where appropriate, we have included 'applied learning opportunities'. These are activities that require the student to venture into real-life scenarios and apply the information they have gained in your lectures. This may be possible during normal practical rotations, but it should also be encouraged as an assessment activity in itself. Detailed guidance on the implementation of these activities is given within each set of student activities where applied learning opportunities appear.

The in-class activities and applied learning opportunities enable students to enter the third stage of the learning cycle: applying their knowledge to new scenarios. The provision of reflection exercises throughout the resource enables the students to complete the cycle by reviewing what they have learned.

## References and further reading

We have included a comprehensive bibliography in all modules which details the up-to-date, peer-reviewed scientific content on which the resource is based. These can be found in the slides at the end of each module. All articles cited within the module itself are listed in the references slides, while the further reading slides (included in modules 16, 17, 18, 21, 29, 33, and 34) contain additional articles of interest related to the subject matter. All articles listed within the resource are valuable and will contribute to the development of subject knowledge in teaching staff and students alike, and the lists should be made available to students where possible.

## Online support

Our online forum for animal welfare is called Animal Mosaic and can be found at [www.animalmosaic.org](http://www.animalmosaic.org). This website is a gateway to animal welfare information for the academic and veterinary communities. The education section of this resource provides a link to the Concepts in Animal Welfare Toolbox (mentioned throughout this resource and updated on an ongoing basis), which contains tools to help students and lecturers alike in the application of animal welfare knowledge. It is an interactive forum and we welcome contributions from you and your faculty.

## Feedback

We would be grateful to receive your feedback on the third edition. A discussion forum is available on [www.animalmosaic.org](http://www.animalmosaic.org) for you to let us know your thoughts, and a specific evaluation form is available for download and submission on the Advanced Concepts hub of the Animal Mosaic website, available at: <http://animalmosaic.org/education/teaching-animal-welfare/advanced-concepts-in-animal-welfare/>.

If you have any specific queries or requests for further information please contact us at [education@worldanimalprotection.org](mailto:education@worldanimalprotection.org).

Finally, we hope you enjoy introducing your students to the exciting and evolving science of animal welfare. As knowledgeable and influential animal professionals, you are able to play an important role in moving your students and peers to improve animal welfare worldwide.

Ruth De Vere  
Head of Education, World Animal Protection  
July 2014

## Authors, contributors and developers of the third edition of Concepts in Animal Welfare

We would like to thank Caroline Hewson MVB PhD MRCVS who provided extensive contributions for the creation of this edition in the form of updates and additions to all the existing lectures; creation of some of the new lectures; and ideas for the lecturer support materials.

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### **World Animal Protection current and previous staff members (in alphabetical order)**

Dr Michael Appleby, PhD (Chief Scientific Adviser)  
Georgina Ash, MSc (Picture Editor)  
Dr David Bayvel, BVMS (Chief Veterinary Adviser)  
Carla Brown LLB, MA (Legislative Affairs Manager)  
Gemma Carder, MRes, (Science and Research Co-ordinator)  
Dr Nancy Clarke, PhD (International Education Manager)  
Adam Cohen (Graphic Designer)  
Ellen Coombs, MSc (Oxon) (International Education Coordinator)  
Amelia Cornish, MBus(S&T) (World Animal Protection consultant)  
Dr Neil D'Cruze, PhD (Head of Wildlife Research and Policy)  
Ruth De Vere, MRes (Head of Education)  
Dr Nick de Souza, DVM (Africa Director of Programmes)  
Dr Melania Gamboa, DVM, MBA (Mexico, Central America and the Caribbean Education Manager)  
Chris Gee (Programmes Manager, Wildlife)  
Kate Green (International Editorial Manager)  
Roy Kareem, MSc (International Education Manager)  
MVDr Rasto Kolesar (Farm Animals Programme Manager)  
Ela Kosmaczewska (Head of Creative)  
Cecile Lamy, MSc (Disaster Operations Officer)  
Joy Lee, BSc (External Relations, Europe)  
Dr Natasha Lee, DVM (Asia Pacific Education Manager)  
Russell Neal (Interim Head of Creative Development)  
Ali Nightingale, MA (Communications Officer)  
Raphael Omondi, HND (Africa Education Manager)  
Dr Victoria Pereira, DVM, MSc (South America Education Coordinator)  
Helen Proctor, MSc (Sentience Manager, World Animal Protection)  
Dr Rosangela Ribeiro, DVM (Brazil ACAW Education Manager)  
Dr Carole Sankey, PhD (Scientific Advisor)  
Dr Kaewta Satayaprasert, DVM (Asia Pacific Education Officer)  
Dr Kate Shervell, DVM (Technical Advisor, Disaster Management)  
JJ Sun, MSc (China ACAW Education Officer)  
Dr Evan Sun, PhD (China Technical Adviser)  
Gavin Tang, MSc (China HAS Coordinator)  
Jackie Wenham (Communications Project Manager)  
Dr Melissa Upjohn, DVM, PhD (Head of Science)

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Dr Chutamas Benjanirut, DVM, PhD, Faculty of Veterinary Science, Chulalongkorn University, Thailand  
Assist. Professor Dr. Prawit Butudom, DVM, PhD, Faculty of Veterinary Medicine, Khon Kaen University, Thailand

Dr. María Nelly Cajiao, MSc, DVM, Pan American Veterinary Association (PANVET), Colombia

Dr. Ingrid Eder, DVM, Brazil

Dr. Carmen Niehaus, DVM, Costa Rica

Diagrams drawn by Modoworks

## **We are grateful to the following veterinary associations for their support and/or endorsements of this resource (in alphabetical order):**

Academia Colombiana de Ciencias Veterinarias

Asian Association of Vet Schools (AAVS)

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Asociación Colombiana de Facultades de Medicina Veterinaria y Zootecnia

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Chinese Veterinary Medical Association (CVMA)

Federation of Asian Veterinary Associations (FAVA)

Federal Council of Veterinary Medicine, Brazil (CFMV)

Federación de Veterinarios del Ecuador

Federation of Veterinarians in Europe (FVE)

Mexican Association of Schools and Colleges of Veterinary Medicine

World Organisation for Animal Health (OIE)

Sociedad de Medicina Veterinaria República Argentina

Sociedad de Médicos Veterinarios de Uruguay

South East Asian Veterinary School Association (SEAVSA)

World Veterinary Association (WVA)

# Authors, contributors and developers of the first and second editions of Concepts in Animal Welfare

## **Animal Welfare and Behaviour Group, University of Bristol School of Veterinary Science (in alphabetical order):**

Katrine Beazely BVSc BSc CertWEL MRCVS  
Andrew Butterworth BVSc CBiol MIBiol PhD CertWEL MRCVS  
Gian Lorenzo D'Alterio DVM MSc MRCVS  
Greg Dixon MA VetMB CertWEL MRCVS  
Sue Haslam BVSc MSc DWEL MRCVS  
Matt Leach BSc Hons MSc PhD  
Dr Med. Vet. Christine Leeb MRCVS  
David Main BVetMed PhD CertVR DWEL MRCVS  
Siobhan Mullan BVMS PhD CertWEL MRCVS  
Elizabeth Paul BSc PhD

## **World Animal Protection – current and previous staff members (in alphabetical order)**

Dr Michael Appleby, PhD  
Deepashree Balaram BVSc & AH MBA  
Jasmijn de Boo, BSc Hons, MSc, DipEd  
John Callaghan BA CBiol. MI Biol.  
Dave Eastham BSc Hons  
Brian Faulkner  
MVDr. Rasto Kolesar  
Joy Leney MSc  
Heather Locke  
Philip Lymbery  
Dr. Juan Carlos Murillo, DVM  
Lorna Sherwood, BSc Hons, MSc  
Pe-Feng Su MA  
Philip Wilson BSc

## **Other contributors (in alphabetic order):**

Ray Butcher MA Vet MB MRCVS  
Caroline Hewson, MA VetMB MRCVS PhD  
Tim Philips

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# Appendix

The table below shows which modules can be grouped together and taught according to subject area.

Module number	Module title	Subject area						
		Introduction	Farm animals	Companion animals	Wildlife	Fish	Working animals	Ethics and law
1	Introduction to Animal Welfare	●						
3	Behaviour and Animal Welfare	●						
4	Introduction to Animal Welfare Ethics							●
5	Improving Animal Welfare through Legislation and Incentives	●						●
6	Assessing Animal Welfare - Physiological Measures	●						
7	Behavioural Measures of Animal Welfare	●						
8	Disease and Production Measures of Animal Welfare		●					
9	Assessing Welfare in Practice	●						
10	Livestock Welfare Assessment (Part 1)		●					
11	Livestock Welfare Assessment (Part 2)		●					
12	The Application of Animal Welfare Ethics							●
13	Diet, Feeding and Animal Welfare	●						
14	Companion Animal Management			●				
15	Environmental Enrichment	●						
16	Livestock: Slaughter and Killing Animals for Disease Control Purposes		●					
17	Euthanasia and Emergency Killing	●						
18	Welfare of Working Animals						●	
19	Welfare of Animals used in Education, Research and Testing	●						
20	The Welfare of Animals Used in Entertainment	●						
21	Wild Animal Welfare: Management of Wildlife				●			
22	Wild Animal Welfare: The Commercial Use of Wildlife				●			
23	Welfare of Wild-Caught and Farmed Fish (Fish Welfare Part 1)					●		
24	Welfare of Farmed Fish and Aquatic Invertebrates (Fish Welfare Part 2)					●		
25	Livestock: Transport and Markets		●					
26	Companion Animal Welfare			●				
27	Religion and animal welfare	●						

Module number	Module title	Subject area						
		Introduction	Farm animals	Companion animals	Wildlife	Fish	Working animals	Ethics and law
28	Human Conflict and Animal Welfare	●						
29	Veterinary Disaster Management	●						
30	Human Animal Interactions	●						
31	Economics and Animal Welfare	●						
32	The Role of the Veterinarian in Animal Welfare	●						
33	Animal Welfare Organisations	●						
34	Veterinarians as Animal Welfare Educators	●						
35	The World Organisation for Animal Health and its Role in Animal Welfare	●						

## About the author

**We are** World Animal Protection.

**We end** the needless suffering of animals.

**We influence** decision makers to put animals on the global agenda.

**We help** the world see how important animals are to all of us.

**We inspire** people to change animals' lives for the better.

**We move** the world to protect animals.