

# PROCEEDINGS BOOK

## ONE WELFARE WORLD CONFERENCE

**2021** | 15 -16 September  
Virtual



## Created by

One Welfare CIC

## Editors

Dr Rebeca García Pinillos

Dr. Amelia García Ara

Jens Schaad

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## WHAT IS ONE WELFARE?

**One Welfare** is a concept that describes the interconnection between animal welfare, human wellbeing and their physical and social environment

**The One Welfare Framework** encompasses five distinct sections that aim to bring together professionals of different disciplines for the benefit of animal welfare, human wellbeing, the environment, and overall, our society and the world we live in. You can read further about the One Welfare Framework here:

<https://www.onewelfareworld.org/book.html>



## Welcome to the III One Welfare World Conference

### Opening Remarks

As director of One Welfare CIC, it has been my pleasure to invite you to the third One Welfare World Conference, which as a result of the COVID-19 pandemic, was held virtually on the 15th and 16th September 2021.

The concept of One Welfare describes the interrelationships between animal welfare, human wellbeing and the physical and social environment. The One Welfare Framework comprises five sections which are in-tended to capture the different multidimensional aspects of the concept. This conference centres around the five One Welfare Framework Sections and includes a special section on One Welfare and COVID-19.

During the conference, Global experts in animal welfare, human wellbeing and the environment will present discuss their latest experiences and research in the area of One Welfare.

The One Welfare World Conference's goal was to bring together a multidisciplinary group of professionals working on animal welfare, human wellbeing and the environment; Professionals who are passionate about how these elements and their varied skills complement each other in their daily activities; Professionals who would like to share their knowledge and experiences as well as learn from the latest research in the area.

Joining up to discuss scientific research and evidence is essential to showcase the benefits of the One Welfare approach in a tangible manner, serving to other researchers, industry or policy makers in their work. This helps to build up a robust evidence base around One Welfare and adoption of the concept globally to help make the world a better place.



On behalf of the honour, scientific and organizational committees, we have welcomed you to this conference as well as appreciated and enjoyed your participation.

*"You become responsible, forever, for what you have tamed."*

Antoine de Saint-Exupéry, The Little Prince

**Dr. Rebeca García Pinillos,**  
Founder and Director One Welfare

# OWW VIRTUAL CONFERENCE – PROGRAMME

## DAY 1 - 15th September 2021, Sessions 1-3, 08:15 - 17:00 (CET time)

### 08:15 Conference Opening

08:15	Welcome: Session Chair,	Tomás Fisac de Frías (Colegio de Veterinarios de Burgos, Spain)
08:20	Welcome and background to the conference	Rebeca García Pinillos (One Welfare CIC)
08:30	One Welfare and the EU Animal Welfare farm to fork framework.	Andrea Gavinelli, (European Commission)

## 08:45 -11:45 Session 1 – The social implications of improved animal welfare

Session Chair: Dale Douma, Manitoba Agriculture and Resource Development, Canada

### 08:45 Keynote: Equine welfare the environment and societal wellbeing Roly Owers (WHW) and Fredred Valdivia (Brooke)

## 09:15 - 10:30 Session 1 – Oral presentations

09:15.	Partnering as best practice to optimise support for One Health / One Welfare for working equids and communities they support	Frances Goodrum (Brooke UK)
09:30	Exploring the Relationship Between Owner Attitudes and Working Equid Welfare in Mexico, Portugal and Spain.	Leanne Proops (University of Portsmouth, UK)
09:45	Social conflicts in Dog extreme breeding preliminary survey results	Claire Diederich (University of Namur, Belgium)
10:00	The Donkey Skin Trade in Kenya: Policy Challenges One Welfare concerns and a case study for increased partnership.	Samuel Theuri (Brooke East Africa)

## 10:15 – 10:45 Break

#### 10:45 - 11:45 Session 1 – OSWM Sessions

10:45	Women role with working equids in Colombia 2021.	Carolina Jaramillo Gomez (Fundación Arrieros Colombia)
10:55	Perception of Hunters about their activity and social relational environment in Catalunya, Spain.	Tatiana Vigo Cerqueda (Universidad de Barcelona España)
11:05	Control of animal populations Experience "Control outdoor cats in Bogotá"	Jose Alexander Estepa Becerra (Uniagraria Colombia)
11:15	The use of saliva for the assessment of stress	health and welfare: a sialochemistry approach. Maria Dolores Contreras Aguilar (Murcia University Spain)
11:25	Coal Mines and Their Equids in Pakistan: An Opportunity to Platform a One Welfare Approach.	Syed Abbas (Brooke Pakistan)
11:35	Environmental and Human Influences on Working Equid Welfare.	Emily Haddy (University of Portsmouth UK)

#### 11.45 - 15:00 Session 2 – Animal Health and Welfare, Human Wellbeing, Food Security and Sustainability

Session Chair: Stella Maris Huertas (Universidad de la República, Uruguay)

**11:45 Keynote: Sustainable food systems and climate change**

**Daniella Battaglia (FAQ, Italy)**

#### 12:15 - 13:15 Session 2 – Oral presentations

12:15	Understanding the morbidity and mortality of pigs in Ugandan small holder production systems.	Rebecca Doyle (International Livestock Research Institute, Ethiopia)
12:30	Foot-and-mouth and Similar Transboundary animal diseases (FAST) crisis management: dealing with psychological aspects and public perceptions.	Rodrigo Nova (European Commission for the Control of Foot-and-Mouth Disease (EuFMD, Italy)
12:45	One Welfare in farm animal production: animal welfare in connection to human wellbeing and environmental sustainability.	Bas Rodenburg (Utrecht University, The Netherlands)
13:00	Swine Veterinarians: COVID-19 related depopulation and mental health.	Angela Baysinger (Merck Animal Health, US)

13:15 - 13:45 Break

### 13:45 - 15:00 Session 2 – OWSM SESSION

13:45	'Cattle welfare is basically human welfare': Workers' perceptions of animal welfare on two large dairies in China.	Maria Chen (University of British Columbia, US)
13:55	Antibiotic resistance genes in public waterways near industrial pig farming in Canada, Spain, Thailand, USA: a One Welfare issue	Sarah Ison (World Animal Protection, UK)
14:05	Farmer satisfaction and animal welfare – insights from a sample of organic multi-species livestock farms in seven European countries.	Lisa Schanz (University of Natural Resources and Life Sciences, Austria)
14:15	PPILOW: innovations for improving animal welfare and human well-being in low input outdoor and organic poultry and pig production systems.	Lucia Rocchi (University of Perugia, Italy)
14:25	Suicide and Types of Agriculture: A Time-Series Analysis in Japan Mariko Kanamori.	(Kyoto University, Japan)
14:35	Agroforestry systems that benefit animal welfare, environmental well-being and livelihoods in Ethiopia.	Tsega Bhare (International Livestock Research Institute, Ethiopia)
14:45	Differences in the perception of equine slaughter as a protein alternative for human food in Colombia, 2021.	Santiago Henao Villegas (Universidad CES, Colombia).

14:55 - 15:15 Break

### 15:15 - 16:30 Session 3 – The Connections Between Animal and Human Abuse and Neglect

Session Chair: Mohamed Nader, Egypt

**15:15 Keynote: The interconnection between animal and human abuse and neglect**

**Phil Arkow (National Link Coalition, US)**

### 15:45 - 16:30 Session 3 – Oral presentations

15:45	What kind of bond? Measuring children's attachment to pets and understanding its role in cases EN of childhood animal harm.	Laura Wauthier (University of Edinburgh UK)
16:00	The Veterinary Forensic Expert Centre in The Netherlands.	Nienke Endenburg (Utrecht EN University The Netherlands)
16:15	The One Welfare Phoenix Project.	Evelyn Segredo (project One Welfare Phoenix Advisory Board)

### 16:30 - 17:00 Round table – One Welfare Implementation

Chair: Dr. Rebeca García Pinillos –



**Participants: Martin Blake (Chief Veterinary Officer, Ireland); Philip Lymbery (UN Food Systems Ambassador); Maria Nelly Caijao Pachón (Dean and Director, Uniagraria, Colombia)**

**DAY 2 - 16th September 2021, Sessions 4-6, 08:15 - 17:00 (CET-time)**

08.15 – 08:30 Introduction to the day

**08:30 - 10:50 Session 4 – Special section on One Welfare and COVID19**

Session Chair: Anne Quain (University of Sydney, Australia)

**08:30 Keynote: COVID-19 and One Welfare – impacts and recovery highlights from Singapore.**

**Him-Hoo Yap (National Parks Board, Singapore)**

**09:00 - 10:00 Session 4 – Oral presentations**

09:00	Concerns and Experiences of Accessing Veterinary Care During the COVID-19 Pandemic: a Mixed Methods Analysis of Dog Owners' Responses.	Katrina Holland (Dogs Trust, UK)
09:15	What impact has COVID-19 had on our relationships with animals in Scotland?	Gilly Mendes Ferreira (Scottish SPCA, UK)
09:30	Social support for management of dogs during COVID-19.	Robert Christley (Dogs Trust, UK)
09:45	Effect of imposed movement restrictions on the wellbeing and interactions of humans and their pets.	Paulina Muñoz Garcéz (Liceo Agrícola San Carlos, Chile)

**10:00-10:50 Session 4 – OWSM Sessions**

10:00	Human perception of emotional state quality of life and pet behaviour in times of COVID 19.	Alejandra Feld (Universidad de Buenos Aires Argentina)
10:10	The One Welfare impact of Covid-19 on the working equid community: responses from	Amy Morris (Vancouver Humane Society Canada)
10:20	Supporting healthy and sustainable human-animal bonds: Examining pet guardians' access to veterinary medical and behavioural services during COVID-19. 1530 participants receiving NGO support in 14 LMICs.	Isabella Wild (World Horse Welfare UK)
10:30	The early effects of Covid-19 on participants of an equine welfare programme in Cambodia	Porleng Van Rinda Nop and Natasha Lee (World Horse Welfare UK)
10:40	The dog and cat meat trade: a potential source for future pandemics.	Karan Krukeja (Four Paws International)

10:50 - 11:05 Break

### 11:05 - 12:50 Session 5 – Sustainability: Connections Between Biodiversity, the Environment, Animal Welfare and Human Well-being.

Session Chair: Débora Racciatti (Argentina)

**11:05 Keynote: Biodiversity conservation and the impacts on animal, human and environmental wellbeing. Craig Spencer (Black Mambas, South Africa)**

### 11:35 - 12:20 Session 5 – Oral presentations

11:35	One Welfare and the Post-2020 Global Biodiversity Framework.	Mark Jones (Born Free UK)
11:50	Rescue and rehabilitation of wildlife during Australia's black summer bushfires – One Welfare outcomes.	Michelle Campbell-Ward (Department of Regional NSW and Taronga Western Plains Wildlife Australia)
12:05	The role and welfare of cart donkeys used in waste management and environmental protection in Karachi Pakistan.	Sher Nawaz (Brooke Pakistan)
12:20	A Multi-Disciplinary Approach to the Impact of Trace Metal Contamination from Derelict Lead Mines in Wales.	Andrea Sartorius (University of Nottingham, UK)

### 12:35 - 13:15 Session 5 – OWSM SESSION

12:35	Animal Disaster Response using One Health Solutions Case studies: Hurricane Sandy, Joplin Tornado and COVID-19.	Michelle Grundahl (George Mason University, US)
12:45	One Welfare: Increasing community involvement a case study from Kenya.	Samantha Opere (Kenya Network for Dissemination of Agricultural Technologies (KENDAT), Kenya)
12:55	Learning from the Belgium (Walloon) experience, challenges to include and implement a OW policy in reptile keeping.	Claire Diederich (Université de Namur, Belgium)
13:05	One welfare for the Andean Bear: perspectives from Colombia.	Leonardo Arias Bernal (Uniagraria, Colombia)

13:15 - 13:45 Break

### 13:45 - 15:30 Session 6 – Assisted Interventions Involving Animals, Humans and the Environment

Session Chair: Rosa María Gómez Movellán (Embassy of Spain in UK, Spain)

**13:45 Keynote: One Welfare in the context of laboratory animals**

**Pat Turner (World Veterinary Association)**

### 14:15 - 15:30 Session 6 – Oral presentations

14:15	National Guidelines for Animal Assisted Interventions in Italy: One Welfare applied to EN legislation.	Morgana Galardi (Istituto Zooprofilattico Sperimentale delle Venezie Italy)
14:30	Proactive program to support emotional engagement resiliency and compassion satisfaction in EN research animal caregivers.	Judy Murray (Charles River Laboratories, US)
14:45	Applying a One Welfare paradigm to a novel Animal Assisted Therapy program partnering EN shelter dogs and survivors of sexual trauma.	Marie Hopfensperger (Michigan State University College of Veterinary Medicine, US)
15:00	The Controlled Trial of CARing Kids: Animal Assisted Humane Education on Social-Emotional EN Development on Primary Students.	Tsz Kin Ngai Joe (The University of Hong Kong, Hong Kong SAR)
15:15	Animal-assisted Education (AAE) for Primary School Children in the Time of COVID-19.	Kathy Chau (The University of Hong Kong, Hong Kong SAR)

15:30 - 16.00 Break

### 16:00 Conference Closing

16:00	OWSM Sessions Award Ceremony (Sponsored by MSD)	Angela Baysinger (MSD, US)
16:30	Final remarks and wrap up	Organising committee
17:00	Conference End	Rebeca García Pinillos (One Welfare CIC)

## ORGANISING COMMITTEE

### **Dr. Rebeca García Pinillos**



Rebeca García Pinillos graduated as a veterinarian from the University of Zaragoza, Spain and completed a PhD at the University of Reading, England. Rebeca is a graduate of the European College of Animal Welfare and Behavioral Medicine and a certified specialist by the Royal College of Veterinary Surgeons (RCVS) in animal welfare, ethics and law. She has worked in general medicine and as a government veterinarian since 2001. Rebeca has also volunteered with exotic animals and is an internationally recognized lecturer and professor in the field of animal welfare, educating and giving lectures worldwide. Rebeca is the past president of the Government Veterinary Association in England and founder of the non-profit social enterprise One Welfare Community Interest Company, which started as a voluntary project, launching a global consultation to define the concept of One Welfare and create the framework. One Welfare as a complement to One Health. Rebeca has created social media platforms and established a One Welfare concept web presence to help establish, educate and disseminate the One Welfare concept. Initiatives launched to date in support of these goals are the publication of the One Welfare Framework book and the One Welfare World, One Welfare Phoenix, One Welfare Silworm and One Welfare Learning projects as well as the “One Welfare Science slaM (OWSM) sessions” launched as part of this conference.

### **Amelia García Ara**



Degree in Veterinary Medicine by the University of Extremadura, Spain, in 2000, she moved shortly after that to the UK to work as Official Veterinarian undertaking inspection and enforcement duties in different abattoirs and cutting plants. She later completed a master's in Education and more recently a master's in Epidemiology and Public health. In the area of public health she has also undertaken roles as food quality manager, food safety consultant and field veterinarian for disease control of bovine tuberculosis and brucellosis. Amelia joined the University of Nottingham in 2014, where she currently works as assistant professor in Veterinary Public Health (VPH), VPH module convenor and One health One Welfare rotation leader. She is a resident of the European College of Veterinary Public Health (ECVPH) and a fellow of the Higher Education academy (FHEA). She is particularly interested in public perceptions around Animal Welfare and Food safety.

## Tomás Fisac de Frías



Tomás graduated in Veterinary Medicine, from the Complutense University of Madrid, in 1979. After obtaining a Diplomate in Public Health, from the National School of Departmental Health of Valladolid in 1981, Tomás joined the Corps of Official Veterinarians, by national opposition, in 1985. He thereafter obtained a Degree on Food Technology from the University of Burgos in 1998.

He began his professional activity in 1980, practicing in different municipalities in the province of Burgos. In 1990 he joined the Agriculture and Livestock services of the Junta de Castilla y León and in 1992 the Public Health services, performing since 1995 the Technical Sanitary Directorate of the Incarsa slaughterhouse in Burgos, until 2012 when he was assigned as Head of the Public Health Unit in the Government Sub-delegation of Burgos, a position he currently occupies.

Tomás Fisac is currently president of the Official College of Veterinarians in Burgos, a position he has led since 2000. Tomás was president of the Council of Veterinary Colleges of Castilla y León between 2006 and 2016.

He is also secretary of the Governing Council of Cajaviva-Caja Rural and president of the Fundación Caja Rural de Burgos.

## Imanol De La Fuente Arteagabeitia



Imanol graduated as Veterinary surgeon (with specialty in Bromatology, Food safety and Food technology) by the Leon Veterinary School, Spain, and also holds a Diploma in Public Health from the Spanish National School of Public health. He has undertaken research in aflatoxins and completed several courses in the area of animal production and food safety.

Imanol has worked for de Vizcaya local government in animal diseases control, as well as for Bilbao city council as Official Veterinarian, with roles in the official lab, dairy industries controls and abattoir inspection. Imanol took a break from this position to become the General Director of Industries and Food Quality for the Basque Country Government for some time, after which he returned to his role as Official veterinarian until his retirement in 2020. Other appointed responsibilities include his role as Secretary of the Veterinary College of Vizcaya and member of the managing board of the National Association of Technical Sanitary Directors of abattoirs and meat industries (ADITSIC) for the Basque Country, Navarra and Cantabria. He has been involved in different roles as part of the Association of Food safety Specialist Veterinarians (AVESA), which he presides since 2013.

## Dale Douma



Dr. Dale Douma received a B.Sc. (Ag.) from the University of Manitoba and completed his DVM at the Western College of Veterinary Medicine, prior to working as a mixed animal veterinarian in rural Manitoba. He returned to the University of Saskatchewan completing a Ph.D. in Large Animal Clinical Sciences.

Since 2008, Dr. Douma has worked with Manitoba Agriculture serving in various roles such as the Veterinary Lead for Animal Welfare Programs, the Acting Chief Veterinary Officer, and currently as the Veterinary Public Health Epidemiologist. He also co-chairs the Manitoba One Health Steering Committee. In these positions, Dr. Douma has had the opportunity to participate with agricultural industry, animal welfare enforcement, and public health organizations as well as engaging in disease outbreak preparedness and response activities.

In 2016, he spearheaded and co-chaired the inaugural International One Welfare Conference hosted in Winnipeg that focussed on the human impacts of animal health and welfare issues including those associated with disease outbreak response.

Since March 2020, he has led the COVID19 Emergency Operations Center for the Chief Veterinary Office of Manitoba in order to oversee and coordinate critical issues related to the ongoing pandemic with an impact on the veterinary/agrifood sector in Manitoba.

## Anne Quain



Anne Quain is a lecturer at the Sydney School of Veterinary Science and a companion animal veterinarian. She completed a Masters in small animal medicine and surgery through Murdoch University, is a member by examination in the animal welfare chapter of the Australian and New Zealand College of Veterinary Scientists, and a Diplomate of the European College of Animal Welfare and Behaviour Medicine in Animal Welfare Science, Ethics and Law.

Dr Quain co-authored the book Veterinary Ethics: Navigating Tough Cases and is the author of numerous peer-reviewed journal articles and book chapters. She co-edited the sold-out Vet Cookbook (published by the Centre for Veterinary Education). She is a member of the AVA's New South Wales Executive Committee, the Animal Welfare Advisory Council and the Humane Society Veterinary Medical Association leadership council.

Dr Quain was the chief-convenor of the 2019 second international One Welfare conference in Sydney, Australia. She is currently undertaking a PhD looking at ethical challenges encountered by veterinary team members, with the aim of ensuring that current and prospective veterinary team members are better prepared for such challenges.

## SCIENTIFIC COMMITTEE



### **Amelia García Ara**

Degree in Veterinary Medicine by the University of Extremadura, Spain, in 2000, she moved shortly after that to the UK to work as Official Veterinarian undertaking inspection and enforcement duties in different abattoirs and cutting plants. She later completed a master's in Education and more recently a master's in Epidemiology and Public health. In the area of public health, she has also undertaken roles as food quality manager, food safety consultant and field veterinarian for disease control of bovine tuberculosis and brucellosis. Amelia joined the University of Nottingham in 2014, where she currently works as assistant professor in Veterinary Public Health (VPH), VPH module convenor and One health One Welfare rotation leader. She is a resident of the European College of Veterinary Public Health (ECVPH) and a fellow of the Higher Education academy (FHEA). She is particularly interested in public perceptions around Animal Welfare and Food safety.



### **Anne Quain**

Anne Quain is a lecturer at the Sydney School of Veterinary Science and a companion animal veterinarian. She completed a Masters in small animal medicine and surgery through Murdoch University, is a member by examination in the animal welfare chapter of the Australian and New Zealand College of Veterinary Scientists, and a Diplomate of the European College of Animal Welfare and Behaviour Medicine in Animal Welfare Science, Ethics and Law. Dr Quain co-authored the book Veterinary Ethics: Navigating Tough Cases and is the author of numerous peer-reviewed journal articles and book chapters. She co-edited the sold-out Vet Cookbook (published by the Centre for Veterinary Education). She is a member of the AVA's New South Wales Executive Committee, the Animal Welfare Advisory Council and the Humane Society Veterinary Medical Association leadership council. Dr Quain was the chief-convenor of the 2019 second international One Welfare conference in Sydney, Australia. She is currently undertaking a PhD looking at ethical challenges encountered by veterinary team members, with the aim of ensuring that current and prospective veterinary team members are better prepared for such challenges.



## Antonio Velarde



Dr. Antonio Velarde holds a Veterinarian Sciences degree, PhD in Animal Production, and Master in Science and Welfare of Laboratory Animals. He is European Veterinary Specialist in Animal Welfare Science, Ethics and Law by the European College of Animal Welfare and Behaviour Medicine.

Currently, he is head of the Animal Welfare Program in IRTA (Institute for Food and Agricultural Research and Technology-Spain) and member of the Animal Health and Animal Welfare Panel of the European Food Safety Authority (EFSA). He is deputy coordinator of the European Reference Centre for the Welfare of Poultry and other small farmed animals.

Since 2017, Dr. Velarde is member of the EU Platform on Animal Welfare as independent expert. He has been member of the of the animal transport sub-group and coordinator of the “Unweaned animals” group. He participated also in the DG Sante funded projects on “Guides to Good and Best Practice” (<http://www.animaltransportguides.eu/>), “High quality control posts” and “Animal transport certification” (<http://www.controlpost.eu/controlpost/index.php/en/>).

Research topics include animal welfare on farm, transport and slaughter, risk assessment on animal welfare and sustainability in animal production. He has published 90 peer review papers in international journals and co-edited three books: ‘On farm monitoring of pig welfare’ (Wageningen Academic Publishers), ‘Animal welfare at slaughter’ (5m Publishing. Sheffield, UK) and ‘Bienestar Animal. Una vision global en Iberoamerica’ (Elsevier).

## Bas Rodenburg



Bas Rodenburg is Professor in Animal Welfare at the Faculty of Veterinary Medicine of Utrecht University in The Netherlands. He is also Special Professor in Animal Welfare at Wageningen University. He coordinates research and education in animal welfare. The research of Bas Rodenburg aims at improving the methodology for assessment of animal welfare. This also focuses on the use of sensors to monitor behaviour and welfare of individual animals housed in social groups. In his own work, Rodenburg advertises the OneWelfare approach in the context of farm animal production to ensure that animal welfare receives appropriate attention in the development of sustainable animal production systems. Bas Rodenburg is Senior Vice President of the International Society for Applied Ethology and involved in European projects such as FreeBirds, ChickenStress en PPILOW. PPILOW focuses on measuring and improving welfare of pigs and poultry in organic and low input systems. This project also uses the OneWelfare framework as the basis for the sustainability analysis within the project ([www.ppilow.eu](http://www.ppilow.eu)). Rodenburg is a member of the editorial boards of Frontiers in Veterinary Science and Animal Welfare.



## Dale Douma



Dr. Dale Douma received a B.Sc. (Ag.) from the University of Manitoba and completed his DVM at the Western College of Veterinary Medicine, prior to working as a mixed animal veterinarian in rural Manitoba. He returned to the University of Saskatchewan completing a Ph.D. in Large Animal Clinical Sciences.

Since 2008, Dr. Douma has worked with Manitoba Agriculture serving in various roles such as the Veterinary Lead for Animal Welfare Programs, the Acting Chief Veterinary Officer, and currently as the Veterinary Public Health Epidemiologist. He also co-chairs the Manitoba One Health Steering Committee. In these positions, Dr. Douma has had the opportunity to participate with agricultural industry, animal welfare enforcement, and public health organizations as well as engaging in disease outbreak preparedness and response activities.

In 2016, he spearheaded and co-chaired the inaugural International One Welfare Conference hosted in Winnipeg that focussed on the human impacts of animal health and welfare issues including those associated with disease outbreak response.

Since March 2020, he has led the COVID19 Emergency Operations Center for the Chief Veterinary Office of Manitoba in order to oversee and coordinate critical issues related to the ongoing pandemic with an impact on the veterinary/agrifood sector in Manitoba.

## Deborah Racciatti



Débora Racciatti graduated as Veterinarian by the School of Veterinary Sciences, University of Buenos Aires (UBA), Argentina. She then obtained the degrees of Specialist in University Teaching and Specialist in Animal Welfare, awarded by the same university.

She is currently working on her doctoral thesis, studying the relationship between animal welfare and stereotypic behaviors in wild felines under human care, within the framework of compassionate conservation.

She is also in charge of the Animal Welfare Program of the National Agrifood Health and Quality Service (SENASA) of Argentina and is the National Focal Point for Animal Welfare for the World Organization for Animal Health (OIE). Additionally, she is a member of the Ad-hoc Group on Animal Welfare of the Permanent Veterinary Committee of Conosur (CVP), of the Wildlife Advisory Commission of SENASA and of the Committee of Experts of the Ente Municipal BioCórdoba.

In the academic field, she is Head of Practical Works at the Animal Welfare Department, School of Veterinary Sciences (UBA). In addition, she is a guest lecturer in undergraduate and graduate activities in several universities and institutions in Argentina, Ecuador, Mexico and Uruguay.

She defines herself as passionate about animal welfare and biodiversity conservation.

## Evelyn Segredo



Evelyn is a Family and Community Health Resident Doctor currently working in the public health system in Uruguay, training on global health problems, and undergoing several social and community projects in suburbs where poverty, human and animal violence are frequent issues.

She is also a veterinary student, enrolled in the University of the Republic of Uruguay, and has recently ended her Master's degree on Animal Welfare, graduating from the Veterinary Faculty, Buenos Aires University (UBA), Argentina. Her main line of research is how dog population management and dog bites impact on Public Health issues.

As a member of an Antrozology research group in Uruguay, she has recently extended her work with the University of Flores, Argentina, creating new approaches on Human - Animal interaction in the region.

In reference to public policies and project designing, her past work includes assessing the national government of Uruguay, through dog population management consultancies, and recently working as an independent consultant for World Animal Protection on rabies management in Latin - America.

Evelyn is also a member of the One Health – One Welfare Latin - American (OHLA) network, collaborative, and research group, assessing on different human, animal and environmental issues in the region.

## Genaro Miranda de la Lama



Genaro is a Veterinarian from the Autonomous University of Tlaxcala, Mexico (2002), and a master's in animal health and animal production sciences from the National Autonomous University of Mexico, UNAM (2005). In 2009, he obtained the degree of European Doctor in Animal Production (Cum Laude: honorable mention) from the University of Zaragoza (Spain), with a research stay at the University of Reading (United Kingdom). From 2012 to 2018, he was a professor and founding head of the Department of Food Sciences at the Metropolitan Autonomous University (Lerma campus) in Mexico. He has been a visiting professor at universities in Colombia, Peru, Brazil, Chile, Mexico and Uruguay, as well as a consultant on animal welfare in Colombia, for government entities and the livestock and poultry unions. He has published around 65 scientific articles in JCR indexed journals (index h 20) and participated in more than 170 conferences in the area. He has also directed 8 doctoral theses (Spain and Mexico), 8 Master's thesis and 8 undergraduates (Mexico, Brazil and Spain). Currently, he is a full-time professor of Ethnology and Animal Welfare attached to the Department of Animal Production and Food Science of the Faculty of Veterinary Medicine of the University of Zaragoza, Spain. He is also an expert member of the scientific panel (2020-2022) of "Free moving" for the development of the new animal transport regulations of the European Food Safety Authority (EFSA). Finally, His research is focused on the behavior and welfare of farm animals (from farm to table) and the relationships between humans and domestic animals.



## Gilly Mendes Ferreira

After completing a BSc Honours Zoology degree and MSc by Research degree I joined the Scottish SPCA and since 2005 have progressed to the post of Head of Education and Policy. My core activities involve managing our 'Prevention through Education' strategy. This includes our Animal Guardians programme where children are referred as a result of them exhibiting behaviour towards animals that are a cause of concern. We focus on increasing knowledge and nurturing that empathetic and compassionate behaviour towards animals and in turn people. We want to ensure we are able to teach animal welfare education to anyone of any age in an engaging and fun way, for example making use of robotics and developing bespoke gaming initiatives. I also coordinate collaborative research projects with amazing Universities that focus on the impact of animal welfare education, the links between animal and human abuse and neglect and also the enrichment of animals in the Scottish SPCA's care. By combining what we learn through our education and research work gives us opportunities to make a positive difference at an operational level and enables us to respond effectively to any proposed legislative changes helping ensure current animal welfare legislation meets modern day issues.



## Laura Boyle

Laura Boyle qualified as an Animal Scientist from University College Dublin (UCD) in 1994 and completed a Masters and PhD in sow behaviour and welfare under a Teagasc Walsh Scholarship with UCD. Laura is an associate member of the European College of Animal Welfare and Behavioural Medicine (sub-speciality Animal Welfare Science, Ethics and Law) and Chairs the Animal Behaviour Working Group of the European Federation of Animal Science. She is a hearing expert for the Animal Health and Welfare Farm to Fork Working Group with the European Food Safety Authority. In Ireland, Laura sits on the National Committee on Scientific Animal Protection and on the Scientific Advisory Committee on Animal Health and Welfare. Laura has worked as a farm animal welfare scientist for 20 years with Teagasc the Irish National Agriculture and Food Development Authority. She has published over 100 peer-reviewed papers on pig and dairy cow welfare and has almost 300 scientific abstracts in national and international conference proceedings. Laura's research has elucidated links between animal health, animal welfare and antibiotic use and she has been active in disseminating the concept that animal welfare can act as 'preventative medicine' under the One Health concept. In recent years, she adopted the One Welfare concept to extend this message to the contribution that animal welfare can make to sustainability at numerous scientific, technical and community outreach events in Ireland and abroad. This culminated in the publication of scientific paper on the effects of Covid-19 on livestock production from a One Welfare perspective in 2020. Laura also contributed to the development of a framework for critical evaluation of private animal health and welfare standards in quality assurance programmes. In 2019 Laura was the recipient of the British Society of Animal Science (BSAS) and Royal Society for the Prevention of Cruelty to Animals (RSPCA) award for Innovative Developments in Animal Welfare.

## Maria Climent



Maria Climent, Bachelor of Veterinary Medicine, works as a lecturer in the Anatomy, Embryology and Animal Genetics Department at the Faculty of Veterinary Medicine in Zaragoza, Spain, where, in addition to her teaching labor, she carries out a health activity in the field of neurology. PhD in Biomedicine since 2011, she has scientific publications, mainly in the field of developmental biology (stem cells, pre- and postimplantational embryonic development and placenta). She currently belongs to the research group Placental pathophysiology and fetal programming group (Aragonese Institute of Health) formed by 12 researchers from the Lozano Blesa Clinical Hospital, the Biomedical Research Centre of Aragon (CIBA) and her Department.

Besides, since 2005, after obtaining her degree as an Expert in Equine-assisted Therapy (Faculty of Medicine, Universidad Complutense de Madrid), she first worked as head of equine-assisted therapy at the Nosotros Solos Association (2005-2012; Zaragoza), and from 2016 to date, she has been the President of the Equicentro Terapias Ecuestres Association (Villamayor de Gállego; [www.equicentro.org](http://www.equicentro.org)).

In collaboration with the Faculty of Health Sciences (Universidad de Zaragoza), she has developed practical training, courses and a final degree work in the field of equestrian therapies and is currently involved in the design of studies on animal welfare in equestrian therapies and equine-assisted therapy.

## Maria Nelly Caijao Pachón



Dr. María Nelly Caijao is a specialist veterinarian in pathology with an MSc in Bioethics. She is the Director of the Animal Welfare and Ethology Specialization and Associate Professor at UNIAGRARIA University, Bogotá, Colombia, founder of the study group "One Welfare with Green Attitude" and member of the Animal Sciences research group, line One Welfare, associated with [onewelfareworld](http://onewelfareworld.com) - [onewelfarelearning](http://onewelfarelearning.com).

She is a consultant, guest lecturer and international lecturer in Animal Welfare, bioethics and veterinary education.

She has co-authored and co-edited the book "Animal Welfare, a global vision in Latin America" (Elsevier), written international papers and book chapters on animal welfare and veterinary education in Latin America (publications of the Pan American Federation of Veterinary Sciences Schools) covering the Profile of Veterinarians and Inclusion of Animal Welfare within Veterinary Medicine Curricula in Latin America by 2030.

Dr. Caijao has been a member of the Board and Counselor for Latin America of the World Veterinary Association. She has participated in the International Policy Commission, Animal Welfare and Veterinary Education Working Groups. Currently, she is the Vice President of the Colombian Veterinary Medical Association, AMEVEC and is part of the Board of the Pan American Association of Veterinary Sciences - PANVET. She is an active member of the Commission for International Accreditation and is an international academic peer of Veterinary Medicine and Zootechnics programs of the Pan American Council of Education in Veterinary Sciences COPEVET; also, she is Regional Associate of the American Association of Schools of Veterinary Medicine (AAVMC - AVMA).



## **Marisa Erasmus**

Marisa Erasmus is an assistant professor and extension specialist in the Department of Animal Sciences at Purdue University. She received her BS and MS degrees from the University of Guelph in Canada and her PhD from Michigan State University. Before starting her career at Purdue University, Marisa worked on a commercial turkey farm and for the Ontario Ministry of Agriculture and Rural Affairs. Since then, Marisa's applied research has focused on developing animal-based measures of welfare for laying hens, turkeys and ducks and examining the effects of environmental and management factors on poultry welfare. In addition to her involvement with the commercial poultry industry, her extension and outreach activities are aimed at educating the public about animal welfare.



## **Mateus Paranhos da Costa**

Mateus Paranhos da Costa is graduated and has a master's degree in animal science (São Paulo State University), a Ph.D. in Psychobiology (University of São Paulo) and a post-doc in Animal Welfare (University of Cambridge, UK). He is currently an Associate Professor at São Paulo State University. He was a visiting researcher (from October 2009 to March 2010) at the headquarters of the Food and Agriculture Organization of the United Nations (FAO), in Rome, and member (from 2009 to 2010) of the Animal Welfare and Education Committee of DG SANCO (European Commission, Brussels, Belgium). For four consecutive years (from 2013 to 2016) he was nominated by Dinheiro Rural Magazine as one of the 100 most influential people of the Brazilian agribusiness due to his work in promoting the farm animal welfare in Brazil. He has more than 100 published scientific articles.



## Pat Turner



Patricia Turner is Corporate Vice-President, Global Animal Welfare for Charles River and oversees global policy and training in animal welfare and behaviour. She is also Professor Emerita at the University of Guelph, where she worked as a professor and program leader of laboratory animal science and her lab conducted research evaluating the impact of environment on affective behaviour and disease susceptibility, infectious diseases and the gut microbiome of research animals, and research animal anaesthesia, analgesia, and euthanasia, including humane methods of on-farm euthanasia of meat rabbits, poultry, and pigs. She completed a BSc (McMaster University) and an MSc (Dalhousie University), prior to a DVM degree (Ontario Veterinary College). After two years of mixed mostly food animal practice, Turner returned to the University of Guelph for a Doctorate in Veterinary Sciences (Comparative Pathology). Following post-doctoral work at McGill University, she worked as Director of Animal Care Services and Asst Professor, Pathology at Queen's University. She later worked for Pfizer as a toxicologist in preclinical safety testing. Turner is a Diplomate of the American College of Laboratory Animal Medicine, the American Board of Toxicology, and the European College of Animal Welfare and Behavioural Medicine and is President-Elect of the World Veterinary Association.

## Dr. Rebeca García Pinillos



Rebeca García Pinillos graduated as a veterinarian from the University of Zaragoza, Spain and completed a PhD at the University of Reading, England. Rebeca is a graduate of the European College of Animal Welfare and Behavioral Medicine and a certified specialist by the Royal College of Veterinary Surgeons (RCVS) in animal welfare, ethics and law. She has worked in general medicine and as a government veterinarian since 2001. Rebeca has also volunteered with exotic animals and is an internationally recognized lecturer and professor in the field of animal welfare, educating and giving lectures worldwide. Rebeca is the past president of the Government Veterinary Association in England and founder of the non-profit social enterprise One Welfare Community Interest Company, which started as a voluntary project, launching a global consultation to define the concept of One Welfare and create the framework. One Welfare as a complement to One Health. Rebeca has created social media platforms and established a One Welfare concept web presence to help establish, educate, and disseminate the One Welfare concept. Initiatives launched to date in support of these goals are the publication of the One Welfare Framework book and the One Welfare World, One Welfare Phoenix, One Welfare Silworm and One Welfare Learning projects as well as the "One Welfare Science slam (OWSM) sessions" launched as part of this conference.



## **Stella Maris Huertas Canén**

Stella Maris Huertas Canén is a Doctor of Veterinary Medicine and Master in Animal Health both at the University of the República Oriental del Uruguay. From the beginning of her academic life, she specialized in the study of meat quality and later in animal welfare. She is the coordinator of the Animal Welfare Program and Assistant Professor of Biostatistics within the Veterinary Faculty at the same University. Since 2009 Stella is the coordinator for Uruguay of the OIE Collaborating Center in Animal Welfare and Livestock Production Systems, a consortium made of institutions from Chile-Uruguay-Mexico. Stella has been a pioneer in issues related to the welfare of production animals in her country and in the region and has led important research projects that have contributed to creating knowledge, generating human resources, spreading good practices to all stakeholders, including farmers, farm staff, transporters, and personnel of the meat industry. She has authored multiple publications related to animal welfare, silvopastoral systems, and productivity.



## **Xavier Manteca**

Xavier Manteca Vilanova received his BVSc and PhD degrees from the Autonomous University of Barcelona and an MSc in Applied Animal Behaviour and Animal Welfare from the University of Edinburgh. Currently, he is full professor of animal behaviour and animal welfare at the School of Veterinary Science in Barcelona. His main area of interest is the welfare of farm animals, mainly ruminants, poultry, and pigs. He also works on zoo and companion animal welfare. He has published more than 200 papers in peer-reviewed journals and has been member of several working groups on farm animal welfare of the World Animal Health Organization (OIE) and the European Food Safety Authority (EFSA). He collaborates with FAO and the World Veterinary Association. Xavier is a diplomate of the European College of Animal Welfare and Behavioural Medicine.

## SESSION 1 - THE SOCIAL IMPLICATIONS OF IMPROVED ANIMAL WELFARE



# THE SOCIAL IMPLICATIONS OF IMPROVED ANIMAL WELFARE

ONE WELFARE FRAMEWORK SECTION 2

THEME 2



#ONEWELFARE  
#OWW21



## SESSION 1 – CHAIR

### Dale Douma



Dr. Dale Douma received a B.Sc. (Ag.) from the University of Manitoba and completed his DVM at the Western College of Veterinary Medicine, prior to working as a mixed animal veterinarian in rural Manitoba. He returned to the University of Saskatchewan completing a Ph.D. in Large Animal Clinical Sciences. Since 2008, Dr. Douma has worked with Manitoba Agriculture serving in various roles such as the Veterinary Lead for Animal

Welfare Programs, the Acting Chief Veterinary Officer, and currently as the Veterinary Public Health Epidemiologist. He also co-chairs the Manitoba One Health Steering Committee. In these positions, Dr. Douma has had the opportunity to participate with agricultural industry, animal welfare enforcement, and public health organizations as well as engaging in disease outbreak preparedness and response activities.

In 2016, he spearheaded and co-chaired the inaugural International One Welfare Conference hosted in Winnipeg that focussed on the human impacts of animal health and welfare issues including those associated with disease outbreak response.

Since March 2020, he has led the COVID19 Emergency Operations Center for the Chief Veterinary Office of Manitoba in order to oversee and coordinate critical issues related to the ongoing pandemic with an impact on the veterinary/agrifood sector in Manitoba.



## SESSION 1 – KEYNOTE SPEAKERS

### Fredred Valdivia



Fredred Valdivia is an Agronomist with a Masters in Rural Development. He has over 15 years' experience of implementing and leading successful national and regional programs. He has expertise in working with vulnerable communities across Central America, leading on humanitarian relief actions and initiatives for income generation, food security, environmentally friendly production and improved education.

Fredred is the Regional Director for Brooke Action for Working Horses and Donkeys, Latin America and the Caribbean, where he has worked for the past two years. He has led on the design and implementation of a pioneer program model based on the One Welfare framework.

Recognising the interdependence of equids and communities, Brooke's Latin America and Caribbean together with its local partners have adopted the working animal welfare approach in their programmatic and institutional vision. In practice, a resource network of communities and owners model and promote positive equine welfare behaviours such as good handling and husbandry practices, and the contribution of good equine welfare in ensuring improved livelihoods and in strengthening communities resilience in emergency preparedness is fostered.

Fredred also implements an ambitious advocacy agenda to influence regional and international bodies such as the Conference of the Parties (COP) and the Central American Forum on Climate Change on the importance of animal welfare as a factor of development and sustainable livelihoods, direct contribution for the Sustainable Development Goals.

### Roly Owers



Roly is a qualified veterinary surgeon and has been Chief Executive of the charity World Horse Welfare since 2008. He graduated from Cambridge University in 1992 and acquired his master's degree in nutrition from the London School of Hygiene and Tropical Medicine in 1997. His previous veterinary roles included the Blue Cross and Royal Army Veterinary Corps.

Roly plays an active role in much of World Horse Welfare's work supporting the horse-human partnership across four continents, including leading the charity's work with veterinary universities and networks, the UK government, the EU, OIE, the FAO and the United Nations. He also advises the International Equestrian Federation (FEI) and the British Horseracing Authority on horse Welfare.

Roly is currently Treasurer of the British Equine Veterinary Association (BEVA), Chairman of the UK Equine Disease Coalition, a Director of the British Horse Council, a Board member of the European Horse Network, Chair of the International Coalition for Animal Welfare and an Executive Board Member of World Federation for Animals.

## Equine welfare, the environment and societal wellbeing (part one)

Valdiva, Fredred (1); Owers, Roly (1)  
(1) *BROOKE ACTION FOR WORKING HORSES AND DONKEYS*

### Abstract

For millennia our partnership with equines has evolved to shape natural landscapes and human civilizations, and the link between healthy equines, the environment and societal well-being is just as powerful today. Horses, donkeys, and mules are ubiquitous and unique, and still integral to human lives in nations rich and poor. They are perhaps the most versatile of animals, performing a variety of roles which benefit humankind – or are mutually beneficial – and are largely environmentally

sustainable. The importance of them possessing a high level of health and welfare to perform these roles well is recognised in areas such as sport and leisure, but less so in roles of work and production. In what should be a harmonious relationship between nature, people and horses, there are imbalances which only people can – and must – address if they wish to continue to benefit from this partnership.

# Partnering as best practice to optimise support for One Health / One Welfare for working equids and communities they support

Goodrum, Frances (1); Skippen, Laura (1); Evans, Linda (2); Cawsey, Ian (2); Stark, Jessica (3); Lampard, Anna (4);  
(1) BROOKE ACTION FOR WORKING HORSES AND DONKEYS (2) THE DONKEY SANCTUARY (3) WORLD HORSE WELFARE (4) SPANA

## Keywords / Relevant Terms

Partnering, working equids, one welfare, one health, communities

## Abstract

Across the world working horses, donkeys and mules work in agriculture and provide transport for people and commodities. They play a critical role in the livelihoods and sustainability of communities. The health and welfare of working equids is integral to owner and community health and wellbeing, by securing food production, and providing transport. Yet working equids have been largely overlooked by policy makers.

The four leading working equid NGOs; Brooke Action for Working Horses and Donkeys, The Donkey Sanctuary, SPANA and World Horse Welfare share common goals; to improve the lives of working equids and raise their welfare standards. The International Coalition for Working Equids (ICWE) was established to enable pooling of experience, tools and knowledge and provide greater influence for achieving these goals. Working relationships with the World Organisation for Animal Health (OIE) have offered the coalition a wider reach to include governments and the opportunity to raise awareness through regional seminars on the importance of working equids, their role in the economy and the benefits to sustainable livelihoods of improving health and welfare.

This relationship has also enabled ICWE to respond promptly during the novel outbreak of African Horse Sickness (AHS) in Thailand in 2020. ICWE recognised

the risk to the population of working equids as neighbouring countries expressed concern over an unknown threat to the lucrative sports horse industry. The country response to the outbreak was quick and effective, with ICWE supporting OIE by sharing our combined experience and knowledge of the disease and working equids within the region. ICWE were able to refer to global colleagues to support in producing and translating materials, presenting to webinars, and producing a series of posters aimed at helping village level communities stop the disease and protect against it.

Messages ICWE shared across the region and within UN forums have included the importance of the working equids and the One Welfare message and critical interrelationship with One Health. Loss or reduction in the critical support working animals offer impacts community resilience, limiting access to food, water and essential supplies and resulting in additional burdens on women, children, and more vulnerable groups, as well as impacting educational opportunity as a result of the direct and indirect income loss. This is more acute as communities seek to build back better in the wake of Covid-19, and hence presents a sustainable development challenge.

# Exploring the Relationship Between Owner Attitudes and Working Equid Welfare in Mexico, Portugal and Spain

Proops, Leanne (1); Haddy, Emily (1); Brown, Julia (2); Zappi, Humberto (3); Rodrigues, Joao B. (4); Burden, Faith (4); Burden, Faith (4);

(1) CENTRE FOR COMPARATIVE AND EVOLUTIONARY PSYCHOLOGY, DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF PORTSMOUTH

(2) SCHOOL OF THE ENVIRONMENT, GEOGRAPHY AND GEOSCIENCES, UNIVERSITY OF PORTSMOUTH

(3) FACULTAD DE MEDICINA VETERINARIA Y ZOOTECCIA, PROGRAMMA DONKEY SANCTUARY-UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO (4) THE DONKEY SANCTUARY, SIDMOUTH, DEVON, UK.

## Keywords / Relevant Terms

Animal welfare, anthrozoology, donkey, equid welfare, Equus asinus, Equus caballus, horse, human-animal interactions, mule, welfare assessment, working equid

## Abstract

It is now recognised that the quality of human-animal relationships plays a significant role in animal welfare and that human perspectives towards animals are affected by both culture and context. However, there is little research on working equid-human relationships, a context where this knowledge may have a significant impact on working animal welfare. We used a new protocol for assessing working equid welfare that included questions on owner perspectives towards their equids such as belief in their equid's capacity to feel pain and emotions, and a question asking what their animal meant to them. The questionnaire was paired with a physical and behavioural examination of their working animal and administered to working equid owners in Spain, Portugal, and Mexico. Results showed that the general health status of equids whose owners believed that they could feel emotions was significantly better than those whose owners did not. The prevalence

of lameness was significantly higher in equids whose owners believed that their equid could not feel pain compared to those owners who thought they could. When talking about their equids, owners showed two differing perspectives towards their equids; primarily instrumental: viewing their equid as a working tool, or affective: incorporating an emotional connection with their equid. These two perspectives have been shown to differ based upon geo-cultural context and this study showed that equids of affective owners in Spain and Portugal had a higher average body condition score than those of instrumental owners. However, this relationship was not seen in the Mexican study population. These findings suggest that adopting a One Welfare approach, where drivers of working equid welfare are understood within the context of cultural practices and individual differences in owner attitudes, will make welfare initiatives more effective.

# Societal conflicts in dog extreme breeding. Preliminary survey results

Diederich, Claire (1); Gentil, Valentin (1); Detilleux, Johann (2);  
(1) UNIVERSITY OF NAMUR (2) UNIVERSITY OF LIÈGE

## Keywords / Relevant Terms

Dog breeding, extreme breeding, animal welfare, ethical considerations

## Abstract

In dogs, the cult of beauty has led to the selection of extreme individuals, exaggerating the breeds characteristics, with genetics impoverishment and associated hereditary disorders. This poses a serious ethical problem: Where does end the standard and begin the pathology? How far humans are prepared to go in dogs' selection?

The aim of this research is to find out how far we can go in breed selection.

Criteria were established according to what an animal should be able to do in its everyday life, without being constrained by any anomaly resulting from selection, in 3 steps: i) with the help of the available literature, identification of 14 capacity criteria (e.g.: a dog should be able to react to stress), based on the 5 freedoms (Campbell, 1965. Ex: Freedom from fear and stress); ii) description of the functional elements linked to each criterion, all breeds included (ex: increase respiratory ventilation in high heat); iii) establishment of acceptability criteria with 3 thresholds: acceptable, not acceptable, desirable (repeated or excessive predicted situation with adaptation even if costly; repeated or excessive unpredicted situation without adaptation; short or predicted situation with uncostly adaptation, respectively).

Those 14 criteria were transposed into a questionnaire (age, sex, housing type, dog's knowledge + 16 questions, each question covering at least 2 criteria (Ex: When playing, a dog runs, jumps, leaps, trots, walks, ... for at least 3 minutes without needing to take a break (to catch his breath, to rest...)), with 3 possible responses: agree, disagree, neutral.

In 127 respondents (72% women, 60% between 20-30y., 56% city living, 54% dog owners), there was no significant difference (Fisher exact test) in dog ownership and sex, age, or place of living. Eighty-nine percent of the respondents (n=113) accepted that a dog might need owner, veterinary care its whole life (chronic disease) due to its phenotype. But they also fully agreed that a dog must be able to walk, jump, go for walks, eat, hear, share good relationships with humans, not suffer from fear, stress, or abnormal behaviours.

We conclude from those preliminary results that even if the study needs to be replicated in a larger sample, there is a deemed discrepancy between the respondents' acceptance of chronic care for a dog, and Quality of Life's limitations due to selection. This situation questions the existence of extreme breeding, and its consequences not only as regards to animal welfare but also to owner wellbeing in a 'One Welfare' perspective.

# The Donkey Skin Trade in Kenya: Policy Challenges, One Welfare concerns and a case study for increased partnership

Theuri, Samuel (1); Goodrum, Frances (2); Bambara, Carine (2);

(1) BROOKE ACTION FOR WORKING HORSES AND DONKEYS - BROOKE EAST AFRICA (2) BROOKE ACTION FOR WORKING HORSES AND DONKEYS

## Keywords / Relevant Terms

Donkey skin trade, livelihoods, advocacy

## Abstract

The donkey skin trade for traditional Chinese medicine has been recognised as the greatest challenge facing donkey populations and presents a grave One Welfare concern. Brooke is calling for a ban on exportation of donkey skins (and trade as a whole) in countries affected. This issue has been particularly acute in Kenya with cross-border smuggling of donkeys, donkey theft and bush slaughter, a negative impact on communities who rely on donkeys and significant animal welfare concerns from inappropriate transportation and starvation to inhumane slaughter and other malpractice at abattoirs. Ultimately the trade is unsustainable with a realistic risk that donkey populations will decrease to the point of local extinction if the current trend continues.

Research has shown that four abattoirs slaughtered 301,977 donkeys and exported 2,209 tonnes of donkey skins between April 2016 and December 2018 (KALRO, 2019). These numbers amounted to an increased yearly slaughter rate of 5.1%, higher than population growth rate (approximately 1.04%). With the added issue of slaughter of jennets (38%) and pregnant donkeys (10%), there is concern that donkey populations may soon fall below effective reproductive numbers. The 2019 Census shows that Kenya now has approximately 1.1 million donkeys, down from

1.9 million in 2016. This decline is undisputedly alarming, a trend largely attributed to commercialised slaughter of donkeys between 2016 and 2020.

A study commissioned by Brooke in 2019 found that small holder farmers in five Kenyan counties had sold or lost their donkeys to theft. The study found that after losing a donkey, there was a reduction in household income and food availability, and that women and children bore the greatest burden in farm produce and water transportation, negatively impacting their health. The reduction in numbers also meant the available donkeys were overworked, leading to increased welfare issues. In February 2020, Kenya banned donkey slaughtering. However, the decision was challenged in four different courts. In a recent ruling, Legal Notice that contained revocation of slaughter orders was lifted eliciting national concern from donkey keepers, animal health experts and regional stakeholders.

Brooke and partners support owner initiatives to protect donkeys from theft, increase awareness, work with enforcement agencies, increase community advocacy and through regional engagements have encouraged likeminded organisations to expand channels of influence, pool evidence and highlight compliance gaps. This requires a concerted One Welfare focused partnership approach.



## OWSM SESSIONS (in order of appearance x6 within Session 1, x5 within Session 4 and x4 within Session 5)





## Women role with working equids in Colombia, 2021

Jaramillo Gomez, Carolina (1); Henao Villegas, Santiago (2); Ruiz Buitrago, Jhon Didier (2); Wild, Isabella (3); Warboys, Debbie (3); Maguire, Liam (3); Burridge, Jessica (4); Freeman, Sarah (4); Lightfoot, Katie (4);

(1) FUNDACIÓN ARRIEROS COLOMBIA (2) GRUPO DE INVESTIGACIÓN EN CIENCIAS ANIMALES (INCA-CES), FACULTAD DE MEDICINA VETERINARIA Y ZOOTECNIA, UNIVERSIDAD CES, MEDELLÍN  
(3) WORLD HORSE WELFARE (4) SCHOOL OF VETERINARY MEDICINE AND SCIENCE, UNIVERSITY OF NOTTINGHAM

### Abstract

In Colombia there are approximately 1.5 million working equids performing a variety of roles, typically for the most vulnerable families. Throughout Latin America, for cultural reasons, men have been the protagonists of manual labour and are often considered as the owners of these animals, while women have played a less visible role in economic dynamics. Considering the concept of One Welfare, this research aimed to establish the role of women with respect to the care of working equids, analysing social and cultural differences or contribution to economic activity. Nine focus groups were held in different municipalities, located in 6 departments, with the exclusive participation of women representing women, not all of whom had direct financial reliance on working equids. All participants were required to read an information sheet and provide informed consent. The study was approved by the Institutional Ethics Committee of the CES University, Medellín Colombia. A semi-structured format including prompt questions was performed with sessions led by two people (moderator and assistant). A third researcher helped organise the information and its subsequent analysis. Thematic analysis of the discussions was performed. In all places the importance of the

equids in the local economy was highlighted with different perceptions of the practicalities of substituting animal traction for motorized vehicles. In most regions, a consistent role and involvement of women in the care of equids could not be established; however, in Apartadó, many women typically over the age of 40 were directly responsible for the work that the equid performed. Apartadó is a municipality located in a region of historical conflict and illegal activities such as drug and arms trafficking. Women were described to have taken over the role of care and responsibility for equids due to the absence of males from the workforce as a result of homicide and organised crime. In this region there has been an alteration of roles, transcending the cultural gender gap. Application of a One Welfare paradigm emphasises that traditional gender roles must be reconsidered in situations where other external forces alter the socioeconomic structures of a region. Ensuring that training and education is targeted appropriately with respect to gender and appreciating that this may vary amongst different communities will ensure that both animal welfare and human prosperity can be positively influenced.

# Perception of Hunters about their activity and social relational environment in Catalunya, Spain

Vigo Cerqueda, Tatiana (1);  
(1) *UNIVERSIDAD DE BARCELONA*

## Abstract

The present work focuses on legal hunting, as a part of green criminology. Green criminology is a branch of criminology that involves the study of harms and crimes against the environment broadly conceived, including animals. Especially, the main goal of the project is to learn and understand how hunters perceive their activity and its social environment, using a qualitative methodology. The sample consisted of 19 participants, chosen by criterion of proximity to the author and snowball sampling in 2021. The instruments used are the Hunting Interview and Hunting Survey created ad hoc. The data analysed using Atlas.ti 8 identified 7 main thematic axes: motivation to hunt; types of hunters; environmental management;

legal; influence of external stimuli to hunt; society and means of hunting. The results showed family plays a crucial role in the initiation to hunting and its continuation, as does the company while hunting. Likewise, it was observed how the hunters' accounts of belonging to their own group and about other hunters who hunt incorrectly allow for a first approach to their personal motivations. The findings showed similarities with the hunter typologies elaborated by Kheel, (1996) and Metcalf et al., (2015), in addition to a high degree of correlation with the study by Fischer et al. (2013) regarding the justifications for hunting. The meetings limitations and movement restrictions due to Covid-19 are noteworthy.

## Control of animal populations Experience "Control outdoor cats in Bogotá"

Estepa Becerra, Jose Alexander (1); Cajiao Pachón, Maria Nelly (2);

(1) STUDENT OF POSTGRADUATE SPECIALIZATION IN ANIMAL WELFARE AND ETHOLOGY - UNIAGRARIA- BOGOTÁ COLOMBIA

(2) DIRECTOR OF POSTGRADUATE SPECIALIZATION IN ANIMAL WELFARE AND ETHOLOGY - UNIAGRARIA - BOGOTÁ COLOMBIA

### Keywords / Relevant Terms

Animal welfare, cats, zoonoses, veterinary public health

### Abstract

Animal welfare as a matter of public and political interest includes scientific, ethical, economic, political, and commercial aspects. Being multifaceted and complex, application is based on replicable and objective practices.

This document presents the work between a citizen group and the Health Secretary. The objective was to solve problems associated with the presence of outdoor cat colonies in Bogotá (Colombia) through reproductive control and sensitization of people about responsible ownership, animal sterilization, human-animal coexistence and feline behavior, since their accelerated reproduction and behavior is not easily tolerated by humans who, seeking to "control" them, provoke cruel and violent acts translated into abuse or animal death and coexistence conflicts.

The experience published in 2018 (Estepa, 2018), in addition to being replicable, illustrates the work between different actors and sectors; as a result, eight colonies were assisted (one located in a home for street dwellers) in total 278 captured cats, sterilized and vaccinated in six locations of the city, contributing to Sustainability Development Goals (SDGs) 3, 11 and 17.

It applies to the One Welfare framework by considering how animals, humans, society and the environment are interrelated and interact, especially in sections such as: "connections between abuse and neglect of animals and humans"; "social implications of improving animal welfare" or "interaction between animals, people and the environment"; the second being the most relevant, given that applying principles of animal property, welfare and health, awareness of care and respect for living beings is raised, compassion, a pillar of humanitarian education, is stimulated.

As conclusions, the need to incorporate animal welfare as a fundamental element to promote health -public, animal, and environmental- and prevent diseases is highlighted, advancing in the appropriation and application of One Welfare, under an interdisciplinary and intersectoral work.

\* ESTEPA JA, "Humanitarian control of animal populations. Experience Control of outdoor cats in Bogotá". In: Colombia Investigations In Social Security And Health ISSN: 0124-1699 Ed: District Secretary Of Health v.20 fasc.2 p.56 - 61, 2018. Available:

<http://app.saludcapital.gov.co/revistadigital/Administracion/BuscarArticulo.aspx>

# The use of saliva for the assessment of stress, health, and welfare: a sialochemistry approach

Contreras Aguilar, M.D. (1); Ortín-Bustillo, A. (1); Tecles, F. (1); Escribano, D. (2); Rubio, C.P (3); Cerón, J.J. (1);

(1) *INTERDISCIPLINARY LABORATORY OF CLINICAL ANALYSIS OF THE UNIVERSITY OF MURCIA (INTERLAB-UMU), DEPARTMENT OF ANIMAL MEDICINE AND SURGERY, VETERINARY SCHOOL, REGIONAL CAMPUS OF INTERNATIONAL EXCELLENCE 'CAMPUS MARE NOSTRUM', UNIVERSITY OF MURCIA*

(2) *DEPARTMENT OF ANIMAL PRODUCTION, VETERINARY SCHOOL, REGIONAL CAMPUS OF INTERNATIONAL EXCELLENCE 'CAMPUS MARE NOSTRUM', UNIVERSITY OF MURCIA*

(3) *DEPARTMENT OF ANIMAL AND FOOD SCIENCE, SCHOOL OF VETERINARY SCIENCE, UNIVERSIDAD AUTÒNOMA DE BARCELONA, Cerdanyola del Vallès, Barcelona.*

## Keywords / Relevant Terms

Salivary biomarkers, sialochemistry, stress, health status, veterinary species

## Abstract

Currently, there is a growing scientific effort to monitor and assess animal welfare to give response to the actual European society perception of animal welfare as a 'public good', but also since poor animal welfare states decrease the productivity and the meat quality in livestock, also decreasing the sustainable meat production and food safety for humans and increase the release and virulence of zoonosis diseases in the veterinary species. This makes necessary the development of new techniques for gaining these objectives in a reliable, effective, and easy way. In this sense, the use of saliva as a diagnostic fluid alternative to blood for assessing stress and welfare biomarkers is currently of interest since saliva can be obtained by non-invasive and more straightforward techniques, and therefore, without the need for specialized staff, leading to the possibility of repeating the collection of many samples even at short- time intervals. This allows an advantage for monitoring animal welfare by a non-stressful and painless methodology. In the last years, our research group (Interlab-UMU) has validated in saliva from horses, pigs, sheep, cows, and dogs a salivary analytical profile (sialochemistry) that could be of interest to evaluate stress, poor welfare, or disease conditions by automated

assays. This salivary profile is integrated by biomarkers related to stress, immunity, oxidative status, and enzymes, proteins, and minerals of general metabolism and liver, muscle, and renal damage.

In these reports, these biomarkers were evaluated after different physiological stress situations (a surprise test in horses, a temporarily restraining test in pigs, and a facing to predator test and shearing in sheep), physical stress (a submaximal exercise test in horses), and disease or inflammatory states (acute abdominal disease in horses, lameness, rectal prolapse and farrowing in pigs, mastitis, lameness, and delivery in cows, and pyometra in dogs). In all of them, the employed saliva samplings techniques did not suppose an additional stressful experience, allow enough volume of saliva sample, and were easily performed. Additionally, the sialochemistry showed a robust analytical validation. In conclusion, using a sialochemistry approach enables the analysis of a relatively high number of analytes in a fast, robust, and reliable way to detect different stressful and compromised welfare situations in different veterinary species.



## Coal Mines and Their Equids in Pakistan: An Opportunity to Platform a One Welfare Approach

Abbas, Syed (1);  
(1) BROOKE

### Keywords / Relevant Terms

Working equids, coal mines, equid welfare, exploitative industry, human health and labor

### Abstract

Working donkeys provide critical support to extraction in coal mines across Pakistan. Brooke Pakistan, an NGO working to improve the lives of working horses, donkeys, and mules, identified a number of welfare issues affecting equids working in the mines. These included a high prevalence of lameness, poor body condition score and often severe skin lesions. Recognising the significant wider labour issues, Brooke Pakistan conducted a study to understand the coal mine environment better and help inform policy recommendations supportive of a One Welfare approach.

An opportunistic sample of 164 coal mine donkey owners were surveyed. In addition, 21 coal mine owners or managers and 4 service providing stakeholders were interviewed. Key findings were:

- Almost half (48%) of the workers had witnessed a serious incident in the mines, and 18% had experienced the collapse of a mine within the last year.
- 87% reported the death of one or more donkeys in the past year.
- 93% of coal mine workers reported that they were not provided with personal protective equipment.
- 80% of the coal mine donkey owners reported that their accommodation was made from poor quality materials, and as a result, donkey owners were exposed to adverse conditions.
- 98% referred to the water they consumed as unsafe.
- The majority (61%) reported that there were no washrooms, or that they were far away and uncovered resulting in over a third (38%) preferring open defecation.
- The environment exposed the workers to health risks and may have contributed to 80% reporting respiratory problems, 63% reporting that they experienced fever and 36% reporting gastrointestinal tract problems.
- Coal mine workers frequently responded that they needed proper living space and better wages, as well as social security for later in life, such as through an Employees' Old-Age Benefits Institution card. They also reported a lack of health facilities for themselves and their donkeys.

Whilst this was a small study, these findings compound concerns about the safety of coal mines for people and equids. This presents an opportunity to work collaboratively within a One Welfare framework. Brooke Pakistan are using this data to make recommendations on equid welfare and sensitize stakeholders that are able to focus on the human health and labour aspects. This example serves as a wider emerging case study for collaborative change.



## Environmental and Human Influences on Working Equid Welfare

Haddy, Emily (1); Brown, Julia (2); Raw, Zoe (3); Zappi, Humberto (4); Proops, Leanne (1);

(1) CENTRE FOR COMPARATIVE AND EVOLUTIONARY PSYCHOLOGY, DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF PORTSMOUTH

(2) SCHOOL OF THE ENVIRONMENT, GEOGRAPHY AND GEOSCIENCES, UNIVERSITY OF PORTSMOUTH (3) THE DONKEY SANCTUARY

(4) FACULTAD DE MEDICINA VETERINARIA Y ZOOTECNIA, PROGRAMMA DONKEY SANCTUARY-UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO, UNIVERSIDAD NACIONAL AUTONOMA DE MEXICO

### Keywords / Relevant Terms

animal welfare; donkey; equid welfare; Equus asinus; Equus caballus; horse; mule; welfare assessment; working equid

### Abstract

For many of the world's poorest people, more than 100 million working equidae play a critical role in sustaining livelihoods. They reduce the human physical burden, increase social standing, provide access to health care, education, and basic needs. Despite their value, working equidae are mainly found in poorer communities in low-income countries and welfare standards are low, with research from many countries demonstrating high levels of well-being problems such as wounds, lameness, poor body condition and environmental stress working in extreme conditions. The factors that affect the well-being of working horses are broad and complex.

Combining research with working equine owners and experienced equine welfare NGO workers, this talk explores the relationships between environmental and human factors and the well-being of working equines. The results of well-being assessments and interviews with 120 equidae owners conducted in three rural regions of Mexico suggest that influences on well-being may reflect cultural,

economic, and climatic conditions, the type of work for which equidae are used, and individual differences in the practices of their handlers. These multiple, interactive factors can make wellness improvement programs challenging.

To gain a broader view of the approaches used to improve welfare, their effectiveness, and barriers to success, 30 interviews were conducted with professionals working for 7 national and international animal welfare NGOs with experience in planning and implementing initiatives in a variety of countries and contexts. Prominent human-centered themes emerged as important to the success of wellness initiatives. These included the need for: investment in relationships with communities, inclusion of key people within communities, understanding of cultural beliefs and the social dynamics of communities. To ensure that equine welfare initiatives are most effective, these results emphasize the need for a holistic approach to wellness improvement programs that takes into account the complex links that well-being has with environmental and human factors.

## SESSION 2 – ANIMAL HEALTH AND WELFARE, HUMAN WELLBEING, FOOD SECURITY AND SUSTAINABILITY



# ANIMAL HEALTH AND WELFARE, HUMAN WELLBEING, FOOD SECURITY AND SUSTAINABILITY

ONE WELFARE FRAMEWORK SECTION 3

THEME 3



#ONEWELFARE  
#OWW21



## SESSION 2 – CHAIR

### Stella Maris Huertas Canén



Stella Maris Huertas Canén is a Doctor of Veterinary Medicine and Master in Animal Health both at the University of the República Oriental del Uruguay. From the beginning of her academic life she specialized in the study of meat quality and later in animal welfare. She is the coordinator of the Animal Welfare Program and Assistant Professor of Biostatistics within the Veterinary Faculty at the same University. Since 2009 Stella is the coordinator for Uruguay of the OIE

Collaborating Center in Animal Welfare and Livestock Production Systems, a consortium made of institutions from Chile-Uruguay-Mexico. Stella has been a pioneer in issues related to the welfare of production animals in her country and in the region, and has led important research projects that have contributed to creating knowledge, generating human resources, spreading good practices to all stakeholders, including farmers, farm staff, transporters and personnel of the meat industry. She has authored multiple publications related to animal welfare, silvopastoral systems, and productivity.



## SESSION 2 – KEYNOTE SPEAKER



### Daniela Battaglia

Daniela Battaglia is Livestock Production Officer at the Food and Agriculture Organization of the United Nations (FAO). She is responsible for the Organization programme of work on Animal Welfare and coordinator of the FAO Sustainable Livestock Technical Network. She is also a member of the FAO Working Group on Antimicrobial Resistance, where she is focal point for animal production and animal feed. Daniela holds an M.Sc. in Agricultural Science and another in Tropical Animal Health and Production from the University of Edinburgh, UK. Before joining FAO in 2001, Daniela has worked for nine years for the European Commission and has been based in several countries, including Belgium, UK, Peru, Suriname, Nicaragua, Costa Rica, Guatemala, Israel and Tunisia.

## Sustainable food systems and climate change

Battaglia, Daniela (1);

(1) FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

## ORAL SESSIONS

### Understanding the morbidity and mortality of pigs in Ugandan small holder production systems

Oba, Peter (1); Dione, Michel (1); Nsadhha, Zachary (2); Doyle, Rebecca (1);  
(1) INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE (2) MAKERERE UNIVERSITY, KAMPALA, UGANDA.

#### Keywords / Relevant Terms

Practice change, welfare assessment, stocktally, illthrift, African Swine Fever, syndromic surveillance

#### Abstract

An assessment tool was created to measure the welfare of pigs in Ugandan smallholder farms. The study was carried out in 4 high pig producing districts in central Uganda, namely Masaka, Mukono, Mpigi and Wakiso. Data were collected through farmer interviews, observation and welfare assessment conducted by trained enumerators. As a part of this tool, 270 smallholder pig farmers were interviewed (115 men and 155 women) to collect stocktally and syndromic health data. Stocktally questions asked about the number of pigs that entered (born, purchased, received as a gift) and exited (sold, died, missing, given as a gift) the production system over the last 12 months. Syndromic health data asked about the types of pig health conditions seen in each stock class and the numbers of pigs affected. A total of 65% of the 270 farms surveyed bred piglets, with an average of 3 sows per farm and the remaining 35% of farms were growing/finishing systems. Piglets were the stockclass with the highest occurrence and largest number of mortalities, with a total 33% of farms experiencing > 20% mortality of

their piglets. Farm mortality rates of > 20% were also seen on 10%, 11% and 3% of farms stocking weaners, growers and sows respectively. Digestive issues were reported to be the biggest contributor to morbidity and mortality in piglets, weaners or growers, affecting 38% of farms. Illthrift was the biggest contributor to morbidity and mortality in sows (n = 27, or 16% of farms). African Swine Fever, a highly infectious, deadly and endemic disease in the region, was mentioned as contributing to herd morbidity/mortality a total of 37 times (14% of farms). These mortality rates represent substantial lost income and have subsequent impacts on household food security and livelihoods. This morbidity and mortality data, and the remaining welfare assessment, will act as baseline data to assess the impact of an environmentally sustainable and gender inclusive integrated intervention package aimed to improve farm productivity and livelihoods, providing the opportunity to connect the three domains of One Welfare.

# Foot-and-mouth and Similar Transboundary animal diseases (FAST) crisis management: dealing with psychological aspects and public perceptions

Nova, Rodrigo (1); de la Puente Arévalo, Maria (1); Gaynor, Sally (1); Rosso, Fabrizio (1);  
(1) EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE (EuFMD). - ROME, ITALY

## Keywords / Relevant Terms

Disease control, culling methods, veterinary services wellbeing, stress

## Abstract

The European Commission for the Control of Foot-and-Mouth Disease (EuFMD) is one of the Food and Agriculture Organisation (FAO) oldest Commissions. Its training programme, for the 39 EuFMD member nations (MNs), aims to enhance preparedness in order to counter the threat of Foot-and-mouth and Similar Transboundary animal Diseases (FAST).

On March-April 2021, the workshop "FAST Diseases Crisis Management: Dealing with psychological aspects and public perceptions" was delivered in remote format. Over five weeks, 85 participants from 20 countries took part in this activity. It intended to raise awareness among EuFMD MNs contingency planners on the psychological impacts and ethical aspects of disease outbreak management in farmers, veterinarians, other responders, and the general public, as well as to identify how to better address those impacts in the MNs contingency plans. The delivery format included pre-recorded sessions, live discussions, group tasks and assignments.

Outcomes of this course include that:

- Controlling animal diseases, even non-zoonotic (e.g. FMD), can result in severe consequences for humans. Therefore, policies for preventing and controlling them should be accompanied by actions to mitigate the effects on the mental health of humans.
- Participants declared animal welfare as one of the main causes of stress in animal disease control. Therefore, being able to safeguard animal welfare during killing activities should prevent undue stress to anyone who

witness and/or perform such activities. This includes having competent personnel, suitable equipment (including back-up equipment), appropriate plans and protocols, with appropriate levels of supervision and monitoring of operations.

- Ethical dilemmas may arise on staff involved in depopulation of healthy animals for disease control purposes, potentially increasing stress and therefore negatively impacting the wellbeing on the personnel. Understanding of these dilemmas could help to increase resilience.
- Veterinary services should select appropriate communication techniques when dealing with animal disease control (particularly culling), as this could reduce the stress of the farmer, reducing the likelihood of negative/confrontational reactions.
- Veterinary services should provide the resources and opportunities to reduce stress of personnel involved in depopulation activities (e.g. appropriate breaks). This could be difficult to manage in times of crisis. Nevertheless, it is important to consider, as it could improve resilience and efficiency of the personnel.

This was the first course delivered by EuFMD covering these topics. Raising awareness on One Welfare aspects, as well as including aspects of social sciences, could reduce the negative impacts on animals and stakeholders when controlling an animal disease incursion.

# One Welfare in farm animal production: animal welfare in connection to human wellbeing and environmental sustainability

Rodenburg, T. Bas (1);

(1) *ANIMALS IN SCIENCE AND SOCIETY, FACULTY OF VETERINARY MEDICINE, UTRECHT UNIVERSITY, UTRECHT, THE NETHERLANDS*

## Keywords / Relevant Terms

Resilience, Farm animal, transition, welfare, One Welfare, laying hens

## Abstract

Farm animal production in Europe is in a transition phase. Societal pressure is increasing to move towards systems that are more sustainable and to critically review the role of livestock in our food production systems. Simultaneously, attention for farm animal welfare is growing and the livestock industry is challenged to transition towards welfare-friendly animal husbandry systems. In these systems, animals should be able to show their natural behaviour and the system should be adjusted to the animals and not the other way around. Animal mutilations, such as beak trimming in laying hens and tail docking in pigs, should be phased out. A clear illustration of this transition phase is the recent petition to 'End the Cage Age' in Europe, petitioning to ban all restrictive housing systems for farm animals in Europe.

The OneWelfare framework offers valuable tools to support this transition in such a way that it enhances both animal welfare and human well-being and supports a healthy environment. For instance in the case of laying hens, already a lot of experience has been gathered with keeping laying hens in non-cage systems, that provide opportunities for the hens' natural behaviour. As the eggs are coded based on the housing system they are produced in, the eggs from non-cage systems can easily be recognized by the customer and are sold at a small premium compared with eggs from cage systems. For free range and organic eggs, this premium is even higher, allowing the farmer to make investments in animal welfare, without negatively influencing farm income. Looking at environmental effects, the studies focusing on environmental sustainability did not find large differences between cage and non-cage systems. Major contributors to environmental sustainability are the feed and the pullets, which is similar for all housing systems. From the examples that already exist, it also becomes clear that with increasing experience

with non-cage housing systems, hens can also be more easily kept with intact beaks, taking away the need for beak trimming. To facilitate the transition to housing systems that fit within the OneWelfare framework, it is needed that countries and producers that already have relevant experience with the transition share that experience with others. Producers need to be convinced that the transition is feasible and that they will be able to recover the investments in animal welfare and sustainability that they make. OneWelfare animal farming may just become reality in the near future



# Swine Veterinarians: COVID-19 related depopulation and mental health

Baysinger, Angela (1); Kogan, Lori (2);

(1) MERCK ANIMAL HEALTH (2) CLINICAL SCIENCES, COLORADO STATE UNIVERSITY, FORT COLLINS, CO, UNITED STATES, 80523

## Keywords / Relevant Terms

Swine, veterinarians, depopulation, mental health, burnout, distress, COVID-19

## Abstract

While recent research has highlighted the increased risk veterinarians face for burnout and psychological distress, little is known about US swine veterinarians in particular. This population faced a unique depopulation challenge, due to COVID-19, in Spring 2020, when many slaughter plants were shut down or forced to limit the number of animals, they could process due to human illness. Limited slaughter capacity created an immediate animal welfare crisis that mandated the depopulation of healthy swine in numerous farms across the United States. Compounding this challenge was a concurrent shortage of CO<sub>2</sub>, the most feasible on-farm method of euthanasia for large numbers of swine. Limited CO<sub>2</sub> resources creating the need for many veterinarians to use alternative forms for swine depopulation.

This study explores the overall mental health of swine veterinarians and the impact of the depopulation of healthy swine due to packing plant closures. A total of 134

swine veterinarians completed an anonymous online survey, of which 78 were involved in the Spring 2020 COVID-related depopulation effort. Involvement in depopulation efforts was associated with higher levels of burnout and psychological distress. In addition, the use of less common forms of depopulation was associated with burnout, psychological distress, and a change in world views (as measured by the Event Characteristics questionnaire (ECQ)). Despite the fact that 63% of respondents reported feeling that funding mental health should be a top priority within veterinary medicine, 23% of respondents noted they felt the need for mental health counselling but did not receive it. It is suggested that the results of this study be used to guide efforts to support the mental health of swine veterinarians, particularly those involved in future depopulation events.

# **'Cattle welfare is basically human welfare': Workers' perceptions of animal welfare on two large dairies in China**

Chen, Maria (1); Weary, Daniel (1);  
(1) ANIMAL WELFARE PROGRAM, UNIVERSITY OF BRITISH COLUMBIA, VANCOUVER, BC

## **Keywords / Relevant Terms**

Ethnography, participant observation, qualitative methods, dairy farming, one welfare, livestock, employee

## **Abstract**

'Animal welfare' is a foreign translated term in China, and stakeholder interpretations can affect receptiveness to the concept. Our aim was to explore workers' perceptions of animal welfare on two dairies in China. We used a mini-ethnographic case study design, with the first author MC living for 38 days on one farm and 23 days on a second. She conducted semi-structured interviews (n=13) and participant observations (n=41) with farm management and staff. We used template analysis to generate key themes from the ethnographic data. Responses revealed a connection between human and animal welfare. Workers saw human welfare as a prerequisite to animal welfare, and cattle welfare as potentially mutually beneficial to humans. Some workers also saw an ethical obligation towards providing good welfare. Though some workers were unfamiliar with the term 'animal welfare', in daily practice caring for cattle led workers to ponder, prioritize, and make decisions relevant to specific aspects of 'animal welfare' such as lameness, morbidity, and nutrition. Many workers in management positions appeared to embrace evidence-based animal care improvements, especially those which were perceived to also benefit people. Based on our findings, we suggest animal welfare initiatives should

1. Consider worker welfare,
2. Clearly communicate the concept of 'animal welfare',
3. Identify mutual benefits, and
4. Provide pragmatic, evidence-based strategies to improve welfare.





# Antibiotic resistance genes in public waterways near intensive pig farms in Canada, Spain, Thailand, USA: a One Welfare issue

Ison, Sarah (1); Smithkittipol, Chokdee (2); Harsh, Cameron (3); Blaszkak, Kate (4);

(1) WORLD ANIMAL PROTECTION (2) WORLD ANIMAL PROTECTION, BANGKOK (3) WORLD ANIMAL PROTECTION US, NEW YORK (4) WORLD ANIMAL PROTECTION INTERNATIONAL, LONDON

## Keywords / Relevant Terms

Antimicrobial resistance genes; water contamination; animal welfare; animal health; public health

## Abstract

Global consumption of antimicrobials is estimated to increase by 67% between 2010 and 2030, with up to a third predicted to be driven by the transition from extensive to intensive farming in middle-income countries. Intensive systems use production practices that rely on routine antibiotic use including subtherapeutic doses to promote growth and dosing healthy animals to prevent infection in substandard conditions. Antibiotics and antibiotic resistance genes (ARGs) in the waste from intensive farms are often discharged into public waterways or spread over land to fertilise crops. This poses a threat to human and animal health and welfare.

This study measured ARGs in public waterways associated with intensive pig farms in four countries. Water and sediment from public water courses connected to effluent discharges from 6-10 farms in Canada, Spain, Thailand and USA were tested. Samples collected on public land up and downstream of farm discharge were logged using Epicollect 5. Groundwater in a pig farming dense area in Spain was tested. In Thailand, key bacteria were isolated and antibiograms conducted. Samples were analysed for ARGs by national accredited laboratories using PCR. Interviews of residents gauged attitudes to nearby farms, pollution, pig welfare and intensive farming.

ARGs were found conveying resistance to highest priority and critically important antibiotics to human health categorised by the World Health Organisation including: third generation cephalosporins, quinolones (all countries), macrolides (Canada, USA), aminoglycosides (all but Spain) and the polymyxin, colistin (Thailand). Other ARGs conveyed resistance to highly important and important antibiotics: first and second generation cephalosporins (all but Spain), sulphonamides (all but Thailand), and most widely tetracyclines (all but Thailand). Surface water ARGs in Spain were between 5 and up to 200 greater than baseline concentrations. Bacteria resistant to highest priority and critically important (third generation cephalosporins, quinolones, aminoglycosides, colistin), highly important and important antibiotics (sulphonamides, amoxicillin) were isolated in Thailand.

Local communities expressed concern from Canada, Spain, and Thailand in relation to pollution from the dust, dirt, noise and odours from pig farming, and the welfare of pigs. In Thailand a smallholder rice farmer's livelihood was impacted.

This work includes the first data on environmental ARGs from pig farms in Central Thailand and Manitoba, Canada. Our results concur with prior studies inferring industrial farming is contaminating public waterways and highlighting the need to rethink the role of intensive farming in the food system.

# **Farmer satisfaction and animal welfare – insights from a sample of organic multi-species livestock farms in seven European countries**

Schanz, Lisa (1); Winckler, Christoph (1); Oehen, Bernadette (2);

(1) *DEPARTMENT OF SUSTAINABLE AGRICULTURAL SYSTEMS, UNIVERSITY OF NATURAL RESOURCES AND LIFE SCIENCES VIENNA, AUSTRIA*

(2) *DEPARTMENT OF SOCIO-ECONOMIC SCIENCES, RESEARCH INSTITUTE OF ORGANIC AGRICULTURE, FRICK, SWITZERLAND*

## **Keywords / Relevant Terms**

Farmer welfare, animal welfare, multi-species, livestock, Europe

## **Abstract**

For farming to become more sustainable it is not only necessary to find ways to reduce the impact of farming on soils and environment, but also to increase the satisfaction of farmers with their work as well as the welfare of their animals. In the media social sustainability is often connected to gender equality, workload or mental health status and the need for improvement. Farmers worldwide have a higher rate of mental illness and even suicide than many other occupational sectors.

Framed by a modernisation paradigm implemented in the European Agricultural Policy, most farms have become more specialised, focusing on one or two production types, compared to before when very diverse, mixed farms with many smaller production types used to be very common. The benefits of diversifying crop production are well documented, whereas the diversification in livestock production has so far rarely been investigated. To investigate farmer satisfaction and related aspects as an indicator of social sustainability we interviewed 106 multi-species organic livestock farmers in 7 European countries characterising each farm by asking qualitative and quantitative questions, for example about management practices, products, workload, and animals.

In our non-representative sample of multi-species livestock farmers most were highly satisfied with their work, their income and their animals' welfare even though farmers often had physically taxing work, a high workload and experienced a high level of complexity in the farm management. Many farmers mentioned that they enjoy the complexity as well as working with their animals, especially with different species, and that they feel responsible for their animals' welfare. Farmers appreciated the diversity of tasks related to a multi-species livestock farming, as well as the opportunity to learn by e.g. participating in various training courses in a year. The high workload, often increased by farming with more than one livestock species, is distributed when needed among (available) family members or the farmers' social network (e.g. neighbours, friends or customers).

Organic multi-species livestock farming could be a promising strategy for farmers to increase sustainability on various levels, including their own satisfaction and possibly their animals' welfare. However, currently it is unknown how many organic multi-species farms exist in Europe and a representative, and possibly comparative interview with both specialised and multi-species livestock farmers could reveal interesting insights and verify results found in our sample.

# **PPILOW: innovations for improving animal welfare and human well-being in low input outdoor and organic poultry and pig production systems**

Rocchi, Lucia (1); Collin, Anne (2); Consortium, PPILOW (3) [www.ppilow.eu](http://www.ppilow.eu) ;  
(1) UNIVERSITY OF PERUGIA (2) INRAE, UNIVERSITÉ DE TOURS

## **Keywords / Relevant Terms**

Studying welfare-improvement levers, low input and outdoor production systems, multi-actor approach

## **Abstract**

The PPILOW project aims to co-construct with end-users innovations to improve Poultry and Pig Welfare in Low-input outdoor and Organic farming systems through a multi-actor approach. PPILOW implements a participatory approach for proposing and studying welfare-improvement levers. It will provide a combination of practical solutions for welfare improvement that can be applied at a pan-European level with specific adjustments depending on citizen's expectations and the target market. PPILOW co-creates with end-users, involved in connected National Practitioner Groups (NPG), welfare self-assessment tools, innovative breeding, feeding and rearing strategies and techniques to improve the welfare of animals. Approaches focus on avoiding physical damage including beak trimming and feather pecking in laying hens, piglet castration and the elimination of layer male chicks. They also favor positive behaviors, animal health (including the reduction in piglet mortality, pathologies, and parasitism) and robustness in both species, and possibly improve the working environment for the farmer. The multi-actor approach consists in involving farmers, breeding companies, feed producers, consumer associations, retailers, advisers, processors, and scientists in seven participating countries. The groups are facilitated by PPILOW partners making the links between NPG at European level, transferring scientific information, interacting with partners

engaged in animal experiments and co-creating innovations rising from NPG-specific demands. They contribute to the co-building and testing of welfare self-assessment tools, target specific means of improving welfare, co-design protocols, test innovations on farm and disseminate the results. In turn, they receive insights on methods and scientific results, and inputs from other NPG reinforcing the value of the expected outcomes. The strategies are currently investigated experimentally, and the most promising ones will be tested on-farm. Multicriteria analyses of the most effective levers will be performed to evaluate their economic, social, and environmental impacts based on the 'One Welfare' concept emphasizing animal and human welfare and environmental health. Then, economic and business models will be developed to determine the economics and feasibility of PPILOW innovations and their impacts on the entire production chains. To ensure the rapid uptake of the project results by end-users, dissemination activities and the facilitation of change will be managed through the close involvement of PPILOW's NPG throughout the EU.

The PPILOW project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement N°816172. [www.ppilow.eu](http://www.ppilow.eu)

# Suicide and Types of Agriculture: A Time-Series Analysis in Japan

Kanamori, Mariko (1); Kondo, Naoki (1);

(1) DEPARTMENT OF SOCIAL EPIDEMIOLOGY, GRADUATE SCHOOL OF MEDICINE AND SCHOOL OF PUBLIC HEALTH, KYOTO UNIVERSITY, KYOTO

## Keywords / Relevant Terms

Suicide, Animal husbandry, Crop, Agriculture, Farmer, Community, Time-series analysis, Japan

## Abstract

**Objective** - In recent years, rural areas have reported higher suicide rates than urban areas worldwide. Although agricultural activity is a key characteristic of many rural areas, rurality may also have heterogeneous qualities based on the type of agriculture pursued. However, to date, no study has examined potential linkages between suicide rate and types of agriculture.

**Methods** - In this study, we used 1983–2007 annual time-series data of the standardized mortality ratio (SMR) of suicide and product-specific agricultural outputs in Japanese municipalities to shed light on this phenomenon. We conducted a multilevel linear regression analysis, taking into account a hierarchical structure of the time-series data, limiting our analysis to municipalities where agricultural land use was high.

**Results** - Our multilevel analysis showed that the animal husbandry output was positively associated with suicide SMR in both women and men, with a stronger relationship among women, whereas no association was observed in agricultural crop output. Temporal analysis showed that the association could be observed consistently throughout the period between 1983 and 2007.

**Conclusions** - This study raises the possibility that the industrial and cultural characteristics of communities that rely on animal husbandry may be associated with an increased risk of suicide.

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# Agroforestry systems that benefit animal welfare, environmental well-being and livelihoods in Ethiopia

Berhe, Tsega (1); Alemayehu, Gezahegn (1); Mokria, Mulugeta (2); Schelling, Esther (3); Ismail, Zuleka (4);  
Belay, Keadu (4); Mekonnen, Mesfin (1); Wieland, Barbara (1); Doyle, Rebecca (1);

(1) INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE, ADDIS ABABA, ETHIOPIA (2) WORLD AGROFORESTRY CENTRE, ADDIS ABABA, ETHIOPIA  
(3) VÉTÉRINAIRES SANS FRONTIÈRES SUISSE, BERN, SWITZERLAND (4) VÉTÉRINAIRES SANS FRONTIÈRES SUISSE, ADDIS ABABA, ETHIOPIA

## Keywords / Relevant Terms

Agroforestry; East Africa; Ethiopia; Livelihoods; Silvopastoralism

## Abstract

Farm or pastoral production systems that incorporate trees, known as agroforestry or silvopastoral systems, respectively, are described as having benefits for animal welfare, the environment and farmer livelihoods. If this is the case, expanding the number of livestock systems that utilise trees in their production will generate benefits to all three components of One Welfare. Our 2-year research project is comparing tree-based production systems with traditional mixed crop-livestock systems which is practiced in the highland and pastoral in the lowland of Ethiopia. The aim is to understand the benefits and trade-offs incorporating trees can have on human, animal and environmental well-being. Our hypothesis is that non-timber trees around primary forests provide incomes to families, feed for livestock, conserve primary forests and are good for animal welfare such as providing shade. Data are being collated through livestock owner interviews and animal welfare assessment in "tree" and traditional farms. To date, our research has shown that tree-based systems had fewer skinny cattle and donkeys compared to traditional

farming systems: skinny cattle 17% vs. 32%; skinny donkeys 8% vs. 14%, but more skinny sheep (33% vs. 23%). There were comparable numbers of skinny goats between the tree and traditional systems (22% vs. 25% respectively). Both tree and traditional farmers also "agreed" that their animals had both a chance to move freely every day and drink water whenever they wanted (measured on a 5-point Likert scale from strongly disagree to strongly agree). Further analyses of animal, livelihoods and environmental data are being conducted. Trade-offs identified between the three components of One Welfare so far include increased pesticide/chemical use in areas with vegetables and trees; challenges in managing young trees, plants and related infrastructure (materials for protecting plants) in combination with animal grazing; and challenges with veterinary support services. By understanding both the benefits and the trade-offs of silvopastoral systems, actionable steps to foster benefits of these systems can be developed.

# Differences in the perception of equine slaughter as a protein alternative for human food in Colombia, 2021

Henao Villegas, Santiago (1); Ruíz, Jhon Didier (1); Jaramillo Gómez, Carolina (2); Wild, Isabella (3); Maguire, Liam (3); Warboys, Debbie (3); Lightfoot, Katie (4); Burford, John (4);

(1) GRUPO DE INVESTIGACIÓN EN CIENCIAS ANIMALES (INCA-CES) UNIVERSIDAD CES, MEDELLÍN (COLOMBIA) (2) FUNDACIÓN ARRIEROS COLOMBIA – WORLD HORSE WELFARE (3) WORLD HORSE WELFARE (4) SCHOOL OF VETERINARY MEDICINE AND SCIENCE, UNIVERSITY OF NOTTINGHAM

## Keywords / Relevant Terms

Animal welfare, empathy, ethics, food security, human wellbeing

## Abstract

While human-to-human empathy is a longstanding psychological concept, human empathy towards animals has only recently been of scientific interest. An increasing human population has created a greater need for protein of both animal and plant origin. As a consequence, a large number of animals are subjected to slaughtered methods which can generate strong emotions in some sections of the human population. The aim of this research was to determine differences in the perception of equids as a protein food source in Colombia, by considering intrinsic and extrinsic social variables. An Animal Purpose Questionnaire (APQ), based on previously published methodology, was delivered using face-to-face interviews. This included a visual analogue scale designed to measure attitudes towards the slaughter of different animals for meat production. There were 182 responses from six geographic regions of the country. A Cronbach's alpha of 0.87 indicated high consistency and reliability of collected data. When investigating willingness to consume equid meat, women were found to have a greater aversion to the slaughter of horses for protein consumption when compared to men. Similar differences were found between sexes when meat from other animals (dog, pig or mouse) were considered as a source of food. Horse owners also showed a greater opposition to the use of equids for food production when compared to non-animal owners. Participant age was found to have no effect on feelings towards the slaughter of horses for meat. The level of human-horse empathy varies, with sex and animal ownership appearing to influence human opposition to the humane slaughter of equids. This has important One Welfare implications in Colombia, where owners of working equids often have no end-of-life plans for their animals



## SESSION 3 -

# THE CONNECTIONS BETWEEN ANIMAL AND HUMAN ABUSE AND NEGLECT



# THE CONNECTIONS BETWEEN ANIMAL AND HUMAN ABUSE AND NEGLECT

ONE WELFARE FRAMEWORK SECTION 1

THEME 1



#ONEWELFARE  
#OWW21



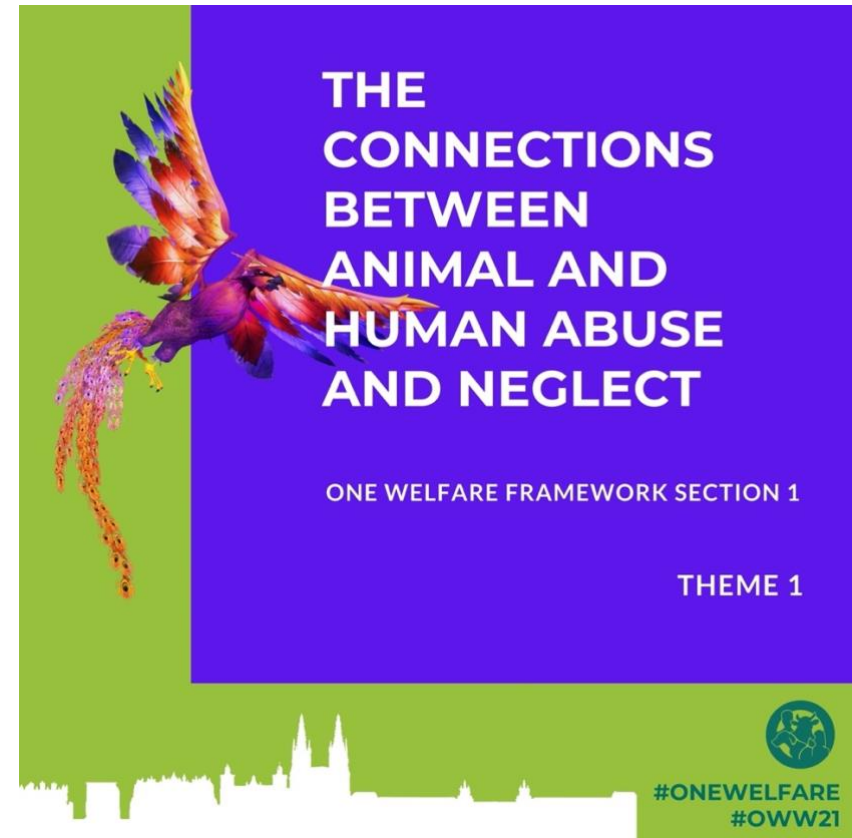
## SESSION 3 – CHAIR

### Dr. Mohamed Nader



Dr. Nader is an Egyptian veterinary specialist in Animal Welfare and Wildlife conservation. He has a Master's Degree in wildlife conservation from Universidad Internacional de Andalucía, Spain, and a Bachelor of Veterinary Science Degree from Alexandria University, Egypt. He was an official veterinarian at Sharjah Municipality, UAE, from 2001-2008, after

which, he joined as a Senior Veterinarian at Al Ain Municipality, UAE, from 2009 to the present. In addition, he has volunteered as a wildlife conservationist expert with NGOs to deliver workshops and training in the Middle East on animal welfare, CITES, wildlife conservation, and wildlife trade regulations. Nader was a keynote speaker in the UAE National Conference on Animal Welfare in Dubai in 2018. He is also a wildlife conservationist Ambassador in One Zoo Tree Project which aims to change the world by educating a generation on career preparation and conservation.



## SESSION 3 – KEYNOTE SPEAKER



### Phil Arkow

Phil Arkow is coordinator of the National Link Coalition – the National Resource Center on The Link between Animal Abuse and Human Violence – and editor of its monthly LINK-Letter. He chairs the Latham Foundation's Animal Abuse and Family Violence Prevention Project. He teaches Animal Abuse and Human Violence at the University of Florida and Animal-Assisted Therapy at Harcum and Camden County Colleges. He trains internationally and has authored or edited over 60 key reference works in human-animal interactions and violence prevention. He has founded and served with a dozen national and state veterinary, animal welfare, human-animal bond, and criminal justice organizations.

## The Interconnection between Animal Abuse and Human Abuse and Neglect: The Link

Arkow, Phil, Coordinator National Link Coalition (1);

(1) *THE NATIONAL RESOURCE CENTER ON THE LINK BETWEEN ANIMAL ABUSE & HUMAN VIOLENCE, ETOWAH, N.C. USA*

### Abstract

Animal cruelty, abuse and neglect have historically been considered crimes against animals that occur separate from crimes against human beings. "The Link" recognizes that animal abuse is often a precursor to, or co-occurs with, other forms of community and family violence, and is particularly linked with domestic violence, child maltreatment and elder abuse. In this regard, The Link parallels One Welfare and is embodied under the One Welfare umbrella. The Link considers animal abuse as not just an animal welfare or animal rights concern, but also a human health and societal welfare issue. Veterinarians, human healthcare professionals, social

workers, animal protection agencies, child and adult protective services, domestic violence agencies, and prosecutors can work in multi-disciplinary programs to protect all vulnerable human and non-human members of the family. Early recognition and response to animal abuse can prevent other forms of family violence, coordinate disparate humane and human services which often deal with the same perpetrators and victims, and provide a more collaborative, comprehensive and effective strategy to achieve safer and healthier communities.

## ORAL SESSIONS

### What kind of bond? Measuring children's attachment to pets and understanding its role in cases of childhood animal harm

Wauthier, Laura (1); SPCA, Scottish (2); Farnfield, Steve (3); Williams, Joanne (4);

(1) UNIVERSITY OF EDINBURGH (2) SCOTTISH SPCA (3) UNIVERSITY OF ROEHAMPTON (4) DEPARTMENT OF CLINICAL PSYCHOLOGY, UNIVERSITY OF EDINBURGH

#### Keywords / Relevant Terms

Attachment, Child animal interaction, Child animal Harm, Animal bond

#### Abstract

Introduction - In the Human Animal Interaction literature, there is growing evidence of the positive role pets can play in children's lives. One of the hypothesised mechanisms for this 'pet effect' is through a child's attachment to their companion animals. However, little is known about how attachment to pets relates to other forms of attachment, and there are few tools for measurement. This research aimed to test novel measures of children's relationship to pets and explore the role attachment plays in cases of childhood animal harm.

Methods - We carried out in-depth interviews with a sample of 27 children (n=15 females), which included children referred to the Scottish SPCA's Animal Guardians programme as high-risk for animal harm (n= 9), and children matched for age, gender, and school class (n= 18). Attachment was measured using three different techniques: (1) the Child Attachment Play Assessment (CAPA), a story-stem technique with three added stories investigating conflicts with a pet, (2) a hierarchical mapping task where children could choose to draw anyone important (including pets) around a drawing of themselves, and (3) a standardised self-report measure, the Short Attachment to Pets Scale (SAPS). Finally, a novel measure, the "Children's Relationship to Pets Scale" (CRPS) was designed to further investigate how children discussed pets in the story-stem tasks.

Results - Children referred to the AG programme were more likely to be classified as insecure using the CAPA  $X^2(1, N= 24) = 12.97, p = .002$ , and insecurely attached children had more self-reported animal harm behaviours  $H(2) = 0.65, p=0.038$ . In their drawings, insecure ambivalent (type C) children tended to draw their parents further away  $X^2(2) = 6.85, p= 0.03$  than secure or avoidant (type A) children. However, insecurely attached children tended to draw pets closer to themselves than securely attached children  $F(1, 22) = 4.18, p= 0.05$ . Using the CRPS, insecure children had significantly lower scores on mentalising about pets, caregiving behaviour towards pets, and were less able to use parents to help resolve conflicts with pets. However, they used pets as sources of comfort just as often as securely attached children.

Conclusions - This research demonstrates the complex relationship between a child's primary attachment classification and their relationship with their pet. While secure and insecure children had similar capacity for bonding to their pets, insecure attachment was an important risk factor for harming animals. Relational difficulties associated with insecure attachment may extend to children's relationship to animals and may explain this pattern.

# The Veterinary Forensic Expert Centre in The Netherlands

Endenburg, Nienke/N (1); Rodenburg, Bas/T.B. (2);

(1) *POPULATION HEALTH SCIENCES, FACULTY OF VETERINARY MEDICINE, UTRECHT* (2) *POPULATION HEALTH SCIENCES, FACULTY OF VETERINARY MEDICINE, UTRECHT*

## Keywords / Relevant Terms

Animal abuse, domestic violence, veterinarians, forensic veterinary medicine

## Abstract

Animal abuse remains a major problem in human societies. Sometimes the signs of animal abuse are obvious, but they are often missed by veterinarians. Animals may have no external signs of physical damage, but can have many internal injuries, fractures, and haemorrhages. Animals often act as indicators of human health and welfare, as can be seen in the link between animal abuse, child abuse, and social violence. There is significant evidence that people who mistreat and abuse animals show the same behaviour towards vulnerable people around them, such as children or older adults.

Colleagues in human medicine, including doctors, dentists, and other healthcare professionals, face the same dilemma as veterinarians in that it can be very difficult to detect violence and abuse. They also acknowledge that the biggest challenge to recognizing and diagnosing abuse is the powerful emotional block in the mind of the professional. They must force themselves to think about abuse in the first place; only by recognizing the problem can the veterinary profession become a part of the link to break the cycle of violence.

To help veterinarians detect animal abuse, the Veterinary Forensic Expert Centre (VFEC) was set up in the Netherlands with several objectives. The first objective is

to help practicing veterinarians who believe that they may have a case of animal abuse in their practice. The veterinarian can upload radiographs, pictures, videos, and written information regarding an animal onto the VFEC website. An expert panel of specialized veterinarians, along with human forensic experts from the Dutch Forensic Institute (NFI), will assess the material and inform the veterinarian within 48 hours whether this could be a potential case of animal abuse or not. If it could be, the veterinarian can pass the information to the police, who will then undertake further inquiries. The second objective is to undertake scientific research on veterinary forensics. The third objective is to educate veterinarians, human doctors, psychologists, social workers and the general public about animal abuse and its relationship to domestic violence.

Veterinarians, together with other health professionals, play a crucial role in the prevention and discovery of animal abuse and domestic violence. Increased education and better awareness in this area, along with improved co-operation with other professions, can help address this problem and assist a reduction in unnecessary suffering for both animals and humans.

# Welfare, Violence and the human animal interaction

## – One Welfare Phoenix Project

### One Welfare Phoenix Advisory Board:

Rebeca G. Pinillos (1); Phil Arkow (2); Paola Boyden (3); Nuria Querol Viñas (4); Joe Bailey (5); Marisa Erasmus (6); Adele Lau (7); Joan Lindenmayer (8); Gilly Mendes Ferreira (9); Andrew Morison (10); Mohammed Nader (11); Rodrigo Nova (12); Patricia Turner (13); Jeannette Anderson (14); Evelyn Segredo (15)

(1) CHAIR AND PROJECT FOUNDER; (2) PROJECT CO-FOUNDER; THE NATIONAL LINK COALITION; (3) PROJECT CO-FOUNDER; THE LINKS GROUP; (4) PROJECT CO-FOUNDER; VIOPET;

(5) MEMBER; RSPCA; (6) MEMBER; ACADEMIC REPRESENTANT PURDUE UNIVERSITY; (7) MEMBER; LEGAL REPRESENTANT NATIONAL PARKS BOARD, SINGAPUR;

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(11) MEMBER; INDEPENDENT ZOO TREE PROYECT; (12) MEMBER; ACADEMIC REPRESENTANT NOTTINGHAM UNIVERSITY; (13) MEMBER; WORLD VETERINARY ASSOCIATION; (14) PROJECT SUPPORT;

(15) MEMBER; MEDICAL REPRESENTANT PUBLIC HEALTH URUGUAY.

**\*Correspondence:** [phoenix@onewelfareworld.org](mailto:phoenix@onewelfareworld.org)

### Keywords / Relevant Terms

One Welfare, violence, human-animal interaction, COVID 19

### Abstract

Human animal interconnections are presented in a wide range of situations, some of these highly beneficial for both populations, and the environment. Positive aspects of the relationship include improving social, mental and behavioural health, as well as making an impact on global health issues. However, on the downside, human animal interaction can be settled on a complex and violent scenario, producing adverse contexts and threatening the integrity of individuals, eventually reducing health standards and the quality of life of people, animals and the environment. One Welfare Phoenix is a project designed to support the sustainable development goals and global reduction of violence by supporting the production and dissemination of practical guides to professionals to help identify and report the link between animal and human abuse and neglect, including the relationship to their environment.

The main goals of the project are

- To facilitate the exchange of information, experience and best practice in the area of animal and human abuse and neglect including the connections to the environment.
- To follow up, discuss, peer review and clear final drafts of the area specific subgroups before they are released for wider consultation and before they are published.
- Production and/or dissemination of other materials, which could help understanding and increase awareness of programmes that address the links of abuse and neglect of humans, other animals and their physical and social environment.

- Secure funds and resource for the development of the project, including supporting and organising relevant seminars, workshops and the publication of guidance as necessary.
- Support the Global Sustainable Development Goals 3, 5, 16 and 17. Multiple non-systematic scope reviews will be undertaken simultaneously, providing relevant information on the link issues in different regions of the world, using the Arskey and O'Malley methodology framework. Various bibliographic databases and any valid information sources are initially considered (i.e. scientific articles, journals, reports, non-peer review papers, unpublished data, Governmental reports, thesis, etc.) for the scope review that demonstrate the causal violent link between humans, animals and the environment. This project focuses on the interconnections between animal and human abuse and neglect, including their connections to the environment in five main lines of research, including farm, entertainment, companionship, working, wildlife and free roaming animals. The OWP initiative promotes an interdisciplinary approach to improve animal welfare and human wellbeing, as well as to support the Global Sustainability Development Goals 3, 5 16 and 17, by reducing worldwide social violence. Moreover, this concept may contribute to future international guidelines and objectives in terms of managing global health crisis in which rapid, unpredictable, and highly changing scenarios can lead to an increase in human-animal violent settings, such as the described cases during the COVID 19 pandemic.

# Concerns and Experiences of Accessing Veterinary Care During the COVID-19 Pandemic: a Mixed-Methods Analysis of Dog Owners' Responses

Holland, Katrina (1); Owczarczak-Garstecka, Sara C. (2); Anderson, Katharine L. (2); Casey, Rachel A. (2); Harris, Lauren (2); McMillan, Kirsten M. (2); Mead, Rebecca (2); Murray, Jane K. (2); Samet, Lauren (2);  
(1) DOGS TRUST (2) CANINE BEHAVIOUR AND RESEARCH, DOGS TRUST, LONDON

## Keywords / Relevant Terms

Dogs, COVID-19, veterinary healthcare

## Abstract

As part of the UK's COVID-19 pandemic management, restrictions on the work of veterinary practices were introduced in March 2020. This mixed-methods study explored UK dog owners' concerns and experiences related to accessing veterinary care during the COVID-19 pandemic.

Data were obtained through: two owner-completed cohort panel surveys conducted in May 2020 (during the first nationwide lockdown) and in October 2020 (at which point the UK was not under strict lockdown restrictions); and owner-completed electronic diaries (April-November 2020). Responses for questions concerning access to veterinary care were summarised with descriptive statistics. Responses to three open-ended survey questions and electronic diaries were analysed qualitatively to identify key themes.

Findings from the first survey revealed that the potential availability of veterinary care worried 32.4% (n=1,431/4,922) of respondents during the first lockdown. However, the follow-up survey found that contact with an owner's veterinary practice was obtained in 99.5% (n=1,794/1,843) of cases in which this was sought since the start of lockdown. Remote consultations were experienced by 22.2% (n=563/2,537) of respondents since the start of lockdown. Delays/cancellations of procedures affected 28.0% (n=82/293) of dogs that owners planned to neuter and 34.2% (n=460/1,346) of dogs that owners intended to vaccinate since the start of lockdown.

Qualitative themes included: COVID-19 safety precautions; the availability of veterinary healthcare; and the veterinarian-client relationship. Participants explained how COVID-19 related measures had led to changes in veterinary service delivery. For instance, telemedicine consultations were sometimes reported to take place instead of in-person encounters. Many participants expressed satisfaction with this service, however some felt it was difficult to ask questions and understand the veterinarian. Experiences of owner-veterinarian-dog encounters were often affected by COVID-19 safety precautions that typically prohibited owners from accompanying their dog within the clinic. For some participants, this was described as stressful as they wished to be with their dog during the consultation to provide reassurance. Not being with the dog during the consultation was also felt, by some, to hinder communication with the veterinarian, which owners perceived in some cases led to missed diagnoses or further health complications.

This study provides evidence that in the UK prophylactic treatments for some dogs were delayed during the COVID-19 pandemic, but access to veterinary healthcare for emergencies remained largely available. Nonetheless, this study's qualitative insights illustrate owners' concerns and worries about the potential availability of veterinary healthcare and how COVID-19 safety precautions affected the experience of accessing veterinary healthcare as well as the veterinarian-client relationship.

## SESSION 4 – SPECIAL SECTION: ONE WELFARE AND COVID-19





## SESSION 4 – CHAIR

### Anne Quain



Anne Quain is a lecturer at the Sydney School of Veterinary Science and a companion animal veterinarian. She completed a Masters in small animal medicine and surgery through Murdoch University, is a member by examination in the animal welfare chapter of the Australian and New Zealand College of Veterinary Scientists, and a Diplomate of the European College of Animal Welfare and Behaviour Medicine in Animal Welfare

Science, Ethics and Law.

Dr Quain co-authored the book *Veterinary Ethics: Navigating Tough Cases* and is the author of numerous peer-reviewed journal articles and book chapters. She co-edited the sold-out *Vet Cookbook* (published by the Centre for Veterinary Education). She is a member of the AVA's New South Wales Executive Committee, the Animal Welfare Advisory Council and the Humane Society Veterinary Medical Association leadership council.

Dr Quain was the chief-convenor of the 2019 second international One Welfare conference in Sydney, Australia.

She is currently undertaking a PhD looking at ethical challenges encountered by veterinary team members, with the aim of ensuring that current and prospective veterinary team members are better prepared for such challenges.



## SESSION 4 – KEYNOTE SPEAKER

### Him-Hoo Yap



Dr Yap Him Hoo is the Deputy CEO, Professional Development & Services (PDS) and concurrently the Director-General, Animal & Veterinary Service in the National Parks Board, a statutory board under the Ministry of National Development. As Deputy CEO, PDS, he is responsible in building capacity and strengthening NParks' core competencies and expertise in horticulture, arboriculture, biodiversity, ecology, and conservation. This would also include improving standards and professionalism of the local landscape industry. As Director-General, AVS, he oversees all matters pertaining to animal health and welfare, as well as animal and wildlife management, which includes strengthening and raising the standards of animal health & welfare and veterinary services in Singapore.

Dr Yap is the Delegate to the World Animal Health Organisation (OIE) for Singapore and is currently a member of the OIE Council.

Prior his appointment in NParks, Dr Yap had served in various capacities in the public sector, including Deputy CEO, Regulatory Programmes and Operations in the former Agri-Food and Veterinary Authority and Senior Director, Infrastructure Division in the Ministry of National Development.

Dr Yap obtained his veterinary degree from the University of Queensland, Australia and completed the Masters of Preventive Veterinary Medicine (MPVM) programme in University of California, Davis.

## COVID and One Welfare-impacts and recovery highlights from Singapore

Dr Yap, Him-Hoo (1);

(1) DEPUTY CEO, PROFESSIONAL DEVELOPMENT & SERVICES (PDS) AND CONCURRENTLY THE DIRECTOR-GENERAL, ANIMAL & VETERINARY SERVICE IN THE NATIONAL PARKS BOARD

### Abstract

The presentation is to share Singapore's transition from a City in a Garden to City in Nature. The City in Nature vision builds upon what has been achieved in Singapore's greenery efforts and further restore nature into the urban environment. The vision is also a key pillar of the Singapore Green Plan 2030 – a national movement to chart our course for sustainable development.

The initiatives under City in Nature would align with some aspects of the One Welfare Framework and such alignment is especially evident during this period of restrictions as a result of COVID-19.

# What impact has COVID-19 had on our relationships with animals in Scotland?

Mendes Ferreira, Gilly (1);

(1) HEAD OF EDUCATION, POLICY AND RESEARCH, SCOTTISH SPCA

## **Keywords / Relevant Terms**

COVID-19, Scotland, Relationships with animals

## **Abstract**

The concept of One welfare has certainly been tested during the pandemic. We have seen the significant impact COVID-19 has had on the health of the human population but what impact has it had on our relationships with animals and our shared physical and social environment? This quantitative study looked at the work of the Scottish SPCA specifically relating to its frontline activities looking at indicators such as calls received to its animal helpline, types of investigations conducted, number and types of species admitted to its animal rescue and rehoming centres and wildlife rescue centre and referrals to its Animal Guardians education programme. Data was analysed from January 2019 to June 2021 in which over 500,000 calls were received through the Animal Helpline and more than 30,000 animals along with many people were supported by the Scottish SPCA. During this time period differences were observed in the types of investigations conducted, types of species coming into the Scottish SPCAs care, average time animal waited to be rehomed, and the reasons for referral to the animal guardians' programme. This is the first detailed analysis of the Scottish SPCAs frontline work. This presentation will share findings publicly for the first time and include case studies that show the impact COVID-19 has had on the connection between humans and animals and examples of partnerships that have been formed to support these connections. Like many organisations the Scottish SPCA has been reflecting and redefining its place in the world to ensure we can meet today's human and animal welfare needs with this study being the first step in that process.



# Social support for management of dogs during COVID-19

Christley, Robert (1); Murray, Jane K (2); Anderson, Katharine L (2); Upjohn, Melissa M (2); Owczarczak-Garstecka, Sara (2); Harvey, Naomi D (2); Harris, Lauren (2); Holland, Katrina E (2); McMillan, Kirsten M (2);  
(1) DOGS TRUST (2) CANINE BEHAVIOUR AND RESEARCH, DOGS TRUST, LONDON

## Keywords / Relevant Terms

Social support, COVID-19, dog, welfare

## Abstract

Our previous work (Christley et al, 2020, Animals,11,5) suggests that social support lessened the impact of COVID-19 lockdown restrictions on changes to dog management, such as reduced walking frequency. This study explored further the importance of lack of social support for dog owners.

Data were collected during the UK's first COVID-19 lockdown via an online survey of 6004 dog owners (4-12/May/2020); 2582 completed a follow-up survey (10/October to 2/November/2020). Descriptive statistics and multivariable logistic regression were used to examine impacts of COVID-19 restrictions on support for management of dogs, specifically support for dog walking and for care.

1-in-10 people reported limited support was available during lockdown. Of these, 48.1% reported limited support for walking only, 11.1% for care only and 40.8% for both. People reporting limited support were more likely to be male (OR=1.5, CI:1.1-2.1 versus female), 55 years or older (OR=1.7, CI:1.2-2.4 versus 18-34-years), not live with other adults (OR=2.4, CI:1.7-3.5, versus living in household with  $\geq 3$  adults), to own an adult dog ( $>1$  to  $<12$  years; OR=2.8, CI:1.3-6.0, versus juvenile,  $\leq 1$  year) and own 3-or-more dogs (OR=1.9, CI:1.4-2.7, versus 1-dog).

People with limited care support were more likely to say they would delay hospital treatment to care for their dogs ( $p=0.02$ ). In addition, people reporting limited support were more likely to be worried about obtaining dog food ( $p=0.0007$ ), the

cost of dog ownership ( $p=0.008$ ) and what would happen to their dog should something happen to them ( $p < 0.0001$ ).

Many people did report using support during lockdown. Support for dog care was provided by people within (dog care 12.5%; dog walking 15.2%) and outside (dog care 7.3%; dog walking 11.1%) the household.

There was considerable change in reported availability of support as lockdown eased: many people reported support for either care or walking was available once lockdown eased, perhaps suggesting that these people were reliant on boarding kennels, dog walking companies or distant or previously shielding family and friends for this support. However, among those reporting perceived lack of support for both care and walking during lockdown, half reported one or both were still not available as lockdown eased, perhaps suggesting more longer-term issues, such as social isolation.

While few people reported wanting, but being unable, to access support (0.5% and 0.25% care and walking, respectively), with 27.8M households in the UK, 23% of which own dogs, we estimate 30000 and 16000 households could have had unmet support-needs for care and walking, respectively.

Further research is needed to explore the link between social support and human and animal welfare. We suggest that interventions to address this could take a One Welfare approach

# Effect of imposed movement restrictions on the wellbeing and interactions of humans and their pets

Nova, Rodrigo J. (1); Curzon, Ali (2); Muñoz-Garcés, Paulina (3);

(1) UNIVERSITY OF GLASGOW, UK; EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE, ROME

(2) SCHOOL OF VETERINARY MEDICINE AND SCIENCE, UNIVERSITY OF NOTTINGHAM (3) LICEO AGRÍCOLA SAN CARLOS, CHILE

## Keywords / Relevant Terms

mental health, one welfare, companion animals, animal-human interaction

## Abstract

Control measures for SARS-Cov2 - COVID19 resulted in imposing a number of social distancing and movement restrictions measures worldwide. Even though these measures aim to reduce the risk of spreading of an infectious disease, these could result on animal and human welfare.

An online survey was produced in Spanish and English using the JISC Online Survey Tool. The survey was aimed at pet owners in countries/regions with movement restrictions (e.g. social distancing) due to SARS-Cov2 - COVID19, to understand the potential impact of these measures on animal and human welfare. The survey consisted of a maximum of 23 questions, and it was distributed between April and June 2020 in a number of social media (i.e. Instagram, Twitter, Facebook, LinkedIn and WhatsApp). This study was approved by the University of Nottingham's School of Veterinary Medicine and Science's Ethical Review Committee.

A total of 880 responses from 14 countries were received (Argentina, Australia, Brazil, Canada, Chile, Estonia, France, Indonesia, Italy, Latvia, New Zealand, Romania, Spain, and the United Kingdom). Pets included a large variety of animals. The most frequent were cats and dogs. However, fish, horses and food producing animals, amongst others, were also reported as pets.

Most respondents considered that owning a pet allowed them to better cope with movement restrictions. Particularly, participants considered they felt less stress,

anxious and lonely thanks to their pet(s). In fact, a high proportion of participants considered that since implementation of movement restrictions /social distancing, they interacted more with their pet(s).

When asked what does their pet(s) make them feel during COVID-19 restrictions, most participants reported love as the main feeling. Sense of purpose was also frequently mentioned.

According to most respondents, the welfare of their pets improved due to COVID-19 restrictions. This was mostly linked to longer hours spent by owners at home. Examples of this improvement included more interaction and longer walks. On the other hand, pending on level of movement restrictions for some owners even though they reported more interaction, they also expressed concerns due to lower availability to exercise their dogs, potentially gaining excessive weight. Concerns on welfare issues that may arise after restrictions are lifted (i.e. separation anxiety) were also reported.

Animal and human welfare has been interlinked during the current pandemic. Better understanding on the effects and the needs of pets and their owners could help to enhance their welfare.

### Human perception of emotional state, quality of life and pet behavior in times of COVID 19

Feld, Alejandra (1); Corte, Sylvia (2); Rodriguez González, Rita (3); Cefrorella, Carolina (3); Ventura, Veronica (3); Campero, Ruben (3);

(1) CÁTEDRA DE BIENESTAR ANIMAL Y ETOLOGÍA, FACULTAD DE CIENCIAS VETERINARIAS, UNIVERSIDAD DE BUENOS AIRES, ARGENTINA / GRUPO ACADÉMICO DE INVESTIGACIÓN EN ANTROZOOLOGÍA

(2) SECCIÓN ETOLOGÍA, FACULTAD DE CIENCIAS, UNIVERSIDAD DE LA REPÚBLICA, MONTEVIDEO, URUGUAY / GRUPO ACADÉMICO DE INVESTIGACIÓN EN ANTROZOOLOGÍA

(3) GRUPO ACADÉMICO DE INVESTIGACIÓN EN ANTROZOOLOGÍA

#### Keywords / Relevant Terms

Human-animal relationship, anthrozoology, human well-being

#### Abstract

Dogs and cats are domesticated animals usually kept for companionship. Human-Animal Bond is a close, mutually beneficial relationship. It can improve both human and animal welfare, as suggested by recent research. COVID-19 pandemic forced people to stay at home, spending more time in confined conditions with their pets. In 2020 we asked dog and cat owners from Uruguay if they perceived change in their Emotional State and Quality of Life due to the presence of the pet during confinement. We also asked about their perceptions of changes in their Pet's Behaviour. We developed an online questionnaire answered by 1000 anonymous and volunteer participants. No animals were used. Respondents were informed their personal data would be treated confidentially, regarding Uruguayan National Normative-Law number 18.331 - Personal Data Protection Law. Data were analysed using a multiple linear probability model.

This presentation only includes preliminary and most relevant results.

Emotional State (ES). We found an improvement probability of 10% ( $p=0.005$ ) among respondents living in the suburbs-rural area over those living in the principal city. People that improved their ES, saw improvements in their pet behaviour. Those who live with a dog had an ES improvement probability of 38%

( $p=0.09$ ) more than non-pet owners. Those who live with dogs and cats had an ES improvement probability of 42% ( $p=0.06$ ) more than non-pet owners.

Quality of Life (QL). Respondents who perceived an improvement in their pet's behaviour were 14% ( $p=0.001$ ) more likely to perceive a positive effect of the pet on their QL. Living with one pet at least, was associated with 5% ( $p=0.09$ ) higher perceived QL due to the presence of the pet, among respondents who lived alone. Pet Behaviour (PB). People who improved their ES had 8% ( $p=0.014$ ) more probability of perceiving improvements in their PB, compared to those who did not improve their ES. People who live in the capital city presented a probability of 10% ( $p=0.004$ ) worsened PB compared to those who live in the suburbs or rural settings.

We found a positive correlation between the perceived improvement in the PB with QL and ES. These connections can help us to understand the effect of living with a pet during confinement situations, which seems to operate as social buffering for us. For the future, we plan to compare these results with an assessment of animal-based indicators of welfare

# The One Welfare impact of COVID-19 on the working equid community: responses from 1530 participants receiving NGO support in 14 LMICs

Wild, Isabella (1); Gedge, Amy (2); Burrridge, Jessica (3); Burford, John (3);

(1) WORLD HORSE WELFARE (2) WORLD HORSE WELFARE (3) SCHOOL OF VETERINARY MEDICINE AND SCIENCE, UNIVERSITY OF NOTTINGHAM

## Keywords / Relevant Terms

Coronavirus, equine welfare, human–animal relationships, working equids, working animals, low- or middle-income country, sustainable development, One Welfare

## Abstract

In low- or middle- income countries (LMICs) the socioeconomic effects of the Covid-19 pandemic have been variable. Due to the utilisation of working equids (horses, donkeys and mules) in many of these nations it is inevitable that there will have been direct One Welfare consequences. World Horse Welfare is a Non-Governmental Organisation (NGO) supporting communities in improving equid welfare through a network of partner projects globally. The aim of the project was to report the impact of the pandemic upon individuals utilising working equids, and upon the welfare of the animals themselves. A cross-sectional study was performed in 14 countries in which partnerships existed. A survey was developed, which involved 38 predominantly closed questions. The survey was multi-language, and it was carried out face-to-face, over telephone, or online. There were 1530 responses from participants, between November and December 2020, who received support from equine welfare projects. At the time of survey completion, 57% (875/1522) of participants reported that their equids were working less, 76% (1130/1478) reported a decreased monthly income from equids, and 78% (1186/1519) reported reduced total household income compared to pre-pandemic levels. The costs of equid upkeep remained the same for 58% (886/1519) of respondents, with household outgoings remaining the same for 43% (647/1512)

or increasing for 34% (515/1512) respondents. Sixty-eight percent (1034/1518) reported no change in the health of their equid, however, there was variation in how body condition had changed: 41% (627/1514) reported their equids condition had stayed the same, 29% (436/1514) increased and 28% (417/1514) decreased compared to pre-pandemic levels. The potential long-term impacts on human and equid welfare due to reported financial insecurities necessitates monitoring and follow up surveys are planned to monitor how these effects change with time. Actions have already been taken from the first round of surveys, for example, targeted feed relief to certain communities in Mexico. A One Welfare approach, involving collaboration with governments, humanitarian, and animal welfare non-governmental organisations is required to ensure these communities have access to support and deep-rooted issues are mitigated.

Abstract from published paper (Animals, MDPI)

Wild, I.; Gedge, A.; Burrridge, J.; Burford, J. The Impact of COVID-19 on the Working Equid Community: Responses from 1530 Individuals Accessing NGO Support in 14 Low- and Middle-Income Countries. *Animals* 2021, 11, 1363. <https://doi.org/10.3390/ani11051363>



# **Supporting healthy and sustainable human-animal bonds: Examining pet guardians' access to veterinary medical and behavioral services during COVID-19**

Morris, Amy (1); Wu, Haorui (2);

(1) VANCOUVER HUMANE SOCIETY, VANCOUVER, BRITISH COLUMBIA (2) SCHOOL OF SOCIAL WORK, DALHOUSIE UNIVERSITY, HALIFAX, NOVA SCOTIA

## **Keywords / Relevant Terms**

One Welfare, human-animal bond, veterinary assistance, COVID-19

## **Abstract**

The COVID-19 pandemic has had a far-reaching effect on both human and non-human communities. The severe socioeconomic outcomes and public health protocols have been dramatically influencing pet guardians' access to veterinary medical and behavioural services, which may result in conceivable relinquishment and other unfavourable human-animal interactions, jeopardizing animal welfare, human well-being, and human-animal resilience capacity.

Employing a mixed method approach (secondary quantitative data analysis and in-depth interviews), the research presented is a comprehensive analysis of various influences that the COVID-19 outbreak has had on pet guardians' access to veterinary medical and behavioural services, in Vancouver, Canada. Through supporting healthy and sustainable human-animal bonds in disaster settings and beyond, this research will contribute to enhancing animal welfare and human well-being, and building their respective resilience capacities, in order to accelerate their current recovery process and prepare them for future extreme events.

Specifically, this session reviews the learnings from animal guardians who experienced financial crisis and were at risk of not receiving veterinary support due to the COVID-19 crisis and considers their impact on human-animal resilience. We will provide stories of the challenges that pet guardians faced during the COVID-

19 pandemic in their access to care for their pets. These stories, used as case studies, will be presented alongside quantitative surrender data to identify the impacts that these challenges have on animal welfare, human well-being, and their respective resilience capacities, with a focus on One Welfare.

Dr. Haorui Wu is the Canada Research Chair in Resilience, serving as an assistant professor in the Faculty of Health at Dalhousie University. With an interdisciplinary background (architecture, landscape architecture, regional and community planning, and social work), his community-based interdisciplinary research and emerging practice have nuancedly explored disaster-driven redevelopment of human and non-human settlements through the lens of environmental justice and social justice in the global context of climate change, disaster, and wilful acts of violence.

Ms. Amy Morris is the executive director of the Vancouver Humane Society and a graduate of the Masters of Public Policy program at Simon Fraser University. She is interested in the interplay between human and animal well-being and the impact of social systems on their collective resilience. She is particularly interested in public policy and internal policy within business and charitable organizations and their impact on animals.

# The early effects of Covid-19 on participants of an equine welfare programme in Cambodia

Nop, Rinda (1); Porleng, Van (2); Lee, Nat (3); Wild, Isabella (3);

(1) WORLD HORSE WELFARE (2) WORLD HORSE WELFARE REGIONAL COORDINATOR, KUALA LUMPUR, MALAYSIA (3) CAMBODIA PONY WELFARE ORGANIZATION, PHNOM PENH, CAMBODIA

## Keywords / Relevant Terms

COVID-19, Equine Welfare

## Abstract

Cambodia Pony Welfare Organization (CPWO) is an NGO with a mission of empowering communities in responsible animal ownership and a vision of a world where human welfare is realised through good animal welfare. CPWO works on a community level with people who rely on working ponies for their livelihoods. The aim of this study was to understand the impact of the COVID-19 pandemic on the working pony community in the areas in which CPWO works, as part of a wider global study with World Horse Welfare. A cross sectional study was developed, with a survey involving 38 predominantly closed questions translated into Khmer. The survey was carried out between November and December 2020 with individuals accessing CPWO support. There were 242 responses, with 91 surveys carried out face-to-face and 151 over telephone. The main findings were that compared to pre-pandemic levels, 71% (173/242) of ponies were working less, with 54% (131/241) reporting this was due to change in demand. Compared to pre-pandemic levels, 79% (190/242) reported that their income derived from their pony had decreased, with 76% (183/242) reporting that their total household income had decreased. The cost of upkeep of ponies was unchanged for 90% (218/242), with 64% (154/242) reporting that their household expenses also remained the same.

The survey demonstrated that ponies play an important role in human livelihoods, with most common types of work carried out by ponies at the time of survey completion being 35% (208/595) freight transport and 31% (182/595) crop transport. The health of ponies in the survey period was reportedly unchanged compared to prior to the pandemic for 71% (171/241), but 69% (166/242) reported their pony had increased in body condition. 75% (182/242) of participants were not aware of any support schemes available, with 60% (146/242) taking on extra jobs. However, almost 100% (239/242) had access to animal health support and mostly via CPWO. The survey highlighted that there was a lack of knowledge in these remote communities on support schemes and governmental support available to them. Pony welfare in the short term was impacted positively, but the long-term impact of decreased income and work available for their owners needs close monitoring, especially as the pandemic evolves with more movement restrictions enforced, with the possible knock-on effects on human and pony welfare. CPWO seeks to collaborate with humanitarian NGOs and local government to address the One Welfare issues highlighted in this survey.



# The dog and cat meat trade: a potential source for future pandemics

Kukreja, Karan (1); Munteanu, Alex (2);

(1) COMPANION ANIMALS DEPARTMENT, VIER PFOTEN INTERNATIONAL (2) SCIENCE UNIT, VIER PFOTEN INTERNATIONAL

## Keywords / Relevant Terms

Dog meat, cat meat, pandemic risk, live markets

## Abstract

An estimated 30 million dogs and cats are killed for meat consumption every year in Asia. To date, multiple cases of disease transmission and outbreaks in relation to DCMT have been documented in humans, including, cholera, trichinellosis, and rabies. Several rabies outbreaks in Asia were due to contact with infected material during the preparation of or consumption of dog and cat meat, rather than the typical route of transcutaneous infection due to bites or scratches.

DCMT has the disconcerting potential of facilitating (novel) disease emergence, transmission and outbreak as the steps involved in the trade lead to immunosuppressed individuals. Dogs and cats are captured, beaten, caged, transported over long distances, kept in tight spaces with conspecifics and other species of animals, deprived of food and water for days, and then brutally killed. Animals are “processed” with no regard to origin, hygiene, health or welfare considerations (see Figure 1).

A notable risk factor for disease emergence is represented by live animal markets. These pathogen network hubs are believed to have been the likely place of origin for the avian influenza outbreaks (e.g., Shanghai, 2013), of SARS-CoV (Guangdong, 2003) and of COVID-19 (Wuhan, 2019). Live animal markets reduce the distance between humans and a large and varied number of species of animals

including the dogs and cats from DCMT, enhancing the chance of pathogen transmission. Disease control endeavours are further hindered by the indiscriminate removal from free-roaming or owned populations of vaccinated animals, leaving both human and animal populations incapacitated to resist diseases such as rabies.

While critical, the risk to public health is not the only danger posed by DCMT. Opportunistic species such as rodents and insects may come in contact with refuse from slaughtered animals and further spread pathogens to farm or wild species of animals with heavy impact on biodiversity. Of further ecological concern is the unmanaged waste disposal that may further carry pathogens, polluting the environment.

Beyond the zoonotic threat, DCMT has a deep impact on psychological wellbeing. Pet theft, brutal handling and slaughtering can and do cause distress, revulsion and feeling of helplessness for both pet owners and witnesses, including children. The conditions of the DCMT are in contravention of key aspects and principles of the One Welfare Framework. DCMT not only completely disregards animal welfare but strongly affects public health, both physical and psychological, environmental stability, and biodiversity. There is but one solution: DCMT must end.

## SESSION 5 - SUSTAINABILITY: CONNECTIONS BETWEEN BIODIVERSITY, THE ENVIRONMENT, ANIMAL WELFARE & HUMAN WELLBEING



**SUSTAINABILITY:  
CONNECTIONS BETWEEN  
BIODIVERSITY, THE  
ENVIRONMENT, ANIMAL  
WELFARE AND HUMAN  
WELLBEING**

ONE WELFARE FRAMEWORK SECTION 5

THEME 5



#ONEWELFARE  
#OWW21

## SESSION 5 – CHAIR

### Débora Racciatti



Débora Racciatti graduated as Veterinarian by the School of Veterinary Sciences, University of Buenos Aires (UBA), Argentina. She then obtained the degrees of Specialist in University Teaching and Specialist in Animal Welfare, awarded by the same university. She is currently working on her doctoral thesis, studying the relationship between

animal welfare and stereotypic behaviors in wild felines under human care, within the framework of compassionate conservation. She is also in charge of the Animal Welfare Program of the National Agrifood Health and Quality Service (SENASA) of Argentina and is the National Focal Point for Animal Welfare for the World Organization for Animal Health (OIE). Additionally, she is a member of the Ad-hoc Group on Animal Welfare of the Permanent Veterinary Committee of Conosur (CVP), of the Wildlife Advisory Commission of SENASA and of the Committee of Experts of the Ente Municipal BioCórdoba.

In the academic field, she is Head of Practical Works at the Animal Welfare Department, School of Veterinary Sciences (UBA). In addition, she is a guest lecturer in undergraduate and graduate activities in several universities and institutions in Argentina, Ecuador, Mexico and Uruguay.

She defines herself as passionate about animal welfare and biodiversity conservation.



## SESSION 5 – KEYNOTE SPEAKERS

### **Black Mambas, South Africa** **– presented by Craig Spencer and Collete Goveni**



The Black Mambas Anti-Poaching Unit was founded in 2013 by Craig Spencer and Transfrontier Africa NPC to protect the Olifants West Region of Balule Nature Reserve. Within the first year of operation the Black Mambas were invited to expand into other regions and now protect all boundaries of the 62,000ha Balule Nature Reserve, part of the Greater Kruger National Park Area in South Africa. [1] The Black Mambas ranger unit started with only 6 young women and has grown into 36 women rangers. Since 2013 the Black Mamba rangers have been patrolling, collecting data, and removing snares totally unarmed in the Big Five area. Being unarmed is part of the ethos of the project as we think that putting the lives of non-human animals over humans are simply unethical.

The objectives of the Black Mamba project are not only the protection of rhinos through boots on the ground but also through being a role model in their communities. From the very beginning the project aimed to address two issues: rhino poaching and social and moral decay in their communities caused by false economy of wildlife poaching and illegal trade. Since the Black Mambas have been deployed, poaching incursions dropped by 62%, and bush meat poaching reduced by 99%. In communities The Black Mambas run The Bush Babies Environmental Education program which aims to educate younger generation about environment, the importance of protecting wildlife and the benefits of having wildlife alive and prosperous for the local communities and the country to have more sustainable life.

### **Biodiversity conservation and the impacts on animal, human and environmental wellbeing**

Spencer, Craig (1); Goveni, Collete (1);  
(1) *THE BLACK MAMBAS, SOUTH AFRICA*



## ORAL PRESENTATIONS

### One Welfare and the Post-2020 Global Biodiversity Framework

Jones, Mark (1); Lerambert, Adeline (1);  
(1) BORN FREE FOUNDATION

#### Keywords / Relevant Terms

CBD, biodiversity, environment, health, welfare, policy, pandemic

#### Abstract

The Post-2020 Global Biodiversity Framework (GBF), due to be adopted at the 15th Conference of the Parties to the UN Convention on Biological Diversity (CBD) in October 2021, will establish international policy for the protection and recovery of nature for the coming decades.

While the draft GBF includes health and well-being elements in a number of its targets, One Health isn't clearly and explicitly integrated. There is currently no reference to One Welfare, which offers broader strategic opportunities and solutions to address the common drivers of biodiversity loss and climate change. Wild animal welfare also needs to be prioritised as a crosscutting theme in the GBF in order to help prevent the emergence and spread of diseases. Crowding, stress and injury among wild animals provide the perfect environment for pathogens to spread and mutate, and their close proximity to people during capture, farming, transportation, butchering and trade creates many opportunities for disease transmission.

Target 4 of the draft GBF requires the international community to ensure that the harvesting, trade and use of wild species of fauna and flora is legal, at sustainable levels and safe. This target needs to better integrate the health and welfare dimensions associated with the exploitation of wildlife. Target 8, on sustainable management of wild species, and target 11, which focuses on human health and

well-being, need to integrate the linkages with animal health and welfare, and broader environmental health.

The 2019 UN Global Sustainable Development Report recognised that "Strong governance should safeguard the well-being of both wildlife and domesticated animals with rules on animal welfare embedded in transnational trade." The 2020 Dasgupta Review on the economics of biodiversity stated, in relation to preventing pandemics and unsustainable exploitation of wildlife, that "Improvements in the enforcement and regulation of wildlife conservation, animal welfare and public health regulations are also part of the solution."

Through the development of the GBF, the CBD has an unprecedented opportunity to initiate the transformative changes necessary to conserve and restore biodiversity, while also mitigating zoonotic disease risks and addressing other pressing global challenges. The current draft GBF needs to better integrate human and animal health and welfare.

This presentation will outline how the adoption of a One Welfare approach could address these deficits, while also integrating the intrinsic value of wildlife into international policy frameworks, and securing the roadmap to an equitable, sustainable and humane future.



# **Rescue and rehabilitation of wildlife during Australia's black summer bushfires – One Welfare outcomes**

Campbell-Ward, Michelle (1);

*(1) ANIMAL WELFARE UNIT, DEPARTMENT OF REGIONAL NSW, DUBBO, NEW SOUTH WALES AND TARONGA WESTERN PLAINS WILDLIFE HOSPITAL, TARONGA CONSERVATION SOCIETY AUSTRALIA*

## **Keywords / Relevant Terms**

wildlife, natural disasters, bushfires, climate change, rehabilitation, preparedness

## **Abstract**

The 2019/2020 Australian 'black summer' bushfires put the plight of wildlife and the realities of Anthropocene-related climate change on the international stage. In the often resource- and attention-poor field of wildlife rescue and rehabilitation, offers of financial and well-meaning practical help were abundant. As the world grappled with a sense of collective ecological grief, veterinarians and wildlife rescuers were placed under immense pressure to achieve positive outcomes with unprecedented levels of traditional and social media exposure. In reviewing the event, it is clear that the welfare of the community, the environment, and the reported 3 billion wild animals affected, were inextricably connected.

Research evaluating the key wildlife rescue and rehabilitation-related welfare outcomes of this natural disaster response have unearthed a suite of interesting results including some unintended animal welfare harms. The majority of these

were identified in animals taken into and managed in temporary captive care. The results of surveys of veterinary personnel and wildlife rehabilitators reveal the complexities of large-scale wildlife rehabilitation efforts, veterinary and animal care worker mental health and resilience, the influence of the media in disasters, compliance with established animal protection Codes of Practice, and inter-agency/stakeholder communication. Identified deficiencies in welfare assessment methods relevant to Australian wildlife, especially in light of significant destruction of suitable habitat, and the challenges of coordinating a voluntary workforce in trying conditions, provides a blueprint for future work.

Collaborative efforts are underway to incorporate these findings into regional and national natural disaster preparedness plans.

# The role and welfare of cart donkeys used in waste management and environmental protection in Karachi, Pakistan

Nawaz, Sher (1); Ali Shah, Syed Zahir (1); Nawaz, Zahid (1); Carder, Gemma (1); Ali, Manuchahar (1); Soomro, Naimatullah (1); Compston, Polly (2);  
(1) BROOKE (2) RVC

## Keywords / Relevant Terms

Working equid welfare, Pakistan, waste management, donkeys

## Abstract

As with many low and middle-income countries equine ownership is a common income-generating strategy in Pakistan. Management of municipal solid waste is often inefficient; approximately only 60% of solid waste is collected, resulting in uncollected rubbish gathering in the streets. In Karachi, donkey carts are used to transport building materials, commercial produce, and waste. To date the role of donkeys in waste management has received little attention. We therefore carried out a study which aimed to articulate the role and welfare of donkeys used in waste management. We conducted face to face semi-structured interviews with donkey owners (n = 200), households which use donkey carts (n = 50) and key informants (n = 14). Key informants included municipality people and contractors in the same business. In addition, we used focus group discussion with the community to draft methodology and transect walk. Inclusion criteria were donkey cart owners, who were 18 years of age or over. Descriptive statistics were used to analyse quantitative data. Qualitative data were assessed for saturation and thematically analysed.

We found that the collection of waste was the primary source of income for 89% of donkey owners interviewed; of those working in this business, 62% were under 18 years of age. Households reported removal of waste by donkey cart as their

preferred waste management option and 100% of them replied that there would be a huge garbage build-up if donkey carts became unavailable, which would have a huge environmental impact. On a daily basis each cart donkey (n = 255) transported on average (median) 1000 kg of non-recyclable and (median) 100 kg recyclable waste. We assessed the welfare of the donkeys using the Standardised Equine-Based Welfare Assessment Tool (SEBWAT). A number of welfare issues were documented, for example 78.4% had muzzle mutilations and 66.7% of donkeys had superficial knee lesions.

Results from the study show that cart donkeys and their owners play an important role in environmental protection and the donkeys often experience compromised welfare. Brooke Pakistan's advocacy and regional teams are engaging potential partners from both the public and private sectors to identify areas of mutual collaboration based on the research findings. Together, we aim to plan and design interventions on issues such as animal health and welfare, poverty alleviation, waste management, environmental safety, and access to water, sanitation and education.

See the full published paper here: <https://pubmed.ncbi.nlm.nih.gov/31013717/>

# A Multi-Disciplinary Approach to the Impact of Trace Metal Contamination from Derelict Lead Mines in Wales.

Sartorius, Andrea (1); Young, Scott (2); Bennett, Malcolm (3); Johnson, Matthew (4); Baiker, Kerstin (3); Edwards, Paul (5); Yon, Lisa (3);  
(1) UNIVERSITY OF NOTTINGHAM (2) SCHOOL OF BIOSCIENCES, UNIVERSITY OF NOTTINGHAM (3) SCHOOL OF VETERINARY MEDICINE AND SCIENCE, UNIVERSITY OF NOTTINGHAM  
(4) SCHOOL OF GEOGRAPHY, UNIVERSITY OF NOTTINGHAM, NOTTINGHAM (5) NATURAL RESOURCES WALES

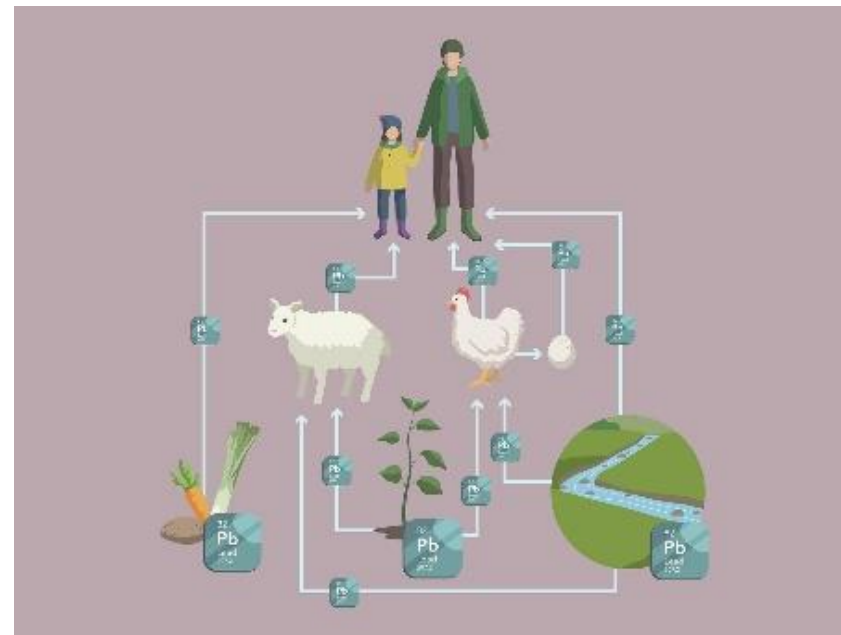
## Keywords / Relevant Terms

Trace Metals, Contamination, Legacy Pollutants

## Abstract

Trace metals (TMs) are naturally occurring elements that can have a large range of negative effects on plant and animal life at low concentrations. During mining activities, TMs extracted from the Earth's crust accumulate to high concentrations. These TMs can then transfer through the environment to wildlife, domestic animals, and humans. As TMs do not degrade, they can remain in the environment centuries after a mine site has closed. In this study, we aimed to (i) determine the distribution of TMs (lead, cadmium, zinc, and copper) at two sites in Wales impacted by historical lead mining activities, (ii) understand the resulting impact on environmental, animal, and human wellbeing.

We found that TMs were dispersed beyond the mine sites, and were present in water, sediment, and soil of surrounding areas at concentrations that exceeded established safety thresholds by up to three orders of magnitude. TMs were also found in high concentrations in plants, invertebrates, and vertebrates. In particular, wood mice (*Apodemus sylvaticus*) collected at contaminated sites had significantly higher tissue lead concentrations than wood mice from control sites. Domestic animals living downstream of mines also contained elevated tissue lead concentrations, indicative of toxicity, and had experienced a variety of negative effects linked to lead exposure, reducing their quality of life, and, in extreme cases, resulting in their deaths. We further identified potential routes for human exposure through the consumption of lead-contaminated vegetables and eggs produced at properties near mine sites. This project is ongoing, and further potential impacts on vertebrates are currently being investigated. We are also working to inform the public about the potential risks of TM contamination on environmental, animal, and human wellbeing.



## OWSM SESSIONS

### **Animal Disaster Response using One Welfare Solutions - Case studies: Hurricane Sandy, Joplin Tornado and COVID-19**

Grundahl, Michelle (1);  
(1) *GEORGE MASON UNIVERSITY, VIRGINIA*

#### **Keywords / Relevant Terms**

Animal disaster response, one welfare, emergency response for companion animals, one health

#### **Abstract**

The lived experiences of implementing One Welfare during emergency response involving companion animals is discussed using three cases (Hurricane Sandy, Joplin Tornado and COVID-19). One Welfare is highlighted as practical a solution to achieve optimal human and animal well-being. The key theme is the human-animal bond as it relates to human-animal safety and well-being during disasters. Discussed are the physical safety and mental comfort of pets and people during disaster; this is proposed as optimal welfare. The cases will review methods used for One Welfare in action. Hurricane Katrina is referenced as baseline/

background. The discussion includes specific tactics implemented that resulted in positive outcomes for people and their pets (mass sheltering, mass feeding efforts, etc.). The result of this approach shows that the human-animal bond can affect compliance with official emergency orders. The conclusion of this discussion compares the outcomes of these cases to the anticipated/acute effects of the disaster. When pets and people are safe together during (and after) a disaster, it leads to optimal well-being for all.

# One Welfare: Increasing community involvement and actions - a case study from Kenya

Opere, Samantha (1); Njoroge, Purity (2); Mwit, Martin (1); Kavata, Laura (3); Rono, Desmond (3);  
(1) KENYA NETWORK FOR DISSEMINATION OF AGRICULTURAL TECHNOLOGIES (KENDAT) (2) FARMING SYSTEMS KENYA (FSK) (3) BROOKE

## Keywords / Relevant Terms

One Welfare, Donkeys, Animal Welfare, Conservation, Antimicrobial Resistance

## Abstract

The One Welfare concept provides a more holistic approach with regard to the link between human wellbeing, animal welfare and the environment. Donkey owning communities living near Kenyan forests provide real life examples of this link.

Brooke East Africa through its partners have been working with six donkey owning communities living near Kenyan forests in Nyandarua and Nakuru counties since 2013. The groups have a combined total of 600 donkeys owned by 557 members. Initially, the engagement mainly focused on providing training to members on feeding, watering, sheltering, and handling of donkeys while at work.

As rainfall became more irregular and water sources dwindled, donkey owners noted that it was becoming more challenging to meet their donkeys' basic welfare needs. Their donkeys' body condition began to deteriorate, and they increasingly became unable to transport goods as expected.

The owners therefore partnered with the Kenya Forest Service in conservation activities which aim to increase Kenyan forest cover by 10% by 2022. Under this arrangement, communities are allocated 1 - 2 acres of land on which they are tasked to set up nurseries for indigenous and exotic tree seedlings. They are allowed to graze their donkeys in certain sections of the forest or grow fodder crops

to feed their donkeys. Furthermore, they are permitted to farm within the forest for a period of two years.

The groups have grown over 3 million indigenous and exotic seedlings. Of these, the groups have planted over 1 million trees with an 85% survival rate. The groups also sell the seedlings at KES 50 for indigenous trees and KES 20 for exotic trees. The income generated from the sale of seedlings is set aside for group investment projects and veterinary care for the donkeys. As a result, donkeys are now able to receive services of qualified practitioners who are keen on minimizing the risk of antimicrobial resistance.

For One Welfare to be effective, professionals need to support communities to understand the interconnection between their wellbeing, animal welfare and the environment and identify positive traditional practices which are applicable in ensuring adoption of One Welfare approaches.

## Reference

Matere, J., Simpkin, P., Angerer, J., Olesambu, E., Ramasamy, S. and Fasina, F., 2020. Predictive Livestock Early Warning System (PLEWS): Monitoring forage condition and implications for animal production in Kenya. *Weather and Climate Extremes*, 27, p.100209.

# Learning from the Belgium (Walloon) experience, challenges to include and implement a OW policy in reptile-keeping

Diederich, Claire (1);  
(1) UNIVERSITÉ DE NAMUR

## Keywords / Relevant Terms

animal protection, legislation, guidelines of possession, one welfare

## Abstract

The keeping of 'exotic' pets in people's homes is an essential problem to address within the OW framework. Establishing a legal framework for their acquisition and ownership is a possible mechanism to control and minimize the problems arising from them.

To reach this objective, a dedicated working group of the Walloon Animal Welfare Council (WAWC) established a procedure to set up a positive list of reptiles to be owned by naïve people. Eleven thousand of reptile species (taxonomy: <http://www.reptile-database.org>) were analysed according to 3 inclusion criteria: easiness of housing, safe for human handling, sufficient documentation available.

Only a reduced number of species were selected (N=232), after a second instance of selection on the protection of endangered species (via stud-books), the ability to be fed with dead animals, a compulsory environmental license, animals born and bred in captivity only (from abroad too). The periodic monitoring of the list's suitability with the field reality and the progress of Science is also foreseen.

The report of this working group was presented to the WAWC that transformed it into an Advice (21st of April 2017). This positive list of reptiles served to prepare a decree that was adopted by the Walloon Government the 10th of December 2020 and entered into force in February 2021.

Currently, an appeal has been lodged with the Belgian Council of State concerning this decree, following an appeal by a reptile farmer/shopkeeper who believes his business is in danger. The Council of State is an administrative court whose functions are, on the one hand, to deal with appeals against administrative acts emanating from the administrative authorities and, on the other hand, to exercise an advisory mission for the Belgian governments (federal, regional and community) in legislative and regulatory matters. As long as the Council of State has not given its opinion, the decree remains in force.

This situation shows how the establishment of animal welfare standards (positive list) and its transposition into effective legislation is a slow and tedious process, especially as in a country with three animal welfare councils (one per region). Each council expresses different sensitivities (different positive lists) and each region has legislative independence on animal welfare.

At the level of a (small) country, this situation illustrates the global difficulty of establishing a 'One Welfare' concept: to protect animals and the environment, along with human's professional activity.



## One Welfare for the Andean Bear: perspectives from Colombia

Arias-Bernal, Leonardo (1); Vela-Vargas, I. Mauricio (2); Rodríguez-Álvarez, Catalina (3);

(1) SEMILLERO DE BIENESTAR ANIMAL, PROGRAMA DE BIOLOGÍA UNIVERSIDAD EL BOSQUE. GRUPO DE ESTUDIO DE FAUNA SILVESTRE UNIAGRARIA, FACULTAD DE MEDICINA VETERINARIA. BOGOTÁ

(2) WCS COLOMBIA, BOGOTÁ. THE UNIVERSITY OF ARIZONA, TUCSON, ARIZONA. (3) BIOPARQUE WAKATÁ, TOCANCIPÁ.

### Keywords / Relevant Terms

Andean Bear, One Welfare, Conservation, Biodiversity, Chingaza

### Abstract

Chingaza National Natural protected (Ch-NNP) area is located less than 100 km from Bogotá, the biggest city of Colombia. Ch-NNP is a priority area for conservation of highland Andean ecosystems and Andean Bear (*Tremarctos ornatus*) populations in the country. However, Ch-NNP Andean Bear populations face different threats such as loss of natural habitats and fragmentation due to human activities (agriculture and livestock) and interaction of wildlife with domestic and feral species, generating risk to the different wildlife species' health. Due to loss of natural habitats human - bear negative interactions increased, leading to an unbalance on the interphase animal - human - ecosystem with no knowledge about the consequences to the welfare of Andean Bear populations in the Ch-NNP. In order to evaluate this, new studies about spatial ecology of the species have

been performed, allowing to know movement behaviours and home range of the species and new environmental education programs have been implemented with rural communities for increase the knowledge of local people about the ecological dynamics that Andean Bears are involved and changing the negative attitudes towards the species. Is necessary to research the interactions and dynamics of diseases of domestic species, feral dogs and Andean bears, given that in ex-situ conditions a virus had been identified in wild individuals, without confirmation where the virus was acquired. Finally, it is necessary to establish a monitoring program for the species, in order to generate new tools for management, conservation and welfare of Andean Bears in the Ch-NNP.



SESSION 6 - ASSISTED INTERVENTIONS  
INVOLVING ANIMALS, HUMANS AND THE ENVIRONMENT



# ASSISTED INTERVENTIONS INVOLVING ANIMALS, HUMANS AND THE ENVIRONMENT

ONE WELFARE FRAMEWORK SECTION 4

THEME 4



#ONEWELFARE  
#OWW21

## SESSION 6 – CHAIR

### Rosana Movellan



Rosana is member of the Spanish National Veterinary Corps and currently works as Counsellor for Agriculture, Fisheries and Food in the United Kingdom and also accredited to the authorities of the Republic of Ireland. She carries out advisory and bilateral collaboration activities with the Departments of her competence and

analyses information on agriculture, fisheries, food and the environment policies.

It supports and promotes initiatives that help share and promote best practices in the agriculture and livestock sector to address common challenges, including measures in the field of animal welfare.



## SESSION 6 – KEYNOTE SPEAKER

### Pat Turner



Patricia Turner is Corporate Vice-President, Global Animal Welfare for Charles River and oversees global policy and training in animal welfare and behaviour. She is also Professor Emerita at the University of Guelph, where she worked as a professor and program leader of laboratory animal science and her lab conducted research evaluating the impact of environment on affective behaviour and disease susceptibility, infectious diseases and the gut microbiome of research animals, and research animal anaesthesia, analgesia, and euthanasia, including humane methods of on-farm euthanasia of meat rabbits, poultry, and pigs. She completed a BSc (McMaster University) and an MSc (Dalhousie University), prior to a DVM degree (Ontario Veterinary College). After two years of mixed mostly food animal practice, Turner returned to the University of Guelph for a Doctorate in Veterinary Sciences (Comparative Pathology). Following post-doctoral work at McGill University, she worked as Director of Animal Care Services and Asst Professor, Pathology at Queen's University. She later worked for Pfizer as a toxicologist in preclinical safety testing. Turner is a Diplomate of the American College of Laboratory Animal Medicine, the American Board of Toxicology, and the European College of Animal Welfare and Behavioural Medicine and is President-Elect of the World Veterinary Association.

### One Welfare in the context of Laboratory Animals

Turner, Pat (1);

(1) ONE WELFARE PHOENIX BOARD

## ORAL PRESENTATIONS

### National Guidelines for Animal Assisted Interventions in Italy: One Welfare applied to legislation

Galardi, Morgana (1); Filugelli, Lorena (1); De Santis, Marta (1); Contalbrigo, Laura (1);

(1) NATIONAL REFERENCE CENTRE FOR ANIMAL ASSISTED INTERVENTIONS, ISTITUTO ZOOPROFILATTICO SPERIMENTALE DELLE VENEZIE, LEGNARO (PADOVA)

#### Keywords / Relevant Terms

Animal Assisted Interventions, legislation, One Welfare

#### Abstract

Italian Guidelines for Animal Assisted Interventions (AAI) were established in 2015 to regulate these practices, which have spread in Italy over the last twenty years. They were developed by the Italian Ministry of Health. Unlike other European Countries, in Italy, the Ministry of Health has in charge of both human and veterinary medicine applying a One Health approach at the institutional level.

Our Guidelines for AAI have a theoretical framework based on 5 pillars: a) application of the bio-psycho-social model; b) application of the diamond model on the setting, with a multidisciplinary approach; c) animal welfare as a key issue for the quality of AAI programs; d) standardized training programs for AAI staff; e) strong ethical framework in AAI program design addressed to a holistic take-charge of the patient/user.

Our pillars come under the larger umbrella of the One Welfare Framework, highlighting the need to ensure a taking-care approach, addressed to the patient/users and the animals through a multidisciplinary vision. Professionals with

specific qualifications and training collaborate to achieve the established goal of the AAI program, in a setting that must meet specific requirements to be recognized as appropriate for the intervention.

Italian Guidelines provide an instrument to the Italian Institution to guarantee animals' welfare as well as users' safety during AAI. According to this issue, the accurate assessment and selection of animals involved are crucial. A veterinarian with expertise in AAI is responsible for the health and behavioural examination and monitoring of the animals involved, pushing providers to a positive welfare vision that goes beyond the Five Freedoms by considering animals' attitude and motivation to co-operate with humans. Furthermore, the attention to the framework of the interventions from the environmental and social point of view completes the picture, endorsing a virtuous circle that spreads from AAI to the society thanks to a holistic way of thinking and taking-care of the other (animals, humans, or the environment).

## Proactive program to support emotional engagement, resiliency, and compassion satisfaction in research animal caregivers

Murray, Judy (1); Turner, Patricia V. (1); Beall, Rachel (1); Foster, Andy (2); Abney, Dawn (3);

Bauer, Cassondra (4); Vilminot, Nicole (2); Brunette, Chantal (5); Dhondt, Kevin (6);

(1) GLOBAL ANIMAL WELFARE AND TRAINING, CHARLES RIVER LABORATORIES, WILMINGTON, MA (2) VETERINARY SERVICES, CHARLES RIVER LABORATORIES, MATTAWAN, MI

(3) LAM BEHAVIORAL MANAGEMENT, CHARLES RIVER LABORATORIES, RENO, NV (4) LABORATORY ANIMAL MEDICINE, CHARLES RIVER LABORATORIES, ASHLAND, OH

(5) INVIVO MGMT TECH OPS FT, CHARLES RIVER LABORATORIES, SENNEVILLE, QC (6) DIR SCIENTIFIQUE / VPS, CHARLES RIVER, LYON

### Keywords / Relevant Terms

Resilience, Welfare, Compassion Fatigue, Compassion Satisfaction

### Abstract

Recent cross-sectional studies within Laboratory Animal Medicine have reinforced the need for proactive approaches to address the compassion stress and fatigue that is experienced by those caring for research animals whose health is compromised or may need to be euthanatized as part of the study. The well-being of the caregiver is a One Welfare issue, as their mental health and engagement with their co-workers and the animals has a positive impact on their level of resilience and compassion satisfaction. To address the effects of compassion stress and fatigue and increase resiliency, we developed and implemented an impactful corporate program to meet the needs of personnel across multiple sites and geographies. To measure the level of awareness of the program and issues surrounding compassion fatigue and resiliency among employees, we administered

a post training survey to >7000 learners following annual animal welfare training. The results show increased awareness of compassion fatigue, identification of healthy coping mechanisms, and increased awareness of the corporate program of supports to build resiliency. Through multiple training programs, training surveys, and anecdotal feedback we have demonstrated the impact of the program across sites and countries in which facilities exist. We are seeing continued interest in training opportunities and efforts to help support employee well-being through raising awareness of compassion stress and fatigue and ways to support resiliency and enhance personnel engagement. Nurturing ways for personnel to find satisfaction in their work in these ways contributes to enhanced mental wellness and a deep appreciation and care for the animals we work with.

# Applying a One Welfare paradigm to a novel Animal Assisted Therapy program partnering shelter dogs and survivors of sexual trauma

Hopfensperger, M (1); Naud, J (2); Bucilli, J (1); Spedoske, M (1); Fedewa, T (3); Jacobs, J (2);

(1) MICHIGAN STATE UNIVERSITY COLLEGE OF VETERINARY MEDICINE (2) MICHIGAN STATE UNIVERSITY DEPARTMENT OF ANIMAL SCIENCE (3) MICHIGAN STATE UNIVERSITY CENTER FOR SURVIVORS

## Keywords / Relevant Terms

One Welfare, Animal Assisted Therapy (AAT), sexual trauma, canine / dogs

## Abstract

Survivors of sexual trauma experience greater risks for depression, anxiety, substance abuse, post-traumatic stress disorder (PTSD), and suicide (Campbell et al, 2009). Animal Assisted Therapy (AAT) has been successfully incorporated into sexual trauma treatment with a reported decrease in associated symptoms (Dietz et al., 2012). AAT applies the human-animal bond in a goal-directed manner under the guidance of a healthcare provider; adding canines to the therapeutic context may improve help-seeking behaviour and further the therapeutic alliance between survivors and therapists (Fine, 2019). Working with shelter dogs in particular may lead to improved outcomes for humans, as trauma survivors may empathize with the shelter dogs' perceived historical trauma (Mornement et al, 2012) while the dogs may experience enrichment and stress reduction (Coppola et al, 2006). There is limited information about selecting shelter dogs to ensure a mutually beneficial experience; therefore, the aim of this study was to evaluate if behavioural assessments can identify shelter dogs that work well and have positive experiences during AAT. Researchers developed a list of candidate attributes, such as high levels of resilience, impulse control, social plasticity, frustration tolerance, cognitive flexibility, and empathy, which may predict a dog's suitability for and comfort with AAT. A series of previously reported and validated behavioural assessments were

utilized to infer the candidate attributes. To confirm candidate attributes as beneficial to One Welfare AAT programming, we recruited individuals to participate in two sessions of simulated AAT. Pre- and post-sessions, human participants completed a variety of validated psychometric scales measuring human-animal bond and self-reported mood and stress levels. To evaluate canine welfare, salivary oxytocin and heart rate variability were collected. In addition, a validated scale was utilized to report observed behaviours in the dogs. Data analysis is currently ongoing to determine which attributes were most predictive of partnerships that yielded positive experiences for both human and canine participants. Preliminary results suggest that most canine participants had positive experiences, as measured by the dogs accepting food (93.2%), initiating interaction with student participants (97.7%), and responding to training (95.4%). For human participants, there was a significant improvement of mood ( $t = -4.5155$ ,  $p < 0.0001$ ) and decrease in stress ( $t = -6.0657$ ,  $p < 0.0001$ ) post-AAT. Participants reported the experience to be either very positive (84.1%) or somewhat positive (15.9%) overall. Future research will measure both human and shelter dog outcomes during a six-session AAT program for survivors of sexual trauma.

# **The Controlled Trial of CARing Kids: Animal Assisted Humane Education on Social Emotional Development on Primary Students**

Ngai, Joe, Tsz Kin (1); Chau, Kathy K. Y. (1); Lee, Jean C.Y. (1); Yu, Rose W.M (1); Wong, Paul W.C. (1);  
(1) DEPARTMENT OF SOCIAL WORK AND SOCIAL ADMINISTRATION, THE UNIVERSITY OF HONG KONG, POKFULAM, HONG KONG SAR

## **Keywords / Relevant Terms**

Animal Assisted Education, Humane Education, Social Emotional Learning, Canine Companion Reading

## **Abstract**

The World Health Organization indicated that Urbanization would be a global challenge for the coming three decades. As a result, our next generation's natural environment, society structure, and mental and physical health would be deeply impacted. For the fast-changing, stressful, and demanding environment and society, an animal-assisted humane education programme named Competence in Active Resilience for Kids (The CARing Kids) was developed to equip children with social, emotional competence, and pro-animal attitudes. The CARing Kids is a six-session curriculum that included Humane Education, Social-Emotional Learning and Animal Assisted Education, featuring interactive learning activities and the canine companion reading of humane literature. This presentation would describe the design, theoretical framework, preliminary impact, and mechanism of the CARing Kids.

A pilot sequential mixed-method controlled trial was implemented with 50 primary three students. A primary school in Hong Kong were selected. The two classes of grade 3 students (Age ranged 8 to 10) were randomly assisted into the subject

and control group. The subject group (n=25) received the CARing Kids programme, and the control group (n=25) received the formal life education programme. The participants in CARing Kids significantly reduced hyperactivity ( $t = -2.04$ ,  $p = .03$ ) and enhanced empathy ( $t = 2.90$ ,  $p < .01$ ) while no significant change for the control group was obtained.

Furthermore, the repeated measure ANOVA revealed that participants had reduced emotional problems compared to the control group who received formal life education ( $F = 5.44$ ,  $p = .02$ ). Echoing with quantitative analysis, the follow up qualitative evaluation suggested improved self-control, humane attitude and emotional regulation after joining the CARing Kids. Thus, the preliminary results suggested that the CARing Kids might cultivate empathy and improved emotional regulation. Nonetheless, vigorous systematic formative evaluation should be included in future follow-up studies to ensure sustainability and fidelity.





# Animal-assisted Education (AAE) for Primary School Children in the Time of COVID-19

Chau, Kathy K. Y. (1); Ngai, Joe, T. K. (1); Lee, C. Y. (1); Yu, Rose, W. M. (1); Wong, Paul, W. C. (1);

(1) DEPARTMENT OF SOCIAL WORK AND SOCIAL ADMINISTRATION, THE UNIVERSITY OF HONG KONG

## Keywords / Relevant Terms

Animal-assisted education, Humane education, Service canine, Canine companion reading, One welfare, COVID-19

## Abstract

The outbreak of coronavirus disease 2019 (COVID-19) disrupted our regular but significant social life with adverse effect on our mental well-being. This presentation describes the development of an online alternative to an Animal-assisted education (AAE) programme in Hong Kong called Competence in Active Resilience for Kids curriculum (CARing Kids), which aimed at teaching primary school students humane and social-emotional learning over 6 sessions.

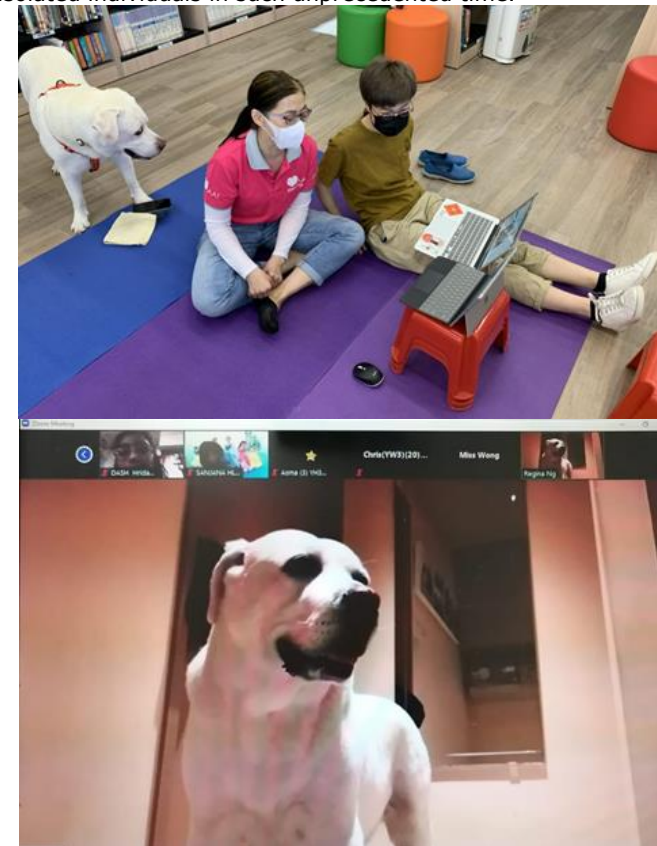
To continue the programme with minimal interruption, CARing Kids was converted to online learning with some changes, e.g. (1) self-developed storybooks were converted into e-books, (2) handlers of reading canines were asked to pre-record videos showing their canines' recent activities, (3) using reading canines' photos to create videos and teach students how to maintain personal hygiene and healthy lifestyle amid the pandemic. At the end of each online session, sufficient time was given for students to chat with handlers and understand more about the reading canines.

Several challenges were found in online over face-to-face CARings Kids programme; for example, students with lower socioeconomic status often lacked electronic devices that enable mutual interaction, and certain activities such as patting and brushing the canines could not be performed in online AAE. Yet, online AAE is no longer contained in classroom settings and could be more engaging to participants from a systemic perspective. During school suspension, participants' family members were often in the same home setting with the participants, which facilitated discussion about humane education and animal welfare with the students. Besides, online AAE often took place with the reading canines either at home or at school without students around, which not only kept their stress level at minimum level, but also ensured both parties' safety by maintaining social distancing.

The preliminary results showed that the intervention group (who received 6-session online AAE) reported a significant reduction in emotional problems,  $t(34) = -3.88$ ,  $p < .01$ . Although there was main effect of time on participants' hyperactivity,  $F[1,65] = 7.20$ ,  $p < .01$ , only control group had significant increase over time,  $t(31) = 2.88$ ,  $p < .01$ . The results indicated that both groups of students were adapting to new lifestyle during the pandemic, yet the programme helped the intervention group better navigate uncertainty.

Although online AAE is not as ideal as the face-to-face programme for teaching children humane and social-emotional learning, it is an alternative that ensures the

safety of participating students and reading canines (as well as their handlers) and engages isolated individuals in such unprecedented time.



## AWARD CEREMONY SESSION – CHAIR

### Angela Baysinger



Angela Baysinger, DVM, MS, is the Animal Welfare Lead, North American Operations, for Merck Animal Health. In this role, Dr. Baysinger is responsible for developing and verifying science-based welfare standards within Merck Animal Health. Dr. Baysinger works with food animal industry groups and producers to provide and explain the science of livestock, poultry, and aquaculture care and well-being. Additionally, she liaises with Food Service and

Retail organizations to advise them on animal care science, husbandry, and welfare.

Dr. Baysinger received her DVM from the University of Missouri and a Masters in Epidemiology from the University of Nebraska. She currently pursues Board certification in Animal Welfare through the American College of Animal Welfare (ACAW), an American Veterinary Medical Association (AVMA) recognized veterinary specialty.

A strong advocate for animal welfare, Dr. Baysinger has focused throughout her career on the science and welfare of food animals. From private large animal veterinary practice in Nebraska, she worked extensively with cow-calf, feedlot, and swine farms. She had oversight of animal welfare and on-farm program development at Farmland Foods/Smithfield. She has served twice as the Chair of the Board of the Professional Animal Auditor Certification Organization (PAACO). Dr. Baysinger is an active member of the American Veterinary Medical Association (AVMA), American Association of Swine Veterinarians (AASV), American Association of Bovine Practitioners (AABP), International Society for Applied Ethology (ISAE), International Poultry Welfare Alliance (IPWA), Global Roundtable for Sustainable Beef (GRSB) and many Animal Welfare Committees.

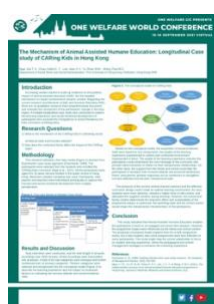
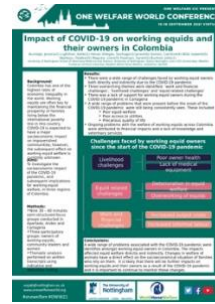
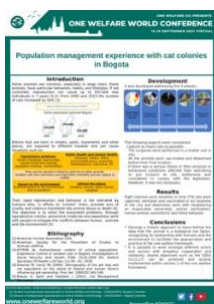
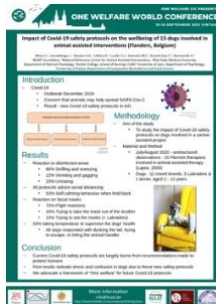
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# POSTERS





## Control of animal populations Experience "Control outdoor cats in Bogotá"

Estepa Becerra, Jose Alexander (1); Cajiao Pachón, Maria Nelly (2);

(1) STUDENT OF POSTGRADUATE SPECIALIZATION IN ANIMAL WELFARE AND ETHOLOGY - UNIAGRARIA- BOGOTÁ COLOMBIA

(2) DIRECTOR OF POSTGRADUATE SPECIALIZATION IN ANIMAL WELFARE AND ETHOLOGY - UNIAGRARIA - BOGOTÁ COLOMBIA

### Keywords / Relevant Terms

Animal welfare, cats, zoonoses, veterinary public health

### Abstract

Animal welfare as a matter of public and political interest includes scientific, ethical, economic, political and commercial aspects. Being multifaceted and complex, application is based on replicable and objective practices.

This document presents the work between a citizen group and the Health Secretary. The objective was to solve problems associated with the presence of outdoor cat colonies in Bogotá (Colombia) through reproductive control and sensitization of people about responsible ownership, animal sterilization, human-animal coexistence and feline behavior, since their accelerated reproduction and behavior is not easily tolerated by humans who, seeking to "control" them, provoke cruel and violent acts translated into abuse or animal death and coexistence conflicts.

The experience published in 2018 (Estepa, 2018), in addition to being replicable, illustrates the work between different actors and sectors; as a result, eight colonies were assisted (one located in a home for street dwellers) in total 278 captured cats, sterilized and vaccinated in six locations of the city, contributing to Sustainability Development Goals (SDGs) 3, 11 and 17.

It applies to the One Welfare framework by considering how animals, humans, society and the environment are interrelated and interact, especially in sections such as: "connections between abuse and neglect of animals and humans"; "social implications of improving animal welfare" or "interaction between animals, people and the environment"; the second being the most relevant, given that applying principles of animal property, welfare and health, awareness of care and respect for living beings is raised, compassion, a pillar of humanitarian education, is stimulated.

As conclusions, the need to incorporate animal welfare as a fundamental element to promote health -public, animal and environmental- and prevent diseases is highlighted, advancing in the appropriation and application of One Welfare, under an interdisciplinary and intersectoral work.

\* ESTEPA JA, "Humanitarian control of animal populations. Experience Control of outdoor cats in Bogotá". In: Colombia Investigations In Social Security And Health ISSN: 0124-1699 Ed: District Secretary Of Health v.20 fasc.2 p.56 - 61, 2018. Available:

<http://app.saludcapital.gov.co/revistadigital/Administracion/BuscarArticulo.aspx>





## Population management experiences with cat colonies in Bogota (Theme 2)



ONE WELFARE CIC PRESENTS

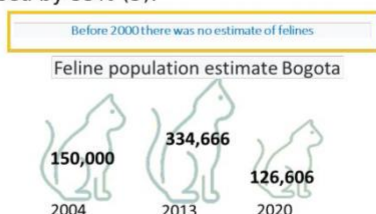
ONE WELFARE WORLD CONFERENCE

15-16 SEPTEMBER 2021 VIRTUAL

### Population management experience with cat colonies in Bogota

#### Introduction

Feline colonies are common, especially in large cities; these animals, have particular behaviors, habits, and lifestyles. If not controlled, reproduction can cause up to 507,000 new individuals in 7 years (1,2). From 2005 and 2013 the number of cats increased by 55% (3).



Kittens that are born in streets, parks, basements and other places, are exposed to different hazards and can cause situations such as:

<b>Coexistence problems</b> Smells (marking), food scraps, meows (heat and mating), squabbles (mating - territoriality)	<b>Public Health and Animal Health</b> Diseases: Rabies, Feline Immunodeficiency, Leukemia, Panleukopenia, Calicivirus, PIF
They can be injured or killed by vehicles or other animals Outdoor cats face starvation and high kitten mortality and are subject to cruelty	
<b>Impact on the environment</b> Eventual impact on the environment due to predation	<b>witness the places</b> Gardens, schools, foster homes, hospitals

Their rapid reproduction and behavior is not tolerated by humans who, in efforts to "control" them, provoke acts of cruelty and violence translated into animal abuse or death (4). The objective is to solve the associated problems, through reproductive control, preventive medicine and awareness work with people to mitigate the conflicts between human, animals and the environment (5)

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#### Development

It was developed addressing five 5 phases:



The following aspects were considered:

- Capture as many cats as possible.
- The surgeries were performed in a mobile unit in situ.
- All the animals were vaccinated and dewormed before their final location.
- If there was a serious illness or their physical or behavioral conditions affected their well-being or put humans at risk, euthanasia was considered to comply with the legislation. However, it was not necessary.

#### Results

Eight colonies were assisted, in total 278 cats were captured, sterilized and vaccinated in six locations of the city and Awareness work with neighboring on responsible ownership, animal sterilization, human-animal coexistence and feline behavior.

#### Conclusions

- ✓ Develop a holistic approach to leave behind the idea that the animal is a biological risk factor, recognizing its relationship with humans and the environment to facilitate the appropriation and practice of the one welfare framework.
- ✓ It is possible to work amongst different actors and sectors with empathy, cooperation and solidarity; shared objectives such as the SDGs (3,11,17) can be achieved and actions implemented within section 2 of the one welfare framework.

ESTEPA BECERRA, JOSE ALEXANDER(1); CAJIAO PACHÓN, MARIA NELLY(2);

(1) Student of postgraduate specialization in Animal Welfare and Ethology - UNIAGRARIA- Bogotá Colombia

(2) Director of postgraduate specialization in Animal Welfare and Ethology - UNIAGRARIA - Bogotá Colombia

[www.onewelfareworld.org](http://www.onewelfareworld.org)

#onewelfare #OWW21



# Hunters' Perception of their activity and socio-relational environment in Catalunya, Spain

Vigo Cerqueda, Tatiana (1);  
(1) UNIVERSITAT DE BARCELONA

## Keywords / Relevant Terms

Legal hunting, hunters, green criminology, qualitative methodology, motivation to hunt

## Abstract

The present work focuses on legal hunting, as a part of green criminology. Green criminology is a branch of criminology that involves the study of harms and crimes against the environment broadly conceived, including animals. Especially, the main goal of the project is to learn and understand how hunters perceive their activity and its social environment, using a qualitative methodology. The sample consisted of 19 participants, chosen by criterion of proximity to the author and snowball sampling in 2021. The instruments used are the Hunting Interview and Hunting Survey created ad hoc. The data analyzed using Atlas.ti 8 identified 7 main thematic axes: motivation to hunt; types of hunters; environmental management;

legal; influence of external stimuli to hunt; society and means of hunting. The results showed family plays a crucial role in the initiation to hunting and its continuation, as does the company while hunting. Likewise, it was observed how the hunters' accounts of belonging to their own group and about other hunters who hunt incorrectly allow for a first approach to their personal motivations. The findings showed similarities with the hunter typologies elaborated by Kheel, (1996) and Metcalf et al., (2015), in addition to a high degree of correlation with the study by Fischer et al. (2013) regarding the justifications for hunting. The meetings limitations and movement restrictions due to Covid-19 are noteworthy.

# Hunter's perception of their activity and socio-relational environment in Catalunya (Theme 2)



## HUNTERS' PERCEPTION OF THEIR ACTIVITY AND SOCIO-RELATIONAL ENVIRONMENT IN CATALUNYA

TATIANA VIGO; ALBA COMPANYY; MIGUEL ÁNGEL SORIA



### 1. INTRODUCTION

Hunting is a frequent activity in Spain, although in recent years the population that practices this activity has suffered a great decline since in Catalonia in 2016 there were 42,087 participants while in 2019 there were only 35,112 (IDESCAT, 2020). At the legislative level there are different types of regulations, criminal and administrative, and also of an international, state and regional nature.

With a more profiling bent, the theoretical framework focused on the two classifications of hunter typologies created by Kheel (1996) and by Metcalf, Graefe, Tauntvein and Burns (2015).

Then it was observed that many scientific approaches were given from a more sociological or philosophical point of view, so the approach changed to investigate a little more about morality, the existing justifications when hunting and the legitimacy of this activity. Also entering into some points such as hunting as a sport, the language of justification, machismo in hunting and auxiliary animals in hunting.

### 2. METHOD

#### Sample:

In total, there were 19 participants, 9 from the interview and 10 from the survey. The majority of participants were male, while only 3 women were able to participate. The age range goes from 20 years to 68. Regarding marital status, half of the sample had a partner. The occupations were very varied and none stood out above the others. The most common level of studies were the FP (formación profesional). Finally, they were also asked if the municipality in which they hunted was different from the one of residence, observing that half of the sample shared the municipality of residence with that of hunting.

#### Instrument:

The methodology used is qualitative, based first on the creation of a group hunting interview.

Due to mobility and meeting restrictions derived from covid-19, the interview was adapted to a questionnaire that could be answered individually and online in order to facilitate its completion in the event that the interview could not be carried out. Prior to conducting the survey / interview, the participants signed a consent form for the use of the data they provided, informing them that they would be recorded and the data collected would be anonymized.

#### Procedure:

First, the sample of both the interview and the survey was selected. The first, by means of a proximity criterion to facilitate to carry it out; for the second, snowball sampling.

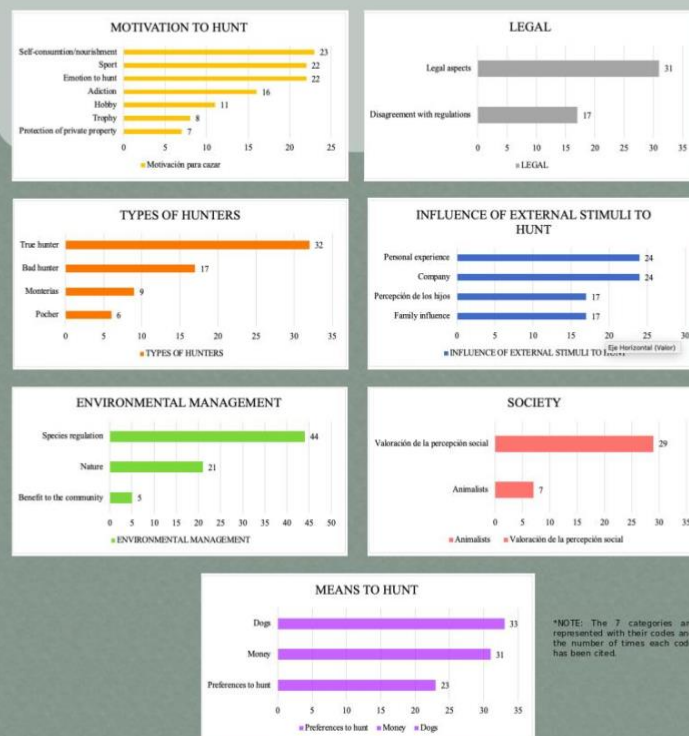
The interview was conducted with a group of hunters in person, the main researcher going to hunt with them to be able to closely observe the activity and how they carried it out. Similarly, participants were encouraged to share the survey online, which allowed the sample to be diversified in terms of age and sex with respect to the interview.

Once the data were obtained, they were analysed and processed. First, the interview was literally transcribed and the answers to the questionnaires were added. Afterwards, the data was encoded using the Atlas.ti.8 program, which was accompanied by a little training on the use of this tool. By coding, 7 main categories were obtained that included 26 codes. These will be analysed highlighting fragments in the dialogues, which reached a total of 497 citations.

#### CONTACT

Tatiana Vigo Cerqueda  
Universitat de Barcelona-PACC  
tvigocerqueda@gmail.com

### 3. RESULTS



### 5. REFERENCES

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### 4. DISCUSSION & CONCLUSION

Regarding the motivation to hunt, it was found that consumption or nourishment, although it is no longer necessary for subsistence, serves as a justification mechanism to be able to carry out said action (Cohan, 2016) and (Maher et al., 2017).

A clear conclusion cannot be drawn from hunting as a sport, although following some studies (Van de Pitte, 2003) we could say that it is not correct to define it as a sport as it is an activity that is disrespectful to the needs of some living beings.

The thrill of hunting or addiction could be understood as an adaptation of hunters to the needs and thinking of today's society, as it is a way of justifying the action they carry out following current concepts (Kheel, 1996).

The trophies were quite criticized by the sample since, contradicting the previous discourse, they do not entail a benefit for society or a justification for its naturalness (Duclos, 2017).

The protection of property is related to the fact that the participants in the sample come from more rural areas where the need to defend the territory is more evident today; but it is interesting to note that it may be a useless motivation for the rest of the population since there is no need to protect crops.

The hunter classification was unexpected, as it had not been considered when writing the questions or had it in mind. Although, the differentiation of the in-group and the out-group has been demonstrated, following the words of hunters of being a good hunter or a bad hunter depending on how they practice hunting.

Regarding environmental management, it seems that hunters take it as their own task, and show great pride in the population control they carry out with their activity. Also with the benefit that this represents for both the human and animal communities. Likewise, a paradox can be observed between hunters' devotion to nature and animals, and the fact that it is they who cause their death (Ilundain, 2010).

Regarding the legal concept, all the hunters in the sample knew the regulations, some being in favour and others having some complaints about it.

In the influence of external stimuli to hunt, the family is fundamental for hunters, both for the acquisition of a taste for hunting and a connecting link for the family. Most have also shown their intention to teach their children to hunt, although emphasizing respecting their will to try it or not.

In the category of society, reference is made to people who do not hunt, especially the so-called animalists, the hunters in the sample agreeing on considering their erroneous beliefs about hunting and other activities with animals.

Finally, in the means of hunting, dogs are very important although they are usually the ones that suffer the most consequences from encounters with other animals, even dying in some cases (FAADA, n.d.). Money is seen as a problem because of the cost of hunting tools, but also as a benefit thanks to the money that is made by selling the hunted game. Hunting preferences are very varied and no animal or time of year stands out above the others.

As conclusions, the lack of study on this issue and the lack of knowledge of the population about it should be noted. In addition, it is necessary to take into account the evolutionary effects of society in general on hunting and the perception of hunters, but also how this affects themselves. It is noteworthy the importance of family and leisure throughout the activity for the analysed sample and the sincerity and willingness to express the opinion of the participants, since it helped to achieve more accurate results.



# Perceptions on the replacement of working equids by mechanised vehicles in Colombia

Burridge, Jessica (1); Burford, John (2); Henao Villegas, Santiago (3); Jaramillo Gomez, Carolina (4); Wild, Isabelle (5); Warboys, Debbie (5); Maguire, Liam (5); Freeman, Sara (2); Lightfoot, Katie (6);

(1) UNIVERSITY OF NOTTINGHAM (2) SCHOOL OF VETERINARY MEDICINE AND SCIENCE, UNIVERSITY OF NOTTINGHAM, SUTTON BONINGTON, LEICS

(3) CES UNIVERSIDAD, MEDELLIN (4) FUNDACIÓN ARRIEROS COLOMBIA (5) WORLD HORSE WELFARE, SNETTERTON, NORFOLK (6) SC

## Keywords / Relevant Terms

Working equid, Covid-19, pandemic, socioeconomics, donkey, horse, mule, poverty

## Abstract

**Background:** There are estimated to be 1.5 million horses, mules and donkeys in Colombia, many of which are working equids that are key to the financial prosperity of families living below the international poverty line. Welfare problems are frequently seen within the working equid population and several strategies to overcome these problems have been previously used. Replacement of working equids with motorised vehicles has been attempted in a few regions throughout Colombia; however, there has been little research into the use and efficacy of this scheme.

**Aim:** To investigate the potential impact of replacing working equids with motorised vehicles and evaluate the likelihood that this scheme would be effective in overcoming welfare issues associated with working equids, across three regions in Colombia.

**Methodology:** A total of nine, semi-structured focus groups were conducted in Apartado, Andes and Cartagena. Sessions were 30 – 60 minutes in duration and were divided into three participatory groups: owners of working equids, community leaders and women. Interviews were audio recorded and subsequently translated into English. Thematic analysis was performed on written transcripts using a mixture of indicative and deductive coding.

**Results:** Three overarching themes were identified: 'culture', 'practicality' and 'profitability'. Individuals living in Cartagena stated that there would be resistance to these schemes due to cultural reasons; however, women in this region believed replacement to be the only way to overcome equid welfare issues. Participants in Apartado and Andes expressed a number of concerns relating to the practicality and profitability of this scheme. These included the terrain, which would not be navigable using a motorised vehicle, and the lack of consistent income reported in regions where the scheme had already been implemented. Potential difficulties, such as the inability of some owners to drive and/or obtain a driving license were also highlighted. Yet, many individuals in both Apartado and Andes suggested that replacement would work in some situations dependent on the specific role of the equid.

**Conclusions:** There are a variety of reasons why equid owners may be reluctant to swap their working equids for motorised vehicles, including the practical differences. Whilst replacement may be appropriate in some cases it is likely other alternatives would be more effective at improving the welfare of working equids and the livelihoods of their owners.

# Perceptions on the replacement of working equids by mechanized vehicles in Colombia (Theme 2)



ONE WELFARE CIC PRESENTS

ONE WELFARE WORLD CONFERENCE

15-16 SEPTEMBER 2021 VIRTUAL

## Perceptions on the replacement of working equids by mechanised vehicles in Colombia

Burridge, Jessica<sup>(1)</sup> Lightfoot, Katie<sup>(1)</sup> Henao Villegas, Santiago<sup>(2)</sup> Jaramillo Gomez, Caroline<sup>(3)</sup> Wild, Isabelle<sup>(4)</sup> Warboys, Debbie<sup>(4)</sup> Maguire, Liam<sup>(4)</sup> Freeman, Sarah<sup>(1)</sup> Burford, John<sup>(1)</sup>

1. University of Nottingham School of Veterinary Medicine and Science, University of Nottingham, Sutton Bonington, Leicestershire 2. CES Universidad 3. Medellín Fundación Arrieros Colombia, Medellín 4. World Horse Welfare, Snetterton, Norfolk

### Introduction:

Working equids play a vital role in the livelihoods of many people living in Colombia. Welfare problems are frequently seen within the working equid population and several strategies to overcome these problems have been previously used.

Replacement of working equids with motorised vehicles has been attempted in a few regions throughout Colombia.

### Aim:

To investigate the potential impact of replacing working equids with motorised vehicles and evaluate the likelihood that this scheme would be effective in overcoming welfare issues associated with working equids, across three regions in Colombia.

### Methods:

- Semi-structured focus groups were conducted in Apartado, Andes and Cartagena (shown in red on map)
- There were three participatory groups: owners of working equids, community leaders and women
- Thematic analysis performed on written transcripts using inductive and deductive coding



## Potential problems associated with the replacement scheme

### Culture

"It's something cultural and traditional...they are members of our families... it won't be easily accepted"

"To change an activity that has been a tradition is a big challenge"

### Practicality

"Cars can't go where mules can"

"Many of them [muleteers] don't even drive"

### Profitability

"Not to have horses in Andes would cause people to starve"

"I have a relative in Currulao where there was replacement, and he tells me that there are days on which he doesn't make a penny"

### Results:

- ❖ Three overarching themes were identified: 'culture', 'practicality' and 'profitability'
- ❖ Women in Cartagena believed replacement to be the only way to overcome equid welfare issues
- ❖ Individuals in Apartado and Andes suggested that replacement would work in some situations dependent on the specific role of the equid

### Conclusions:

There is variability in the opinion of stakeholders involved in working equids as to whether their replacement by mechanised vehicles would be appropriate with many owners reluctant to swap their animals for vehicles. Whilst replacement may be possible in some cases it is likely other alternatives would be more effective at improving the welfare of working equids and the livelihoods of their owners

svyjab@nottingham.ac.uk  
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# Animal Welfare Standards in Scottish Abattoirs

Ragona, Giuseppe (1); Tatcu, Ionela (1); Prisadashki, Hrisimir (1); Ointa, Osiris (1); Diaz Galvan, Miriam (1); Gafenco, Elena (1);  
(1) FOOD STANDARDS SCOTLAND, ABERDEEN, UK

## Keywords / Relevant Terms

One Welfare, slaughter, transport, farm, non-compliances

## Abstract

Food Standards Scotland (FSS) is the competent authority responsible for the delivery of Official Controls (OCs) in approved meat establishments within Scotland (UK). One of the main roles of FSS in slaughterhouses is to maintain an effective system of controls in order to verify compliance with relevant legislation on animal welfare (AW). With a One Welfare concept approach, the aim of this work is to identify areas where AW non-compliances (NCs) are being consistent in order to safeguard animal health and wellbeing, which are linked to consumers interests, meat quality and food safety.

Data of AW NCs were collected during 2019 and 2020 from 20 white and red meat slaughterhouses in Scotland. Each NC required a score to be given depending on the impact on AW: No immediate risk, Potential risk and Critical risk. In the present work, only the AW NCs with Potential risk and Critical risk score were considered. Figure 1 describes the areas where non-compliances were disclosed for each area considered (slaughterhouse, transport, farm) during 2019 and 2020.

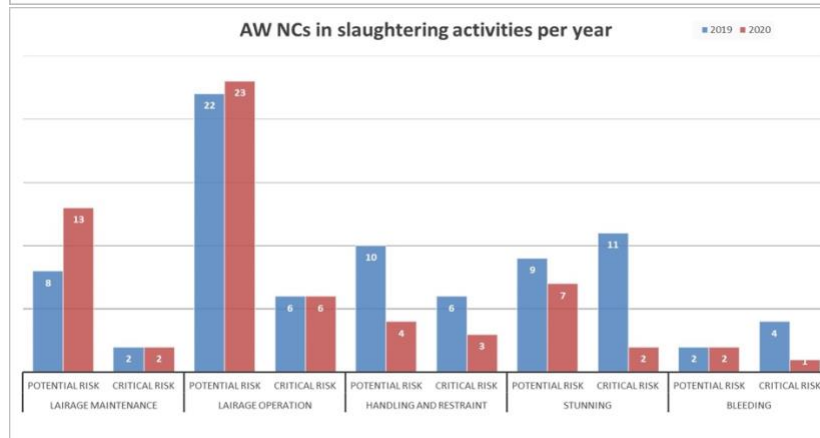
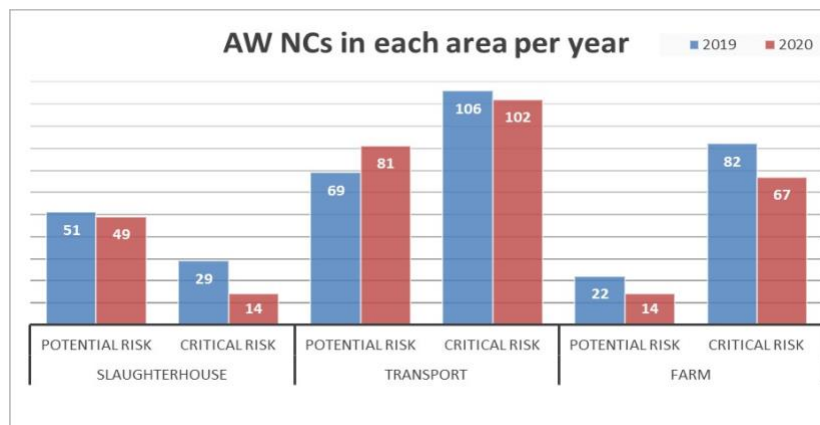
AW incidents that were considered to be related to transport and to farm management were reported respectively to Local Authorities (LAs) and Animal and Plant Health Agency (APHA) for further investigations and monitoring purposes. A decrease in the incidents related to farm is noted in 2020, while NCs with potential risk during transport increased.

The bar chart in Figure 2 represents the number of AW NCs reported by FSS Authorised Officers (AOs) by year per different slaughterhouse activities.

Comparing the data sets from 2019 and 2020, Figure 2 shows a decrease in the NCs related to the handling, restraint, stunning and bleeding operations in 2020. On the other hand, NCs with potential risk in lairage activities raised in 2020.

There is scientific evidence on the effect of various stressors on the quality and safety of the meat (e.g. bruises, septicaemia). The present work can represent a useful tool to AOs in order to underline the slaughterhouse activities that might need more attention to secure compliance in order to reduce animal stress, so to improve food quality and safety.

In Scotland, the continuous collaboration and expertise sharing between FSS, LAs and APHA is essential for maintaining a high level of AW during transport and on farm, which is intimately related to food safety (e.g. reduced use of antibiotics), thus to human health and wellbeing.





# Animal Welfare Standards in Scottish Abattoirs (Theme 3)



ONE WELFARE CIC PRESENTS

## ONE WELFARE WORLD CONFERENCE

15-16 SEPTEMBER 2021 VIRTUAL

### Animal Welfare Standards in Scottish Abattoirs

Giuseppe Ragona, Ionela Tatcu, Hrisimir Prisadashki, Osiris Ointa, Miriam Diaz Galvan, Elena Gafenco  
Food Standards Scotland, Aberdeen, UK



#### Introduction

Food Standards Scotland (FSS) is the Competent Authority responsible for the delivery of **Official Controls (OCs)** in approved meat establishments within Scotland (UK). One of the main roles of FSS in slaughterhouses is to maintain an effective system of controls in order to verify compliance with relevant legislation on **animal welfare (AW)**:

The Welfare of Animals at the Time of Killing (Scotland) Regulations 2012  
"retained" Council Regulation (EC) 1099/2009

Welfare of Animals (Transport) (Scotland) Regulations 2006  
"retained" Council Regulation (EC) 1/2005

The Mandatory Use of Closed Circuit Television in Slaughterhouses (Scotland) Regulations 2020  
"retained" Regulations (EC) 853/2004, (EU) 2017/625, (EU) 2019/624 and (EU) 2019/627

#### Aim

With a **One Welfare** concept approach, the aim of this work is to identify areas where **AW non-compliances (NCs)** are being consistent in order to safeguard **animal health and wellbeing**, which are linked to **consumers interests, meat quality and food safety**.

#### Materials and Methods

Data of AW NCs were collected during 2019 and 2020 from **20 white and red meat slaughterhouses** in Scotland.

Each NC required a score to be given depending on the **impact on AW**:

<b>No immediate risk</b>	An isolated low risk situation observed with the requirements of legislation but with no immediate risk of injury, avoidable pain, distress or suffering.
<b>Potential risk</b>	Welfare practices were observed as failing to comply with the requirements of legislation, and a potential risk to animals. There was no evidence of animals suffering any avoidable pain, distress or suffering.
<b>Critical risk</b>	Welfare practices were observed as failing to comply with legislative requirements, and there was evidence of animals suffering avoidable pain, distress or suffering.

In the present work, only the AW NCs with Potential risk and Critical risk score were considered.

#### Results

359 AW NCs were reported in 2019, while in 2020 a total of 327.

In particular, whilst the number of AW NCs with Potential Risk did not vary from 2019 to 2020 (142 vs. 144), the number of AW NCs with Critical Risk has reduced from 2019 to 2020 (217 vs. 183).

**Figure 1** describes the areas where NCs were disclosed for each area and year considered. A decrease in NCs with Critical Risk is noted in 2020, while NCs with Potential Risk during transport have increased due to the higher number of pregnant animals being transported in the last 10% of gestation period (**Figure 3**).

Comparing the data sets from 2019 and 2020, **Figure 2** shows a decrease in the NCs related to the handling, restraint, stunning and bleeding operations in 2020. On the other hand, NCs with potential risk in lairage activities raised in 2020.

AW NCs identified by FSS Authorised Officers (AOs) during OCs at abattoirs were classified in 3 different AREAS:

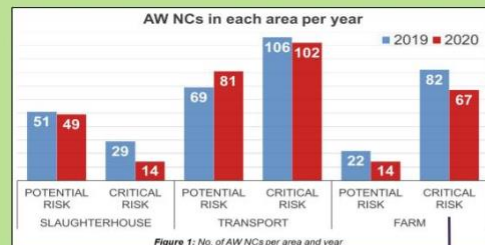
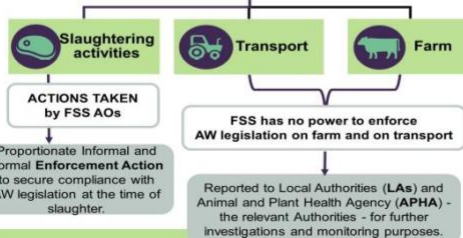


Figure 2: Number of AW non-compliances by year in each different slaughtering activities

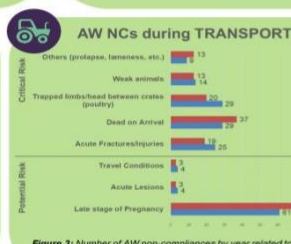


Figure 3: Number of AW non-compliances by year related to Transport

The most common AW NCs related to **FARM** and reported to APHA were:

- Foot Pad Dermatitis (poultry)
- Chronic Lameness
- Chronic Conditions (prolapses, mastitis, etc.)
- Old bruising
- Chronic wounds

#### Discussion

There is scientific evidence on the effect of various stressors on the quality and safety of the meat (e.g. bruises, septicaemia). The present work can represent a useful tool to AOs in order to underline the slaughterhouse activities that might need more attention to ensure compliance in order to **reduce animal stress, so to improve food quality and safety**.

In Scotland, the **continuous collaboration** and expertise sharing between FSS, LAs and APHA is essential for maintaining a high level of AW during transport and on farm, which is intimately related to food safety (e.g. reduced use of antibiotics), thus to human health and wellbeing.

Contact details: [Giuseppe.Ragona@fss.scot](mailto:Giuseppe.Ragona@fss.scot) <https://www.foodstandards.gov.scot/>

[www.onewelfareworld.org](http://www.onewelfareworld.org)

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## Changes in insulin in saliva of sows at gestation and lactation: a case of application of one-health in laboratory analysis

Ortín-Bustillo, Alba (1); Tvarijonaviciute, Asta (2); Tecles, Fernando (2); Contreras-Aguilar, María Dolores (2);

Martínez-Miró, Silvia (3); Martínez-Subiela, Silvia (2); Cerón Madrigal, José Joaquín (2); Muñoz-Prieto, Alberto (4);

(1) UNIVERSITY OF MURCIA (2) INTERDISCIPLINARY LABORATORY OF CLINICAL ANALYSIS OF THE UNIVERSITY OF MURCIA (INTERLAB-UMU), DEPARTMENT OF ANIMAL MEDICINE AND SURGERY, VETERINARY SCHOOL, REGIONAL CAMPUS OF INTERNATIONAL EXCELLENCE 'CAMPUS MARE NOSTRUM', UNIVERSITY OF MURCIA, ESPINARDO, (3) DEPARTMENT OF ANIMAL PRODUCTION, REGIONAL CAMPUS OF INTERNATIONAL EXCELLENCE 'CAMPUS MARE NOSTRUM', UNIVERSITY OF MURCIA, ESPINARDO, MURCIA, SPAIN. (4) CLINIC FOR INTERNAL DISEASES, FACULTY OF VETERINARY MEDICINE, UNIVERSITY OF ZAGREB, HIEZELOVA 55, 10000 ZAGREB, CROATIA.

### Keywords / Relevant Terms

Pig, saliva, insulin, sampling, reproductive phases,

### Abstract

In this report the successful application of a kit designed for the measurement of human insulin to the quantification of porcine insulin in saliva is described as an example of the application of the concept of One-health in laboratory analysis. This concept would be that assays designed for humans can be used for the measurement of analytes in animals.

To the author's knowledge insulin has not been analysed in saliva of pigs, possible due to the fact that there are no species specific assays designed for this species. Sows could develop an insulin resistance condition in the end of gestation and during lactation due to stress generated after farrowing and the high requirements of nutrition piglets need to grow. So it is important to control insulin levels to assess metabolism state of sows to improve their management. Saliva has important advantages as a sample for analysis compared to serum. Saliva samples can be obtained by non-invasive methods generating minimal or no stress to the animals, allowing repeated sampling over a short period of time. Furthermore, sampling is

much better tolerated by animals, easy to carry out in field conditions, and the staff in charge of the samplings do not require specific training or equipment for collection. The aim of this study was to evaluate whether salivary insulin of pigs could be measure with a heterologous automated immunoturbidimetric assay designed for the insulin measurement in humans and whether insulin concentration in saliva can change in different reproductive phases in sows.

Significantly increased insulin level in pig saliva sample was found during lactation ( $P < 0.01$ ). Dunn's multiple comparison test showed that insulin significantly increased on the first day in lactation and after three weeks in lactation compared to the day 30 of gestation ( $P < 0.05$  both), and day 90 gestation ( $P < 0.05$ ).

In conclusion, the results of our study showed that insulin can be measured with an automated way in saliva of pigs, using the same reagents designed to analyse insulin in human serum and, that can be of potential biomarker to evaluate their metabolic status by a non-invasive way.



# Changes in insulin in saliva of sows at gestation and lactation (Theme 3)



ONE WELFARE WORLD CONFERENCE

15-16 SEPTEMBER 2021 VIRTUAL

ONE WELFARE CIC PRESENTS

## Changes in insulin in saliva of sows at gestation and lactation:

### A case of application of one-health in laboratory analysis

Ortín-Bustillo, Alba(1); Tvaržonaviciute, Asta(2); Tedes, Fernando(2); Contreras-Aguilar, María Dolores(2); Martínez-Miró, Silvia(3); Martínez-Subela, Silvia(2); Cerón Madrigal, José Joaquín(2); Muñoz-Prieto, Alberto(4).  
(1) University of Murcia, (2) Interdisciplinary Laboratory of Clinical Analysis of the University of Murcia (Interlab-UMU), Department of Animal Medicine & Surgery, Veterinary School, Regional Campus of International Excellence 'Campus Mare Nostrum', University of Murcia, Espinardo, (3) Department of Animal Production, Regional Campus of International Excellence 'Campus Mare Nostrum', University of Murcia, Espinardo, Murcia, Spain, (4) Clinic for Internal Diseases, Faculty of Veterinary Medicine, University of Zagreb, Hezelova 55, 10000 Zagreb, Croatia.

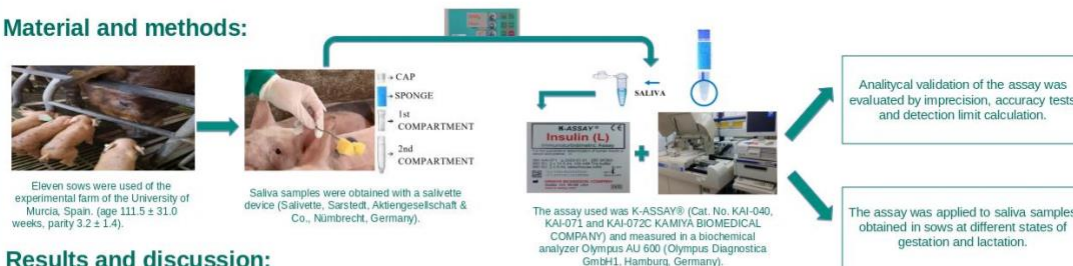
#### Introduction:

To the author's knowledge, currently there is a commercially available assay for the automated measurement of insulin in humans. However there is no data about if this assay could be applied to animal species. Insulin is an analyte of importance in pigs. In particular, sows could develop an insulin resistance condition at the end of gestation and during lactation due to the stress generated after farrowing and the high requirements of nutrition piglets need to grow. So it would be of importance to control insulin levels to assess the metabolic state of sows and improve their management. In addition if insulin could be measured in saliva it would be an important advantage, since saliva samples can be obtained by non-invasive methods generating minimal or no stress to the animals, allowing repeated sampling over a short period of time.

#### Objectives:

To evaluate whether salivary insulin of pigs could be measured by an automated immunoturbidimetric assay designed for the insulin measurement in humans and whether insulin concentration in saliva can change in different reproductive phases in sows.

#### Material and methods:



#### Results and discussion:

The analytical validation showed: an intra-assay and inter-assay precision with variations below 4%; an accuracy updated from linearity under dilution with coefficients of determination ( $R^2$ ) of 0.9954 and 0.9999, and recovery percentages with variations between 95.86 and 100.39%; and a detection limit of 0.51  $\mu\text{U/mL}$  of insulin. All these results indicate that this method has an adequate precision, accuracy and sensitivity for the insulin measurements. Dunn's multiple comparison test showed that insulin significantly increased on the first day in lactation and after three weeks in lactation compared to the day 30 of gestation ( $P < 0.05$  both), and day 90 gestation ( $P < 0.05$ ) (Figure 1).

#### Conclusions:

Insulin can be easily and accurately measured in the saliva of pigs by an automated heterologous immunoassay originally designed for humans reliably, easily and accurately, and its concentration changes in sows in some physiological conditions such as at farrowing and lactation. This could be considered as an example of the application of the concept of One-health in laboratory analysis. In this particular field, the concept would be that in some cases, immunological assays designed for humans can be also used for the measurement of analytes in animals.

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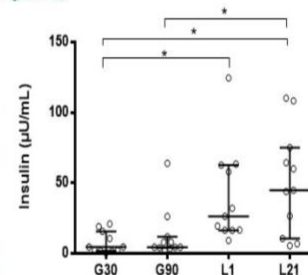


Fig. 1. Effect of gestation and lactation on salivary insulin in sows. Eleven sows were sampled 30 days after insemination (G30), at 90 days of gestation (G90), within the first 24 h after farrowing (L1), and at the end of lactation (L21). Asterisk indicates statistically significant difference between different times ( $P < 0.05$ ).

W21



# Food system change as a crucial element to achieve One Welfare

Dr. Stephany, Martina (1); Beyer, Wendla-Antonia (2); Danner, Nathalie (3);

(1) VIER PFOTEN / FOUR PAWS (2) FARM ANIMALS AND NUTRITION DEPARTMENT, VIER PFOTEN / FOUR PAWS, VIENNA, VIENNA

(3) FARM ANIMALS AND NUTRITION DEPARTMENT, VIER PFOTEN / FOUR PAWS, HAMBURG, HAMBURG

## Keywords / Relevant Terms

Climate Crisis, Zoonoses, Biodiversity Loss, Intensive Farming, Resilient Food System, Animal Welfare, Human Wellbeing

## Abstract

Humankind is facing two major challenges: preventing the next pandemic and limiting the worst effects of the climate crisis. Both put a spotlight on the interconnection of animal welfare, human wellbeing, and the environment.

Intensive farming causes animal suffering on a regular basis and is wholly legitimized by law, e.g. cage keeping, mutilations and long-distance transport. Moreover, the social, physical and mental needs of animals are largely ignored by a system that relies on antibiotics to ensure the survival of the animals at the expense of human wellbeing. The overcrowding, genetic proximity, and poor health of animals creates the optimal ground for pathogens to amplify, mutate and spread as well as develop antibiotic resistance which pose a great risk to modern medicine. Agricultural drivers are responsible for over half of the zoonotic diseases in humans while zoonoses make 75% of infectious diseases, causing 2.7 million deaths each year.

Furthermore, intensive animal farming is the main driver of agricultural expansion, and it relies on the exploitation of our environment. Intensive farming further drives deforestation, climate change and biodiversity loss. It also expands the natural boundaries between ecosystems, the ecotones, where pathogens evolve and pass from wild animals to humans, as with SARS-CoV-2.

The interconnections emphasized in the One Welfare Framework bring impetus to the need to abandon the outdated system of intensive farming and reform our food system towards a supply chain that is resilient to crises and protective of nature. Based on a predominantly plant-based diet, we can adopt high animal welfare, including a life in social groups and expressing natural behaviour. Along with species-appropriate nutrition, enough space, outdoor access and genetic diversity, the wellbeing of animals leads to immune competence and mitigates the risk of spreading zoonoses.

Creating a resilient food system, will enable the positive outcomes intended within the One Welfare Framework. Important steps are a redirection of subsidies towards high welfare concepts and plant-based production as well as cultivated foods. Farmers need support to transition to better systems and the pricing of animal products needs to reflect their true costs.

If we manage to change the food system, we will safeguard human wellbeing, reduce the risk of zoonotic diseases, ensure the welfare of animals, prevent the worst effects of the climate crisis and stop biodiversity loss.



# Transforming of food systems to achieve One Welfare (Theme 3)



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### Transforming food systems to achieve One Welfare

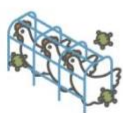
Dr. Martina Stephany\*, Nathalie Danner, Wendla Beyer

Animal Welfare.  
Worldwide.



#### THE PROBLEM

Intensive farming harms animals, humans and our environment.



Intensive farms are optimal **breeding grounds for pathogens** and antimicrobial resistance.



Intensive farming **drives** deforestation, biodiversity loss, ecotone expansion, pollution and **climate change**, increasing zoonotic risks.



Agricultural drivers are responsible for over **50% of the zoonotic diseases** in humans. Zoonoses account for **75% of infectious diseases** in humans, causing 2.7 million deaths yearly.

#### THE SOLUTION

High animal welfare & predominantly plant-based food systems protect nature and are resilient to crises.



High animal welfare in farms ensures **increased immunocompetence** for the farm animals.



Reduced number of farmed animals **protects the environment** and mitigates climate change.

#### WHAT IS NEEDED



Governments to **reduce meat production** and increase animal welfare as part of pandemics- and climate crisis action plans



Support for farmers to transition to **high animal welfare** farming and **plant-based** protein production



**Pricing** of animal products **that reflects the true costs**, along with lower pricing of plant-based foods

Transforming our food systems protects human wellbeing and animal welfare, reduces zoonotic risks, mitigates habitat and biodiversity loss and tackles climate change.



Dr. Martina Stephany  
martina.stephany@vier-pfoten.org

VIER PFOTEN – Stiftung für Tierschutz  
Schomburgstraße 120, 22767 Hamburg, Germany

[www.four-paws.org](http://www.four-paws.org)

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# Global health risks of compromised farm animal welfare

Schuck-Paim Cynthia (1); Jimenez Alonso, Wladimir (2);

(1) WELFARE FOOTPRINT PROJECT, MURCIA, SPAIN (2) PUBLIC HEALTH DEPARTMENT, FEDERAL UNIVERSITY OF SANTA CATARINA, SANTA CATARINA

## Keywords / Relevant Terms

Zoonotic diseases, animal welfare, epidemics, pandemics, biosecurity, global health

## Abstract

Zoonotic diseases account for 60% of human infectious disease cases and millions of deaths every year. The public health and economic costs of zoonoses to global health have also been well-demonstrated in recent events such as the 2013-2016 Ebola virus epidemic, the 2009 H1N1 influenza pandemic and the ongoing SARS-CoV-2 pandemic. Livestock species currently constitute more biomass than all wild mammals combined, representing a massive zoonotic reservoir from which new emerging pathogens are likely to arise. However, of even greater concern, the propitious conditions for the emergence and transmission of highly pathogenic strains are present in intensive animal farming systems. Specifically, many of the conditions that translate into poor animal welfare are also a threat to public health, increasing the likelihood that new pathogens evolve, cross the species barrier, and eventually achieve sustained transmission in the human population. When genetic selection is focused predominantly on growth and productivity, critical organ systems and biological functions are concomitantly compromised, among which cardiorespiratory function and immune resistance. For example, among broiler chickens, more productive and faster-growing breeds have shown the greatest decline in immune capacity. Genetic homogeneity, immunosuppression from

chronic stress and environmental risk factors such as poor air quality and high stocking densities aggravate these problems, increasing the likelihood of infectious disease emergence. High levels of aerial pollutants such as ammonia, often found in closed facilities, further compromise respiratory function and increase the likelihood of infection by respiratory pathogens. Accordingly, in pigs raised intensively, post-mortem findings of lesions in the respiratory tract as a result of pneumonia, pleuropneumonia, pleurisy and other diseases are pervasive nowadays. The difficulties of independently auditing animal welfare and biosecurity conditions, the sheer scale of the many outputs of animal farming systems and the transport of live animals nationally and abroad represent additional challenges. Where investigated, failures of compliance with biosecurity protocols have been shown to be endemic in the industry. Enforcing higher animal welfare standards in industry practices, genetic selection and stockmanship, as well as transparency and independent auditing (e.g. through the implementation of CCTV systems open to real-time and independent monitoring) will be critical to reduce the risks of emergence and spread of new pathogens, including those with pandemic potential.

# Global health risks of compromised farm animal welfare (Theme 3)



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## Global health risks of compromised farm animal welfare

CYNTHIA SCHUCK-PAIM, WLADIMIR JIMÉNEZ ALONSO

WELFARE FOOTPRINT PROJECT, Murcia, Spain  
Public Health Department, Federal University of Santa Catarina, SC, Brazil

**Zoonotic diseases** account for 60% of human infectious disease cases and millions of deaths every year, and not rarely lead to the emergence of epidemics and pandemics of massive implications for human health and well-being.

**Livestock species** constitute more biomass than all wild mammals combined, representing a massive **zoonotic reservoir** from which new emerging pathogens can arise. Of greater concern, the propitious conditions for the emergence and transmission of highly pathogenic strains are present in **intensive animal farming systems**. Specifically, many of the conditions that translate into **poor animal welfare** increase the likelihood that new pathogens evolve, cross the species barrier and achieve sustained transmission in the human population.



When **genetic selection is narrowly focused on productivity**, critical organ systems and functions are compromised, among which immune resistance.

**Multiple environmental stressors** also compromise immune capacity and promote disease spread. For example, high levels of aerial pollutants are often found in closed facilities, further impairing respiratory function and increasing the risk of respiratory infections. In pigs, lesions in the respiratory tract (from pneumonia, pleuropneumonia, pleurisy) are pervasive nowadays.



Genetic homogeneity, immunosuppression from chronic stress and environmental risk factors such as poor air quality and high stocking densities aggravate these problems, **increasing the likelihood of infectious disease emergence**.

For example, among broiler chickens, more productive and faster-growing breeds have shown the **greatest decline in immune capacity**.

The difficulties of **independently auditing animal welfare and biosecurity** conditions, the sheer scale of the many outputs of animal farming systems and the transport of live animals nationally and abroad represent additional challenges. Where investigated, failures of compliance with biosecurity protocols have been shown to be endemic in the industry.

**Enforcing higher animal welfare standards** in industry practices, genetic selection and stockmanship, along with transparency and independent auditing (e.g. through CCTV systems open to real-time and independent monitoring) will be critical to reduce the risks of emergence and spread of new pathogens, including those with pandemic potential.



Further examples and findings are in this booklet, freely available at <https://welfarefootprint.org/research-projects/welfare-human-health>



<http://welfarefootprint.org>

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# The impact of animal nutrition on animal welfare, the ecosystem and human wellbeing

Haager, Daniela (1); Hartmann, Sabine (1);  
(1) FOUR PAWS INTERNATIONAL

## Keywords / Relevant Terms

animal nutrition, animal welfare, human wellbeing, food security, ecosystem, sustainability, agriculture, ruminants, positive welfare, economy, high performance traits, grassland-based diet, One Welfare

## Abstract

Globally, around 77% of farmlands are used to grow crops for animal feed. While crops destined for livestock take up most of the world's agricultural land, livestock only produces 18% of the world's calories and 25% of the total protein. This difference results from the feed conversion when a large amount of energy is lost, especially in ruminants. So, if the food crops that are fed to animals and the arable land used for the cultivation of animal feed would instead be used for food production a larger proportion of the human population could actually be fed. In a natural situation, crop and livestock farming complement each other. However, breeding for high productivity traits, e.g. high milk yield, disrupts this natural balance, leads to health and animal welfare problems, increases economic risks (e.g. productivity decline) and threatens global food security. High performing animals have an unnatural high demand for energy and protein intake that cannot be supplied through a grassland-based diet. The large quantities of cereals and the inadequately low amount of roughage in the diet of high performing ruminants lead to diseases, such as acidosis or claw disorders, as their metabolism is not made to digest such diets. Ruminants do not naturally compete with humans on food. They are capable of digesting cellulose and are very efficient in converting plant-based protein and energy sources into high quality animal products such as milk. Ruminants can live off and sustainably yield on a pure grassland-based diet, grazing during the vegetation period and consuming hay during the winter season. Furthermore, ruminants play a valuable role for sustainably managed grazing increases biodiversity and improves carbon capture by plants and soil. Ruminants in general, and especially the smaller species, can convert land that is too poor to cultivate into a productive one.

An agricultural system that focuses on increasing the (productive) lifespan of an animal, instead of high product yields, safeguards animal welfare through a natural feeding regime. This process further enables pleasurable feed intake, enhances positive welfare and longevity, nurtures a good human-animal relationship and consequently human wellbeing - thus highlights the interconnection within the One Welfare approach.



# The impact of animal nutrition on animal welfare, the ecosystem and human wellbeing (Theme 3)



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### The impact of animal nutrition on animal welfare, the ecosystem and human wellbeing

Daniela Haager\* & Sabine Hartmann

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#### Global problem

The increasing consumption of animal protein conflicts with our planet's ability to nurture the human population.

The large amounts of crops poured into livestock troughs could instead feed humans - only 48% of the world's cereals are currently eaten by humans<sup>1</sup>.

#### Take home message

### Think One Welfare!

for animal & human welfare and ecosystem health

An agricultural system that focuses on increasing the (productive) lifespan of an animal, instead of high product yields, safeguards animal welfare through a natural feeding regime. This process further enables pleasurable feed intake, enhances positive welfare and longevity, nurtures a good human-animal relationship and consequently human wellbeing.

#### Current conventional situation

- Animals are bred for high unnatural milk yield and extreme weight gain
- High performance animals have an atypical high demand for energy and protein intake
- High productivity traits lead to health and animal welfare problems<sup>2</sup>

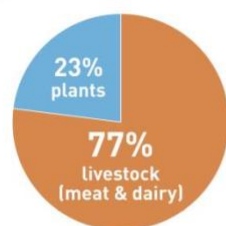


#### The sustainable way

- Ruminants can sustainably yield on a pure grassland-based diet<sup>3</sup>
- They are capable of digesting cellulose and to not naturally compete with humans for food<sup>4</sup>
- Committing to dual-purpose breeds
- The killing of male offspring is ended



#### Land use

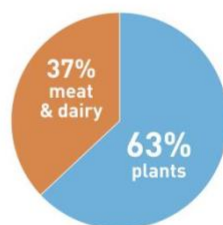


There is a highly unequal distribution of **land use** for livestock feed vs. crops for direct human consumption.

Livestock (meat and dairy) demands **77%** of global farming land<sup>5</sup>.

But meat and dairy only account for:

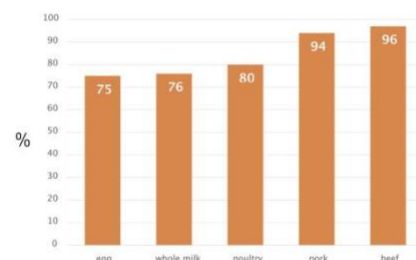
**37%** of the global **protein**  
**18%** of the world's **calories**<sup>5</sup>.



#### Feed conversion

The **conversion of animal feed into animal protein** is accompanied by a **huge loss of energy**, as the greatest part of the energy is used to simply keep the animal alive.

Only **4-25%** of the protein inputs as feed are converted into an animal product.



**75-96% of protein input is lost during conversion<sup>1</sup>**

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\*Daniela Haager  
daniela.haager@vier-pfoten.org

VIER PFOTEN International  
Linke Wienzeile 236, 1150 Vienna, Austria

[www.four-paws.org](http://www.four-paws.org)

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# The use of saliva for the assessment of stress, health and welfare: a sialochemistry approach

Contreras Aguilar, M.D. (1); Ortín-Bustillo, A. (1); Tecles, F. (1); Escribano, D. (2); Rubio, C.P (3); Cerón, J.J. (1);

(1) INTERDISCIPLINARY LABORATORY OF CLINICAL ANALYSIS OF THE UNIVERSITY OF MURCIA (INTERLAB-UMU), DEPARTMENT OF ANIMAL MEDICINE AND SURGERY, VETERINARY SCHOOL, REGIONAL CAMPUS OF INTERNATIONAL EXCELLENCE 'CAMPUS MARE NOSTRUM', UNIVERSITY OF MURCIA, ESPINARDO, M (2) DEPARTMENT OF ANIMAL PRODUCTION, VETERINARY SCHOOL, REGIONAL CAMPUS OF INTERNATIONAL EXCELLENCE 'CAMPUS MARE NOSTRUM', UNIVERSITY OF MURCIA, ESPINARDO, MURCIA. (3) DEPARTMENT OF ANIMAL AND FOOD SCIENCE, SCHOOL OF VETERINARY SCIENCE, UNIVERSITAT AUTÒNOMA DE BARCELONA, Cerdanyola del Vallès, BARCELONA.

## Keywords / Relevant Terms

Salivary biomarkers, sialochemistry, stress, health status, veterinary species

## Abstract

Currently, there is a growing scientific effort to monitor and assess animal welfare to give response to the actual European society perception of animal welfare as a 'public good', but also since poor animal welfare states decrease the productivity and the meat quality in livestock, also decreasing the sustainable meat production and food safety for humans and increase the release and virulence of zoonosis diseases in the veterinary species. This makes necessary the development of new techniques for gaining these objectives in a reliable, effective, and easy way. In this sense, the use of saliva as a diagnostic fluid alternative to blood for assessing stress and welfare biomarkers is currently of interest since saliva can be obtained by non-invasive and more straightforward techniques, and therefore, without the need for specialized staff, leading to the possibility of repeating the collection of many samples even at short- time intervals. This allows an advantage for monitoring animal welfare by a non-stressful and painless methodology. In the last years, our research group (Interlab-UMU) has validated in saliva from horses, pigs, sheep, cows, and dogs a salivary analytical profile (sialochemistry) that could be of interest to evaluate stress, poor welfare, or disease conditions by automated

assays. This salivary profile is integrated by biomarkers related to stress, immunity, oxidative status, and enzymes, proteins, and minerals of general metabolism and liver, muscle, and renal damage.

In these reports, these biomarkers were evaluated after different psychological stress situations (a surprise test in horses, a temporarily restraining test in pigs, and a facing to predator test and shearing in sheep), physical stress (a submaximal exercise test in horses), and disease or inflammatory states (acute abdominal disease in horses, lameness, rectal prolapse and farrowing in pigs, mastitis, lameness, and delivery in cows, and pyometra in dogs). In all of them, the employed saliva samplings techniques did not suppose an additional stressful experience, allow enough volume of saliva sample, and were easily performed. Additionally, the sialochemistry showed a robust analytical validation. In conclusion, using a sialochemistry approach enables the analysis of a relatively high number of analytes in a fast, robust, and reliable way to detect different stressful and compromised welfare situations in different veterinary spe



# The use of saliva for the assessment of stress, health and welfare: a sialochemistry approach (Theme 3)



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## The use of saliva for the assessment of stress, health and welfare: a sialochemistry approach

A sialochemistry approach for the stress, health and welfare evaluation

**UAB**  
Universitat Autònoma de Barcelona

**CAMPUS MARE NOSTRUM**  
de Excel·lència Internacional  
**UNIVERSIDAD DE MURCIA**

### BACKGROUND

• Growing scientific effort to monitor and assess animal welfare:

• The actual European society perception in animal welfare → 'good public'

• Poor animal welfare = ↓ productivity + ↓ meat quality = ↓ sustainable meat production + ↓ human food safety + ↑ zoonosis

Development of new techniques for the welfare evaluation in a **RELIABLE, EFFECTIVE, AND EASY WAY**

**SALIVA** as alternative to blood →

- Non-invasive collection
- Non-stressful methodology
- More straightforward techniques
- No Specialized staff
- Painless
- Repetitive collection at short-time intervals

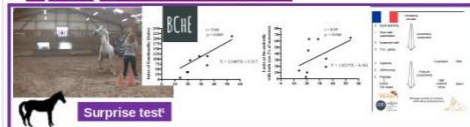
• Sialochemistry in domestic animals → Analytical Validation → InterLAB UMU

- Stress: Cortisol, salivary alpha-amylase (sAA), butyrylcholinesterase (BChE), total esterase (TEA), and lipase.
- Immunity: Adenosine deaminase (ADA) and isoenzymes (ADA1, ADA2).
- Oxidative status: Trolox equivalent antioxidant capacity (TEAC), the ferric reducing ability of saliva (FRAS), the cupric reducing antioxidant capacity (CUPRAC), uric acid, advanced oxidation protein products (AOPP), and hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>).
- Enzymes, proteins, and minerals of general metabolism and liver, muscle, and renal damage: Aspartate aminotransferase (AST), alanine aminotransferase (ALT), γ-glutamyl transferase (GGT), lactate dehydrogenase (LDH), creatine kinase (CK), creatinine, urea, triglycerides, glucose, lactate, total protein (TP), phosphorus, and total calcium

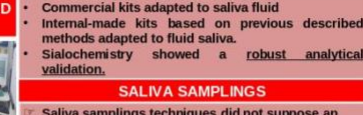
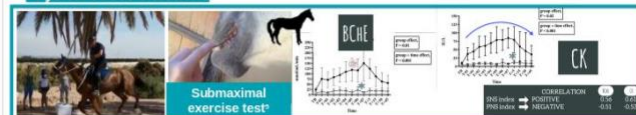
• Species →

### STRESSING AND POOR WELFARE CONDITIONS ASSESSED

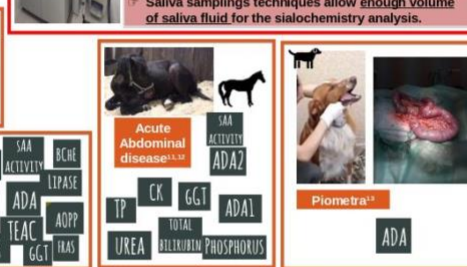
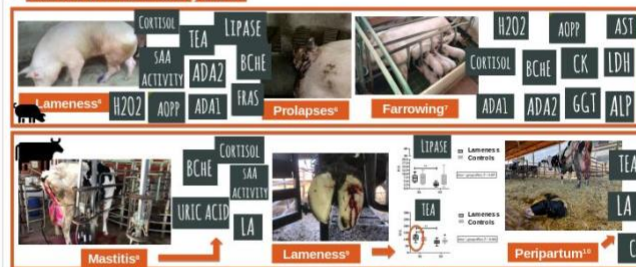
#### Psychological acute stress situations



#### Physical stress situations



#### Disease or inflammatory states



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### CONCLUSIONS

Using a sialochemistry approach enables the analysis of a relatively high number of analytes in a fast, robust, and reliable way to detect different stressful and compromised welfare situations in different veterinary species.

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# Welfare assessment in broilers carried out by Public Health veterinarians in Extremadura: 6 years of experience

González Puértolas, Arturo (1);  
(1) *SERVICIO EXTREMEÑO DE SALUD*

## **Keywords / Relevant Terms**

Welfare assessment, broilers, Public Health

## **Abstract**

Public health veterinarians working in poultry slaughterhouses have a number of animal welfare related duties. They have to ensure compliance with animal welfare legislation during transport; checking the good condition of the cages as well as the density of birds in the containers. They control welfare during slaughter; covering handling, stunning and actual slaughter. Finally, they carry out post-mortem controls to assess the state of the animals in terms of their welfare on the farm of origin (Directive 2007/43/EU incorporated into our legislation by RD 692/2010).

These controls consist of assessing a series of indicators which, if they exceed certain thresholds, indicate welfare problems on the farm of origin.

According to the Commission report (2018), the implementation of these controls has resulted in a systematic improvement of animal welfare conditions in poultry farms; furthermore, this report highlights that there is evidence of a substantial reduction in the need to use antimicrobials (other than coccidiostats) to treat common conditions in those Member States that pay close attention to hygiene,

health and welfare issues. Thus, we can see how improvements in animal welfare have a direct consequence on public health, as prudent use of antimicrobials in veterinary medicine is one of the pillars in the fight against antimicrobial resistance. In Extremadura, from 2015 to 2020, 613 cases in which the thresholds have been exceeded have been reported; this represents between 6.7 and 10.1% of the total number of controls carried out.

The highest number of notifications is recorded between January and May and between October and December; while they decrease significantly in the summer months.

Of these 613 controls in which the thresholds have been exceeded, 215 correspond to farms with a stocking density below 33 kg bw/m<sup>2</sup>. Over the years, we have observed an increase in notifications in farms with a stocking density below 33 kg bw/m<sup>2</sup> and a decrease in those with higher stocking densities.

Of the 613 controls where thresholds were exceeded, the most frequently exceeded indicators were foot pad dermatitis and tarsal burn (in combination).

# Welfare Assessment in Broilers carried out by Public Health veterinarians in Extremadura: 6 years of experience (Theme 3)



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### WELFARE ASSESSMENT IN BROILERS CARRIED OUT BY PUBLIC HEALTH VETERINARIANS IN EXTREMADURA: 6 YEARS OF EXPERIENCE

Arturo González Puértolas

Public Health Veterinarian, poultry slaughterhouse, Extremadura Health Service, Jaraíz de la Vera, Extremadura, España, [arturo.gonzalez@salud-juntaex.es](mailto:arturo.gonzalez@salud-juntaex.es)

#### Introduction

Public health veterinarians working in poultry slaughterhouses have a number of animal welfare related duties. They have to ensure compliance with animal welfare legislation during transport; checking the good condition of the cages as well as the density of birds in the containers. They control welfare during slaughter; covering handling, stunning and actual slaughter. Finally, they carry out post-mortem controls to assess the state of the animals in terms of their welfare on the farm of origin (Directive 2007/43/EU incorporated into our legislation by RD

#### Methodology

These controls consist of assessing a series of indicators: food pad dermatitis, hook burn, breast burn, cleanliness, rejections, dead on arrival and total mortality (cumulative daily mortality + dead on arrival). If these indicators exceed certain thresholds, indicate welfare problems on the farm of origin, and the inspector has to draw up a report informing of the non-compliance. The choice of the flocks to be inspected will depend on their stocking density, so that the higher the stocking density, the more likely it is that they will be inspected. In our particular case, we carry out reinforced controls in the case of farms with problems of exceeding the threshold



Foot pad dermatitis and hook burn



Blister burn

#### Conclusions

- Seasonal presentation of threshold exceedance.
- The most frequently exceeded indicators were foot pad dermatitis and tarsal burn (in combination).
- The flocks in which threshold exceedance are most frequently reported are those with a stocking density below 33 kg bw/m<sup>2</sup>.
- Improvements in animal welfare have a direct consequence on public health, as prudent use of antimicrobials in veterinary medicine is one of the pillars in the fight against antimicrobial resistance.

#### Results

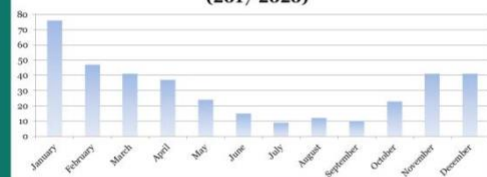
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Of the 613 controls where thresholds were exceeded, the most frequently exceeded indicators were foot pad dermatitis and tarsal burn (in combination).

Year	Controls carried out	notification of threshold exceedance (613)	Percentage (%)
2015	No data available	56	-
2016	No data available	107	-
2017	930	94	10,1
2018	1430	96	6,7
2019	1398	141	10,1
2020	1665	119	7,1

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# Animal-assisted Education (AAE) for Primary School Children in the Time of COVID-19

Chau, Kathy K. Y. (1); Ngai, Joe, T. K. (1); Lee, C. Y. (1); Yu, Rose, W. M. (1); Wong, Paul, W. C. (1);

(1) DEPARTMENT OF SOCIAL WORK AND SOCIAL ADMINISTRATION, THE UNIVERSITY OF HONG KONG

## Keywords / Relevant Terms

Animal-assisted education, Humane education, Service canine, Canine companion reading, One welfare, COVID-19

## Abstract

The outbreak of coronavirus disease 2019 (COVID-19) disrupted our regular but significant social life with adverse effect on our mental well-being. This presentation describes the development of an online alternative to an Animal-assisted education (AAE) programme in Hong Kong called Competence in Active Resilience for Kids curriculum (CARing Kids), which aimed at teaching primary school students humane and social-emotional learning over 6 sessions.

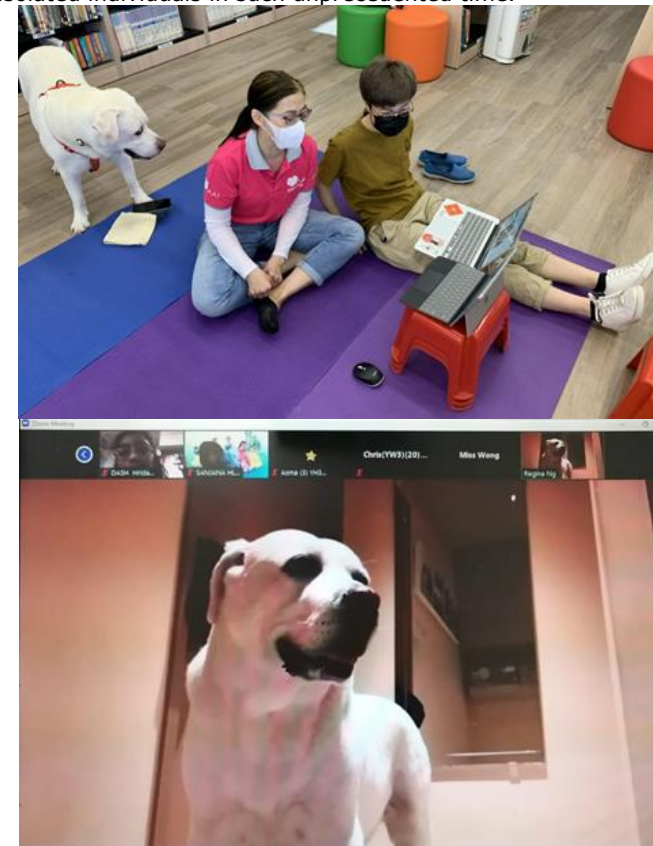
To continue the programme with minimal interruption, CARing Kids was converted to online learning with some changes, e.g. (1) self-developed storybooks were converted into e-books, (2) handlers of reading canines were asked to pre-record videos showing their canines' recent activities, (3) using reading canines' photos to create videos and teach students how to maintain personal hygiene and healthy lifestyle amid the pandemic. At the end of each online session, sufficient time was given for students to chat with handlers and understand more about the reading canines.

Several challenges were found in online over face-to-face CARings Kids programme; for example, students with lower socioeconomic status often lacked electronic devices that enable mutual interaction, and certain activities such as patting and brushing the canines could not be performed in online AAE. Yet, online AAE is no longer contained in classroom settings and could be more engaging to participants from a systemic perspective. During school suspension, participants' family members were often in the same home setting with the participants, which facilitated discussion about humane education and animal welfare with the students. Besides, online AAE often took place with the reading canines either at home or at school without students around, which not only kept their stress level at minimum level, but also ensured both parties' safety by maintaining social distancing.

The preliminary results showed that the intervention group (who received 6-session online AAE) reported a significant reduction in emotional problems,  $t(34) = -3.88$ ,  $p < .01$ . Although there was main effect of time on participants' hyperactivity,  $F[1,65] = 7.20$ ,  $p < .01$ , only control group had significant increase over time,  $t(31) = 2.88$ ,  $p < .01$ . The results indicated that both groups of students were adapting to new lifestyle during the pandemic, yet the programme helped the intervention group better navigate uncertainty.

Although online AAE is not as ideal as the face-to-face programme for teaching children humane and social-emotional learning, it is an alternative that ensures the

safety of participating students and reading canines (as well as their handlers) and engages isolated individuals in such unprecedented time.





# Development of a pilot Human-canine Ethogram for an Animal-assisted education Programme in Primary Schools (Theme 4)



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## Development of a Pilot Human-canine Ethogram for an Animal-assisted Education Programme in Primary Schools

Lee, C. Y., Ngai, J. T. K., Chau, K. K. Y., Yu, R. W. M., Wong, P. W. C.

Department of Social Work and Social Administration, The University of Hong Kong, Pokfulam, Hong Kong SAR

### Introduction

Animal-assisted interventions (AAI) have received increased research and practice interests in the past decade. The promotion of protecting the physical and psychological well-being of trained animals in AAI have been advocated. However, how trained animals interact with humans during AAI activities has not been assessed objectively to safeguard the welfare of animals. This study describes the development of an ethogram to assess the human-canine interaction in an animal-assisted education programme (i.e. CARing Kids). The ethogram aims to measure the stress responses of a reading canine throughout the six-session programme.

### Methodology – The CARing Kids Ethogram

**Step 1.** A scoping review of the research and literature on ethograms was conducted. A total of 204 items were compiled and transformed into 10 core categories, e.g., body 'shaking off', idle, panting, and yawning. Additional behavioural items specific to the setting and design of the programme was included to form a preliminary list.

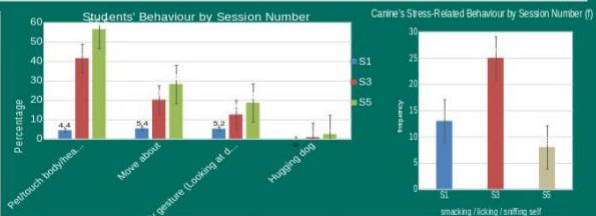
**Step 2.** A simple sampling in fixed intervals was used, and the 1<sup>st</sup>, 3<sup>rd</sup> and 5<sup>th</sup> sessions were selected for coding. The interaction among the service canine, handler and students during the curriculum were video recorded and analysed by a trained coder.

A total of 51 behavioural items were identified from the reading canine, the handlers and the student participants. The identified behaviour items were further compiled with the preliminary list to form a pilot version of the CARing Kids ethogram for further testing.



**Step 3.** To assess reliability of the pilot CARing Kids ethogram, 2 more rounds of coding/fine-tuning were conducted with two trained secondary coders. The pilot ethogram was then refined after a consensual agreement of 3 coders. The interrater agreement was 80%, indicating good intercoder consistency (McHugh, 2012).

**Step 4.** Finally, an in-depth interview with the handler was conducted to enhance the validity. The handler was asked to compare the recorded reading canine's behaviour with non-AAI setting.



### Discussion

1. AAI is becoming more accepted in schools and social service settings. Our attempt to develop an ethogram will help raise awareness of promoting animal welfare as a crucial element in the future development of AAI in Hong Kong. Our study raises public awareness on the "One Health One Welfare" advocacy.
2. An important consideration in planning and implementing AAI activity is whether the stress level can be managed so that 'good' stress will not turn 'harmful'. The development of the CARing Kids ethogram serves as a tool to monitor the stress level of the reading canines and enhance the programme protocol for continuous assessing the well-being of reading canines.
3. Children are less aware of canine emotions. While it should be mandatory to educate the students in understanding the behavioural signals of the canine, the handler also plays a vital role in advocating and safeguarding the welfare of the service canine. The handler's active involvement is an essential factor in the efficacy of the programme (Pet Partners, 2018). Training on animal welfare and understanding stress-related behaviours of the canine should be provided for handlers and schoolteachers who are vital elements in constructing the positive HAI environment.

### Conclusion

Although this study is limited by the small sample size, this is the first pilot study in Hong Kong to develop a human-canine ethogram to objectively measure the canine behaviour and human-canine interaction in reading-to-canine programme. The findings of the study will provide a more comprehensive perspective for AAI practitioners to consider the issues of animal welfare in future AAI practice.

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### Results

1. Results show that the canine expressed stress signals naturally when interacting with a group of strangers initially. However, the canines became less stressed and showed more positive affiliative signals towards the end of the programme.
2. Participants' interactive behaviours increased over time as they became more familiar with the canine.
3. Besides, the environmental factors, such as sitting arrangements (i.e. canines surrounded by participants), might increase the mild stress behaviour such as panting during the human-animal interaction.

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# The effects of environmental enrichment on the behaviour of rabbits involved in rabbit-assisted interventions (La Città degli Asini, Italy)

Montagna, L. (1); Meers, L. (2); Lelli, L. (3); Walsh, E. (4); Gelli, D. (5); Normando, S. (1);  
(1) UNIVERSITY OF PADUA, DEPARTMENT OF COMPARATIVE BIOMEDICINE AND FOOD SCIENCE (2) BIAAT FOUNDATION (3) LA CITTÀ DEGLI ASINI  
(4) CORK PET BEHAVIOR AND TRAINING CENTRE (5) UNIVERSITY OF PADUA, DEPARTMENT OF ANIMAL MEDICINE, PRODUCTION AND HEALTH

## Keywords / Relevant Terms

Animal-assisted activities, enrichment, rabbit, housing

## Abstract

The welfare of domesticated rabbits is influenced by diverse factors including, standards of husbandry (satiety of hunger and thirst), appropriate housing (cage/enclosure size, floor type, hygiene, thermal comfort, shelter), opportunities to exhibit appropriate behaviours (species-specific behaviour, intra-species social behaviour, environmental enrichment, positive human-animal interactions, positive emotional state) and conditions conducive to the promotion and maintenance of good health (de Jong et al., 2011).

This study investigates the effects of environmental enrichment on the behaviour of rabbits (*Oryctolagus cuniculus*) involved in rabbit-assisted interventions (La Città degli Asini, Padua, Italy). Twelve rabbits (aged 2 years) were studied. All animals had been neutered and group-housed in an enclosure of 24m<sup>2</sup>, of which 8m<sup>2</sup> was covered. Within their enclosure, they had free access to two slow feeder hay racks, an automatic drinking system (ad libitum hay and water), and a 2m<sup>2</sup> covered private area where they could retreat to if they chose.

All rabbits were involved in animal-assisted therapy, activities, and learning. Animal-assisted sessions were organized inside the enclosure where the rabbits lived. During these interventions, the rabbits were a focus of attention and conversation. They didn't have to fulfill specific tasks. Over the period of this study, the number and frequency of interventions with these rabbits were significantly reduced. Additionally, all sessions took place later in the day after the observations were completed. The rabbits were observed for 2 days/week for four consecutive weeks. During the 2 experimental periods (week 2 and 4) extra toys made of edible matter (hay, corn fibre) and edible toys (hay, corn fibre) in which carrots were lodged, were provided. There were two control periods (weeks 1 and 3) in which the rabbits received only extra branches.

Focal animal video recordings (10/minutes/rabbit/day) were analysed using continuous recording. The results showed that the rabbits consumed less hay from the slowfeeders ( $p < 0.0083$ ) during the experimental period but increased their exploration, interaction and ingestion of the enrichment devices made out of hay. Rabbit-assisted sessions may be influenced by the range of behaviour exhibited.

Edible toys may offer the possibility for rabbits to exhibit behaviours similar to their natural foraging behaviours. In conclusion, a One Welfare approach is to be advocated as benefiting both the rabbits in encouraging natural behaviours in an environmentally friendly animal-keeping system, and clients by offering interventions with rabbits who are active and exhibiting appropriate appetitive, stimulating, behaviours.

The authors acknowledge K. De Smet for the beautiful photos





# The effects of environmental enrichment of the behaviour of rabbits involved in rabbit-assisted interventions (La Città degli Asini, Italy) (Theme 4)



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## The effects of environmental enrichment on the behaviour of rabbits involved in rabbit-assisted interventions (La Città degli Asini, Italy)

Montagna L.<sup>1</sup>, Meers L.<sup>2</sup>, Lelli L.<sup>3</sup>, Walsh E.<sup>4</sup>, Gelli D.<sup>5</sup>, Normando S.<sup>1</sup>

<sup>1</sup> University of Padua, Department of Comparative Biomedicine and Food Science, <sup>2</sup> BIAAT Foundation, <sup>3</sup> La Città degli Asini,

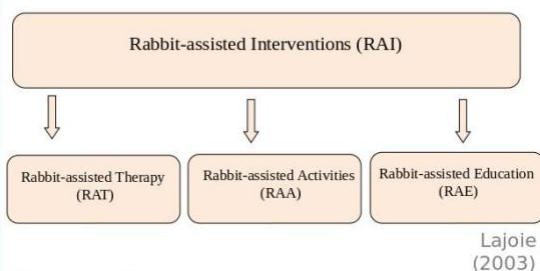
<sup>4</sup> Cork Pet Behaviour Centre, <sup>5</sup> University of Padua, Department of Animal Medicine, Production and Health

### Introduction

- Welfare of domesticated rabbits involved in animal-assisted interventions, is influenced by many factors
  - Standard of husbandry
  - Appropriate housing with environmental enrichment
  - Opportunities to exhibit appropriate behaviours
  - Positive human-animal interactions
  - Freedom of choice whether or not to interact with humans, ....



### Methodology



- Aim of the study
  - To study the effects of environmental enrichment on the behaviour of rabbits involved in rabbit-assisted interventions (La Città degli Asini, Padua)
- Material and Method
  - 12 rabbits (aged 2 years, neutered)
  - Group-housed - enclosure of 24m<sup>2</sup> (8m<sup>2</sup> covered & 2m<sup>2</sup> covered & private where the rabbits can withdraw from unwanted interactions)
  - Free access to slow feeders (2 hay racks)
- Procedure
  - Control period - week 1 & 3
    - Extra branches
  - Experimental period - week 2 & 4
    - Edible toys (made of hay/corn fibre)
    - Edible toys stuffed with carrots
- Observations
  - Focal animal video recording (10 min./rabbit/day)
  - Continuous recording

### Results

- Observations – experimental period
  - 2 days/week for 4 consecutive weeks
  - Less hay consumed from the slow feeders ( $p < 0.0083$ )
  - Increased exploration, interaction, and ingestion of the environmental enrichment devices made out of hay



### Conclusion

- These results support the hypothesis of contra-free-loading as rabbits preferred the edible hay toys
- We advocate a framework of "One welfare" approaches for future rabbit-assisted interventions



Padua University



STICHTING BIAAT



# **The Controlled Trial of CARing Kids: Animal Assisted Humane Education on Social Emotional Development on Primary Students**

Ngai, Joe, Tsz Kin (1); Chau, Kathy K. Y. (1); Lee, Jean C.Y. (1); Yu, Rose W.M (1); Wong, Paul W.C. (1);  
(1) DEPARTMENT OF SOCIAL WORK AND SOCIAL ADMINISTRATION, THE UNIVERSITY OF HONG KONG, POKFULAM, HONG KONG SAR

## **Keywords / Relevant Terms**

Animal Assisted Education, Humane Education, Social Emotional Learning, Canine Companion Reading

## **Abstract**

The World Health Organization indicated that Urbanization would be a global challenge for the coming three decades. As a result, our next generation's natural environment, society structure, and mental and physical health would be deeply impacted. For the fast-changing, stressful, and demanding environment and society, an animal-assisted humane education programme named Competence in Active Resilience for Kids (The CARing Kids) was developed to equip children with social, emotional competence, and pro-animal attitudes. The CARing Kids is a six-session curriculum that included Humane Education, Social-Emotional Learning and Animal Assisted Education, featuring interactive learning activities and the canine companion reading of humane literature. This presentation would describe the design, theoretical framework, preliminary impact, and mechanism of the CARing Kids.

A pilot sequential mixed-method controlled trial was implemented with 50 primary three students. A primary school in Hong Kong were selected. The two classes of

grade 3 students (Age ranged 8 to 10) were randomly assisted into the subject and control group. The subject group (n=25) received the CARing Kids programme, and the control group (n=25) received the formal life education programme. The participants in CARing Kids significantly reduced hyperactivity ( $t = -2.04$ ,  $p = .03$ ) and enhanced empathy ( $t = 2.90$ ,  $p < .01$ ) while no significant change for the control group was obtained.

Furthermore, the repeated measure ANOVA revealed that participants had reduced emotional problems compared to the control group who received formal life education ( $F = 5.44$ ,  $p = .02$ ). Echoing with quantitative analysis, the follow up qualitative evaluation suggested improved self-control, humane attitude and emotional regulation after joining the CARing Kids. Thus, the preliminary results suggested that the CARing Kids might cultivate empathy and improved emotional regulation. Nonetheless, vigorous systematic formative evaluation should be included in future follow-up studies to ensure sustainability and fidelity



# The Mechanism of Animal Assisted Humane Education: Longitudinal Case study of CARing Kids in Hong Kong (Theme 4)



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## The Mechanism of Animal Assisted Humane Education: Longitudinal Case study of CARing Kids in Hong Kong

Ngai, Joe T. K., Chau, Kathy K. Y., Lee, Jean C. Y., Yu, Rose W. M., Wong, Paul W. C.  
Department of Social Work and Social Administration, The University of Hong Kong, Pokfulam, Hong Kong SAR

### Introduction

Increasing studies started to build up evidence on the positive impact of animal assisted education (AAE), but the detailed mechanism on impact achievement remains unclear. Regarding the current research and literature of AAE and Humane Education (HE), there are no qualitative research that comprehensively document and evaluate the mechanism of the participants' change in the Asia region. A multiple longitudinal case study was conducted to explore the learning experience and social emotional development of participants who received the Competence in Active Resilience for Kids curriculum (CARing Kids).

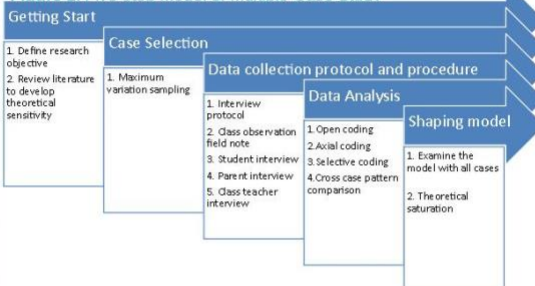
### Research Questions

- 1) What is the mechanism of the CARing Kids in cultivating social emotional skills and humane attitude?
- 2) How does the contextual factor affect the impact of the CARing Kids?

### Methodology

This research followed a five-step model (Figure 1) devised from Eisenhardt's case study approach (Eisenhardt, 1989). The participants were selected from the students who enrolled the CARing Kids curriculum (Ngai et al., 2021). All the participants were aged 8 to 10 years old and studied in the public school in Hong Kong. Maximum variation sampling was used. Participants, their parents and teachers were interviewed periodically to capture the humane and social emotional development from multiple perspectives.

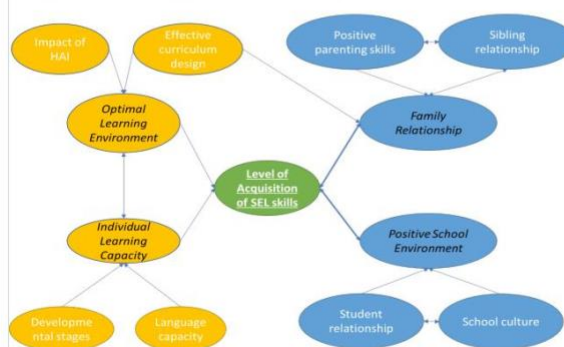
Figure 1. Five-step Model of Multiple Case Study



### Results and Discussion

Sixty interviews were conducted, and the total length of all audio recordings was 1500 minutes. All the recordings were transcribed and analysed. A total of 83 sub-categories were emerged and further condensed into 14 primary categories. Thirteen categories were selected and reorganized into the conceptual model (Figure 2) to describe the learning experience and the impact of contextual factors on cultivating the humane attitude and social-emotional skills.

Figure 2: The conceptual model of CARing Kids



Based on the conceptual model, the acquisition of social emotional skills were based on two components; the quality of the learning experience (represented in yellow) and contextual environment (represented in blue). The quality of the learning experience ensures the participants could understand the core message of the curriculum and provide initial motivation to reflect on their interpersonal relationships. On the other hand, the support from the family and school could help the participants to actualize their humane attitude and prosocial behaviours. Peers' and parents' positive responses act as reinforcers to strengthen humane attitudes and altruistic interpersonal style.

The presence of the service animal (trained canines) and the effective curriculum design could create an optimal learning environment. As such, students were more attentive, showed a higher level of self-control, and alleviated the negative emotion during learning. However, the school and family context determined the long-term effect and sustainability of the programme impact. In particular, the parenting style and the school culture would shape the interpersonal characteristics of the participants.

### Conclusion

This study indicated that Animal Assisted Humane Education enables the participants to learn in an engaged and stress-free situation. However, the programme impact were influenced by the family and school context. The proposed conceptual model explains how the AAE programme works, but it also explains why some programmes were less effective on some participants. This study might help the school stakeholder to focus on student learning experience, refine the pedagogical and school management strategies to enhance the schooling experience.

### References

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# A study of the consequences of French lockdowns during CoViD19 crisis on the welfare of pets, pet owners and veterinarians

Remy, Denise (1); Braida, Caroline (1); Naffrichoux, Eva (2); Leroux, Marie (1);  
(1) VETAGRO SUP CAMPUS VÉTÉRINAIRE, LYON UNIVERSITY, LYON (2) VETAGRO SUP CAMPUS VÉTÉRINAIRE, LYON UNIVERSITY, LYON

## Keywords / Relevant Terms

Welfare, veterinary care, lockdown, France, CoViD19, pets, pet owners, veterinarians

## Abstract

The CoViD19 pandemics led to two main lockdowns in France in 2020, which were conducted differently; less restrictions were imposed during the second one. Veterinarians had to alter their way of practising during the first lockdown. Such a sanitary crisis had never occurred previously. Many scientists claimed in the media that lockdowns have serious adverse consequences which were not taken into account. Therefore, it is important to investigate how these lockdowns impacted the welfare of veterinarians, pets and pet owners.

The authors conducted a mixed-method research study based on in-depth interviews of veterinarians as well as on two surveys of both veterinarians and pet owners. A thematic analysis of qualitative data was carried out. Quantitative data were submitted to statistical analyses using Chi-square tests and multiple correspondence analysis in order to highlight statistically significant differences.

Results show that veterinarians reacted very differently. The recommendations given by the Statutory Body were not in full accordance with the law requirements. Veterinarians and pet owners were confused. However, most pet owners obtained medical treatment for their pets. Yet 33% of them reported a lack of healthcare for their pets during the first lockdown versus only 8% during the second lockdown (statistically significant difference). Veterinarians' activity was restrained by lack of protective equipment, of drugs and of medical material more than by lockdown itself. They reported having witnessed panic behaviour in many of their clients. Many veterinarians also reported having suffered from panic themselves. In conclusion, lockdowns do not seem to have adversely affected the healthcare of pets. Conversely, they affected the welfare of pet owners and veterinarians because of the global panic atmosphere and because of the impossibility to order basic protection equipment (masks) as well as drugs and medical material.



# A study of consequences of French lockdowns during CoViD 19 crisis on the welfare of pets, pet owners and veterinarians (Theme 6)



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## A study of the consequences of French lockdowns during CoViD19 crisis on the welfare of pets, pet owners and veterinarians

**Introduction** The CoViD19 pandemic is an unprecedented sanitary crisis. Two main lockdowns in France in 2020; less restrictions imposed during the second one.

### Objectives

Evaluate how lockdowns impacted the welfare of veterinarians, pets and pet owners.

### Methods

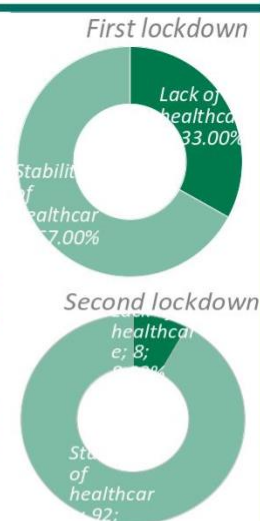
- Two surveys of both veterinarians and pet owners.
- Thematic analysis of qualitative data.
- Statistical analyses of quantitative data using Chi-square tests and multiple correspondence analysis.

**Findings** Veterinarians reacted very differently.

Most pet owners obtained medical treatment for their pets, which was reported more frequently during the first lockdown (33%) than during the second one (8%) (statistically significant difference).

Veterinarians' activity was restrained by lack of protective equipment, of drugs and of medical material more than by lockdown itself.

Veterinarians reported having witnessed panic behaviour in many of their clients. Many veterinarians also reported having suffered from panic themselves.



**Conclusion** No impact of lockdowns on the healthcare of pets.

Conversely, adverse impact on the welfare of pet owners and veterinarians because of the global panic atmosphere and the impossibility to order basic protection equipment (masks) as well as drugs and medical material.





## Impact of COVID-19 on working equids and their owners in Colombia

Burridge, Jessica (1); Lightfoot, Katie (2); Henao Villegas, Santiago (3); Jaramillo Gomez, Caroline (4);

Wild, Isabelle (5); Warboys, Debbie (5); Maguire, Liam (5); Freeman, Sarah (2); Burford, John (2);

(1) UNIVERSITY OF NOTTINGHAM (2) SCHOOL OF VETERINARY MEDICINE AND SCIENCE, UNIVERSITY OF NOTTINGHAM, SUTTON BONINGTON, LEICS

(3) CES UNIVERSIDAD, MEDELLIN (4) FUNDACIÓN ARRIEROS COLOMBIA, MEDELLIN (5) WORLD HORSE WELFARE, SNETTERTON, NORFOLK

### Keywords / Relevant Terms

Working equid, Covid-19, pandemic, socioeconomics, donkey, horse, mule, poverty

### Abstract

Background: Colombia has one of the highest rates of economic inequality in the world. With an estimated 1.5 million horses, donkeys, and mules, working equids are often key to maintaining the financial prosperity of families living below the international poverty line in this country. COVID-19 is expected to have a major socioeconomic impact on impoverished communities; however, the subsequent effect on working equid welfare is currently unknown.

Aim: To investigate the socioeconomic impact of the COVID-19 pandemic, and subsequent implications for working equid welfare, in three regions of Colombia.

Methodology: A total of nine, semi-structured focus groups were conducted in Apartado, Andes and Cartagena. Sessions were 30 – 60 minutes in duration and were divided into three participatory groups: owners of working equids, community leaders and women. Interviews were audio recorded and subsequently translated into English. Thematic analysis was performed on written transcripts using a mixture of indicative and deductive coding.

Results: There were a wide range of challenges faced by working equid owners both directly and indirectly due to the COVID-19 pandemic. Three overarching themes were identified: 'work and financial challenges', 'livelihood challenges' and

'equid related challenges'. Work and financial challenges included increased input costs of owning an equid seen by owners in Andes. There was also an increase in unemployment and informal work, and a decrease in demand for work in Cartagena. Challenges relative to owner livelihood included poor health and lack of medical equipment. Equid related challenges included deterioration in equid welfare and equids being overworked described in Cartagena and Andes. There was also a lack of support for working equid owners during the COVID-19 pandemic in Cartagena. A wide range of problems that were present before the onset of the COVID-19 pandemic were still being consistently seen. These included poor equid welfare across all regions, poor access to utilities and precarious quality of life. Ongoing problems with the welfare of working equids across Colombia were attributed to financial impacts and a lack of knowledge and veterinary services.

Conclusions: There were a wide range of problems associated with the COVID-19 pandemic across all three regions in Colombia. It is likely that COVID-19 will have further impacts on working equids and their owners, and it is important to continue to monitor these changes.



## Impact of COVID-19 on working equids and their owners in Colombia (Theme 6)

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15-16 SEPTEMBER 2021 VIRTUAL

### Impact of COVID-19 on working equids and their owners in Colombia

Burridge, Jessica(1) Lightfoot, Katie(2) Henao Villegas, Santiago(3) Jaramillo Gomez, Caroline(4) Wild, Isabelle(5) Warboys, Debbie(5) Maguire, Liam(5) Freeman, Sarah(2) Burford, John(2)  
University of Nottingham School of Veterinary Medicine and Science, University of Nottingham, Sutton Bonington, Leics CES Universidad, Medellin Fundación Arrieros Colombia, Medellin World Horse Welfare, Snetterton, Norfolk

#### Background:

Colombia has one of the highest rates of economic inequality in the world. Working equids are often key to maintaining the financial prosperity of families living below the international poverty line in this country. COVID-19 is expected to have a major socioeconomic impact on impoverished communities; however, the subsequent effect on working equid welfare is currently unknown.

#### Aims:

To investigate the socioeconomic impact of the COVID-19 pandemic, and subsequent implications for working equid welfare, in three regions of Colombia.

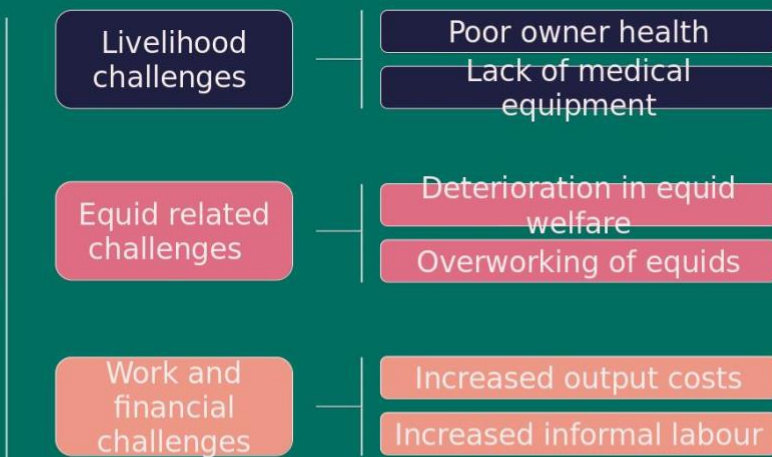
#### Methods:

- Nine 30 – 60 minutes semi-structured focus groups conducted in Apartado, Andes and Cartagena
- Three participatory groups: owners of working equids, community leaders and women
- Thematic analysis performed on written transcripts using indicative and deductive coding

#### Results:

- There were a wide range of challenges faced by working equid owners both directly and indirectly due to the COVID-19 pandemic
- Three overarching themes were identified: 'work and financial challenges', 'livelihood challenges' and 'equid related challenges'
- There was a lack of support for working equid owners during the COVID-19 pandemic in Cartagena
- A wide range of problems that were present before the onset of the COVID-19 pandemic were still being consistently seen. These included:
  - Poor equid welfare
  - Poor access to utilities
  - Precarious quality of life
- Ongoing problems with the welfare of working equids across Colombia were attributed to financial impacts and a lack of knowledge and veterinary services

#### Challenges faced by working equid owners since the start of the COVID-19 pandemic



#### Conclusions:

A wide range of problems associated with the COVID-19 pandemic were identified amongst working equid owners in Colombia. The impacts affected equid welfare directly and indirectly. Changes in welfare of animals have a direct effect on the socioeconomic situation of families who rely on them. It is likely that there will be further impacts on working equids and their owners as a result of the COVID-19 pandemic and it is important to continue to monitor these changes.

svyjab@nottingham.ac.uk  
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# Impact of Covid-19 safety protocols on the wellbeing of 15 dogs involved in animal-assisted interventions (Flanders, Belgium)

Meers, L. L. (1); Contalbrigo, L. (2); Stevens, V. A. (1); Ulitina, O. (3); Laufer, S. J. (1); Samuels, W. E. (4); Duarte-Gan, C. (5); Normando, S. (6);  
(1) BIAAT FOUNDATION (2) NATIONAL REFERENCE CENTRE FOR ANIMAL ASSISTED INTERVENTIONS, IZSVE (3) ALTAI STATE MEDICAL UNIVERSITY, DEPARTMENT OF PHYSIOLOGY  
(4) HUNTER COLLEGE, SCHOOL OF NURSING, COLLEGE OF STATEN ISLAND (5) UNIVERSITY OF JAÉN, DEPARTMENT OF PSYCHOLOGY  
(6) UNIVERSITY OF PADUA, DEPARTMENT OF COMPARATIVE BIOMEDICINE AND FOOD SCIENZE

## Keywords / Relevant Terms

Animal-assisted therapy, Covid-19 protocol, One Health, One Welfare.

## Abstract

Since the Covid-19 pandemic started, there has been concern that domestic animals may help spread SARS-Cov-2. This concern also greatly affected human-animal interaction projects such as animal-assisted interventions (AAIs). As a result, institutions and AAI practitioners developed new safety protocols and procedures to help control the spread of the SARS-Cov-2 virus during AAI sessions. However, little is known yet about the impact on animals' needs and the possible welfare issues due to these lifestyle adaptations.

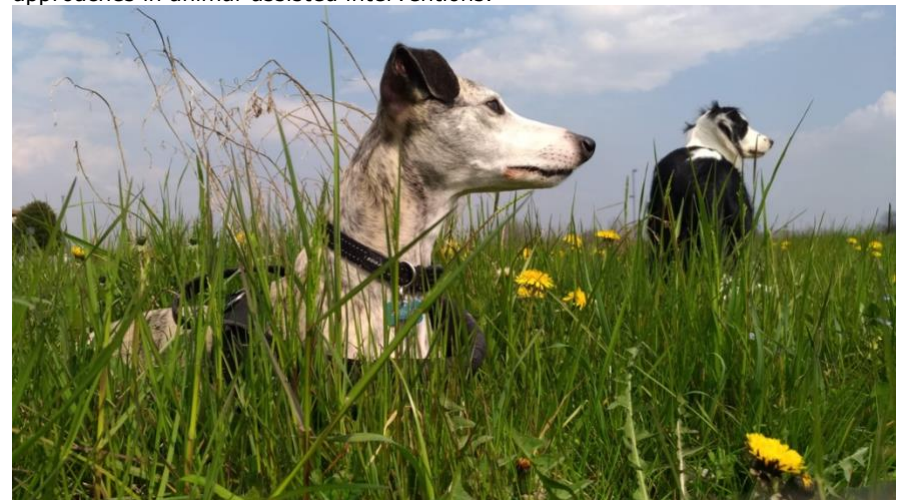
Fifteen therapists in Flanders, Belgium, who were currently conducting canine-assisted interventions, conducted unstructured observations on how their dogs' (11 mixed breeds, 3 Labradors, 1 terrier; aged 2 – 12 years) behaviors changed due to institutional Covid-19 safety protocols.

Most (80%) of the respondents reported that their dogs showed sniffing or sneezing after smelling disinfected areas. Two (13%) dogs responded with vomiting and gagging, and three (20%) dogs urinated over disinfected areas. All protocols advise social distancing between participants and animals. When held back, eight (53%) dogs showed self-calming behaviors. Respondents reported that most (73%) dogs responded with flight reactions when seeing humans wearing facial masks. When practitioners threw their used masks in open dustbins, five (33%) dogs tried to take them out with their mouths and play with them; two (13%) Labradors tried to eat them.

Taking the dogs' temperatures was the most frequently (53%) used method to supervise their health. However, all dogs showed defensive behaviors as ducking the tail, trying to escape, or biting the animal handler during this procedure.

We interpret these results to suggest that dogs tended to react with stress and confusion to the changes in AAI practices they're part of. The safety protocols that

institutions used were largely borne from recommendations made to protect humans. The participating practitioners appeared to use their knowledge of dog behavior and safety to modify them as best they could—but with greater concern directed towards the other humans. Given their inter-relatedness and mutual importance for welfare, we advocate for integrated human and animal health and welfare assessments and protocols to provide a framework for "One welfare" approaches in animal-assisted interventions.



# Impact of Covid-19 safety protocols on the wellbeing of 15 dogs involved in animal-assisted interventions (Flanders, Belgium) (Theme 6)



## Impact of Covid-19 safety protocols on the wellbeing of 15 dogs involved in animal-assisted interventions (Flanders, Belgium)

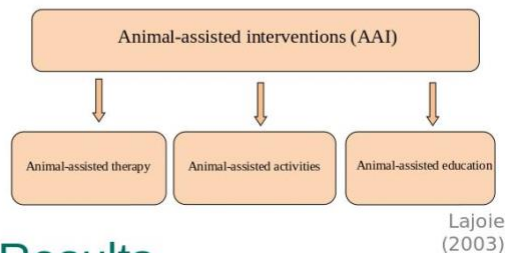
Meers L.<sup>1</sup>, Contalbrigo L.<sup>2</sup>, Stevens V.A.<sup>1</sup>, Ulitina O.<sup>3</sup>, Laufer S.J.<sup>1</sup>, Samuels W.E.<sup>4</sup>, Duarte-Gan C.<sup>5</sup>, Normando S.<sup>6</sup>  
<sup>1</sup>BIAAT Foundation, <sup>2</sup>National Reference Centre for Animal Assisted Interventions, <sup>3</sup>Altai State Medical University, Department of Normal Physiology, <sup>4</sup>Hunter College, School of Nursing, CUNY, <sup>5</sup>University of Jaén, Department of Psychology, <sup>6</sup>University of Padua, Department of Comparative Biomedicine and Food Science

### Introduction

- Covid-19
  - Outbreak December 2019
  - Concern that animals may help spread SARS-Cov-2
  - Result - new Covid-19 safety protocols in AAI



Created by Maya Peters Kostman for the IGL.



### Methodology

- Aim of the study
  - To study the impact of Covid-19 safety protocols on dogs involved in a canine-assisted project
- Material and Method
  - July/August 2020 - unstructured observations - 15 Flemish therapists involved in animal-assisted therapy (Lajoie, 2003)
  - Dogs - 11 mixed breeds, 3 Labradors & 1 terrier, aged 2 - 12 years

### Results

- Reaction to disinfected areas
  - 80% Sniffing and sneezing
  - 13% Vomiting and gagging
  - 20% Urinating
- All protocols advice social distancing
  - 53% Self calming behaviour when held back
- Reaction on facial masks
  - 73% Flight reactions
  - 33% Trying to take the mask out of the dustbin
  - 13% Trying to eat the masks (= Labradors)
- 53% taking temperature to supervise the dogs' health
  - All dogs responded with ducking the tail, trying to escape, or biting the animal handler



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### Conclusion

- Current Covid-19 safety protocols are largely borne from recommendations made to protect humans
- First results indicate stress and confusion in dogs due to these new safety protocols
- We advocate a framework of "One welfare" for future Covid-19 protocols



More information  
info@biaat.be  
<https://www.linkedin.com/company/stichting-biaat>





# Making the case for animal health and welfare in the One Health narrative

Parravani, Ellie (1); Bambara, Carine (1); Turner, Patricia (2); Goodrum, Frances (3); Saville, Klara (4);  
(1) BROOKE ACTION FOR HORSES AND DONKEYS, LONDON (2) WORLD VETERINARY ASSOCIATION (3) BROOKE ACTION FOR HORSES AND DONKEYS (4) LONDON

## Keywords / Relevant Terms

One health, sustainable development goals, zoonoses, human health, animal welfare, One Welfare

## Abstract

The devastating health, social and economic consequences of COVID-19 have focussed the world's attention on the growing threat from zoonoses (infectious diseases transmitted from animals to humans). COVID-19 is a stark example of why we must invest in animal health and welfare. It joins a long list of zoonotic diseases including rabies, Ebola, SARS, and avian influenza that have killed millions of people.

Approximately 75% of new human infectious diseases emerge from animals 1. By investing in animal health and welfare systems, the overall burden of zoonotic diseases and pandemic threat will reduce, avoiding millions of deaths. The 1.3 billion people dependent on livestock will have a more secure future and food security will be assured for billions more.

Brooke has responded to the COVID-19 pandemic by forming a new coalition with 12 organisations to call on governments and international agencies to invest in strong animal health systems, with welfare at their heart, as part of operationalising One Health and to support attainment the attainment of the SDGs. One Health is gaining political traction as the international community reviews its response to the pandemic and how to build better systems to prevent another.

Numerous heads of government and international agencies have called for a global pandemic treaty that recognises One Health, and the tripartite plus has announced

a new One Health High-Level Expert panel. The role of the coalition is to advocate for the values of the One Welfare concept and ensure that animal welfare gets the recognition it deserves within the current narrative.

The Action for Animal Health coalition launched in May 2021 and is composed of multilateral organisations, research institutes, NGOs and others (AU-IBAR, Brooke, Compassion in World Farming, Dogs Trust Worldwide, GALVmed, Global Alliance for Rabies Control, International Livestock Research Institute, SEBI-livestock, Send a Cow, Soi Dog Foundation, World Veterinary Association, Vétérinaires San Frontiers International).

The coalition proposes five areas of action:

1. Support community engagement and equitable access to animal health services
2. Increase numbers of and improve the skills of the animal health workforce
3. Close the veterinary medicines and vaccines gap
4. Improve animal disease surveillance
5. Enhance collaboration for One Health

The coalition is reaching out to stakeholders working across the areas of One Welfare to progress towards better investment in animal health systems. The coalition bridges animal welfare and human wellbeing, by linking its agenda into international development processes, like the SDGs - particularly SDG 3.

# COVID-19's critical juncture: a moment to advocate for investment in animal health systems to operationalise One Health (Theme 6)



ONE WELFARE CIC PRESENTS

## ONE WELFARE WORLD CONFERENCE

15-16 SEPTEMBER 2021 VIRTUAL

### COVID-19's critical juncture: a moment to advocate for investment in animal health systems to operationalise One Health

Authors: **Ellie Parravani** (Brooke), Carine Bambara (Brooke), Frances Goodrum (Brooke), Dr Klara Saville (Brooke), Dr Patricia Turner (World Veterinary Association)



#### Introduction

The Action for Animal Health coalition was established in April 2020. The COVID-19 pandemic put the spotlight on the increasing emergence of zoonotic diseases, and the need for better investment in animal health systems. There are many individual efforts by civil society to advance the welfare of animals, to combat particular diseases, and to strengthen parts of animal health systems – but it was recognised that to have transformational change we need to come together as a coalition and advocate for investment in systems as a whole.

The coalition launched in May 2021 and is composed of multilateral organisations, research institutes, NGOs and others, with expertise in animal health and related fields, and reflects the values of the One Welfare approach. It calls on governments, donors and international agencies to invest in animal health systems to operationalise One Health and attain the SDGs.

#### Aims and objectives

The coalition has a vision to achieve improved animal health and welfare, leading to better income security, food security and improved health and wellbeing of people. Within five years, we wish to see national governments and international agencies acknowledge the importance of animal health and welfare, by increasing the level of spending on animal health systems.

The coalition proposes five actions to strengthen systems:

1. Support community engagement and access to services
2. Increase and improve the animal health workforce
3. Close the veterinary medicines and vaccines gap
4. Improve animal disease surveillance
5. Enhance collaboration for One Health

#### Rationale

From the perspective of human health, zoonotic diseases are a growing threat. Zoonotic diseases causing more than 2.5 billion cases of human illness and 2.2 million deaths a year, based on pre-COVID data (Victor et al 2021). From a food security angle, 1.3 billion people (one in five of the world's population) depend on livestock (World Bank) for their livelihoods and 20% of livestock production losses worldwide can be attributed to animal diseases (OIE).

Underinvestment in Animal Health Systems has led to critical shortages in the veterinary workforce, medicines and vaccines, inadequate access to these services for communities, poor disease surveillance and welfare issues. This risks the emergence of zoonotic diseases as well as other non-zoonotic animal diseases that have huge economic and health consequences.

Animal-owning communities across the world have poor access to veterinary and paraveterinary services. Disease surveillance at critical points like farms, border crossings and wet markets fails to protect animals and people from pathogens.

#### Approach

Since the emergence of the COVID-19 pandemic, the concept of One Health has gained political traction internationally. However, decision-makers must recognise the weaknesses within animal health systems, limiting ability to put the concept into practice. This is now a crucial moment to advocate for strengthening animal health systems across the world.

The coalition is working to convince UN member states and international agencies of the need to invest in animal health systems to operationalise One Health. We do this through political influencing, evidence building, communication campaigns and the amplification of solutions generated by coalition members. We are encouraging member states and international agencies to take a message of animal health systems strengthening to international processes to ensure there are clear and measurable commitments to One Health and animal health in the outcomes of these processes. For instance, we are lobbying G20 Health Ministers and Agriculture Ministers to build consensus amongst G20 members of the need to strengthen animal health systems, which we want to see reflected in the resulting communiqué.

By ensuring that there are binding commitments to One Health, we can better hold countries to account on its implementation, as well as advocate for funding to be made available for its implementation.

#### Final remarks

The COVID-19 pandemic has presented us with a critical moment to advocate for strengthened animal health systems in order to operationalise One Health, and put the values of One Welfare into practice. Overall, our message as a coalition is that animal health systems must be strengthened from the community level upwards, and must be invested in to prevent another pandemic, secure global health, and progress towards the achievement of the Sustainable Development Goals.

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Website: [www.actionforanimalhealth.org](http://www.actionforanimalhealth.org)



Veterinary Association, Veterinarians Sans Frontiers International

# The dog and cat meat trade: a potential source for future pandemics

Kukreja, Karan (1); Munteanu, Alex (2);

(1) COMPANION ANIMALS DEPARTMENT, VIER PFOTEN INTERNATIONAL (2) SCIENCE UNIT, VIER PFOTEN INTERNATIONAL

## Keywords / Relevant Terms

Dog meat, cat meat, pandemic risk, live markets

## Abstract

An estimated 30 million dogs and cats are killed for meat consumption every year in Asia. To date, multiple cases of disease transmission and outbreaks in relation to DCMT have been documented in humans, including, cholera, trichinellosis, and rabies. Several rabies outbreaks in Asia were due to contact with infected material during the preparation of or consumption of dog and cat meat, rather than the typical route of transcutaneous infection due to bites or scratches.

DCMT has the disconcerting potential of facilitating (novel) disease emergence, transmission and outbreak as the steps involved in the trade lead to immunosuppressed individuals. Dogs and cats are captured, beaten, caged, transported over long distances, kept in tight spaces with conspecifics and other species of animals, deprived of food and water for days, and then brutally killed. Animals are “processed” with no regard to origin, hygiene, health or welfare considerations (see Figure 1).

A notable risk factor for disease emergence is represented by live animal markets. These pathogen network hubs are believed to have been the likely place of origin for the avian influenza outbreaks (e.g., Shanghai, 2013), of SARS-CoV (Guangdong, 2003) and of COVID-19 (Wuhan, 2019). Live animal markets reduce the distance between humans and a large and varied number of species of animals

including the dogs and cats from DCMT, enhancing the chance of pathogen transmission. Disease control endeavours are further hindered by the indiscriminate removal from free-roaming or owned populations of vaccinated animals, leaving both human and animal populations incapacitated to resist diseases such as rabies.

While critical, the risk to public health is not the only danger posed by DCMT. Opportunistic species such as rodents and insects may come in contact with refuse from slaughtered animals and further spread pathogens to farm or wild species of animals with heavy impact on biodiversity. Of further ecological concern is the unmanaged waste disposal that may further carry pathogens, polluting the environment.

Beyond the zoonotic threat, DCMT has a deep impact on psychological wellbeing. Pet theft, brutal handling and slaughtering can and do cause distress, revulsion and feeling of helplessness for both pet owners and witnesses, including children. The conditions of the DCMT are in contravention of key aspects and principles of the One Welfare Framework. DCMT not only completely disregards animal welfare but strongly affects public health, both physical and psychological, environmental stability, and biodiversity. There is but one solution: DCMT must end.



# The dog and cat meat trade: a potential source for future pandemics (Theme 6)



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15-16 SEPTEMBER 2021 VIRTUAL

### The dog and cat meat trade: a potential source for future pandemics

Karan Kukreja\* & Alexandru Munteanu

Animal Welfare.  
Worldwide.



#### Global problem

**30  
million**

**dogs and cats are killed  
for meat consumption  
every year in Asia<sup>1</sup>**

The conditions of the dog and cat meat trade (DCMT) expedite novel pathogen emergence and exacerbate current deadly diseases



#### Take home message

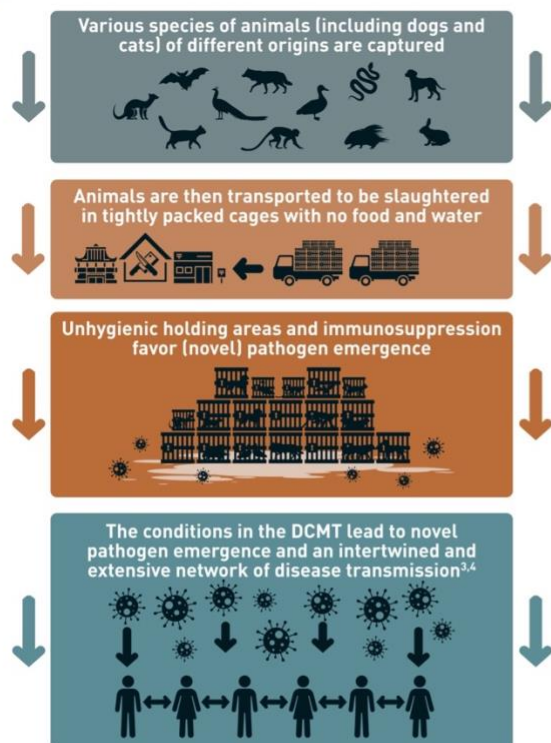
#### DCMT violates One Welfare principles!

- completely disregards animal welfare
- poses enormous public health risks
- causes psychosocial traumas
- affects environment health and biodiversity

There is but one solution:

**DCMT must end!**

#### DCMT & novel pathogen emergence<sup>2</sup>



#### DCMT & One Welfare



##### Public Health

Multiple disease outbreaks have been linked to DCMT<sup>2</sup>:

- Rabies
- Cholera
- Trichinellosis



##### Biodiversity

Poor hygiene practices and waste disposal management facilitate transmission of pathogens through vectors or directly to wild species of animals.



##### Psychological effects

DCMT largely depends on pet theft, brutal handling and savage slaughter, often in full public view<sup>1</sup>.

DCMT causes distress, revulsion, and feelings of helplessness for both pet owners and witnesses, with dire consequences on emotional wellbeing.



##### Law & order

DCMT almost always contravenes existing laws, leading to social disorder and lack of cohesion, such as acts of vigilantism<sup>1</sup>.

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\*Karan Kukreja

karan.kukreja@four-paws.org

VIER PFOTEN International

Linke Wienzeile 236, 1150 Vienna, Austria

[www.four-paws.org](http://www.four-paws.org)

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