



# ISAZ 2015

Topics in Human–Animal Interactions  
*Significance in History and for the Future*

SARATOGA SPRINGS, NY • JULY 7–9, 2015



*Abstracts appear as they were submitted. Their contents have not been changed, although their appearance may have been changed for stylistic reasons.*

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## ISAZ 2015

*Topics in Human-Animal Interactions:  
Significance in History and for the Future*



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# About the International Society for Anthrozoology

The International Society for Anthrozoology (ISAZ) was formed in 1991 as a supportive organization for the scientific and scholarly study of human–animal interactions. ISAZ is a nonprofit, nonpolitical organization with a worldwide, multi-disciplinary membership of students, scholars and interested professionals.

Our mission is to serve the growing community of scholars and scientists working in the field of Anthrozoology (the study of human–animal interactions and relationships) by supporting research, publishing and disseminating new insights and discoveries, and promoting the exchange of knowledge and expertise within the field.

To learn more, please explore our web site: [www.isaz.net](http://www.isaz.net).

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# Welcome

**O**n behalf of the International Society for Anthrozoology, the conference committee is delighted to extend a warm welcome to over 140 registrants from 5 continents to our 24th annual conference in this beautiful and historic town of Saratoga Springs. Its slogan, “Health, History, and Horses,” reflects the foundation on which this exciting and vibrant small town was built. As a resort destination throughout the 19th and 20th centuries, many affluent tourists came to bathe in the “healing waters,” the natural mineral springs which today remain a source of stress relief and rejuvenation. Many of the grand mansions from an era when presidents and cabinet members summered in the area still remain within walking distance of the conference hotel. Without a doubt, however, one of the most important contributions to the success of Saratoga Springs is the horse. The famous historic Saratoga Race Course, founded in the 1860s, is the oldest racetrack and the oldest sporting venue in the U.S. It remains one of the most significant tourist attractions, and throughout the town—from street names, to statues, to featured items in gift shops—horses are an admired and significant presence in daily life.

In recognition of the importance of these animals, research addressing the relationship of horses to humans is identified as a special topic in this year’s conference agenda. Over 20 percent of this year’s presentations are devoted to human—horse interactions. The theme, “Topics in human—animal interactions: Significance in history and for the future,” calls attention to the constantly emerging new scientific research into human—animal relationships, and the implication for these relationships in the future. The abundant submission of papers and gratifying attendance at our ISAZ conferences are indicators of the growing prominence of anthrozoology as an academic field. We take pride in the importance of our conferences as annual meeting places for researchers to share their findings and for scholars and budding academics to learn about the latest work of their colleagues in the field.

We hope that you enjoy the conference. While you are at the Saratoga Hilton take time to enjoy the beautiful downtown and surrounding area. Take in what Saratoga Springs has to offer: a night under the stars with the New York City Ballet at the Saratoga Performing Arts Center, an early morning stroll to watch horses galloping at the Oklahoma Training Track, a brief walk to Congress Park to taste waters from some of the local springs. Enjoy a taste at some of the many restaurants within a few blocks of the conference site. Most importantly, we hope that you have the opportunity to interact with colleagues, connect with those who share your interest, and appreciate the podium and poster presentations from this year’s ISAZ conference. Welcome, and enjoy!

Beth and Erika

# Acknowledgements

## **CONFERENCE COMMITTEE**

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Erika Friedmann  
Cheryl Krause-Parello  
James Serpell (sponsorship)  
Nik Taylor

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Andrea Leigh Ptak  
Beth Daly

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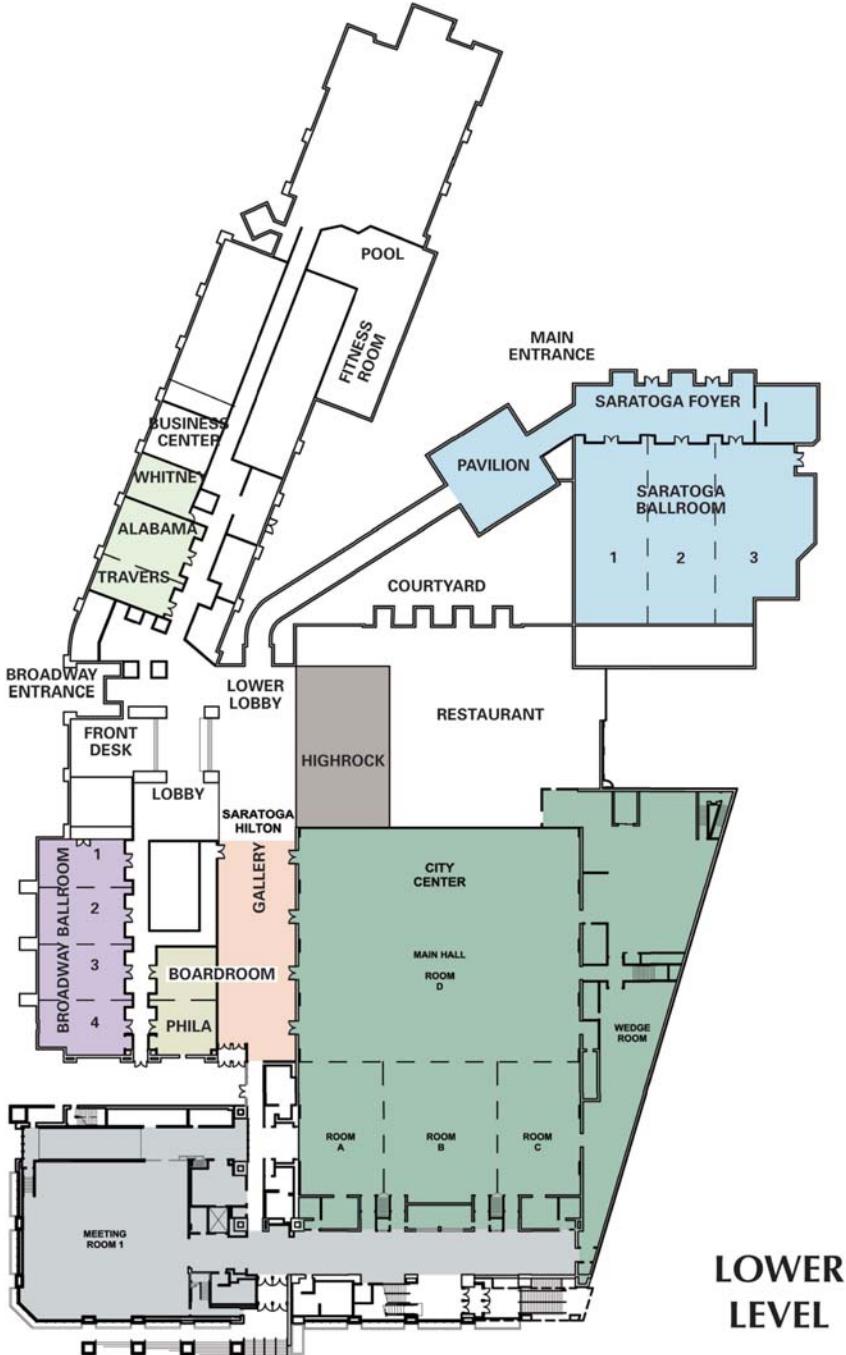
# Map of Conference Venue

## SARATOGA HILTON

Sessions: Saratoga Ballrooms 2 & 3

Posters: Saratoga Ballroom 1

Exhibitors: Saratoga Foyer



# ISAZ2015 Conference Program Summary

## Tuesday, July 7, 2015

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1200–1800	<b>Registration in the Hotel Lobby</b> <b>Posters in Saratoga Ballroom 1</b> Wednesday 0830 – Thursday 1550
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1800–2030	<b>Welcome Reception at the Mouzon House (Behind Hotel) 1 York Street</b>
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## Wednesday, July 8, 2015

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0730-1700	<b>Registration in the Hotel Lobby</b>
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0800-0900	<b>Light Breakfast in the Pavilion</b>
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0900–0915	<b>Welcome – Saratoga Ballroom 2 &amp; 3</b>
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0915–1015	<b>Keynote 1: John Bradshaw</b> , Anthropomorphism – Consequences for pets and for people, <i>Sponsored by WALTHAM®</i> – Saratoga Ballroom 2 & 3
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1015–1110	<b>Posters in Saratoga Ballroom 1</b>
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1110–1130	<b>Coffee Break in the Pavilion and Posters</b>
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1130–1230	<b>Session 1: History</b> – Saratoga Ballroom 3
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	<b>Session 2: Horses</b> – Saratoga Ballroom 2
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1230–1325	<b>Lunch in Broadway Ballroom</b> <i>Sponsored by ASPCA</i>
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1330–1420	<b>Keynote 2: Phil Arkow</b> , The link across the lifespan: Animal abuse as an indicator and predictor of crimes against vulnerable children, women and elders – Saratoga Ballroom 3 <i>Sponsored by IFAW</i>
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1430–1530	<b>Session 3: Vulnerable Populations and Their Animals (part 1)</b> – Saratoga Ballroom 3
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	<b>Session 4: Shelters/Humane Education/Animal Welfare (part 1)</b> – Saratoga Ballroom 2
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1530–1545	<b>Coffee Break in the Pavilion</b>
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1545–1730	<b>Session 3: Vulnerable Populations and Their Animals (part 2)</b> – Saratoga Ballroom 3
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	<b>Session 4: Shelters/Humane Education/Animal Welfare (part 2)</b> – Saratoga Ballroom 2
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	<b>BREAK</b>
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1800	<b>Bus to Conference Dinner</b> (the bus will make two runs each way)
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1830–2100	<b>Conference Dinner at The Wishing Well Restaurant</b> <i>Sponsored by Nestlé Purina</i>
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## Thursday, July 9, 2015

0800–0900	<b>Light Breakfast in the Pavilion</b>
0900–0915	<b>Welcome</b> – Saratoga Ballroom 2 & 3
0915–1015	<b>Keynote 3: Ron L. Kagan</b> , Nature vs nonsense: How science, entertainment and politics collide at zoos and aquariums – Saratoga Ballroom 2 & 3 <i>Sponsored by WALTHAM®</i>
1015–1040	<b>Posters in Saratoga Ballroom 1</b>
1040–1100	<b>Coffee Break in the Pavilion and Posters</b>
1100–1300	<b>Session 5: AAI/AAT</b> – Saratoga Ballroom – Saratoga Ballroom 3 <b>Session 6: Animal Behavior/Attitudes toward Animals</b> – Saratoga Ballroom 2
1300–1355	<b>Lunch in the Broadway Ballroom</b>
1400–1530	<b>Session 7: WALTHAM®/NIH Sponsored Research</b> – Saratoga Ballroom 3 <b>Session 8: Equine AAT</b> – Saratoga Ballroom 2 <b>Session 9: Wild Horses</b> – Saratoga Ballroom 2
1530–1550	<b>Coffee Break in the Pavilion</b>
1550–1635	<b>ISAZ Annual General Meeting</b> – Saratoga Ballroom 3
1635–1700	<b>Wrap up and Awards</b> – Saratoga Ballroom 3



*Relax between sessions in the lobby of the Saratoga Hilton.*

# ISAZ2015 Conference Program

## Tuesday, July 7, 2015

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<b>1200–1800</b>	<b>Registration in the Hotel Lobby</b> <b>Posters in Saratoga Ballroom 1</b> Wednesday 0830 – Thursday 1550
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<b>1800–2030</b>	<b>Welcome Reception at the Mouzon House (Behind Hotel) 1 York Street</b>

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## Wednesday, July 8, 2015

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<hr/>		
<b>0915–1015</b>	<b>Keynote 1: John Bradshaw – Anthropomorphism –</b> Consequences for pets and for people. <i>Sponsored by WALTHAM®</i> <i>Session Chair: Sandra McCune</i>	
<hr/>		
<b>1015–1110</b>	<b>Posters in Saratoga Ballroom 1</b>	
<hr/>		
<b>1050–1115</b>	<b>Coffee Break in the Pavilion and Posters</b>	
<hr/>		
<b>1130–1230</b>	<b>Session 1: History</b> <i>Session Chair: Patricia Anderson</i> <b>Saratoga Ballroom 3</b>	<b>Session 2: Horses</b> <i>Session Chair: Kristen Jacobsen</i> <b>Saratoga Ballroom 2</b>
<hr/>		
	<i>Fabienne Meiers: The urban horse: Equestrian traffic and horse husbandry in late medieval cities*</i>	<i>Neema Kawe: Women's practices and donkey behaviour in Kitui, Kenya</i>
<hr/>		
	<i>Helena Pycior: An Argument for local, multispecies history of nonhuman animals: The case study of Milwaukee, Wisconsin</i>	<i>Rodrigo Lanas: The link between animal welfare of urban draught horses and livelihoods of their owners</i>
<hr/>		
	<i>Diane Warren: Using archaeological assemblages to understand human–animal interactions: A case study using archaic period domestic dogs</i>	<i>Petra Andersson: Diversified ideas on horses in diversified equine cultures</i>
<hr/>		
	<i>Rebekah Fox: The Changing nature of the companion animal–human relationship in Britain over the past 30 years</i>	<i>Keri Brandt: Bodies in motion: Embodiment and intimacy in the human–horse relationship</i>
<hr/>		
<b>1230–1330</b>	<b>Lunch in Broadway Ballroom <i>Sponsored by ASPCA</i></b>	
<hr/>		
<b>1330–1420</b>	<b>Keynote 2: Phil Arkow – The link across the lifespan:</b> Animal abuse as an indicator and predictor of crimes against vulnerable children, women and elders. <i>Sponsored by IFAW</i> <b>Saratoga Ballroom 3</b> <i>Session Chair: James Serpell</i>	

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## Wednesday, July 8, 2015

<b>1430–1730</b>	<b>Session 3: Vulnerable Populations and Their Animals</b> <i>Session Chair: Erika Friedmann</i> <b>Saratoga Ballroom 3</b>	<b>Session 4: Shelters/Humane Education/Animal Welfare</b> <i>Session Chair: Lynnette Hart</i> <b>Saratoga Ballroom 2</b>
	<i>Beth Lanning:</i> Effects of equine–veteran interactions on quality of life and depression symptoms	<i>Rachel Orritt:</i> Perceptions and attitudes towards canine aggressive behaviour by professional and non-professional groups *
	<i>Karen Krob:</i> Heroes and horses: Exploring an equine facilitated learning and psychotherapy program for veterans	<i>Pauleen Bennett:</i> Pet snake, lizard, frog, and turtle management practices by owners in Victoria, Australia
	<i>Cheryl Krause-Parello:</i> Veterans and service dogs: An integrated review of the literature	<i>Benjamin Hart:</i> Why men and women neuter their dogs in the U.S., Canada, and UK
	Maya Gupta: Findings from a “safe haven” program for domestic violence victims with pets: Client characteristics and perceptions	Kirrilly Thompson: How do horse guardians respond to bushfire threat? Compliance with pre-emptive relocation advice in South Australia?
<b>1530–1545</b>	<b>Coffee Break</b>	
<b>1545–1730</b>	<i>Session Chair: James Griffin</i> <i>Estelle Vickery:</i> Psychological benefits of guide dog ownership	<i>Session Chair: Pauleen Bennett</i> <i>Malini Suchak:</i> Colony housed shelter cats show high variability in association with conspecifics
	<i>Mariko Yamamoto:</i> Walking activities of people in Japan living with guide dogs and pet dogs	<i>Catherine Amiot:</i> The role of social identification with animals in predicting valued resource distributions between animals and humans: An application of intergroup theories to the realm of human–animal relations
	Jennie Feinstein: Effects of occupational therapy incorporating animal-assisted therapy on playfulness in children with developmental disabilities*	<i>Livia Apostol:</i> Applying the theory of planned behavior to predict people’s intention to financially support the conservation of endangered animal species
	<i>Gretchen Carlisle:</i> Children with autism and their companion animals: The experiences of families as perceived by parents and other caregivers	<i>Roger Haston:</i> Beyond labels: Understanding the impact of live release rate and intake policies on animal welfare through the use of stochastic modeling.
	<i>Joanna Becker:</i> Presence of a dog on executive functioning and stress in children with emotional disorders	Stephen Albone: Longitudinal follow-up of the effectiveness of SPANA’s animal welfare education programme in Ethiopia
	Kevin Morris: Measuring the efficacy of an animal-assisted Intervention within a family preservation program — The Savio Study	
<b>1730–1800</b>	<b>BREAK</b>	
<b>1800</b>	<b>Bus to Conference Dinner</b> (the bus will make two runs each way)	
<b>1830–2100</b>	<b>Conference Dinner at The Wishing Well Restaurant 745 Saratoga Rd.</b> <i>Sponsored by Nestlé Purina</i>	



## Thursday, July 9, 2015

<b>0800–0900</b>	<b>Light Breakfast in the Pavilion</b>	
<b>0900–0915</b>	<b>Welcome – Saratoga Ballroom 2 &amp; 3</b>	
<b>0915–1005</b>	<b>Keynote 3: Ron L. Kagan</b> – Nature vs nonsense: How science, entertainment and politics collide at zoos and aquariums. <i>Sponsored by WALTHAM®</i> <i>Session Chair: Anthony Podberscek</i>	
<b>1015–1100</b>	<b>Posters in Saratoga Ballroom 1</b>	
<b>1040–1100</b>	<b>Coffee Break in the Pavilion</b>	
<b>1100–1300</b>	<b>Session 5: AAI/AAT</b>  <i>Session Chair: Cheryl Krause-Parello</i> <b>Saratoga Ballroom 3</b>  <i>Harold Herzog: How valid are clinical trials of animal-assisted therapy?</i>  <i>Sandra Barker: A randomized controlled study of the effect of a campus animal-assisted activity (AAA) on college student physiological and perceived stress prior to final exams</i>  <i>Jon-Tyler Binfet: Heavy petting on campus: The effects of group-administered animal-assisted therapy on first-year university student's social and emotional well-being</i>  <i>Karin Hediger: Development of attitudes towards animal-assisted therapy in a Swiss rehabilitation clinic</i>  <i>Diane Walsh: Job stress in forensic interviewers: Initially and after using facility dogs, therapy dogs, or no dogs*</i>  <i>Tanya Bailey: The role of an animal-assisted interaction (AAI) program as a means of social support and stress reduction within a college community</i>  <i>Molly Crossman: Using interactions with animals to reduce psychological distress: A review*</i>  <i>Carri Westgarth: How do dogs encourage and motivate walking? Results from RESIDE</i>	<b>Session 6: Animal Behavior/ Attitudes toward Animals</b>  <i>Session Chair: John Bradshaw</i> <b>Saratoga Ballroom 2</b>  <i>Miki Kakinuma: Pet dog's orientation toward photos and videos: are pet dogs ready for the video chat while left home alone?</i>  <i>Sophie Brajon: Positive contact with humans can improve learning performance and emotional states in piglets*</i>  <i>Amy McCullough: Canines and childhood cancer (CCC): Behavioral and physiological stress in therapy dogs who visit pediatric oncology settings</i>  <i>Paula Calvo: Attitudes toward animals: A population-based study (n = 2500)*</i>  <i>Justin Couchman: Using therapy dog attachment to test perspective-taking in children</i>  <i>Mikel Delgado: Development of a scale to measure cat care and understanding of cats' behavioral needs: The cat care and needs scale (CCANS)</i>  <i>Jon Bowen: Measuring the owner-cat relationship: Can the Monash dog owner relationship scale (MDORS) be adapted?</i>
	<b>1300–1400</b>	<b>Lunch in the Broadway Ballroom</b>

**Thursday, July 9, 2015**

<b>1400–1530</b>	<b>Session 7: WALTHAM®/NIH Sponsored Research</b> <i>Session Chair: Nancy Gee</i> <b>Saratoga Ballroom 3</b>	<b>Session 8: Equine AAT</b>  <i>Session Chair: Harold Herzog</i> <b>Saratoga Ballroom 2</b>
	<i>Sabrina Schuck:</i> Canine assisted intervention for children w/attention deficit/hyperactivity disorder: Main outcomes from project P.A.C.K.	<i>Ping-Tzu Lee:</i> Theoretical development in equine-assisted psychotherapy: The difference between traditional psychotherapy and equine-assisted psychotherapy
	<i>Marguerite O’Haire:</i> Development and initial validation of the observation of human–animal interaction for research-modified version	<i>Ann Baldwin:</i> The effects of an equine facilitated learning interaction on elder adults (55+) as measured by heart rate variability, self-esteem and immune function (slgA)
	<i>Kristen Jacobson:</i> Does exposure account for racial/ethnic differences in children’s attitudes towards pets?	<i>Jessica Bibbo:</i> Effects of equine assisted activities on PTSD symptoms, coping self-efficacy, emotion regulation and social engagement in military veterans*
	<i>Lori Jervis:</i> The devastation and normalization of dog loss in an American Indian community	<b>Session 9: Wild Horses</b> <i>Session Chair: Marie Suthers</i> <b>Saratoga Ballroom 2</b>
	<i>Teal Macintosh:</i> Measuring children’s preferences, perceptions and attitudes about animals; adapting tools for pediatric populations	<i>Mary Koncel:</i> Bringing home the wild: A study of bureau of land management wild horse adoption in Colorado and Texas
	<i>Anne Gadomski:</i> Attachment to a pet dog and physical activity among younger children	<i>Karen Dalke:</i> Mustangs and domestic horses: Examining what we think we know about differences
		<i>Allen Rutberg:</i> Factors influencing group stability and body condition in two western wild horse herds treated with porcine zona pellucida (PZP) immunocontraceptive vaccines
<b>1530–1550</b>	<b>Coffee Break in the Pavilion</b>	
<b>1550–1635</b>	<b>ISAZ Annual General Meeting – Saratoga Ballroom 2 &amp; 3</b>	
<b>1635–1700</b>	<b>Wrap up and Awards – Saratoga Ballroom 2 &amp; 3</b>	

\* Student Award Nominee

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# Keynote Presentations



## KEYNOTE 1

**John Bradshaw**

*University of Bristol*

*J.W.S.Bradshaw@bristol.ac.uk*

### **ANTHROPOMORPHISM – CONSEQUENCES FOR PETS AND FOR PEOPLE**

**D**ue to inherent biases in the human brain, our imaginations often lead us to interpret events as if they were the product of other minds. Nowhere is this more self-evident than in our relationships with companion animals, to which people routinely attribute human-like emotions and motivations: indeed, without this self-deception it is unlikely that pet-keeping would be as popular as it is. On balance, our companion animals benefit from our anthropomorphic tendencies, because these incline us to care for them as if they were members of our (human) family. However, owners routinely make anthropomorphic assumptions about their pets' behaviour, and when these are inaccurate, the welfare of the animal can be affected. For example, dogs are widely believed to experience "guilt", and as a result are punished for past actions that they are incapable of associating with the punishment: if repeated, this can lead to the dog becoming chronically anxious and its relationship with its owner may be compromised. The mistaken belief that dogs can be motivated by "dominance" is widely used as justification for training methods based upon the infliction of pain. The well-being of a pet cat can be jeopardised if its owner obtains a second cat under the unfounded assumption that cats desire feline company. A wider appreciation of the cognitive and emotional capacities and biases of companion animal species, based upon science rather than assumption, should lead not only to improved welfare for the animals but also better-functioning relationships with their humans.

*Dr John Bradshaw is a Visiting Fellow at the University of Bristol, where he was formerly Reader in Companion Animal Behaviour. His main interests lie in the behaviour and welfare of domestic cats and dogs, and their relationships with people; he has published over 100 research papers and book chapters on these topics, as well as two editions of "The Behaviour of the Domestic Cat" (CABI). He was one of the founders of the International Society for Anthrozoology. Since 2009 he has focused his attention on the dissemination of animal welfare science to pet owners: his books "Dog Sense/In Defence of Dogs" and "Cat*

*Sense* (Basic Books/Penguin) were non-fiction bestsellers in both the USA and UK, and have been translated into many other languages.

Web: <http://www.bris.ac.uk/vetscience/people/88445/impact.html>

Twitter: <https://twitter.com/petsandus>



## Keynote 2

### Phil Arkow

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*www.NationalLinkCoalition.org*

### *SPECIAL SESSION ON VULNERABLE POPULATIONS AND THEIR PETS*

## **T**he “Link” Across the Lifespan:

### *Animal Abuse as an Indicator and Predictor of Crimes Against Vulnerable Children, Women and Elders*

The “dark side” of the human–animal bond is animal cruelty, abuse and neglect, which are often used as weapons to manipulate, intimidate and retaliate against vulnerable populations, particularly children, domestic violence survivors and elders. Until relatively recently, health and social services professionals, researchers, policymakers, and the general public considered animal cruelty as a stand-alone issue, important to animals’ well-being but of only marginal significance to individual and community health and safety. This paradigm is rapidly shifting today as recent programs, policy, public awareness and research resoundingly redefine animal cruelty and its various manifestations – abuse, neglect, animal hoarding and animal fighting—as a form of family and community violence that is not only a crime in itself but also often serves as a bellwether, a marker and a predictor of child maltreatment, domestic violence and elder abuse. This keynote presentation will review the research underlying the re-emergence of animal abuse as a family violence concern. It will consider redefining animal cruelty as an Adverse Childhood Experience, a form of domestic violence, and a component of elder abuse. It will address key research, program and policy reforms needed to prevent violence against all vulnerable members of contemporary families.





### Keynote 3

Ron L. Kagan

*NATURE VS. NONSENSE*

**H**ow science, entertainment and politics collide at zoos and aquariums.

Are zoos and aquariums centers of science? Are they places of confinement and cruelty or care and compassion? So many claims of conservation compete with accusations of poor welfare and deprivation.

So let's look at how society and science shape what our relationship with wildlife and wilderness might look like in the future. It all happens at the zoos and aquariums where over 200 million visitors go each year.

# ISAZ2015 Student Award Nominees

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## Oral Presentation Award

- 
- 1A Fabienne Meiers** – University of Luxembourg Research Unit – fabienne.meiers@uni.lu  
*The urban horse: Equestrian traffic and horse husbandry in late medieval cities*
- 
- 3G Jennie Dapice Feinstein** – Virginia Commonwealth University – feinsteinjd@vcu.edu  
*Effects of occupational therapy incorporating animal-assisted therapy on playfulness in children with developmental disabilities*
- 
- 4A Rachel Orritt** – School of Psychology, University of Lincoln – rorritt@lincoln.ac.uk  
*Perceptions and attitudes towards canine aggressive behaviour by professional and non-professional groups*
- 
- 5E Diane Walsh** – University of California, Davis – diawalsh@ucdavis.edu  
*Job stress for forensic interviewers: Initially and after using facility dogs, therapy dogs, or no dogs*
- 
- 5G Molly K. Crossman** – Innovative Interactions Lab, Yale University – molly.crossman@yale.edu  
*Using interactions with animals to reduce psychological distress: A Review*
- 
- 6B Sophie Brajon** – Université Laval, Quebec – Sophie.Brajon@agr.gc.ca  
*Positive contact with humans can improve learning performance and emotional states in piglets*
- 
- 6D Paula Calvo** – Royal Veterinary College, North Mymms – pcalvoetologia@gmail.com  
*Attitudes towards animals: A population-based study (n = 2500)*
- 
- 8C Jessica Bibbo** – Research Center for Human-Animal Interaction, University of Missouri – Jlbq7@mail.missouri.edu  
*Effects of equine assisted activities on PTSD symptoms, coping self-efficacy, emotion regulation and social engagement in military veterans*
- 

## Poster Presentation Award

- 
- P3 Beatrice Auger** – Université du Québec à Montréal – Beatrice.auger@courrier.uqam.ca  
*Extending the pet as ambassadors hypothesis*
- 
- P4 S. Basilia Basin** – Oregon Health & Science University – basin@ohsu.edu  
*A critical review examining companion animal influence during decision-making in the context of healthcare utilization*
- 
- P11 Dawn Cowling** – University of Toronto – Dawn.cowling@utoronto.ca  
*When the bond breaks: Variables that influence grief, guilt, and loneliness following companion animal loss*
- 
- P12 Kristen Cunningham** – Department of Psychology-Neuroscience & Behavior, University of Nebraska at Omaha – kristencunningham@unomaha.edu  
*Biting the hand that feeds: Risk factors associated with reported animal bites*
- 
- P19 Nicholas Johnson** – Department of Psychology, Wayne State University – Er0266@wayne.edu  
*Language use is associated with adjudicated adolescent outcomes in an animal-assisted intervention*
- 
- P33 Rachel Orritt** – School of Psychology, University of Lincoln – rorritt@lincoln.ac.uk  
*The history of dog bite misinformation in UK news media and public policy*
-

# Oral Presentations: Wednesday, July 8

## Session 1: History

Saratoga Ballroom 3 — 1130–1230

### *1A – THE URBAN HORSE: EQUESTRIAN TRAFFIC AND HORSE HUSBANDRY IN LATE MEDIEVAL CITIES*

*Student Award Nominee*

**Fabienne Meiers**

*University of Luxembourg Research Unit, Campus Walferdange, Walferdange, Luxembourg.  
fabienne.meiers@uni.lu*

Since the thriving of European cities in the 11th century, there was an increasing demand for faster and more reliable exchange services comparable with those in the Roman Empire: After the decline of the well-developed and regularly maintained Roman road network, circulation of people, goods and services had become less effective, particularly given that carriage traffic was virtually impossible on deteriorated roads. Consequently, equestrian traffic gained more importance in the medieval period, particularly in long-distance travels. In order to facilitate mobility and communication between cities, institutionally controlled mounted courier services were promoted and courier horses provided as well as travel horses for hire—both specially trained for their purpose. Moreover, decrees were adopted which regulated animal waste disposal and corpse removal to guarantee a hygienic living environment for both humans and animals. At the same time, specialized systems and structures for horse husbandry in the urban settings arose.

The paper displays the characteristics, capacities and limitations of urban equestrian traffic and horse husbandry in the Late Middle Ages and presents the impact of the human-horse relationship in the urban environment. Pragmatic documents such as (travel) account books and legal texts were used as source base; they were analyzed using a comparative and quantitative methodology. In addition, the reflection of the urban horse in material culture was considered to emphasize a more dynamic dimension of the phenomenon. To conclude, the value of the urban horse in medieval townscapes, either as a daily companion or as a mere commodity, is discussed.

**1B – AN ARGUMENT FOR LOCAL, MULTISPECIES HISTORY OF  
NONHUMAN ANIMALS:  
THE CASE STUDY OF MILWAUKEE, WISCONSIN, USA**

**Helena Pycior**

*Department of History, University of Wisconsin-Milwaukee, Milwaukee, WI, USA.  
helena@uwm.edu*

The paper reports on a historical study of the nonhuman animals who have lived in or passed through Milwaukee, Wisconsin, from earliest times to the present. The paper defends local, multispecies history as a promising way of broadening historical research on the human–animal bond.

The study draws on a wide array of secondary and primary sources (newspapers, monuments, zoo and humane society records, etc.). Its aims and methods are similar to those of Hannah Velten’s *Beastly London: A History of Animals in the City*. More modest than Velten’s, this study uncovers in Milwaukee human–animal relationships and efforts at animal advocacy arguably as complicated as those characterizing London.

The animals of Milwaukee include those used for food, fur and hides, transportation and other kinds of work, entertainment, exhibition, research, and companionship as well as those classified as pests, wild, and zoo. Encompassing all these animals in outline form, the study’s report also singles out certain species and individual celebrity animals as exemplars of animals participating in strong but fluid bonds with the people of Milwaukee. The life trajectory of the gorilla Samson took him from Africa to stardom at the Milwaukee County Zoo and finally to posthumous exhibition at the Milwaukee Public Museum, where some of his remains formed the basis of a prize-winning sculpture.

Local, multispecies historical surveys set the groundwork for a history of human–animal relations in which no animal is ignored and help to overcome marginalization of human–animal relations by tying the subject to local and urban history

## ***1C – USING ARCHAEOLOGICAL ASSEMBLAGES TO UNDERSTAND HUMAN–ANIMAL INTERACTIONS: A CASE STUDY USING ARCHAIC PERIOD DOMESTIC DOGS***

**Diane M. Warren**

*Department of Anthropology, University of Oklahoma, USA. dmwarren@ou.edu*

Data from archaeology and paleopathology can help us to understand human–animal interactions (HAI) in the past. For example, HAI may result in skeletal and dental pathologies that are visible in faunal remains from a site, and/or impact the animals’ demographic profile. However, there are challenges for interpretation of archaeological and paleopathological data. Cultural practices can impact which animals do and do not enter the archaeological record, and taphonomic factors and excavation/curation decisions also can affect how representative the archaeological assemblage is of the living population. Differentiating among possible causes of a pathology may not be possible, particularly when comparative data are limited. All of these have implications for using demographic and paleopathologic profiles to test hypotheses about HAI. Here, I present data on the age, sex, size, and skeletal and dental pathologies of 260 Archaic period (8000–3000 BCE) domestic dogs from sites in Kentucky, Alabama and Tennessee. Adult male dogs are overrepresented, particularly in human graves. Fractures of the face, vertebrae, and ribs are common, as are vertebral marginal osteophytes. Possible interpretations include HAI such as abuse, use of dogs for hunting, use of dogs to carry things, and preferences for male dogs in mortuary ritual. These interpretations are discussed in light of the usefulness and the limitations of using archaeological assemblages for understanding the history of HAI.



## **1D – THE CHANGING NATURE OF THE COMPANION ANIMAL–HUMAN RELATIONSHIP IN BRITAIN OVER THE PAST 30 YEARS.**

**Rebekah Fox<sup>1</sup> and Nancy R. Gee<sup>2</sup>**

<sup>1</sup>Centre for Gender Studies, Uppsala University, Sweden. [Rebekah.m.fox@gmail.com](mailto:Rebekah.m.fox@gmail.com)

<sup>2</sup>Research Manager-HAI, WALTHAM® Centre for Pet Nutrition, UK

*Introduction:* This paper explores the changing nature of the companion animal (CA)—human relationship in Britain over the past 30 years. This period has seen a rapid change in attitudes and practices towards CAs, with huge advances in medical treatment, nutrition, and understanding of animal behavior, as well as re-evaluations of the position of animals within the home.

*Methodology:* The study involved in depth interviews with CA owners ( $n = 20$ ) and professionals ( $n = 21$ ), including veterinarians, animal behaviourists, representatives of national charities and those involved in the pet industry. Participants were selected to represent a range of professional, demographic and CA owning characteristics, ranged in age from 24–77 ( $M = 48.7$ ), were more likely to be female ( $n = 26$ ) than male ( $n = 15$ ) and lived with an average of 2.9 animals (range 0–17), with cats and dogs being the most popular. Interviews were semi-structured allowing participants to lead the discussion, covering a range of topics including relationships with CA, animal nutrition, medical treatment, training and perceptions of CA within society. Interviews were digitally recorded and transcribed verbatim, then analyzed using NVivo software to draw out commonly occurring themes and topics of discussion.

*Results and Discussion:* Five major themes were identified from the interviews: Humanization, Commercialization, Medicalization, “Responsible Pet Ownership” and “Alternative Companionship.” The past 30 years have seen a humanization of the CA—human relationship, with pets increasingly regarded as members of the family. This shift has coincided with a commercialization of the pet industry, with a wide range of animal-related products and services becoming available. Advances in animal nutrition and health care are perceived to have brought vast benefits in terms of longevity and quality of life, but also increased emotional and financial expectations of the CA relationship. Mainstream discourses now focus on “responsible” pet ownership and both animals and owners are subject to increasing surveillance and control of their behaviors. Recent trends towards diversity in approaches to nutrition (e.g. “natural” diets) and to “alternative” forms of animal companionship challenge conventional wisdoms on animal health and nutrition and provide increased individualization and choice in the ways owners express their care for their CAs.

## Session 2: Horses

Saratoga Ballroom 2 – 1130–1230

### *2A – WOMEN'S PRACTICES AND DONKEY BEHAVIOUR IN KITUI, KENYA*

**Neema Kawe and L. Kavatal**

*Brooke East Africa, Nairobi, Kenya. Neema.kawe@thebrooke.org*

Donkeys in Kitui are mainly the responsibility of women, who own, care and work with them. These animals assist them with domestic chores, including walking long distances in search of water and firewood. This study's objective is to examine the frequency of body lesions and negative behavioural indices in these donkeys, and identify any potential contributing human practices that can be targeted for intervention.

Animal-based indicators were assessed using a standardised tool. Human-based indicators were collected through questionnaires and direct observation.

Data were collected for 138 women and 344 donkeys. 54.8% and 18.1% of donkeys had tail-base and girth/belly lesions, respectively. 30.5% of donkeys demonstrated apathy or flight/fright responses. 61.1% of women observed portrayed negative handling (whipping, beating, kicking or shouting). 69.5% made their own harnesses using inappropriate materials e.g. tight, thin manila ropes, no padding).

Poor handling and harnessing practices are prevalent in this region, and are likely to contribute to the high incidence of lesions and negative behavioural indices seen in these donkeys. Community engagement to address these issues will focus on information sharing through training, sensitization meetings and practical sessions with the women to improve their knowledge and skills in equine handling, appropriate harnessing techniques using locally available and affordable materials as well as to build empathy toward their donkeys. This is expected ultimately to influence the women's practices and general welfare of the donkeys.

## **2B – THE LINK BETWEEN ANIMAL WELFARE OF URBAN DRAUGHT HORSES AND LIVELIHOODS OF THEIR OWNERS. THE CASE OF CHILE.**

**Rodrigo Lanas, Daniela Luna and Tamara Tadich**

*Departamento de Fomento de la Producción Animal, Facultad de Ciencias Veterinarias y Pecuarias, Universidad de Chile, Santiago, Chile. tamaratadich@u.uchile.cl*

Equine power is still used in developing countries. In Chile many peri-urban communities depend on urban draught horses (UDH) as their main source of income. These equines belong to owners of low socioeconomic status, and scarce education. Horses are generally undernourished, receiving little husbandry or veterinary attention. The aim of this study was to investigate the association between socio-economic aspects, quality of life of UDH owners and horse welfare.

Fifty one owners, all men from <18 to >60 years of age, from Chile were interviewed about husbandry practices of their horses, socioeconomic characteristics (Adimark, 2000) and quality of life (WHOQOL-BREF, 1996). An Animal Welfare (AW) assessment protocol was applied to 96 working horses. Spearman's correlation was used to measure the relationship between the owners and AW variables, a  $p$  value of  $p < 0.05$  was used.

Mares were preferred (58.3%), and the mean age of horses was 9.3 5.4 years. Results of the AW assessment accomplished 68.7% of the total score. Most owners belong to the lowest socio-economic level (76.5%), only 2% had completed secondary studies (13.8% illiteracy). No associations were found between socio-economic level and AW ( $\rho = -0.05$ ;  $p = 0.60$ ) or with the educational level ( $\rho = 0.11$ ;  $p = 0.28$ ). Positive associations were found between Psychological domain of WHOQOL-BREF and mental health of horses ( $\rho = 0.027$ ;  $p = 0.01$ ).

The socio-economic and educational characteristics of the owners were not correlated with AW outcome of their horses. It is possible that other factors such as empathy level of owners could impact the AW of their horses.

## 2C – DIVERSIFIED IDEAS ON HORSES IN DIVERSIFIED EQUINE CULTURES

### Petra Andersson

*Department of Philosophy, Linguistics and Theory of Science, University of Gothenburg, Gothenburg, Sweden. petra.andersson@filosofi.gu.se.*

The equine community is nowadays diversified to the extent that we are able to identify different norms and ideas about such things as horses' individuality, horses' mental capacities, and also about what kind of relationships that are possible between human and horse.

The objective of the study is to identify, describe and discuss the different ideas on what kind of being horses are, and how the answer to these questions relate to ideas about horse welfare.

The methods include literature review (including scientific literature as well as the literature referred to by different equine cultures), analysis of internet based discussions, and qualitative semi-structured interviews.

Preliminary results show differences between ideas on horses, differences values and norms, and also differences between knowledge systems regarding horses. The differences are to be understood in clusters, each expressing its own ideas on horses. These new ideas on horses are interpreted as conflicting norms (Bicchieri, 2005).

Little has been done in this field so far. Adelman and Knijnik (2013) gives a good introduction to different equine cultures, from gender aspects though, while this study focuses on ideas on horses as a part of the new, emerging field of horse studies in humanities and social sciences.

### References

- Adelman, M. and Knijnik, J., eds. 2013. *Gender and Equestrian Sport: Riding Around the World*. Springer.  
Bicchieri, Cristina. 2005. *The Grammar of Society : The Nature and Dynamics of Social Norms*. Cambridge University Press.

Oral Presentations:

## ***2D – BODIES IN MOTION: EMBODIMENT AND INTIMACY IN THE HUMAN-HORSE RELATIONSHIP***

**Keri Brandt**

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Drawing from ethnographic data of 30 in-depth interviews and hundreds of hours of participant observation over a two-year period of women who work with horses, this paper explores the embodied intimacy that develops between horses and riders. The human–horse relationship has many unique qualities that set it apart from other types of human–animal relationships. For both species, their bodies are the medium for communication and together they must develop a complex embodied language system to work together harmoniously. In terms of physical contact, there are few other species like horses in which humans share such a high degree of regular, sustained bodily contact. Most of the bodily contact between horses and humans is in the form of riding, where the human’s body literally wraps around the horse’s body. For the horsewomen who participated in this research, the unique bodily modality of the human–horse relationship altered their experience of their embodiment and generated a sense of intimacy with their horses. At times their awareness of embodiment was so greatly altered that they felt as if they were sharing one body with their horses. This altered state of embodiment and the sense of intimacy born out of working with horses were the most rewarding aspects of the human-horse relationship. This research is an effort to understand more deeply the unique qualities of human-horse relationships, and further investigate how these qualities shape human consciousness and the meaningfulness of such relationships in human lives.

## Session 3: Vulnerable Populations and Their Animals

Saratoga Ballroom 3 – 1430–1530

### *3A – EFFECTS OF EQUINE-VETERAN INTERACTIONS ON QUALITY OF LIFE AND DEPRESSION SYMPTOMS.*

#### **Beth Lanning**

*Baylor University, College of Health and Human Sciences, Waco, TX, USA.*

*Beth\_Lanning@baylor.edu*

Combat veterans struggling with PTSD and depression symptoms may find therapeutic benefits from spending time with a horse. The purpose of this study was to examine the veteran-equine relationship and the effects of that relationship on quality of life and depression. A subsample of 25 initial participants was chosen from a larger ongoing study designed to examine the effects of therapeutic horseback riding (THR) on PTSD symptoms, quality of life and functioning of combat veterans. Sixteen veterans (9 males, 7 females) aged 25 to 46 years ( $M = 33$ ;  $SD = 7.3$ ) participated in an eight week THR program and nine (6 males, 3 females) aged 25 to 53 years ( $M = 39$ ;  $SD = 10.3$ ) were assigned to a control group. Pre and post quality of life and depression surveys were completed by both groups. THR participants also completed a post-intervention interview to capture characteristics of the equine-veteran experience. Recorded interviews were coded, evaluated for emerging themes, and compared to the quantitative data using NVIVO 10 software. Paired *t*-tests revealed significant positive differences over time in emotional interference ( $p = .03$ ) and overall mental health ( $p = .04$ ) of THR participants. Student's *t*-tests revealed significant difference in emotional interference ( $p = .033$ ) and depression symptoms ( $p = .025$ ) post scores between groups. These changes were correlated with equine-veteran relationship themes describing a non-judgmental, open- honest, and comfortable relationship. Findings from this study indicate that combat soldiers who participate in equine assisted activities (e.g., THR) may find the experience beneficial and instrumental in reducing depression symptoms and improving quality of life.



### **3B – HEROES AND HORSES: EXPLORING AN EQUINE FACILITATED LEARNING AND PSYCHOTHERAPY PROGRAM FOR VETERANS**

**Karen E. Krob**

*University of Northern Colorado, Greeley, CO, USA. karen.krob@unco.edu*

Equine-based programs for Veterans are gaining in number and popularity. A number of hypotheses exist as to why such programs might be effective, but what is the experience of human and equine participants? The purpose of this project was to explore the experiences of individuals involved in an equine-facilitated learning (EFL) and psychotherapy (EFP) program for Veterans through heuristic research methodology. Here, I focus specifically on 11 Veterans, 18 equines, and their relationships. Data included observations over seven months and interviews with Veterans, supplemented with photographs, self-report intake and exit surveys, volunteer observations, and conversations with staff.

Veterans felt that participating was a transformative experience with a number of positive outcomes on-and off-site, particularly highlighting the equines and the opportunity to connect with other Veterans. All Veterans expressed mindfulness of their relationship with their equine partners and enjoyed finding connectedness, though the relationship seemed more central for some Veterans than others. Equines generally exhibited relaxed and engaged behaviors, with instances of displeasure typically associated with specific activities, though one equine did not continue in the program, and two Veterans explicitly expressed concern regarding equine burnout. Quantitative trends supported positive outcomes for most participants.

Outcomes support that equine-based models for Veterans have powerful transformative possibilities for human participants—and potentially some equine participants. However, this experience also touches on a number of issues warranting further consideration, including the selection and maintenance of equines involved in such programs, and the centrality of the equines and human–equine bond.

### **3C – VETERANS AND SERVICE DOGS: AN INTEGRATED REVIEW OF THE LITERATURE**

**Cheryl A. Krause-Parello and Sarah Sarni**

*University of Colorado, College of Nursing, C-P.A.W.W. (Canines Providing Assistance to Wounded Warriors), Aurora, CO. Cheryl.Krause-Parello@ucdenver.edu*

Veterans with post-traumatic stress disorder (PTSD) are a vulnerable population, at high risk for depression, isolation, and suicide. There is a historical relationship between dogs and the military, with dogs providing working support in various roles. A substantial body of anecdotal evidence now exists supporting of the use of canines for treatment and assistance to veterans suffering from PTSD. However, the body of empirical research on service dogs and PTSD is limited. This systematic review collected, synthesized, and organized current literature in order to determine the state of the science on the use of service dogs to assist and promote healing for veterans with PTSD. The University of Colorado, Anschutz Medical Campus Health Sciences Library “Find It” database search application was used to retrieve appropriate literature. Keywords for the literature search included “service dogs,” “PTSD,” “post-traumatic stress disorder,” “psychiatric service dogs,” “veterans,” “treatment,” “canines,” “military,” and “service members.” Search parameters included peer-reviewed publications from 2010 and beyond. Articles were retrieved among the small body of recent literature and nine were selected. Analysis of this literature resulted in a synopsis of the state of the science and recommendations for future directions, which may provide clarity and expand knowledge for medical professions, as well as improve health care for veterans suffering from PTSD through the application of service dogs. The implications for the field anthrozoology will be discussed.

### **3D – FINDINGS FROM A “SAFE HAVEN” PROGRAM FOR DOMESTIC VIOLENCE VICTIMS WITH PETS: CLIENT CHARACTERISTICS AND PERCEPTIONS**

**Maya Gupta**

*Animals and Society Institute, Ann Arbor, MI, USA. [Maya.gupta@animalsandsociety.org](mailto:Maya.gupta@animalsandsociety.org)*

Awareness of connections between human and animal safety in domestic violence has led to development of sheltering programs for victims' animals. This evaluation examined data from a statewide program providing animal housing and other animal-related assistance to victims. Participants were 362 female program clients and one male client, with a mean age of 39.38 years ( $SD = 9.41$ ) and an average of 2.59 animals ( $SD = 3.14$ ): dogs (80.69%), cats (37.38%), and other species (19.31%). Participants completed a modified version of the Battered Partner Shelter Survey (Ascione and Weber, 1995) and a program questionnaire. Only 32% of participants reported being asked about their animals by previous agencies. 50% of participants reported the abuser had threatened their animal(s), causing 47% to delay escaping, 32% to delay calling police, and 29% to refuse filing charges. The most common forms of animal abuse were hitting/kicking/striking/punching/throwing (44.22%), withholding food/water (16.10%), leaving animals outside in extreme weather (16.55%), and refusing to take sick/injured animals to a veterinarian (12.24%). 25% of participants reported having children who witnessed threats/harm to animals; 7% of those children threatened/harmed an animal themselves. Approximately 90% of participants indicated the program made it easier for them to get both their animals and themselves to safety. Results will be discussed in terms of implications for best practices and development of future programs, including creating comprehensive services that address the full spectrum of animal-related needs beyond immediate housing.

#### **Reference**

Ascione, F. R., and Weber, C. (1995). Battered partner shelter survey (BPSS). Logan: Utah State University.

### 3E – PSYCHOLOGICAL BENEFITS OF GUIDE DOG OWNERSHIP

**Estelle Vickery and Lucy Clarke**

*Hartpury College, Gloucester, UK. Lucy.Clarke@hartpury.ac.uk*

Depression and anxiety have a high prevalence rate, accounting for 40% of worldwide disability (Kessler et al, 2010; World Health Organization, 2008). Mental illness affects quality of life and has high economic costs (McCrone et al, 2008; Mendlowicz and Stein, 2000). Current treatment options have shown to yield poor success rates, highlighting the need for a targeted social approach to treatment strategies (Goncalves et al, 2009; Waugh and Fredrickson, 2006). Pet ownership and Animal Assisted Therapy have shown to have a positive impact on mental health, emotional well-being and social development (Burger et al, 2011; Hamama et al, 2011; Endenburg and van Lith, 2010; Wells, 2009).

This study aimed to determine whether Guide Dog owners received similar benefits by assessing the presence of depression and anxiety markers as well as confidence, social interaction and independence levels. Forty participants, of whom twenty owned a guide dog, completed a questionnaire based on DSM-IV diagnostic criteria and developed alongside mental health professionals. Unpaired scale data was collected and analysed using the Mann-Whitney U test. Statistical analysis found no significant differences in age or gender therefore whole group analysis occurred.

Results found that guide dog owners identified significantly fewer depression markers ( $p < 0.0001$ ,  $U = 17$ ,  $df = 1$ ), anxiety markers ( $p < 0.0001$ ,  $U = 78$ ,  $df = 1$ ) and had significantly higher levels of confidence ( $p < 0.0001$ ,  $U = 69.5$ ,  $df = 1$ ) independence ( $p < 0.0001$ ,  $U = 26$ ,  $df = 1$ ) and social interaction ( $p < 0.0001$ ,  $U = 47$ ,  $df = 1$ ), than the no dog group. Future research should focus on how effective assistance dogs would be in the treatment and prevention of mental health disorders.

### **3F – WALKING ACTIVITIES OF PEOPLE IN JAPAN LIVING WITH GUIDE DOGS AND PET DOGS**

**Mariko Yamamoto<sup>1</sup>, Sayaka Seto<sup>2</sup>, Mirai Fujita<sup>2</sup>, Nobuyo Ohtani<sup>2</sup>, Mitsuaki Ohta<sup>2</sup> and Lynette Hart<sup>1</sup>**

<sup>1</sup>University of California, Davis, CA, USA. [mariko\\_yamamoto@hotmail.co.jp](mailto:mariko_yamamoto@hotmail.co.jp)

<sup>2</sup>Azabu University, Sagamihara, Kanagawa, Japan.

Our U.S. study has indicated that guide dog partners walked daily for significantly longer durations than large and small pet dog owners. We investigated whether it is similar in Japan where environmental and cultural aspects differ from the U.S. The web-survey was provided to people with visual impairments who live with/without guide/pet dogs, and people without visual impairments who live with pet dogs, through guide dog training organizations, organizations for people with visual impairments, and groups for pet dog owners.

We collected answers from 169 guide dog partners (GP), 17 pet dog owners with visual impairments (DOV), 143 persons with visual impairments (NDV), 239 pet dog owners without visual impairments (43 large pet dog owners (LDO), and 196 small/medium pet dog owners (SDO)).

Total walking durations (with/without a dog) were significantly longer in GP, LDO, and SDO compared to NDV (mean (S.D.)—GP: 86.0 (66.0); LDO: 106.6 (68.9); SDO: 88.6 (73.0); DOV: 95.6 (136.9); NDV: 53.4 (50.4); Mann-Whitney's *U* test with Bonferroni correction: all  $p < 0.001$ ; GP/NDV:  $r = 0.37$ ; LDO/NDV:  $r = 0.47$ ; SDO/NDV:  $r = 0.33$ ). The logistic regression showed that significantly more GP satisfied the recommended walking time (30+min/day) than SDO, DOV, and NDV (adjusted odds ratio (95% confidence interval: CI) when GP was 1.0, SDO: 0.103 (CI:0.023-0.464); DOV: 0.034 (CI:0.008-0.144); NDV: 0.032 (CI:0.005-0.198), all  $p < 0.01$ ). The results indicate that Japanese guide dog partners also experience a healthy lifestyle in terms of walking activity. We appreciate the partial support from Pfizer/Zoetis.

### **3G – EFFECTS OF OCCUPATIONAL THERAPY INCORPORATING ANIMAL-ASSISTED THERAPY ON PLAYFULNESS IN CHILDREN WITH DEVELOPMENTAL DISABILITIES**

*Student Award Nominee*

**Jennie Dapice Feinstein, Shelly J. Lane and Sandra B. Barker**

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Based on the knowledge that companion animals help typically developing children, Animal-Assisted Therapy could improve playfulness in children with developmental disabilities. Occupational therapists consider play a primary occupation of children, and children with developmental disabilities often exhibit delays in the areas of play and playfulness. Prior studies (from outside occupational therapy) have indicated a more playful mood and other positive changes as a result of Animal-Assisted Therapy.

This single-subject multiple baseline A-B design study ( $n = 10$ ) examined whether incorporation of a trained therapy dog into occupational therapy (OT-AAT) significantly influenced the playfulness of children with developmental disabilities. Participants were six girls and four boys, ages 6–13 ( $M = 10.4$ ) with developmental disabilities including visual impairment, autism, and cerebral palsy. The trained therapy dog was a five-year-old golden Labrador professionally trained and selected for OT-AAT by Canine Companions for Independence. Participants received one or two sessions weekly over eight weeks of intervention in two phases, traditional occupational therapy and OT-AAT. Video recorded sessions were scored post-treatment using the Test of Playfulness.

Visual analysis indicated 60% of participants demonstrated small increases in total playfulness during OT-AAT. Effect size indicated a medium effect ( $d = 0.21$ ) on playfulness scores during OT-AAT. Paired  $t$ -tests of aggregated group data indicated significantly improved playfulness during OT-AAT ( $t_{(9)} = 3.9$ ,  $df = 9$ ,  $p < .05$ ). Suggestive results establish a foundation for incorporating animals into occupational therapy practice addressing playfulness in children with developmental disabilities, as well as a study examining OT-AAT, free-play and associated playfulness.



### **3H – CHILDREN WITH AUTISM AND THEIR COMPANION ANIMALS: THE EXPERIENCES OF FAMILIES AS PERCEIVED BY PARENTS AND OTHER CAREGIVERS**

**Gretchen K. Carlisle, Francesca Tocco and Jessica Bibbo**

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*Introduction:* Companion animals have been increasingly recognized for the role they play in the families of children with Autism Spectrum Disorder (ASD). The aim of this study was to explore the experiences of families of children with ASD living with dogs.

*Methods:* This cross-sectional survey was offered to potential participants through the Interactive Autism Network (IAN), an online community for individuals with ASD and their families. The IAN connects individuals with one another, as well as with opportunities to participate in research. An open-ended question was used as an inquiry to elucidate the nature of these families' experiences living with dogs. Phenomenology was used to explore the meaning of their lived experiences with their dogs, as perceived by the children's caregivers (i.e. parents, or grandparents) ( $n = 338$ ).

*Results:* Six major themes emerged from the data: bonding, benefits, learning opportunities, burdens, safety of children and dogs, and fit of dogs with families. The reported benefits of alternative companion animals were also identified, most notably the benefits of cats for children with ASD.

*Conclusion:* When a successful match of dog and family characteristics is achieved, many families of children with ASD experience benefits. In other families, an alternative companion animal may be a better fit. Behavior of the child and supervision of interactions between children and companion animals are important to the safety of both.

### 31 – PRESENCE OF A DOG ON EXECUTIVE FUNCTIONING AND STRESS IN CHILDREN WITH EMOTIONAL DISORDERS

**Joanna Leigh Becker**

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Therapy dogs are increasingly used in interventions for youth with emotional disorders. Theories of human–animal interactions suggest that dogs offer social support, which favorably influences psychological functioning and reduces physiological stress. This study expanded upon the literature by comparing the effects of the presence of a dog versus a toy dog on executive functioning (EF) and physiological indicators of stress (heart rate and blood pressure) in youth with emotional disorders ( $n = 38$ ; ages 7–15). Results of repeated measures ANOVAs showed that participants in the dog condition performed significantly better on standardized executive tasks that required inhibition,  $F_{(1, 31)} = 6.69, p = .019, \eta^2 = .17$ ; and completed set-shifting,  $F_{(1, 35)} = 4.31, p = .045, \eta^2 = .11$ , and sustained attention tasks faster,  $F_{(1, 35)} = 6.13, p = .018, \eta^2 = .15$ , than in the toy condition. Analyses of age-related effects on EF showed that adolescents earned significantly higher scores than children on set-shifting and sustained attention tasks. Adolescents also completed attention and inhibition tasks more quickly than children. Expected age-related differences in working memory or inhibitory control were not found. Contrary to previous research, the presence of a dog did not have a significant effect on physiological stress. However, it is likely that low participation rates in physiological tests impacted results. The data suggest that the presence of a dog helps youth with emotional disorders engage in EF processes, an important finding given that EF plays an integral role in academic and social functioning.

### **3J – MEASURING THE EFFICACY OF AN ANIMAL-ASSISTED INTERVENTION WITHIN A FAMILY PRESERVATION PROGRAM—THE SAVIO STUDY**

**Kevin Morris<sup>1</sup>, Julia Roguski<sup>2</sup>, Amy McCullough<sup>3</sup>, Diana McQuarrie<sup>4</sup>, Kate Trujillo<sup>5</sup> and Phil Tedeschi<sup>1</sup>**

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With over a half-million children in foster care in the USA, additional evidence-based tools for improving family preservation services are needed. The efficacy of an animal-assisted intervention (AAI) protocol targeting four common parenting skill deficiencies (supervision, appropriate expectations, bonding and disciplinary practices) is being measured in the Family Retention Program at Savio, a family services organization in Colorado. The study incorporates a randomized control, a statistically justified sample size, a validated tracking instrument for parenting and family function (North Carolina Family Assessment Scale for Reunification (NCFAS-R)) and standard clinical outcomes (time in the program, final disposition of the children and one-year recidivism rates). One hundred families that consent to participate are being randomly assigned to the standard-of-care (SOC) and standard-of-care plus AAI (SOC+AAI) cohorts of the study. Families in the SOC+AAI cohort receive the 12-session AAI protocol implemented by their family preservation services clinician and a volunteer handler-dog team. Impact of the AAI protocol is measured by comparing changes in NCFAS-R scores and clinical outcomes between the two cohorts. To date, data has been collected on 22 families, 11 in each cohort. In Wilcoxon Rank-Sum tests (one-sided), statistically significant ( $p < 0.05$ ) improvements have already been measured in the SOC+AAI families in 3 of the 4 targeted parenting skills, with near statistical significance ( $p < 0.10$ ) reached in the fourth. This finding demonstrates proximal efficacy of the AAI protocol in a family preservation environment. Additional families are being recruited to test whether this proximal effect translates into improved clinical outcomes.

### 3K – GENDER GAPS IN AAT? WOMEN IN PRISON BENEFIT LESS FROM DOG-ASSISTED GROUP THERAPY THAN MEN

Birgit U. Stetina<sup>1</sup>, Alexandra Wischall-Wagner, Julia Netousek<sup>2</sup> and Ursula Handlos<sup>3</sup>

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<sup>3</sup>Special Education Center for Integrative Support, City School Board Vienna, Austria .

*Introduction:* With the increase of female prisoners worldwide “the treatment of women prisoners has acquired importance and urgency” since 2009 (UNODC, 2009). And although new programs have been started, the lack of scientific results is startling. The goal of the current study was to identify gender differences regarding the effects of dog-assisted group therapy.

*Methodology and Statistical Analysis:* Using a pre-post design, 63 incarcerated drug addicted criminal offenders (36 male, 27 female) participated in a dog-assisted group therapy targeting socio-emotional competencies. Self-report questionnaires to measure self-concept (SDQ-III [Marsh, 2003]), emotional status (EMI-B [Ullrich and Mynck, 2001]) and emotional competencies (SELFE [Jensen and Becker, 2004]) were employed. Statistical analysis included GLM procedures and Eta<sup>2</sup> as concurrent effect size measure.

*Results:* Women tend to benefit significantly less from the AAT program in most measured areas; especially regarding emotion regulation ( $F_{(1,61)} = 6.868, p = 0.11, \text{Eta}^2 = 0.101$ ) and emotional status (anxiety ( $F_{(1,61)} = 10.265, p = 0.002, \text{Eta}^2 = 0.144$ ), depression ( $F_{(1,61)} = 15.014, p < 0.001, \text{Eta}^2 = 0.198$ ) and aggression ( $F_{(1,61)} = 17.030, p < 0.001, \text{Eta}^2 = 0.218$ )). The analysis only showed significantly better effects for females in their self-concept regarding relations (same sex ( $F_{(1,60)} = 7.742, p = 0.007, \text{Eta}^2 = 0.114$ ), opposite sex ( $F_{(1,61)} = 15.493, p < 0.001, \text{Eta}^2 = 0.205$ ) and trustworthiness ( $F_{(1,61)} = 10.844, p = 0.002, \text{Eta}^2 = 0.153$ )).

*Conclusions:* Although recent research has shown that a dog might not be a relevant contributing factor regarding the development of skills in prison for women (Jasperson, 2013) studies in diverse Austrian male prisoner populations have shown different results. AAT has been found to be promising for female prisoners as well in the current study. But women seem to profit less from the used program than men. Especially designed programs for woman are needed to match their needs.

## Session 4: Shelters/Humane Education/ Animal Welfare

*Saratoga Ballroom 2 – 1430-1530*

### *4A – PERCEPTIONS AND ATTITUDES TOWARDS CANINE AGGRESSIVE BEHAVIOUR BY PROFESSIONAL AND NON-PROFESSIONAL GROUPS*

**Rachel Orritt, Harriet Gross and Todd E. Hogue**

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Canine aggressive behaviour is typically researched quantitatively in an effort to determine causal factors. A deeper understanding of the human experience of aggressive behaviour is needed to inform further research and behavioural treatment. This exploratory study addressed the question “How do different people perceive and rationalise aggressive behaviour in dogs?”

Six focus groups were conducted to investigate participants’ experiences and views. Each group comprised 5–10 members (mean = 7). In total, 43 participants were involved, 8 of whom were male. The six groups were divided into a non-professional subset (comprising two groups of dog owners and one group of amateur dog trainers) and a professional subset (comprising an academic group, behaviourist group and veterinary surgeons’ group).

Orthographic transcripts of the discussions were analysed thematically. Despite the educational and experiential differences between subsets, thematic mapping showed marked overlap between non-professional and professional discussion. However, non-professional groups presented more emotionally charged views, particularly when defending the behaviour of the offending dog, whereas professional discussion was typified by considered rationalisation of incidents. Participants separated the concepts of excusable, defensive and dangerous behaviour. However, this distinction differed both within and between focus groups.

These findings have implications for the interpretation of owner self-report regarding canine aggressive behaviour. They also invalidate the assumption that consistent definitions are held for terms such as “aggression,” “dangerous dog,” and “bite.” The results of this study provide a strong foundation upon which to base further research into the influence of human attitudes, experience and education on dog bite risk.

## **4B – PET SNAKE, LIZARD, FROG, AND TURTLE MANAGEMENT PRACTICES BY OWNERS IN VICTORIA, AUSTRALIA**

**Tiffani J. Howell and Pauleen C. Bennett**

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Owner management practices likely impact pet animal welfare. Little research has examined how reptile and amphibian owners attempt to meet their pets' needs. We recruited snake, lizard, turtle, and frog owners ( $n = 557$ ; 50% male), in Victoria, Australia, to complete an online survey detailing how they manage their pet's environmental, diet/exercise, behavioural, social, and health needs. Most owners were at least 18 years old, but 28% were 10 to 17 years old. Descriptive data were reported, and correlations identified relationships between animal type and owner practices (e.g. ideal enclosure temperatures vary by species, so correlations determined relationships between reported temperatures and species type). Owners are generally effective in meeting their pet's welfare needs, but 50% of terrestrial snake owners, 82% of frog owners, and 40% of lizard owners report that their pet's enclosure is too small to meet the minimum standards in the relevant Code of Practice. Also, many owners are not aware of the humidity level in their pet's enclosure (frog owners: 33%; turtle owners: 85%; snake owners: 59%; lizard owners: 49%), which may affect respiratory health. A pet welfare "scorecard" was created from some items in the survey, for use in future educational campaigns. A total of 100 points were possible per participant, with a higher score indicating a higher perceived welfare outcome for the animal. Frog owners received a mean score of 77.9/100; snake owners: 86.8/100; lizard owners: 85.0/100; and turtle owners: 74.5/100.



## **4C – WHY MEN AND WOMEN NEUTER THEIR DOGS, IN THE U.S., CANADA, AND UK**

**Lynette A. Hart, Mariko Yamamoto, Abigail Thigpen and Benjamin Hart**

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Despite the human–animal bond, preponderance of anthropomorphism, and appreciation of dog cognition, we surgically alter dogs. Ear cropping and tail docking diminish, but neutering of males and females is common, even promoted, despite more severe surgeries. Increased risks are associated with neutering, including, joint disorders cancers, urinary incontinence, obesity, and even age-related cognitive dysfunction. Yet America’s increased appreciation of dogs is paired with increased neutering of them. Dogs are commonly neutered before one year of age. Shelters generally require neutering prior to adoption, and neutering is also specified by some breeders. This project explored in a web survey of over 3,000 engaged dog owners from breed and dog clubs their reasons for neutering or not neutering their dogs. Men neutered their male dogs significantly less often than women: 65% vs. 77% ( $p = 0.001$ ,  $\phi = 0.07$ ). Few men (28%,  $n = 63$ ) and women (19%,  $n = 580$ ) had kept dogs intact, primarily for breeding (men, 43%; women, 28%,  $p = 0.01$ ,  $\phi = 0.10$ ) and for normal biology and hormonal status (men, 18%; women, 20%). Neutering was typical in the US, Canada, and UK (US: 82%,  $n = 2202$ ; Canada: 85%,  $n = 87$ ; UK: 73%,  $n = 258$ ), with the primary reason for not neutering being for breeding; by country this was US (27%,  $n = 141$ ); Canada (39%,  $n = 37$ ); UK (13%,  $n = 2$ ). The difference was marginally insignificant.

## ***4D – HOW DO HORSE GUARDIANS RESPOND TO BUSHFIRE THREAT? COMPLIANCE WITH PRE-EMPTIVE RELOCATION ADVICE IN SOUTH AUSTRALIA***

**Kirrilly Thompson, Bradley Smith and Joshua Trigg**

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During disasters, companion animals are an identified risk for evacuation failure or premature return. Australian fire services encourage householders to develop a written bushfire action plan that includes pets and animals. The advice given to horse guardians is preemptive relocation at least the day before a forecast catastrophic fire day. The aim of this research was to determine compliance and identify compliance barriers.

Semi-structured interviews were conducted with 172 householders threatened by three significant fire events in South Australia in January 2014. Transcripts were subject to descriptive statistical and qualitative data analysis.

Twelve participants were responsible for horses/ponies. Prior to the fires, 8% had a written bushfire plan, 75% had a mental plan and 17% had no plan. When first aware of the fire, one person arranged for the safety of their horses and only two relocated their horses.

Overall, horse guardians demonstrated very low compliance with pre-emptive relocation. However, the extended explanations captured in semi-structured interviews suggest that reasons for non-compliance are complex and range from personal to practical factors. Preemptive relocation is identified as particularly challenging for those who keep their horses on other people's properties. Our findings highlight the need for more comprehensive bushfire information materials to be designed and evaluated through further engagement with the equestrian community.

## ***4E – COLONY HOUSED SHELTER CATS SHOW HIGH VARIABILITY IN ASSOCIATION WITH CONSPECIFICS***

**Malini Suchak, Kalina Bracco and Michael Piombino**

*Department of Animal Behavior, Ecology, and Conservation, Canisius College, Buffalo, NY, USA. suchakm@canisius.edu*

Colony housing of cats allows shelters maximize the number of cats housed in limited space. In evaluating the welfare cats in colony housing, it is important to understand how they are interacting socially. I observed 49 adult cats (25 male, 24 female) housed in groups of two to six individuals at the SPCA of Western New York. Scan samples were used to assess how frequently individual cats were in close proximity or contact with other cats. These data were used to form a conspecific sociability index, which indicates how sociable or solitary each individual is, and an association index, which indicates which pairs of individuals prefer to spend time together. These indices were examined in relation to information about the past history of the cat, which was collected upon intake. Results demonstrate that origin (stray, owner surrendered, etc.) influences sociability ( $\chi^2 = 9.29$ ,  $df = 47$ ,  $p = 0.01$ ), however, there is not a direct relationship between previous experience with another individual and time spent in association ( $U = 727.5$ ,  $df = 48$ ,  $p = 0.78$ ). Implications for the welfare of less sociable individuals will be discussed. Decisions to place cats in colony housing should take into account the past history of the individual cat and accommodations should be made for less sociable individuals.

## 4F – THE ROLE OF SOCIAL IDENTIFICATION WITH ANIMALS IN PREDICTING VALUED RESOURCE DISTRIBUTIONS BETWEEN ANIMALS AND HUMANS: AN APPLICATION OF INTERGROUP THEORIES TO THE REALM OF HUMAN–ANIMAL RELATIONS

Catherine E. Amiot<sup>1</sup> and Brock Bastian<sup>2</sup>

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Historically, social psychological principles have rarely been applied to human–animal relations (Tajfel and Turner, 1986). Three studies apply these principles to test the role of identification with animals in predicting how valued resources are distributed between animals and humans. Identification with animals implies a sense of solidarity with all animals; it should hence lead to a greater tendency to favor animals.

Studies 1 ( $n = 90$ ; ages = 18–56) and 2 ( $n = 98$ ; ages = 20–51) were cross-sectional and recruited university students. Study 3 was longitudinal (5-month lag between time points); recruitment took place over the internet ( $n = 165$ ; ages = 18–69). All studies assessed social identification with animals (Leach et al., 2008). Study 1 assessed bias in favor of animals over humans using a feeling thermometer, Study 2 included a measure of money distribution where participants distributed \$100 between charitable organisations that help animals (e.g., SPCA) and humans (UNICEF), whereas Study 3 included moral dilemmas pitting the interests of animals and humans (Petrinovich et al., 1993).

Multiple regressions revealed that higher identification with animals predicted lower bias in favor of humans over animals (Study 1,  $\beta = -.55$ ,  $p = .000$ ). In Study 2, regressions revealed positive associations between identification with animals and greater donations to charities that help animals (SPCA,  $\beta = .36$ ,  $p < .001$ ; WWF,  $\beta = -.29$ ,  $p < .001$ ). Study 3 revealed that identification with animals was associated with a greater likelihood of saving animals relative to humans in dilemmas ( $r = .20$ ,  $p < .05$ ).

The findings confirm the relevance of identification with animals as a superordinate identity that predicts consequential outcomes for the future of animals and humans.

## **4G – APPLYING THE THEORY OF PLANNED BEHAVIOR TO PREDICT PEOPLE’S INTENTION TO FINANCIALLY SUPPORT THE CONSERVATION OF ENDANGERED ANIMAL SPECIES**

**Livia Apostol<sup>1</sup>, M. Miclea<sup>2</sup> and I. Papuc<sup>1</sup>**

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Although it is known that the rate of species’ extinction worldwide is alarming, there are few studies that address this issue in the Conservation Psychology or HAI fields. The lack of funds to support conservation efforts is one of the major problems that government or non-profit organizations face, thus often encouraging the general public to contribute financially. The Theory of Planned Behavior proved to be a useful model in determining the factors that influence pro-social behaviors related to the environment.

This study aimed to establish the most relevant cognitive, emotional and attitudinal factors involved in the decision to support the conservation of endangered animal species.

A transversal correlational design was used. Data were collected online, from a sample of Romanian adults ( $n = 2683$ ). The participants answered socio-demographic questions and completed the following scales, especially created for the purpose of this study: *The Attitudes towards Donations for Conservation of the Species Scale, The Perceived Behavioral Control and Self-Efficacy Scale, The Intention to Contribute Financially for the Conservation of Species Scale*, and two questions to determine Past Behavior.

The hierarchical multiple regression analysis performed led us to establish a predictive model ( $F_{(6, 2676)} = 764.709, p < .001$ ) responsible for 63.1% of the variance in peoples’ intention to pay for animal conservation, with unique predictors: perceived behavioral control, self-efficacy, past donations and positive attitudes towards donation.

These results can be useful in creating successful educational, awareness and fundraising campaigns for wild animals’ conservation.

## ***4H – BEYOND LABELS: UNDERSTANDING THE IMPACT OF LIVE RELEASE RATE AND INTAKE POLICIES ON ANIMAL WELFARE THROUGH THE USE OF STOCHASTIC MODELING.***

### **Roger Haston**

*Animal Assistance Foundation, Lakewood, CO, USA. rogerhaston@aaf-fd.org*

*Introduction:* Live release rate (LRR) is a standard for measuring success. The metric has distinct biases and limitations. In this study, stochastic modeling is utilized to examine the impact of changes in LRR and intake policies.

*Methods:* Utilizing published data, a stochastic model was built to analyze the impact of various LRR, euthanasia and intake policies on shelter operations. The model was extended to investigate the impact on a community. Probability distributions were created for each of the data variables. Each realization of the model produced key outputs that included intakes, animal inventory, adoptions, capacity, length of stay, cost and adoption revenue.

*Results:* Changes in the LRR can have a significant effect on the key attributes of a shelter performance as well as an animal's welfare. Change from 85% LRR to 95% LRR caused a 28% drop in intakes, increased un-serviced animals from 0% to 42%, increased average length of stay (LOS) by over 300%, increased costs by 50%, reduced adoptions by 27. Increasing the number of animals that are more difficult to place significantly decreases the shelters performance. A dual shelter model was run to analyze the policy changes across shelters. Limiting admission in the "no kill" shelter has a significantly negative impact on the open admission shelter.

*Conclusions:* (a) LRR is insufficient to measure the success; (b) shelter performance is highly dependent on intake animal type; (c) increasing live release rate reduce an animal's welfare and (c) the policies of one shelter can greatly affect another.



## **41 – LONGITUDINAL FOLLOW-UP OF THE EFFECTIVENESS OF SPANA'S ANIMAL WELFARE EDUCATION PROGRAM IN ETHIOPIA**

**Stephen Albone, Nigatu Aklilu, Kefyalew Mideksa and Diana Hulme**

*The Society for the Protection of Animals Abroad, London, UK. Stephen@spana.org*

Established in 1923, SPANA is an international animal welfare organisation principally operating in countries with large populations of working animals. SPANA's education program in Ethiopia involves delivering a weekly one-hour extracurricular lesson to children following a structured animal welfare curriculum. The program is intended to develop attitudes and promote empathy toward animals.

Evaluation of the program was carried out using a *Caring for Animals Questionnaire* developed specifically for the purpose. Baseline data were gathered for Grade 2 children (aged 8+) from three schools running the program and a control group of three schools in which there was no formal animal welfare instruction. The intervention lasted six months, after which follow-up data were collected using the same instrument. The children were then reassessed at six monthly intervals for a further two years.

A complete set of data was collected for 176 out of 405 children that participated in the study. These data were used to construct interval level measure estimates using a Rasch modelling approach. A linear regression was performed for each of the five post intervention measure estimates on those of the baseline assessment. Effect sizes were then calculated for the difference in the distribution of residuals between the intervention and control groups. The effect size immediately post intervention was found to be 0.67. This fell to 0.59 after six months, rising again to 0.87 after two years. These results indicate that the program has a lasting positive impact on the way that children think and feel about animals.

# Oral Presentations: Thursday, July 9

## Session 5: AAI/AAT

Saratoga Ballroom 3 – 1100–1300

### 5A – HOW VALID ARE CLINICAL TRIALS OF ANIMAL-ASSISTED THERAPY?

#### Harold Herzog

Western Carolina University, Cullowhee, NC, USA. [herzog@email.wcu.edu](mailto:herzog@email.wcu.edu)

*Introduction:* John Ioannidis (2005) famously asked, “Why are most published research findings false?” I will examine animal-assisted therapy (AAT) clinical trials in light of recent concerns about validity and replication in science. Among these are positive publication bias, selective reporting of results, and the “spinning” of research findings.

*Methods:* This review is based on seven meta-analyses of AAT trials: Anestis, et al. (2015), Chur-Hansen, et al. (2014), Friedman and Son (2009), Kamioka, et al. (2014), Marino (2012), Nimer and Lundahl (2007), and O’Haire (2013).

*Key Findings:* Over 95% of AAT studies reported positive results. The well-documented bias in science against the publication of negative results may explain the high degree of support for the effectiveness of AAT. For example, a re-analysis of the Nimer and Lundahl meta-analysis revealed that the average effect size of published AAT trials was nearly twice that of unpublished trials (Cohen’s  $d = .53$  versus  $d = .28$ ). Other threats to validity in the AAT literature include “cherry picking” results, low effect sizes, and researcher allegiance to the use of animals in therapy.

*Conclusions:* AAT investigators should report research findings accurately and submit negative as well as positive results for publication. To control for publication bias, medical researchers in the United States are required to pre-register trials and subsequently post the results of successful and unsuccessful studies at the website [clinicaltrials.gov](http://clinicaltrials.gov). AAT investigators should also pre-register studies and post results at this site.

## **5B – A RANDOMIZED CONTROLLED STUDY OF THE EFFECT OF A CAMPUS ANIMAL-ASSISTED ACTIVITY (AAA) ON COLLEGE STUDENT PHYSIOLOGICAL AND PERCEIVED STRESS PRIOR TO FINAL EXAMS**

**Sandra B. Barker<sup>1</sup> Randolph T. Barker<sup>1</sup>, Nancy L. McCain<sup>1</sup> and Christine M. Schubert-Kabban<sup>2</sup>**

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<sup>2</sup>Air Force Institute of Technology

This study strengthens prior research investigating effects of a campus animal-assisted activity (AAA) on student stress by including a control group, random assignment and physiological stress indicators. 78 college students (76% female, mean age = 19.38) were randomly assigned to order of 15-minute AAA and attention-control conditions. AAA involved freely interacting with five therapy dogs, and ten experienced therapy dogs of varied sizes, ages, and breeds, participated in the AAA condition in two shifts. The control condition involved completing the Family Life-Space Diagram (FLSD). Outcome measures collected pre- and post-condition included a Stress Visual Analog Scale (SVAS), salivary alpha amylase (sAA), and salivary nerve growth factor (sNGF).

Repeated measures ANOVA revealed a significant order by condition interaction, commensurate with the timing of AAA, for SVAS, [F(df) = 17.78(2,165)]. Post hoc comparisons of means revealed significant pre-post decreases in SVAS scores for AAA with large effect sizes, regardless of order (AAA first:  $t = 4.58, p = 0.0001, d = 1.87$ ; AAA second:  $t = 5.73, p = 0.0001, d = 1.63$ ). No significant pre-post SVAS differences were found for the control condition. No significant pre-post differences were found for sAA for either condition. The majority of sNGF results were in the undetectable range and therefore not subjected to analysis.

Growing in popularity, campus AAA events may represent an effective, low cost intervention to reduce perceived stress in college students before exams. While there was a trend toward lower sAA levels following AAA, it may be that student stress levels were not sufficiently high to affect measurable levels of sNGF, nor to yield significant changes in sAA.

## 5C – HEAVY PETTING ON CAMPUS: THE EFFECTS OF GROUP-ADMINISTERED ANIMAL-ASSISTED THERAPY ON FIRST-YEAR UNIVERSITY STUDENTS SOCIAL AND EMOTIONAL WELL-BEING

**John-Tyler Binfet**

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The transition from high school to university is a time of increased stress and universities are increasingly seeking ways to support the social and emotional well-being of students. The aim of this quasi-experimental study was to examine the effects of an 8-week, group-administered animal-assisted therapy intervention on students' feelings of connectedness to campus and homesickness. Participants were mostly female (82%), first-year students (Mean age = 18.30,  $SD = .54$ ) attending a large public university in Western Canada. Blind to study conditions, participants self-selected to treatment ( $n = 22$ ) or control ( $n = 20$ ) groups. Treatment participants were randomly assigned to therapy dogs ( $n = 20$ , 55% female, 50% purebred) and volunteer handlers ( $n = 20$ , 63% female) for weekly 45-minute sessions. Control participants followed a waitlist "business-as-usual" model. Pre- and post-test measures were administered to assess changes in participant's perceptions of connectedness to campus and levels of homesickness. A repeated measures ANOVA was conducted and revealed 1) a significant main effect of time for connectedness,  $F_{(1,40)} = 4.40$ ,  $p = 0.04$ ,  $\eta^2 = 0.10$  with participants reporting higher connectedness after the intervention (post  $M = 2.76$ ,  $SD = 0.12$ ) than at baseline (pre  $M = 2.49$ ,  $SD = 0.12$ ); and 2) controlling for participants gender, a significant interaction between time and treatment group for homesickness,  $F_{(1,39)} = 10.19$ ,  $p < 0.01$ ,  $\eta^2 = 0.207$ . Findings support the contention that access to therapy dogs supports students' social and emotional well-being and hold implications for educators looking to enhance on-campus programming.

## 5D – DEVELOPMENT OF ATTITUDES TOWARDS ANIMAL-ASSISTED THERAPY IN A SWISS REHABILITATION CLINIC

**Karin Hediger<sup>1,2,3,4</sup>, Margret Hund-Georgiadis<sup>1</sup> and Dennis C. Turner<sup>2</sup>**

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*Introduction:* Animal-assisted therapy (AAT) was being implemented at REHAB Basel, a rehabilitation center for paraplegia and craniocerebral injury trauma patients in Switzerland. Here, we present the follow-up of the staff's attitudes towards AAT after a year of practice.

*Methods:* To assess the staff's attitudes, a questionnaire was administered before implementation of AAT. A year later a follow-up survey with 29 items was done. 164 questionnaires were returned. All questionnaires were analyzed in SPSS using descriptive statistics, Spearman's correlations and Wilcoxon signed-rank tests.

*Results:* In the first survey, a majority of the staff (76%) thought it was positive to implement AAT at REHAB Basel. Only 9% of the staff were critical or negative but 30% of the staff anticipated problems of hygiene and 38% feared injuries and bites.

In the second survey, attitudes towards AAT in general did not change significantly over time. 86.6% of the staff indicated a positive attitude. Moreover, more than half of all the staff state that they benefit themselves from the presence of the animals.

Significantly changed, though, have the attitudes towards problems: employees significantly more strongly negated that the animals are disturbing ( $Z = -4.18, p < .000$ ) and that hygiene problems occurred ( $Z = -3.69, p < .000$ ).

*Conclusion:* Results show that already before implementing AAT most of the staff at the clinic had positive expectations. A year after the implementation, the follow-up questionnaire shows that the real experiences were more positive than expected regarding possible problems. The positive attitudes remained stable in the context of practical experiences made.

## **5E – JOB STRESS FOR FORENSIC INTERVIEWERS: INITIALLY AND AFTER USING FACILITY DOGS, THERAPY DOGS, OR NO DOGS**

*Student Award Nominee*

**Diane Walsh, Mariko Yamamoto and Lynette Hart**

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Forensic interviews provide important support to sexually abused children. However, conducting interviews affects the mental health of child welfare workers, causing secondary traumatic stress—“compassion fatigue.” Certified facility dogs are extensively trained to work with forensic interviewers. Could using facility dogs also lessen the stress of the interviewer? We gathered web survey data comparing job stress among forensic interviewers who use: a certified Facility Dog (FD:  $N = 16$ ); a trained therapy dog (TD:  $N = 15$ ); or no dog (ND:  $N = 198$ ). TD interviewers, as compared with FD, retrospectively reported heightened self-rated stress during their initial 5 years of interviews, prior to using a dog (Chi-square test:  $p = 0.017$ , Cramer's  $V = .44$ ; extreme/very stressful: FD: 7.1%; TD: 46.7%; ND: 35.3%). Only FD reported low stress throughout; ND stress decreased to the FD level by year three, but TD stress remained high. Current Secondary Traumatic Stress Scale (STSS) scores were significantly elevated for TD vs. ND (Mann-Whitney  $U$  test:  $p = 0.009$ ,  $r = .18$ ; means: FD: 40.3; TD: 45.3; ND: 36.9). Compared to TD, FD frequently handled dogs, gave more interviews, and used their dogs more often (number of interviews with their dog per week: FD: 3.6; TD: 1.0). Both FD and TD interviewers favored use of dogs (FD: 75.0%; TD: 66.7%). FD and TD interviewers differed in stress prior to incorporating dogs, indicating FD's higher inherent coping skills. Both groups favored dogs, but dogs did not affect STSS stress. We appreciate the partial support from Pfizer/Zoetis.

## **5F – THE ROLE OF AN ANIMAL-ASSISTED INTERACTION (AAI) PROGRAM AS A MEANS OF SOCIAL SUPPORT AND STRESS REDUCTION WITHIN A COLLEGE COMMUNITY.**

**Tanya K. Bailey**

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College campuses struggle to meet the demand for mental health services and to address student stress. For most young adults, a relationship with animals can be a significant source of wellbeing and assistance in navigating life transitions (Coakley and Mahoney, 2009).

This mixed methods research study involves three, 12-week phases and is the first to examine a year-long, weekly, drop-in AAI program and student stress. It is hypothesized regular access to AAI will result in positive subjective wellbeing and reduced stress. In general, participants are full time students (82%), aged 19–34 (76%) and female (74%). AAI teams are comprised of 70 adults registered as a “therapy animal team” with domestic animals (e.g., dogs, cats, rabbits, chicken, and horses).

Preliminary results include 1,307 individuals averaging 2.7 visits. Participants completed a survey (response rate = 37.8%,  $n = 494$ ) that includes the Perceived Stress Scale (PSS-10), and a pre/post questionnaire measuring affect changes ( $n = 30$ ). Among those who completed the PSS-10, 41.8% ( $n = 197$ ) scored with high stress and 33.8% ( $n = 159$ ) scored with above average stress. When asked, “Did interacting with the animals help manage your stress?” those with high stress levels strongly agreed or agreed (92.4%). Similar results were found among those with lesser degrees of perceived stress. Additional data analysis will include focus groups among AAI participants and practitioners. This study will support implementation of animal-assisted stress reduction programs across post-secondary institutions.

### **Reference**

Coakley, A.B, and Mahoney, E.K. (2009). Creating a therapeutic and healing environment with a pet therapy program. *Complementary Therapies in Clinical Practice*, 15, 141–146.

## **5G – USING INTERACTIONS WITH ANIMALS TO REDUCE PSYCHOLOGICAL DISTRESS: A REVIEW**

*Student Award Nominee*

**Molly K. Crossman and Alan E. Kazdin**

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Each year, 32 million Americans experience serious psychological distress (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). This distress increases risk for physical health problems, including up to three and a half times the risk of death (SAMHSA, 2014). However, less than half of those in distress receive treatment.

Animal-assisted therapies (AATs) and activities represent a growing response to the problem of psychological distress. Since the first documented use of animals for this purpose, there have been hundreds of publications on the topic (Tuke, 1813). However, methodological flaws and habitual over-interpretation limit the literature (Crossman and Kazdin, in press). Existing reviews are peppered with calls for more rigorous research. Yet, it remains unclear what can be concluded from the existing work. A clear understanding of past work is critical to ensuring that we do not continue to repeat the same methodological and theoretical errors.

The purpose of this systematic review is to establish what we know about the effects of interactions with animals on psychological distress, including the scope, magnitude, and moderators of these effects. Examples of key references include the seminal work of Katcher and Beck (e.g., 1983, 1984, 1996, 2003), and contemporary laboratory-based studies of Beetz and colleagues (e.g., 2011, 2012, 2013). A handful of studies provide supportive evidence for the effects of AAT on distress, but these effects are small in magnitude and limited to certain circumstances. However, given the appeal and low cost of AATs, even these small changes are likely to have widespread impact.



## **5H – HOW DO DOGS ENCOURAGE AND MOTIVATE WALKING? RESULTS FROM RESIDE.**

**C. Westgarth<sup>1</sup>, M. Knuiman<sup>2</sup> and H. Christian<sup>2,3,4</sup>**

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Many dog owners do not walk their dog and thus intervention strategies are required. The perceived support, motivation and obligation the dog provides for walking has been shown to be highly associated with dog walking, however, dog-related factors (e.g., dog size, age, health) have had mixed findings. The aim of this study was to model dog and owner demographic and behavioural factors that contribute towards this strong sense of encouragement, obligation and motivation to walk the dog, which we call “The Lassie Effect.” The Dogs And Physical Activity (DAPA) Tool was used in a cross-sectional survey of 629 adult dog owners participating in the RESIDE study. Multivariable logistic regression analyses were used to examine factors associated ( $p < 0.05$ ) with the two outcomes: “Dog encouragement to walk” and “Dog motivation/obligation to walk.” Larger dog size; increased attachment; knowing dog enjoys going for a walk; belief that exercise keeps dog healthy; and social support from family to go walking were positively associated with both outcomes. Perceived dog-specific barriers to walking with dog daily; child mainly walks dog; and having children were negatively associated with both outcomes. In addition, the belief walking reduces barking was positively associated, and dog overweight; dog too old/sick; spouse/partner mainly walks dog; and increased perceived access to dog-supportive open spaces were negatively associated with “Dog motivation/obligation to walk” only. In conclusion, dog-related factors affect the pathway to dog walking behavior and may influence the initiation and maintenance of dog walking behaviour differently.

## Session 6: Animal Behavior/Attitudes towards Animals

Saratoga Ballroom 2 – 1100–1300

### *6A – PET DOG'S ORIENTATION TOWARDS PHOTOS AND VIDEOS: ARE PET DOGS READY FOR THE VIDEO CHAT WHILE LEFT HOME ALONE?*

**Miki Kakinuma, Shota Nakazawa, Miyoko Matoba and Izuru Nose**

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Separation anxiety has been a major issue for left alone home dogs and their welfare has been a concern for owners and veterinarians. In order to ease the loneliness, possibilities of video chats between the owner and dogs are being investigated (Golbeck and Neustaedter). Studies show that dogs can recognize not only the owner's face, but also the voice (Adachi, Kuwahara, and Fujita). But at the same time, many studies suggest that not all dogs are fit for this kind of study (i.e. Racca et al. 2010).

In this study, we evaluated the dog's preferences for the visual stimuli like photos or movies shown on the screen by monitoring their behavior and also the heart rate. Twenty adult pet dogs were shown 12 sets of photos of familiar and unfamiliar human faces and unfamiliar dog faces for 3 seconds each and then 1 minute of video clip. Some dogs seemed watched video as well as still photos and those that did not. Fisher's exact test result showed that those watched the screen longer showed less calming signals such as licking the nose or squinting the eyes ( $p < .05$ ). No heart rate differences were observed.

Some dogs paid attention and sometimes reacted to the screen—particularly the video and others did not. Results suggest that video chat may be a way to release their home alone stress for some dogs. Data are still under analysis.

## **6B – POSITIVE CONTACT WITH HUMANS CAN IMPROVE LEARNING PERFORMANCE AND EMOTIONAL STATES IN PIGLETS**

*Student Award Nominee*

**Sophie Brajon<sup>1,2</sup>, Océane Schmitt<sup>1</sup>, Jean-Paul Laforest<sup>2</sup> and Nicolas Devillers<sup>1</sup>**

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We investigated whether an experience with humans can modulate cognitive processes and emotional states in piglets, through the evaluation of learning abilities and presence of judgment bias. Fifty-four weaned piglets received a repeated experience with humans: gentle handling (GEN), rough handling (ROU) or minimal contact (MIN). Simultaneously, they were trained to discriminate a positive auditory cue (P) associated with food reward from a negative one (N) associated with punishments (e.g. water spray), delivered into a test box. Piglets were then subjected to cognitive bias tests (CBT) including novel ambiguous auditory cue (A). The approach rate of the test box following an A cue was corrected from the average individual response to P and N cues. A low corrected approach is associated with a high approach rate following A cue compared with the average individual response and the intermediate value is 0.5. Behavioral responses were analyzed using mixed models. The type of experience with humans did not affect the success of piglets in discriminating P from N cues. However, within the 59% of piglets that learnt correctly, ROU piglets tended to be slower to learn than GEN piglets ( $P < 0.08$ ). During CBT, the corrected approach following A cues was lower for GEN than ROU piglets (GEN:  $0.42 \pm 0.28$ , ROU:  $1.59 \pm 0.31$ ,  $P = 0.04$ ) showing an optimistic judgment bias, whereas MIN piglets did not differ from the other treatments (MIN:  $0.73 \pm 0.33$ ). To conclude, this study demonstrates that positive contacts with humans can improve the emotional state and increase learning performances of domestic pigs.

## 6C – CANINES AND CHILDHOOD CANCER (CCC): BEHAVIORAL AND PHYSIOLOGICAL STRESS IN THERAPY DOGS WHO VISIT PEDIATRIC ONCOLOGY SETTINGS

**Amy McCullough, Molly Jenkins and Ashleigh Ruehrdanz**

*American Humane Association. amym@americanhumane.org*

Through rigorous research, the Canines and Childhood Cancer (CCC) Study seeks to enhance pediatric oncology treatment, while optimizing animal-assisted intervention (AAI) research and best practices for therapy dogs in hospital settings. Researchers hypothesize that therapy dogs will exhibit minimal distress over the study period. This presentation will focus on preliminary therapy dog data.

Patients (current  $n = 37$ , 12 females/25 males, 3–17 years) and their parents are randomly selected to receive either standard of care treatment or standard of care plus regular visits from a registered therapy dog ( $n = 25$ , 14 females/11 males, multiple ages/breeds) for four months at five children's hospitals. To measure canine stress, therapy dog behavior is videotaped and rated via handler self-reports and a behavior ethogram during each session. Post-session canine salivary cortisol is compared to the dog's average baseline cortisol measurement, session behavior, and C-BARQ-measured temperament.

Currently, over 200 saliva samples and 75 hours of videotaped behavior have been obtained. C-BARQ data show that therapy dogs scored lower than average on the energy and attachment/attention seeking subscales. Using descriptive statistics, preliminary ethogram data indicate more coded stress-related behaviors than affiliative-related behaviors among dogs in a small subset of seven sessions. However, post-session salivary cortisol was no higher than baseline measures for seven participating dogs.

As data collection continues through 2015, researchers will further assess the relationship between cortisol and ethogram data in order to understand the level and nature of canine stress elicited by AAI sessions, and to advance future best practices and research.

## 6D – ATTITUDES TOWARDS ANIMALS: A POPULATION-BASED STUDY (N = 2500)

### Student Award Nominee

Paula Calvo<sup>1</sup>, Jonathan E. Bowen<sup>1,2</sup> and Jaume Fatjó<sup>1</sup>

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<sup>2</sup>Royal Veterinary College, North Mymms, UK.

Human–animal interaction research is interested in attitudes towards animals in different cultures and its implications. However, research has usually been focused on particular social groups. The objective of this study was to perform a population-based study on attitudes towards animals.

A questionnaire was designed including demographic factors, questions on pet ownership experience and a Spanish version of the Pet Attitude Scale-Modified (PAS-M) (Templer et al 1981). A representative sample of 2,500 people of the Spanish population answered the questionnaire through phone interviews.

A descriptive analysis of data was conducted and comparisons in PAS-M score were done (Mann Whitney *U* Test;  $p < 0.0001$ ). Most participants (76%) showed a positive attitude towards animals and least participants (6%) showed a negative attitude (hate). Also, most participants (76%) stated pets should be treated with as much respect as any human member of the family. Considering a pet as a source of happiness emerged in 74% of the population. And considering a pet as a waste of money emerged in 16% of the population.

Pet owners scored significantly higher in PAS-M than non-owners, and women scored significantly higher than men. These results show a predominantly pet friendly population. This information could help to promote pet-friendly policies. Also, this population-based study opens new opportunities for future cross-cultural research on attitudes towards companion animals.

### Reference

Templer, D.I., Salter, C.A.; Dickey, S.; Baldwin, R. and Veleber, D.M. (1981) The construction of a Pet Attitude Scale. *Psychological Record* 31: 343–48.

## 6E – USING THERAPY DOG ATTACHMENT TO TEST PERSPECTIVE-TAKING IN CHILDREN

Justin J. Couchman<sup>1</sup>, Nancy R. Gee<sup>2</sup> and Ashleigh Weidner<sup>1</sup>

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We examined whether the presence of a certified therapy dog (female blue heeler, 3yo) would lead to attachment and increased perspective-taking in children ( $n = 22$ , mean age=6.0).

In a false-belief task, children watched a dog or puppet put an object in location A, then move out of sight. Another agent then moved the object from location A to location B. Participants were then asked where the dog or puppet would look for the object. Correctly answering involves overcoming the knowledge that the object is in location B, and instead focusing on the dog or puppet's belief that it would still be in location A. Binomial sign tests showed that children performed significantly above chance in the dog,  $p < .001$ , and puppet,  $p < .01$ , conditions, and the youngest children seemed to benefit most from the presence of the dog.

Participants also made 1 (sad) to 5 (happy) ratings of 34 statements. This led to many findings, including: Long-term interaction with the dog was rated as desirable as long-term interaction with a best friend,  $R^2 = .58$ . Saying goodbye to the dog or a best friend was similarly undesirable,  $R^2 = .63$ . Interestingly, the happier they were to see the dog, the more strongly they believed the dog was happy to see them,  $R^2 = .72$ . The results suggest that children form strong attachments to therapy dogs and easily attribute mental states to them. However, the extent to which this can be used to improve Theory of Mind or other cognitive abilities is still an open question.

## **6F – DEVELOPMENT OF A SCALE TO MEASURE CAT CARE AND UNDERSTANDING OF CATS’ BEHAVIORAL NEEDS: THE CAT CARE AND NEEDS SCALE (CCANS)**

**Mikel M. Delgado<sup>1</sup> and Gretchen M. Reeve<sup>2</sup>**

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<sup>2</sup>*California State University, East Bay*

While many studies have examined the levels of attachments people have to their pets, and people report high levels of affection for their pets, we do not know how these attachments translate into caretaking and understanding of pets’ behavioral needs. In other words, are highly attached pet-owners more likely to take good care of their pets?

We surveyed 505 people (ages 18 to 74; 85.8% women) with 59 items examining their care-taking habits and interactions in regards to a pet cat. Items included “I or other members of my family play with interactive toys (e.g. feather wands, cat dancer, string toys) with my cat at least once per day,” “I often use a squirt bottle to correct my cat’s behavior,” and “My cat is rarely home alone without human company for more than 10 hours at a time.” Items were scored on a 7-point Likert scale.

From these 59 items, 25 valid items were retained, and four factors related to cat care emerged: (1) daily care and interaction; (2) social companionship; (3) medical care; and (4) behavioral satisfaction and use of discipline. The factors had Cronbach’s alphas ranging from .69 to .82, and the overall Cat Care and Needs Scale (CCANS) had a Cronbach’s alpha of .77.

This scale can be used to assess people’s understanding of the behavioral and other care needs of pet cats. We will also describe our current plans to correlate attachment measures with the CCANS and human personality factors.

## 6G – MEASURING THE OWNER-CAT RELATIONSHIP: CAN THE MONASH DOG OWNER RELATIONSHIP SCALE (MDORS) BE ADAPTED?

Jon Bowen<sup>1,2</sup>, Paula Calvo<sup>1</sup> and Jaume Fatjó<sup>1</sup>

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<sup>2</sup>Royal Veterinary College, North Mymms, UK.

No equivalent to MDORS exists for cat owners. In this study the scale was adapted by substituting species name in the items, to explore adaptations required to develop a dedicated scale for cat owners. Free-response-text questions about positive and negative aspects of cat ownership were also included, for text-mining. A population of 293 cat owners was recruited online, and their responses compared with those from an equal-sized and demographically matched population of dog owners.

Systematic differences between cat and dog ownership were explored using Orthogonally filtered Projection to Latent Structures Discriminant Analysis (O-PLS-DA) and group differences were tested with the Mann-Whitney *U*. A significant difference in MDORS factor scores was found between cat and dog owners for “pet-owner interaction” (Mann-Whitney  $U = 7,984$ ,  $p < 0.0001$ ), but not for “emotional closeness” or “perceived costs.” O-PLS-DA identified a strong systematic difference between cat and dog owners for items composing “pet-owner interaction” ( $R^2Y = 0.724$ ,  $Q^2 = 0.716$ ,  $p < 1 \times 10^{-25}$ ), an extremely weak systematic difference for “perceived costs” ( $R^2Y = 0.0305$ ,  $Q^2 = 0.0175$ ,  $p = 0.006$ ), but no systematic difference for “emotional closeness.”

Our findings suggest that the items for the MDORS factor “emotional closeness,” and perhaps “perceived costs,” could be used to measure the owner-cat relationship. The items composing “pet-owner interaction” require the greatest amount of adaptation, and our text analysis has suggested suitable themes for replacement items.

### Reference

Dwyer F.; Bennett P.C.; and Coleman, G.J. (2006) Development of the Monash Dog Owner Relationship Scale (MDORS). *Anthrozoös* 19(3): 243–256.



## Session 7: Waltham/NIH Session

Saratoga Ballroom 3 – 1400–1530

### *7A – CANINE ASSISTED INTERVENTION FOR CHILDREN WITH ATTENTION DEFICIT/HYPERACTIVITY DISORDER; MAIN OUTCOMES FROM PROJECT P.A.C.K.*

**Sabrina Schuck<sup>1</sup>, Natasha Emmerson<sup>1</sup>, Kimberley Lakes<sup>1</sup> and Aubrey Fine<sup>2</sup>**

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<sup>2</sup>California State Polytechnic University, Pomona, USA.

*Introduction:* Children with Attention Deficit/Hyperactivity Disorder (ADHD) are at greater risk for functional impairment and poor outcomes. Novel approaches aimed to improve social skills and symptom management are needed. Project Positive, Assertive, Cooperative Kids (P.A.C.K.) is the first randomized clinical trial examining the safety and efficacy of Canine Assisted Interventions (CAI) for ADHD.

*Methods:* 81 children with ADHD (mean age = 8.14, 58 males) and their parents participated in a 12-week skills training, either with or without therapy dogs ( $n = 41$  “DOG,”  $n = 40$  “NO-DOG”). Parents completed the ADHD-IV Rating Scale (DuPaul et al., 1998) every two weeks and the Social Skills Improvement System (Gresham and Elliott, 2008) at pretreatment, post-treatment, and follow-up.

*Results:* Inattention symptoms were lower for DOG than No-DOG at week-4 ( $F_{(1,274)} = 4.58$ ,  $p < .05$ ) and remained lower across subsequent weeks ( $p < .05$ ). Social Skills scores were better for DOG than No-DOG at post-treatment ( $F_{(1,80)} = 4.45$ ,  $p < .05$ ) and follow-up ( $F_{(1,80)} = 5.20$ ,  $p < .05$ ). While Problem Behaviors were reduced at post-treatment for both groups, scores declined at a faster rate for DOG than No-DOG ( $F_{(1,80)} = 9.36$ ,  $p < .01$ ).

*Conclusion:* CAI for children with ADHD is a safe and effective therapy for reducing symptoms, particularly inattention, and improving social skills. Investigation into underlying mechanisms and generalizability to other populations is warranted.

### References

DuPaul, G. J.; Power, T. J.; Anastopoulos, A. D.; and Reid, R. (1998). *ADHD rating scale-IV*. New York: Guilford Press.

Gresham, F., and Elliott, S. (2008). *Social skills improvement system (SSIS)*. Minneapolis, MN: Pearson Assessment.

## **7B – DEVELOPMENT AND INITIAL VALIDATION OF THE OBSERVATION OF HUMAN–ANIMAL INTERACTION FOR RESEARCH—MODIFIED VERSION 1 (OHAIRE-M1)**

**Marguerite E. O’Haire<sup>1</sup>, Monique Germone<sup>2</sup> and Robin Gabriels<sup>2</sup>**

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<sup>2</sup>*Children’s Hospital Colorado*

The field of anthrozoology has been criticized for biased outcome measures and weak study designs. A critical need exists for a specialized tool to assess behavioral outcomes from interaction with animals, including animal-assisted intervention. The gold standard for assessing behavioral change is blinded behavioral observation. However, there is no published tool to evaluate behaviors specifically in the context of human–animal interaction. To fill this gap, we modified and evaluated a tool called the Observation of Human–Animal Interaction for Research—Modified Version 1 (OHAIRE-M1). We piloted this measure to assess its feasibility, validity, and sensitivity to change over the course of an animal-assisted intervention (i.e. Therapeutic Horseback Riding). In a single-case design, three children (ages 6, 8, and 11 years) with autism spectrum disorder (ASD) were evaluated pre-and post- one-hour session over the course of a 10-week intervention. Outcome measures included the OHAIRE-M1 in addition to standardized, parent-report assessments of social functioning and problem behaviors, including the Aberrant Behavior Checklist and Social Responsiveness Scale. A blinded observer was trained in the OHAIRE-M1 system and coded all video-recorded segments. A secondary observer coded 20% for inter-rater reliability. This presentation aims to demonstrate the feasibility of the OHAIRE-M1 to reliably capture observable behavioral changes over the course of an animal-assisted intervention compared to caregiver report data. The development of the OHAIRE-M1, its administration, outcomes, and applications will be discussed. The future of the field of anthrozoology relies on rigorous research methodology and assessment. The OHAIRE-M1 coding system will be explored as a step in this direction.

## 7C – DOES EXPOSURE ACCOUNT FOR RACIAL/ETHNIC DIFFERENCES IN CHILDREN’S ATTITUDES TOWARDS PETS?

**Kristen C. Jacobson**

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Individual differences in the effects of human–animal interaction on youth outcomes should be considered. One source of potential individual differences may be racial and/or cultural differences in attitudes towards pets. The current study examined pet ownership patterns and attitudes towards pets in a large, community-based sample of youth aged 10–18 (47.7% male), including Caucasian ( $n = 133$ ), Black ( $n = 138$ ), and Hispanic ( $n = 62$ ) participants. Detailed pet ownership history was obtained via parental interview. Youth filled out the Pet Attitude Scale-Modified (PAS-M, Templer et al., 1981). The prevalence of pet ownership was higher among Caucasian (85.0% current owners) than Black (51.5%) and Hispanic (62.9%) youth ( $\chi^2_4 = 36.9, p < .001$ ). Logistic regressions confirmed that in comparison to Caucasian youth, minority youth were less likely to own any pets, cats, and small pets, even after controlling for demographic factors including child age, gender, household socioeconomic status, and parental marital status (OR range: 0.09–0.58, all  $p$ -values  $< .05$ ). There were no racial/ethnic differences in dog ownership (OR = 0.81–0.83, 95% CI = 0.43–1.62,  $p > .10$ ). Multivariate regression analyses revealed that Black ( $b = -0.51, se = 0.13, p < .001$ ) and Hispanic ( $b = -0.42, se = 0.16, p < .01$ ) youth had significantly less positive attitudes towards pets than Caucasian youth. These racial/ethnic differences remained significant after including demographic controls and history of current and previous pet ownership. Results indicate that differences in pet exposure and demographic factors do not account for observed racial/ethnic differences in children’s attitudes towards pets.

### Reference

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## **7D – THE DEVASTATION AND NORMALIZATION OF DOG LOSS IN AN AMERICAN INDIAN COMMUNITY**

**Lori L. Jervis and Paul Spicer**

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In an ethnographic study on dogs and families on a northern plains reservation with a very large population of free-roaming canines, the loss of dogs (via death or theft) emerged as a focal (albeit unexpected and unprompted) finding. Tribal members' early memories of dogs were often colored by their later deaths—frequently acute and tragic. Thefts, often of puppies or purebreds (versus the more ubiquitous mixed breed), posed an ever-present threat. In this presentation, we will parcel out the meaning of dog loss in a context where the roaming dog is normative, but is nonetheless intricately woven into the social fabric of families and the larger community. Our project, which included focus groups, 240 team observations of naturally occurring human-canine interactions within the community, and ethnographic interviews with 12 families about their relationships with/care of dogs, found that dogs served as physical and spiritual protectors and as well as near-constant companions to children and the homeless population. Free-roaming dogs could also be serious aggressors to both other canines and people. In this reservation setting where most dogs live their entire lives outside—unfenced, unleashed, and un-collared—both their public and personal presence is magnified, as are their losses and deaths. This presentation explores the meaning of these animals (and their loss) in this cultural context, where they are associated with traditional spirituality, protection, companionship, and fun, as well as sorrow, tragedy, danger, and injustices both past and present.

## *7E – MEASURING CHILDREN’S PREFERENCES, PERCEPTIONS AND ATTITUDES ABOUT ANIMALS: ADAPTING TOOLS FOR PEDIATRIC POPULATIONS*

**Sabrina Schuck<sup>1</sup>; Natasha Emmerson<sup>1</sup>, Kimberley Lakes<sup>1</sup>, Teal Mackintosh<sup>1</sup> and Aubrey Fine<sup>2</sup>**

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<sup>2</sup>California State Polytechnic University, Pomona, CA, USA.

*Introduction:* Animals are increasingly included as components of treatment for children with neurodevelopmental and behavioral disorders. While recent research supports benefits of these strategies (Gabriel, 2012; O’Haire, 2013; Schuck, Emmerson, Fine and Lakes, 2013), underlying mechanisms are their systematic measurement is less understood. Research is limited in part by insufficient pediatric instruments. Available tools were developed with adults and not developmentally appropriate, others rely on parent-informants and lack published psychometrics.

*Method:* Preliminary development and properties for two measures designed for child-informants, adapted for ages 7–9, are discussed. Both measures were tested as part of a larger randomized clinical trial of Animal Assisted Intervention ( $n = 58$ ) and also collected from a group of children in a school setting that utilizes visiting therapy dogs ( $n = 41$ ).

*Results:* Preliminary results and methodology are discussed.

*Conclusion:* We discuss the need for systematic assessment of children’s attitudes and beliefs about animals and call for complimentary observational methods in clinical and non-clinical replication studies.

### **References**

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- Schuck, S. E. B.; Emmerson, N.; Fine, A. H.; and Lakes, K. D. (2013). Canine-Assisted Therapy for Children With ADHD: Preliminary Findings From The Positive Assertive Cooperative Kids Study. *Journal of Attention Disorders*, 1087054713502080.

## 7F – ATTACHMENT TO A PET DOG AND PHYSICAL ACTIVITY AMONG YOUNGER CHILDREN

Anne M. Gadowski<sup>1,2</sup>, Melissa B. Scribani<sup>1</sup>, Nicole Krupa<sup>1</sup>, Paul Jenkins<sup>1</sup>, Zsolt Nagykaldi<sup>3</sup> and Ardis L. Olson<sup>4</sup>

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<sup>4</sup>Department of Pediatrics, Geisel School of Medicine, Dartmouth-Hitchcock Medical Center, Lebanon, NH, USA.

*Introduction:* Playing with a dog has been linked to increased physical activity and improved weight status for children ages 10–12. We assessed how attachment to pet dogs may affect weight status and physical activity of younger children.

*Methods:* Cross sectional study including parents of 643 children, ages 4-10, who completed the DartScreen, a web-based screener, before a well-child visit. Screener domains included child body mass index (BMI), physical activity and dog-related questions. The Companion Animal Bonding Scale (CABS) and its subscales (proximity, caretaking and affection) were used to measure child attachment to the dog for children who had a pet dog ( $n = 370$ ). Associations between CABS, CABS subscales, BMI and physical activity were estimated using either ANCOVA or linear regression controlling for poverty level and age.

*Results:* Increased time spent being active with the dog was associated with higher CABS score ( $F = 22.81$ ;  $p < 0.0001$ ). CABS subscales were significantly associated with time being active with the dog (proximity  $F = 9.20$ ,  $p < 0.0001$ ; caretaking  $F = 9.46$ ,  $p < 0.0001$ ; affection  $F = 22.82$ ,  $p < 0.0001$ ). Higher scores for each subscale were associated with greater time spent active with the dog. CABS score was significantly associated with age ( $p < 0.0001$ ). Older age was associated with higher CABS. Using regression analysis, CABS score was not related to child's BMI z-score (beta coefficient = 0.23;  $p = 0.37$ ). Gender, BMI class, screen time, and years exposed to the dog were not significantly related to total or subscale CABS.

*Conclusions:* Higher levels of child attachment to a pet dog may determine how physically active a child is with the dog.

## Session 8: Equine AAT

Saratoga Ballroom 2 – 1400–1445

### 8A – THEORETICAL DEVELOPMENT IN EQUINE-ASSISTED PSYCHOTHERAPY: THE DIFFERENCE BETWEEN TRADITIONAL PSYCHOTHERAPY AND EQUINE-ASSISTED PSYCHOTHERAPY

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Equine-assisted psychotherapy (EAP) uses a team approach (a therapist and an equine specialist) to incorporate horses into working with clients. Since equine-assisted psychotherapy (EAP) is an emerging area, the practice is developed more quickly than theory, and there is a strong need for theory development. The aim to this study is to fill gaps between theory and practice by exploring the differences between EAP and traditional psychotherapy.

This study was conducted using a constructivist narrative approach and guided by biophilia hypothesis and naturalists’ roles in biology. The researcher conducted two semi-structured, individual, and face-to-face interviews with each of eight participants who had at least two years of experience with practicing both traditional talk psychotherapy and EAP. Each interview lasted one to two hours. After transcribing each interview, the researcher developed a codebook and utilized the computer-assisted qualitative software N-Vivo 10 to conduct thematic analysis. Three main themes and eight subthemes (Table 1) were discovered in the data related to the research purpose.

**Table 1.** Differences between EAP and Traditional Psychotherapy

Main Themes	Sub-themes
1. Relationships between therapists and clients	1.1 Different degree of activeness from therapists 1.2 Power differential
2. Therapeutic techniques	2.1 Clients talk to therapists versus horses 2.2 Talk versus do 2.3 Touch issues 2.4 Individual versus team
3. Characteristics of therapy	3.1 Characteristics pertaining to clients 3.2 Characteristics pertaining to therapeutic approaches

The findings represent the essence of EAP, help to fill in the gaps between EAP theory and practice, and differentiate between EAP and traditional psychotherapy.

**8B – THE EFFECTS OF AN EQUINE FACILITATED LEARNING INTERACTION ON ELDER ADULTS (55+) AS MEASURED BY HEART RATE VARIABILITY, SELF-ESTEEM AND IMMUNE FUNCTION (SIGA).**

**Ann L. Baldwin<sup>1</sup>, Ann C. Alden<sup>2</sup> and Barbara K. Rector<sup>3</sup>**

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<sup>2</sup>Borderlands Center for Equine Assisted Services.

<sup>3</sup>Adventures in Awareness.

Equine-facilitated learning (EFL) promotes personal growth and is based on the innate ability of horses to stay in the present moment. There are numerous anecdotal accounts of EFL benefits to humans but its effectiveness has not been established scientifically. We hypothesize that during EFL, horses influence elderly people to focus more on the present moment, as reflected by their autonomic nervous system, facilitating engagement with the horse, leading to improved self-esteem and immune function.

Twenty-four healthy subjects aged 55 or over, participated in a structured, one-on-one equine-assisted activity. Pre and post measures were obtained from subjects for heart rate variability (HRV) self-esteem (Rosenberg Scale) and immune response (salivary immunoglobulin A, sIgA). During the interaction, the subject's and horse's HRV was measured.

Human heart rate and HRV (SDRR) increased during the interaction compared to baseline, HR:  $84.21 \pm 6.97$  vs  $74.50 \pm 8.86$ (SD) bpm,  $p < 0.001$  and SDRR:  $38.88 \pm 12.24$  vs  $28.78 \pm 9.85$ (SD) ms,  $p = 0.02$ . Self-esteem increased  $26.6 \pm 4.1$  vs  $25.4 \pm 4.4$ (SD),  $p = 0.007$  but sIgA did not significantly change ( $13.58 \pm 8.15$  vs  $12.17 \pm 10.45$ (SD) mg/Dl). If the participants were stressed by their interaction, their HRV and sIgA would have decreased. The four horses' HR and HRV responses were varied.

These findings suggest that engaging with horses benefits humans, as reflected by their HRV, self-esteem and immune function, indicating an enlivened state without stress.

In addition, measuring HRV of horses during interactions with humans may provide insight into their suitability for the work in terms of whether it benefits them physiologically.



**8C – OF EQUINE ASSISTED ACTIVITIES ON PTSD SYMPTOMS, COPING SELF-EFFICACY, EMOTION REGULATION AND SOCIAL ENGAGEMENT IN MILITARY VETERANS.**

*Student Award Nominee*

**Jessica Bibbo, Sarah Williams, Rebecca A. Johnson and Steve Osterlind**

*Research Center for Human-Animal Interaction, University of Missouri, Columbia, MO, USA.  
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The aim of the study was to test the effectiveness of a six week equine assisted activity (therapeutic horseback riding; TR) program in decreasing Post-Traumatic Stress Disorder (PTSD), improving the ability to cope, and increasing emotion regulation and social engagement in military veterans. Participants were randomly assigned to the Riding Group (RG) or the delayed treatment group (DTG); all participants engage in the TR and are matched with a horse. The sample ( $n = 36$ ) was 75.00% male with an average age of 53.69 years ( $SD = 12.89$ , range: 29–73). Twenty-two participants have participated the TR program and data collection will be complete in June, 2015. Preliminary data indicate that participation in TR is associated with changes in the hypothesized directions for all outcome measures; while PTSD scores reached statistical significance. Paired-samples  $t$ -tests indicated that PTSD levels significantly decreased in those who participated in the TR from baseline ( $M = 62.92$ ,  $SD = 12.65$ ) to post-test ( $M = 46.33$ ,  $SD = 16.61$ ),  $t_{(11)} = 4.28$ ,  $p = .001$ . PTSD scores also decreased significantly from baseline ( $M = 63.00$ ,  $SD = 12.37$ ) to 3 weeks ( $M = 53.18$ ,  $SD = 15.03$ ),  $t_{(16)} = 4.15$ ,  $p = .001$ . The preliminary findings suggest that TR programs may be effective in significantly reducing PTSD in military veterans of many ages, and may also benefit veterans' ability to cope, regulate emotions, and increase social engagement.

## Session 9: Wild Horses

Saratoga Ballroom 2 – 1445–1530

### *9A – BRINGING HOME THE WILD: A STUDY OF BUREAU OF LAND MANAGEMENT WILD HORSE ADOPTION IN COLORADO AND TEXAS*

**Mary Koncel and Allen T. Rutberg**

*Center for Animals and Public Policy, Cummings School of Veterinary Medicine at Tufts University, North Grafton, MA, USA. Mary.Koncel@tufts.edu*

With almost 50,000 wild horses living in holding facilities and adoption rates substantially decreasing in recent years, the Bureau of Land Management's (BLM) Adopt a Wild Horse and Burro Program is at a critical juncture. To expand much needed data on BLM wild horse adoption, this prospective study followed 52 adopters (41 women, 11 men) in Colorado and Texas during their first year of adoption, a time we believe is crucial to adoption satisfaction. Together, they adopted 63 horses of varying ages, genders, and training levels.

Between June, 2012, and December, 2013, we conducted three in-depth interviews with the participants: at the time of adoption, six months into adoption, and one year after adoption. Questions sought to gather information on the adopters, their adopted horses, and their adoption experience. We retained 83% of the original sample through Phase II and 65% through Phase III.

Participants retained through Phase III were uniformly satisfied with their adoptions regardless of owner or horse background. Three dynamics appeared related to adoption satisfaction: adopter's previous knowledge about domestic and wild horses, participation in organizations that support wild horse adoption, and engagement in a western culture that values wild horses. Participants who did not remain in the study, and whose adoption outcomes are not known, share characteristics that suggest further investigation.

The findings suggest that a better understanding of regional differences in adopters' preferences and experiences would help facilitate more interest in wild horse adoption and higher satisfaction rates in the BLM national adoption program.

Oral Presentations:

## **9B – MUSTANGS AND DOMESTIC HORSES: EXAMINING WHAT WE THINK WE KNOW ABOUT DIFFERENCES**

**Karen Dalke**

*Department of Public and Environmental Affairs, University of Wisconsin-Green Bay, Green Bay, WI, USA. dalkek@uwgb.edu*

Mustangs in the American West are descendants of animals that escaped domesticity. In 1971, these horses—recognized as a national heritage species—have been protected by the Wild and Free-Roaming Horses and Burros Act. Since the legislation, mustangs have been adopted to members of the public. Successful integration of these horses in different contexts can be enhanced with research identifying behavioral similarities and differences between mustangs and their domestic counterparts. Using the United States Geographical Survey (USGS) ethogram for Free-Roaming Feral Horses, this study examines behaviors of Bureau of Land Management (BLM) mustangs and domestic horses. Over 26,000 photographs were analyzed and sorted into 17 behavioral categories. Continuous focal sampling at one-minute intervals using GoPro cameras captured behaviors for six equids over a one-month period in the summer of 2013. The herd was comprised of mustangs, domestically bred horses and a burro ranging in age from 5–25 years. Since the sample size is small most statistics are descriptive in nature, but reveal and challenge perceptions we hold of mustangs in contrast to domestically bred horses. The data suggests that the domestic environment, rather than the animal, may give us insight into better treatment of the species wherever they roam.

## 9C – FACTORS INFLUENCING GROUP STABILITY AND BODY CONDITION IN TWO WESTERN WILD HORSE HERDS TREATED WITH PORCINE ZONA PELLUCIDA (PZP) IMMUNOCONTRACEPTIVE VACCINES

**Allen Rutberg<sup>1</sup>, Kayla Grams<sup>2</sup> and Heidi Hopkins<sup>2</sup>**

<sup>1</sup>*Center for Animals and Public Policy, Cummings School of Veterinary Medicine at Tufts University, North Grafton, MA, USA. allen.rutberg@tufts.edu*

<sup>2</sup>*The Humane Society of the United States, Gaithersburg, MD, USA.*

Fertility control using porcine zona pellucida (PZP) immunocontraceptive vaccine is currently being used to manage nearly three-dozen wild horse herds in the US, and is being considered for wider application. Despite a 28-year track record of successful testing and application, questions persist about PZP's effects on the behavior and health of treated mares. We report here the results of five years of observation on mare group interchange rates and body condition scores in two western wild horse herds receiving PZP treatments. In 2008, 132 mares were gathered and hand-injected with PZP at Sand Wash Basin (SWB), CO, and Cedar Mountains (CM), UT; in 2010, 51 mares received dart-delivered PZP boosters at SWB; and in 2012, 143 mares were gathered and hand-injected with PZP boosters ( $n = 58$ ) or initial injections ( $n = 85$ ) at CM. PZP treatments had no consistent effects on the likelihood of a mare changing groups at least once during the field season (April-November). However, rates of mare transfer appeared to peak after gathers, and subsequently decline over time. There was a mild trend for PZP-treated mares to display better body condition than untreated mares; this probably reflected a stronger and more consistent trend for mares without foals to display better body condition than mares with foals by the end of the field season. Our results add to the evidence that PZP treatment of wild horses is not demonstrably harmful, and is likely to be less disruptive of group stability than the current BLM practice of gathers and removals.

# What Is ISAZ?



The International Society for Anthrozoology (ISAZ) was formed in 1991 as a supportive organization for the scientific and scholarly study of human–animal interactions (anthrozoology). It is a nonprofit, nonpolitical organization with a worldwide, multi-disciplinary membership of scientists, scholars, students, interested organizations, and laypersons.

ISAZ aims to promote the study of human–animal interactions and relationships by encouraging and publishing research, holding meetings, and disseminating and exchanging information. To

accommodate its international membership, ISAZ has held meetings and conferences across the globe.

## Why Join ISAZ?

### Benefits to ISAZ members include:

- The Society's quarterly journal, *Anthrozoös*, the leading academic journal on human–animal interactions and relationships
- Substantially reduced registration fees for all ISAZ conferences
- Listserv distribution of items of interest to society members



### Anyone can join ISAZ!

To ensure that anyone with an interest in the field can enjoy access to the most up-to-date information and scholarship from the field, the Society offers a range of membership options: Individual, Student, Affiliate, and Corporate.

For complete details on membership, visit the ISAZ website today. [www.isaz.net](http://www.isaz.net)

# Numerical List of Posters

No.	First Author	Title
P1	Marie Abney	Addressing perceptions of stray dogs cross-culturally: From Boston to Istanbul
P2	Patricia Anderson	Continuing the bond after death of a companion animal
P3*	Beatrice Auger	Extending the pet as ambassadors hypothesis
P4*	Basilia Basin	A critical review examining companion animal influence during decision-making in the context of healthcare utilization
P5	Joanna Becker	Animal assisted social skills training for children with autism spectrum disorders
P6	Sandra Branson	The relationship of pet ownership and pet attachment on psychosocial, biological, and executive function in the disadvantaged homebound elderly
P7	Antonio Bulbena	Psychiatric assessment in cases of animal hoarding: apropos of three cases
P8	Chrissy Case	An examination of how individuals handle pet loss
P9	Cynthia Chandler	Eight domains of pet owner wellness
P10	Adam Clark	Implications of clinical counseling services in oncology veterinarian practice: A clinician perspective
	<b>NOT PRESENTED</b>	
P11*	Dawn Cowling	When the bond breaks: Variables that influence grief, guilt, and loneliness following companion animal loss
P12*	Kristen Cunningham	Biting the hand that feeds: Risk factors associated with reported animal bites
P13	Angela Fournier	Development of the Human-Animal Interaction Scale: An instrument to quantify human-animal interaction
P14	Gennifer Furst	The next generation of prison based animal programs: Training therapeutic canines for veterans
P15	Barbara Ghiringhelli	The first horse
P16	Tia Hansen	It's hardly about cuteness: A dog companion increases acknowledgement from strangers but a toddler companion does not
P17	Christy Hoffman	Characterizing dog-dog and dog-human relationships in two-dog households
P18	Rodney Hullstein	Social and environmental factors that influence participation in agility
P19*	Nick Johnson	Language use is associated with adjudicated adolescent outcomes in an animal-assisted intervention
P20	Amy Johnson	Teacher's pet: Dogs and kids learning together
P21	Tamara Kartal	Transitioning Bureau of Land Management wild horses to companion horses: The wild horse trainers' perspective
P22	Carla Krachun	"No Pets Allowed": A Study of landlord attitudes towards tenants with pets
P23	Caitlin Lecker	An examination of the assumptions made about shorebirds' personality and emotions and the conservation-related implications
P24	Ping-Tzu Lee	Evidence synthesis of equine-assisted psychotherapy literature: Current knowledge and future research directions
P25	Sarah Martinez	Development of an observational dog bonding measure for animal-assisted interventions
P27	Megan Mueller	Effects of therapeutic riding on measures of stress in horses
P28	Megan Mueller	Demographic and contextual factors and access to human-animal interaction
P29	Norilo Nijjima	What they need when a pet dies: A sociological research on pet funeral services in Japan

Poster Presentations

No.	First Author	Title
P30	Charlotte Nivelet	Benefits from the homeless people/dogs relationships faced with the lack of consideration within the rehabilitation process in France
P31	Izure Nose	Interactions with dogs do influence psychophysiological states of humans in animal-assisted education situation
P32	Marguerite O'Haire	Animal-assisted intervention for trauma: A systematic literature review
P33*	Rachel Orritt	The history of dog bite misinformation in UK news media and public policy
P34	James Oxley	The welfare of reptiles for consumption <b>NOT PRESENTED</b>
P35	James Oxley	The use of animals in magic shows <b>NOT PRESENTED</b>
P36	Sezan Ozgunay	Cognitive and composite behavioral assessment of welfare in cats living in single and multi-cat households
P37	Alicia Phillips Buttner	The behavioral, social and hormonal outcomes of dogs rescued from canine commercial breeding establishments
P38	Michal Pregowski	Human names as companion animal names: A new fashion or a steady trend?
P39	Allen Rutberg	Perspectives of volunteers in a non-lethal suburban deer population management project
P40	Boria Sax	Images of apes and what they tell us about humankind
P41	Margaret Schneider	Stress among animal shelter workers and the human-animal bond
P42	Larisa Schuckle	Past experience influences the social behavior of cows ( <i>Bos taurus</i> ) and pigs ( <i>Sus scrofa</i> ) in the sanctuary setting
P43	Brooke Sillaby	Governing dogs: An auto-ethnographic tale of redefining service dog in Canada
P44	Karen Thodberg	Optimal dog visits – A randomized controlled study (2015–2018)
P45	Kathryn Trujillo	Understanding the experience of the integration of volunteer animal teams to in-home family preservation services
P46	Carri Westgarth	Are cows dangerous to walkers? A scoping review
P47	Miranda Workman	Euthanasia decisions in the sheltering industry: A critical inquiry
P48	Miranda Workman	An evaluation of the role the internet site Petfinder plays in cat adoption
P49	Mariko Yamamoto	Physical activities and social interactions of guide dogs and pet dogs

\* Student award nominee

# POSTER ABSTRACTS

## *P1 – ADDRESSING PERCEPTIONS OF STRAY DOGS CROSS-CULTURALLY: FROM BOSTON TO ISTANBUL*

**Marie Carmen Abney**

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Most countries have stray animal populations, though their numbers and impact vary from place to place. So too does the level of engagement in stray animal issues among local citizens, advocacy organizations, and policy makers. This study compared perceptions of stray dogs among individuals of American and Turkish heritage in Boston, Massachusetts. The cultural modeling framework (CMF) was used to organize the research process into four steps: background research on (1) stray animal issues generally and (2) attitudes, behaviors, and policies related to stray animals in Turkey, specifically Istanbul, (3) primary data collection (interviews), and (4) implications of study findings for international advocacy efforts intended to improve stray dog policies in Turkey. Video-elicitation interviews were conducted with American and Turkish individuals in the Boston area. The video, created by an animal advocacy organization in Turkey, showed a street child being mistreated; at the end of the video the child is revealed to be a dog. The video mitigated unease and miscommunication during the interview and improved recall of details. Five themes emerged as common among all participants: pets as family members in America, active relationships with strays in Turkey, a greater emotional response to the street dog in the video as compared to the child, differences in attitudes towards strays in rural and urban Turkey, and Facebook as a useful advocacy tool. This study supports the use of video-elicitation in international advocacy work and provides ideas for building on existing positive attitudes towards stray dogs in Turkey.



## ***P2 – CONTINUING THE BOND AFTER DEATH OF A COMPANION ANIMAL***

**Patricia K. Anderson**

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A 43-question survey regarding attitudes toward the death of a companion animal was posted on Survey Monkey June-December, 2014. Questions include: informed consent (2), demographic (8), attitudes about pet loss including disposal of the body (32), and an open-ended essay: "How has pet loss affected you?" The survey received approval by the Institutional Review Board of the author's university and participation was anonymous. Participants were recruited through social media. A hypothesis is that the Continuing Bond (Packman et al. 2014) would be reflected in treatment of the remains, and in belief in a spiritual afterlife for the pet. Expressions of disenfranchised grief (Cordaro 2012; Packman et al 2014) are also noted. A total of 708 (613 females, 80 males, 8 skips) residing mainly in the USA (657) completed the survey. Age ranged from 18 to 76. The most common pet losses reported are by dog (496), cat (394), bird (307), fish (175), and horse owners (79). A majority (575), in order of decreasing frequency, are current dog (391), bird (286), cat (285), fish (76), and horse (45) owners. Most buried their pets in residential yards, followed by cremation and retention of the remains in their homes. This study contributes to a growing body of literature on how pet guardians cope with pet loss, including disposition of their remains.

### **References**

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- Packman, C. et al. 2014. Online Survey as Empathic Bridging for the Disenfranchised Grief of Pet Loss. *Omega* 69:333–356.

### P3 – EXTENDING THE PET AS AMBASSADORS HYPOTHESIS

*Student Award Nominee*

**B. Auger<sup>1</sup>, C. E. Amiot<sup>1</sup> and B. Bastian<sup>2</sup>**

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<sup>2</sup>*University of New South Wales, Australia.*

It has been hypothesized that pets can act as ambassadors for other animals by extending our feeling of belonging to other animal species (Serpell and Paul, 1994). The present research aimed to extend this hypothesis by investigating if pets could also act as ambassadors of nature. This expected effect could be explained by a mechanism whereby contact with pets broadens cognitive categorization, puts us into contact with the natural world, and fosters a superordinate identification including nature. Indeed, identification with nature (feeling that nature is important to us and part of who we are) has been linked to greater perceptions that animals and humans are similar (Clayton, 2003, 2009). We therefore hypothesized that identification with pets would predict greater identification with nature, and that this link would be mediated by increased identification with animals in general. The link between identification with pets and with animals should also be mediated by perceptions of superordinate identification. In a correlational study, UQAM (Montreal, Qc) students ( $n = 157$ ; age range = 18–58) completed self-report measures on their social identifications and contact with animals. Bootstrapping analyses (95%) confirmed that identification with a pet predicted higher identification with nature through greater identification with animals in general,  $b = 0.273$ , BCa CI [0.1553–0.4370],  $\kappa^2 = 0.287$ , BCa CI [0.1653–0.4500]. Identification with a pet was also positively linked to identification with nature through identification with a highly inclusive social category,  $b = 0.186$ , BCa CI [0.0915–0.3021],  $\kappa^2 = 0.223$ , BCa CI [0.1092–0.3455]. The present findings confirm and extend the pet as ambassador hypothesis.

***P4 – A CRITICAL REVIEW EXAMINING COMPANION ANIMAL INFLUENCE DURING DECISION-MAKING IN THE CONTEXT OF HEALTHCARE UTILIZATION***

*Student Award Nominee*

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Companion animals (CA) are part of the lives of many adults, including those making healthcare decisions. For three decades scholars have acknowledged the influence of CAs during decision-making (e.g. Morely and Fook, 2005; Netting, Wilson, and New, 1987; and Podberscek, 2006). Specific research in the context of healthcare utilization is limited, creating an obstacle to a deeper understanding about how a CA influences decision-making. This critical review examines 21 articles about the CA influence during decision-making in the context of healthcare utilization.

Searching the terms human–pet bonding and decision-making in Ovid, PsychInfo, CINAHL, PubMed, and SocIndex 164 articles were identified. A review of titles and abstracts yielded no research literature. Expanding criteria to include non-research, the author’s compilation and reference lists, 21 articles were included in this review. Three research articles specifically examined the CA influence on decision-making in the healthcare context (Cohen 2002; Friedmann, Katcher, and Meislich, 1983; and Peacock, Chur-Hansen, and Winefield, 2012). Additionally, five research articles reported findings of CA influence. Non-research articles were reviews ( $n = 4$ ), care report ( $n = 1$ ), and informational ( $n = 8$ ), and cited existing research or anecdotal evidence.

Three major decision themes emerged: delaying or refusing healthcare due to CA concerns, remaining in suboptimal and CA-inclusive housing, and CA relinquishment due to illness or relocation. While these articles suggest a CA influence on decision-making, none probed deeper to examine how and why the CA was an influence. Further research could be instrumental in developing interventions to minimize outcomes such as delayed human healthcare and CA relinquishment.

## ***P5 – ANIMAL-ASSISTED SOCIAL SKILLS TRAINING FOR CHILDREN WITH AUTISM SPECTRUM DISORDERS***

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Children with Autism Spectrum Disorders (ASD) have difficulty tolerating and understanding social interactions. Given recent research showing the effectiveness of animal-assisted therapy (AAT) for children with ASD, we proposed that an intervention with dogs would be an effective way to teach critical social skills. The specific objectives of this study were to increase children's ability to communicate effectively by developing their skills in reading the non-verbal cues of others. It was hypothesized that incorporating a dog into the intervention would produce a greater effect on social skills, theory of mind, and feelings of isolation than would be obtained from conventional social skills training. We compared AAT social skills groups to traditional social skills groups without an animal present over 12 weeks. Participants (ages 8–14) were students at a therapeutic treatment center diagnosed with high-functioning ASD. The Social Responsiveness Scale (SRS-2), Children's Depression Inventory (CDI-2), Social Language Development Test (SLDT), and the Reading the Mind in the Eyes Task (RMET) were used to measure social skills and emotional functioning. As predicted, participants in the animal-assisted social skills group rated as less symptomatic on the Social Responsiveness Scale (SRS-2), the primary outcome measure of autism related symptoms, than participants in the traditional social skills group. Both groups showed improvements in theory of mind (RMET) as well as decreased feelings of isolation and depressive symptoms (CDI-2). Given the current findings, social skills groups with dogs may be an effective way to reduce symptoms of ASD when compared to traditional training models.

## ***P6 – THE RELATIONSHIP OF PET OWNERSHIP AND PET ATTACHMENT ON PSYCHOSOCIAL, BIOLOGICAL, AND EXECUTIVE FUNCTION IN THE DISADVANTAGED HOMEBOUND***

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*Background:* Elderly homebound individuals are prone to psychosocial stress, depression, and loneliness, leading to chronic hypercortisolism and increased inflammation, which can ultimately decrease cognitive function. A companion pet may reduce the negative impact of these biobehavioral processes.

*Objective:* Examine the differences between pet owners and non-pet owners in psychosocial stress, depression, loneliness, salivary cortisol, C-reactive protein, Interleukin-1 $\beta$  and cognitive function in the homebound elderly receiving a Meals on Wheels (MOW) program.

*Method:* Cross-sectional study using psychometrically reliable and valid instruments (Perceived Stress Scale, Geriatric Depression Scale, Revised University of California at Los Angeles, and CLOX I). Level of pet attachment was measured using a Likert scale (0–10) and salivary biomarkers were assessed for cortisol and inflammation (C-reactive protein, Interleukin-1 $\beta$ ).

*Results:* Mean age for the total sample ( $n = 88$ ) was  $75 \pm 9$  years. Forty-eight (55%) participants owned pets. Pet owners reported a high level of attachment to pets ( $M = 9$ ;  $SD = 2.3$ ). No significant differences were found between pet owners and non-pet owners in demographic data. A t-test for independent samples revealed that pet owners had significantly higher executive function (CLOX I scores;  $p = .041$ ) than non-pet owners. There were no significant differences in stress, depression, loneliness, and salivary cortisol, C-reactive protein, Interleukin-1 $\beta$ .

*Conclusions:* Results indicated that elderly participants owning a pet showed a higher executive function than those not owning a pet. Future studies with larger samples and a longitudinal design are needed to investigate the biobehavioral changes over time in relation to pet ownership and cognitive function in the elderly.

## **P7 – PSYCHIATRIC ASSESSMENT IN CASES OF ANIMAL HOARDING: APROPOS OF 3 CASES.**

**Antoni Bulbena<sup>1</sup>, Paula Calvo<sup>1</sup>, Jonathan Bowen<sup>1,2</sup> and Jaume Fatjó<sup>1</sup>**

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There is increasing recognition of animal hoarding as a psychiatric condition that affects the welfare of both people and animals. Without proper support for the hoarder, recidivism may approach one hundred per cent. Nevertheless, the medico-legal framework for intervention in cases of animal hoarding is still considered inadequate by most experts (Arluke and Killeen, 2009). The typical patient's lack of insight and hostility to the public health authorities makes the long-term management of the situation extremely difficult. We present a series of cases in which the involvement of a psychiatrist at an early stage of the intervention allowed not only a preliminary psychiatric assessment, but also helped to establish a trust-based relationship.

The initial interview with the psychiatrist had 5 main objectives: 1) to obtain informed consent through an appropriate rapport, 2) to explore the specific pattern of hoarding, 3) to estimate the impact of the problem in the patient's quality of life, 4) to identify psychological mechanisms of adaptation and 5) to explore the main psychopathological dimensions, including anxiety, depression, delirium, paranoia, chronic psychotic states and dementia.

Through this novel approach we show that the presence of a psychiatrist in the multidisciplinary team in all animal-hoarding interventions is crucial for effective treatment and long-term management. It has the additional benefits of raising problem-awareness and modifying attitudes towards animal hoarding among public health professionals.

### **Reference**

Arluke A, Killeen C (2009) *Inside Animal Hoarding*. Purdue University Press, pp. 181–190.

## *P8 – AN EXAMINATION OF HOW INDIVIDUALS HANDLE PET LOSS*

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Each year, countless people experience the loss of an animal, primarily through death but also as a result of the pet running away or needing to be rehomed, and it is therefore important to better understand techniques that help people cope with the loss of a pet. This poster reviews research on pet loss and presents survey data collected from 174 individuals who had experienced pet loss within the past year. The survey asked about activities participants engaged in on the day of loss and what activity was found to be most helpful. Fifty-seven percent of participants reported on the loss of a dog ( $n = 99$ ), 37% reported on the loss of a cat ( $n = 64$ ), and the remaining participants reported on the loss of various other species, including horses, hamsters, rabbits, and snakes. Many participants felt it was important to distinguish between pets lost as a result of death from natural causes versus from euthanasia. Eighty-one participants reported seeking comfort from another animal the day they lost their pet, and 60 (74%) of those said doing so was tremendously helpful, whereas 97 spent time with family the day they lost their pet, and 58 (60%) of those found that family support was tremendously helpful. Fifty-one participants reported going to work the day they lost their pet, and 95 reported spending the day at home. The implications of these and other findings, particularly in relation to the strong attachment bonds individuals commonly form with their pets, will be discussed.

## *P9 – EIGHT DOMAINS OF PET-OWNER WELLNESS*

**Cynthia K. Chandler<sup>1</sup>, Delini M. Fernando<sup>1</sup>, Casey A. Barrio-Minton<sup>1</sup>  
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The purpose of the study was to explore the impact of pet ownership on owner wellness. Ten adults were interviewed by phone for one hour regarding the impact of pets on their life. Participants were current dog/cat owners who ranged in age from 20 to 51 years ( $M = 33$ ) and included five males and five females; nine identified as Caucasian, and one identified as Hispanic/Latina. Interview questions were formulated based on areas of the existing Five Factor Wellness Model: physical self, social self, coping self, creative self, and essential self (Sweeney and Myers, 2003). Following transcription of all participant responses, the researchers followed the consensual qualitative research (CQR) method (Hill, Thompson, and Williams, 1997; Hill et al., 2005) to analyze data where eight new final domains emerged encompassing pet-owner wellness. From this study, it was determined that individuals view pet ownership as impacting their life in the following eight domains: emotional and physical nurturance, sense of family, sense of responsibility and purpose, friendship and/or companionship, social interaction and connections, personal values and/or spiritual meaning, fun and play, and physical health. Participants mostly described their pets as having a positive impact on their life, but in some instances pets had a negative impact. Each of the eight domains of pet-owner wellness is described in detail with sample participant responses provided. These results clarify the significance of the owner-pet relationship and its value in affecting the wellness of the pet owner.



## ***P10 – IMPLICATIONS OF CLINICAL COUNSELING SERVICES IN ONCOLOGY VETERINARIAN PRACTICE: A CLINICIAN PERSPECTIVE***

**Adam Clark**

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In the field of veterinary medicine, counseling services aimed at helping clients face challenges surrounding their pet's healthcare and/or the death of a pet have garnered increased attention in the past few decades. However, there is a paucity of research examining veterinary professionals' perspectives of these services. Our study employs a mixed-methods design to explore veterinary oncology clinicians' experiences of the Argus Institute Counseling and Support Services at a university veterinary teaching hospital. Argus services include a variety of programs including grief counseling and euthanasia decision-making support.

Our preliminary findings suggest that veterinary oncology clinicians experience improved clinician—client interaction when utilizing Argus services. Approximately 64% of respondents ( $n = 14$ ) indicated that they referred clients to Argus services on a weekly basis; the number of referrals ranged from 1 to 7 per week. Approximately 90% of respondents indicated that they were 'completely satisfied' with the integration of the referral services; 100% indicated that Argus referrals improved the quality of client—clinician interactions. Pertaining to client satisfaction, 79% of clinicians indicated that they perceived their clients to be 'completely satisfied' with the Argus support services. Preliminary findings from our qualitative data suggest three important themes: 1) the importance of Argus services in enhancing the productivity of client-clinician dialogue, 2) the role of Argus in fostering wellbeing among oncology clinicians, and 3) the need for expanded services to exclusively serve the oncology unit. Further results will be reported and discussed in the context of improving veterinarian-client communication to support client and clinician wellbeing.

## ***P11 – WHEN THE BOND BREAKS: VARIABLES THAT INFLUENCE GRIEF, GUILT, AND LONELINESS FOLLOWING COMPANION ANIMAL LOSS***

*Student Award Nominee*

**Dawn Cowling and Margaret Schneider**

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An online survey investigated variables related to grief in 85 individuals who had lost their companion animal within the last six months. Variables of interest included: type of relationship, animal species, time since death, type of death, attachment, and social support. Dog owners had the highest attachment scores when compared to cat ( $p < 0.05$ ) and rabbit owners ( $p < 0.05$ ). Attachment scores were highest amongst those who labeled their animal as “my child” and were significantly higher when compared to those who labeled their pet as a “good companion” ( $p < 0.05$ ). Individuals who classified their pet as their “child” or “best friend” reported significantly more grief relative to those who considered their pets to be good companions ( $p \leq 0.001$ ). High levels of attachment were predictive of higher grief scores (past:  $\beta = 0.47, p < 0.001$ ; present:  $\beta = 0.34, p < 0.01$ ). Older participant age was predictive of significantly lower grief (past:  $\beta = -0.23, p < 0.05$ ; present:  $\beta = -0.26, p < 0.05$ ), situational guilt ( $\beta = -0.39, p < 0.001$ ), and loneliness ( $\beta = -0.25, p < 0.05$ ). The type of death the companion animal experienced did not influence grief, guilt or loneliness scores. Social support was protective of both loneliness ( $\beta = -0.49, p < 0.001$ ) and state guilt ( $\beta = -0.30, p < 0.01$ ). The majority of survey respondents felt supported following their loss, but areas of deficiency noted included: others not understanding their situation and lack of social recognition for their loss.

## ***P12 – BITING THE HAND THAT FEEDS: RISK FACTORS ASSOCIATED WITH REPORTED ANIMAL BITES***

*Student Award Nominee*

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Pets are found in a large number of households, with owners often viewing them as integral parts of the family<sup>1</sup>. Despite having this close relationship with animals, numerous people are bitten by their pets every year. Previous research has examined the age of animal bite victims and intensity of associated bites, but has not incorporated the relationship between the victim and the animal. The present study analyzed archival data from 1,950 animal bites (1,471 dog bites and 479 cat bites) reported to the Nebraska Humane Society between 2013 and 2014. Preliminary regression analyses indicate that for both dogs and cats, as the age of the victim increases, bite intensity decreases. Further analyses found that in dogs this relationship was stronger when victims had a closer relationship with the biting dog,  $F_{(3, 733)} = 36.94, p < .001, R^2 = .13, R^2 = .01, F = 9.06, p = .003$ . However, for cats, there was no evidence that the relationship with the animal affected the relationship between victim age and bite intensity,  $F_{(3, 161)} = 4.53, p = .004, R^2 = .08, R^2 < .01, F = 0.76, p = .386$ . Additional survey data are being collected to determine how people's perception and attachment to their pets change after a bite incident, factors influencing whether or not people report bites, and ultimately the outcome of these animals. These data will be analyzed before July, 2015.

### **Reference**

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## ***P13 – DEVELOPMENT OF THE HUMAN–ANIMAL INTERACTION SCALE: AN INSTRUMENT TO QUANTIFY HUMAN—ANIMAL INTERACTION***

**Angela K. Fournier, Elizabeth Letson, Jennifer Laitalia and Larry Krog**

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Despite research indicating human–animal interaction (HAI) can result in a myriad of positive outcomes (e.g., Amiot and Bastian, 2014), there are no objective measures that quantify the physical interaction between humans and non-human animals. The human–animal Interaction Scale (HAIS) is a 22-item self-report measure designed to quantify HAI. Following an interaction (e.g., animal-assisted therapy or activity), respondents rate on a 10-point likert scale the extent to which they engaged in specific behaviors (e.g., petting, feeding). A total of 55 men and women age 18–35 participated in this study to determine initial reliability and validity of the scale. Participants completed the HAIS immediately following a group session in equine-assisted learning or psychotherapy. Researchers observed the sessions and also completed the HAIS, recording the interactions they observed between participants and horses. Item means ranged from 2.61 ( $SD = 3.62$ ) to 7.75 ( $SD = 2.68$ ). Correlations between observers' and participants' ratings on the HAIS ranged from  $r_{(55)} = .89, p = .001$  to  $r_{(55)} = .94, p = .001$ , providing initial evidence for construct validity. Analyses indicate good internal consistency, with split-half reliability of  $r_{(55)} = .875$  and Cronbach's alpha of .850. A principle components factor analysis identified two factors within the scale, accounting for 63.8% of the variance. Item loadings suggest the two factors measure interaction that is passive (e.g., watching, standing near) versus active (e.g., feeding, petting). Further validation of the scale with other animals, as well as potential uses in clinical and non-clinical settings, will be discussed.

## ***P14 – THE NEXT GENERATION OF PRISON BASED ANIMAL PROGRAMS: TRAINING THERAPEUTIC CANINES FOR VETERANS***

**Gennifer Furst**

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As the human–animal bond is increasingly recognized as therapeutic, the role of animals, most frequently canines, grows. A contemporary pairing of animals and humans can be found inside prisons. While the dogs trained by inmates are most frequently adopted out to the community, today dogs are being trained to assist veterans with Post Traumatic Stress Disorder (PTSD) as part of a grassroots effort to fulfill the mental health needs of veterans. The growing number of veterans with PTSD and concomitant issues including addiction, unemployment, homelessness, and crime, makes the mental health care issues of veterans a social problem. The civilian-led effort to provide veterans with dogs is a continuation of the public’s involvement with the proliferation of prison-based animal programs. While this next generation of animal programs has overwhelming community support, it also suffers from similar limitations as its predecessors. With no universal agreement as to the training methods or level of skills needed by the dogs, their efficacy at lessening the symptoms of veterans’ PTSD remains largely unknown.

## P15 – THE “FIRST” HORSE

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From an anthropological perspective, this research aims to shed light on the relationship between the human and the horse, but specifically on the relationship between an owner (first time horse owner) and his/her horse. It will also delve into how that relationship is affected by cultural aspects with respect to origin as well as the level of competency held by the owner/rider. What specific intercourses can exist to create a better bond between human and horse?

The areas to be investigated are as follows: What is the history between horse and owner (rider)? How owner consider his/her horse? Does the owner (rider) know their horse? What are the skills of the owner (rider) in order to understand and what signs the owner (rider) look for in order to determine the horse attitude? Which are the owners' abilities to read and to respond to the message communicated by the horse? Riding is a defining feature for them? For our owner/rider-informants horse is a co-agent in creation of culture and identity? Which words, experiences, feelings informants use for portray the relation with their horse?

My research is conceived as an ethnographic study presenting an analysis of narrative data collected in 25 open-ended interviews with horse people (all owners/riders) who participate in different equestrian sports in two specific provinces of Italy—Umbria and Lombardia.

What has emerged is the underestimation of the importance of the physical and mental characteristics of the horse at the beginning of the relationship. Elements emerge as important factors that can influence the positivity or negativity of the relationship. A greater consciousness of the subjectivity of the horse is needed to better interact and develop a positive relationship with horses.

***P16 – IT’S HARDLY ABOUT CUTENESS: A DOG COMPANION INCREASES ACKNOWLEDGEMENT FROM STRANGERS BUT A TODDLER COMPANION DOES NOT***

**Tia G.B. Hansen, Barbara Boggild, Marianne Poulsen, Sophia Page, Tania Pederson and Trine Anderson**

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Walking a dog has been found to increase acknowledgement from strangers, relative to being alone or with various objects. However, the mechanism is not clear. One possible explanation is attentional preference for stimuli associated with dependent offspring (neoteny or “cuteness attracts” hypothesis). This would imply the same effect of a human child. Thus, we compared acknowledgement from strangers when walking with a dog or a toddler, respectively, against the baseline of walking alone. Procedure: A 22-year-old woman walked down a pedestrian street while two confederates walking behind her observing reactions from by-passers ( $n = 1,200$ ). Social acknowledgement (looking, smiling, talking to) were recorded when the woman walked alone ( $n = 400$ ), with a 5-year-old, small, mix-breed dog ( $n = 400$ ), or with a 2.5-year-old female toddler ( $n = 400$ ). In 50% of trials in each condition, the woman actively invited contact by smiling to by-passers. Results: Relative to walking alone, companionship of the dog significantly increased the odds for acknowledgement (from .16 to .85; OR = 5.31,  $\chi^2_{(1)} = 99.29$ ,  $p < .001$ ), but companionship of the toddler did not (.20; OR = 1.25,  $\chi^2_{(1)} = 1.18$ ,  $p = .28$ ). This general pattern held for all types of contact. The dog consistently elicited more responses than the toddler, and data suggest that the dog served as a channel, not just catalyst, of contact. When smiling herself, the woman received more acknowledgement than when not, but only significantly so when alone. We conclude that “cuteness attracts” is an unlikely explanation for the dog effect. Perceived approachability and the dog’s role deserve further study.

## ***P17 – CHARACTERIZING DOG-DOG AND DOG-HUMAN RELATIONSHIPS IN TWO-DOG HOUSEHOLDS***

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Dogs exhibit highly flexible social structures and commonly form both intra- and inter-species relationships. This study asked dog owners residing in two-dog households to report on their relationships with their dogs using the Dog Attachment Questionnaire (DAQ), and on their dogs' behaviors, including their interactions with the other household dog, using the Canine Behavioral Assessment and Research Questionnaire (C-BARQ). Sixty-five individuals residing in Western New York completed this online survey. The average ages of participants' first- and second-acquired dogs at the time of survey completion were  $7.38 \pm 3.27$  years and  $4.52 \pm 2.56$  years, respectively. The first-acquired dog had lived in the household, on average, for  $6.96 \pm 3.31$  years and the second for  $3.32 \pm 1.82$  years. All but nine of the first-acquired dogs had spent time as the only dog in the household prior to the second dog joining the family. Wilcoxon sign tests compared first- and second-acquired dogs' DAQ and C-BARQ scores. Owners rated their relationships with the dogs they acquired second higher on the "closeness, and dogs as family" and "companionship and care" factors of the DAQ (closeness:  $Z = 2.12$ ,  $p = 0.03$ ; companionship:  $Z = 3.96$ ,  $p < 0.001$ ). Regarding the dogs' relationships with their conspecifics, first-acquired dogs scored significantly higher on the "dog rivalry" subscale of the C-BARQ ( $Z = -2.00$ ,  $p = 0.045$ ). These results indicate that first- and second-acquired dogs may fulfill different roles in their relationships with both the humans and dogs with whom they reside.



## **P18 – SOCIAL AND ENVIRONMENTAL FACTORS THAT INFLUENCE PARTICIPATION IN AGILITY**

**Rodney Hullstein<sup>1</sup> and Joey Farrell<sup>2</sup>**

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Dog sports may help improve participants' physical health through exercise (Baldwin et al., 1999). Compared to other dog sports agility requires a greater amount of movement. Social and environmental factors within physical activity (PA) initiate a motivational sequence that influences participation (Vallerand et al., 1999). The purpose was to explore social/environmental factors within agility that influence the motivational sequence amongst competitive adult agility participants.

Agility participants ( $n = 233$ ), recruited at agility competitions, completed questionnaires on PA and motivation. Six females and one male who engaged in high amounts of agility were selected from this pool using quota sampling. Participants partook in a semi-structured one-on-one interview. Interviews were transcribed and thematic analysis was utilized to identify themes.

Thematic analysis generated a number of social/environmental themes. Themes were organized into main and sub-themes. Main themes included competition, the dog, team factors, and social factors. Sub-themes identified were challenge, venue, ego and task orientation, initial success, interspecies bond, family, friends, and mentors.

Participants were drawn to venues that provided competition choices and optimal challenge. Family, friends, mentors, and the development of an interspecies bond also appeared to influence motivation and participation. Understanding more about how these factors influence motivation and participation may ultimately lead to increased participation in agility and overall PA.

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## ***P19 – LANGUAGE USE IS ASSOCIATED WITH ADJUDICATED ADOLESCENT OUTCOMES IN AN ANIMAL-ASSISTED INTERVENTION***

*Student Award Nominee*

**Nicholas Johnson, Annmarie Cano, Amy Johnson, Rita Casey, Dana May and Sarah Martinez**

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The aim of this study was to test the extent to which an obedience training program affected mood and self-regulation in youth. Participants were 34 Female and 73 Male adolescents ( $n = 107$ ; Mean Age = 15.6 years;  $SD = .95$ ) residing in juvenile detention centers. Thirty shelter dogs were trained across the program. Youth were randomly assigned to an intervention group that trained the dogs for two one-hour sessions each week or to a dog walking control group in which they walked but did not train the dogs. Participants' externalizing and internalizing symptoms were recorded before and after the program. Participants were also interviewed upon program completion about their training experiences. The Linguistic Inquiry Word Count (LIWC; Pennebaker, Booth, and Francis, 2001) was used to measure frequency of mood and self-regulatory language. Greater use of achievement words was associated with fewer externalizing symptoms at the end of the program,  $r_{(107)} = -.230$ ,  $p < .05$ . Greater self-regulation language was related to more internalizing symptoms at program's end,  $r_{(107)} = .199$ ,  $p < .05$ . Regression analyses were also conducted to test the moderating effect of word usage on symptom change over the course of the intervention. These results indicate that language use is an important, though understudied, measure of youth's internal states. Furthermore, language usage research should be encouraged in animal-assisted intervention research to identify promising intervention targets.

### **Reference**

Pennebaker, J. W., Booth, R. J., and Francis, M. E. (2001). *Linguistics inquiry word count: LIWC 2001*. Mahway: Lawrence Erlbaum Associates, 71.

## P20 – TEACHER'S PET: DOGS AND KIDS LEARNING TOGETHER

Amy Johnson<sup>1</sup>, Anmarie Cano<sup>2</sup>, Rita Casey<sup>2</sup>, Nick Seivert<sup>2</sup> and Dana May<sup>2</sup>

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This randomized controlled study of adjudicated youth ( $n = 117$ , 68.4% male) aimed to increase empathy and self-efficacy and reduce behavior problems through positive dog training with hard-to-adopt shelter dogs. This AAI was expected to provide appropriate modeling and use of social emotion often lacking in adjudicated youth (Decety and Meyer, 2009).

Youth were randomly assigned to dog training 2 hours weekly for 10 weeks or dog walking without assignment to specific dogs. Both groups had weekly classroom education. Dogs went up for adoption following the project. Measures (by staff and youth) included behavior problems, empathy and perspective taking.

Outcomes differed from expectations. Internalizing behavior and empathic concern increased, regardless of the group. Perspective taking approached significance ( $p < .08$ ), with the dog-walking group being higher than the dog-training group.

Combined time spent with dogs and education may increase empathy in incarcerated youth. Increased internalizing symptoms could be attributed greater awareness of emotions and/or sadness that the program ended. Hanselman (2001) found similar results with non-incarcerated youth. Additional follow-up of these youth and other comparison groups are needed.

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## *P21 – TRANSITIONING BUREAU OF LAND MANAGEMENT WILD HORSES TO COMPANION HORSES: THE WILD HORSE TRAINERS' PERSPECTIVE*

**Tamara Kartal, Mary Koncel and Allen Rutberg**

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To maintain the “thriving ecological balance” mandated by the 1971 Wild Free-Roaming Horses and Burros Act, the Bureau of Land Management (BLM) regularly removes wild horses and burros from public lands. Ideally, these animals are then adopted-out to members of the public who provide suitable care. However, adoption demand has fallen far short of supply, and in 2013 approximately 48,812 wild horses were living in BLM holding facilities and pastures. Although economics has played an important role in declining adoption demand, lack of information about how to properly care for and train wild horses also appears to affect both adoption demand and the prospects for successful adoption. To explore which factors influence a successful transition of wild horses into the domestic world, we conducted in-depth interviews with 20 wild horse trainers (8 men, 12 women) from across the United States. Trainers described several factors that promote a successful transition. These include patience, a flexible training protocol, training based on a “partnership concept,” correctly applied and released pressure, respect for the individual horse and the ability to accurately evaluate and read a wild horse’s behavior and personality. The results suggest that wild horses provide a test of how we train, care and provide for all horses. Future ethological research on wild horses on the range and in the domestic setting might provide answers to how and why horses build strong bonds with humans and how we can improve our communication with wild and domestic horses.

**P22 – “NO PETS ALLOWED”: A STUDY OF LANDLORD ATTITUDES TOWARD TENANTS WITH PETS**

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Pet ownership is associated with greater mental and physical wellbeing, but it can also make some aspects of life more difficult. For example, many landlords have a ‘no-pets’ policy, which is especially problematic in areas where rental units are already in short supply. We examined landlords’ attitudes towards tenants with pets in a small North American city with a consistently low vacancy rate. Sources of data included classified advertisements over a 15-year period (2000–2014) and telephone interviews with 32 landlords currently advertising rental units. Questions examined included: Has the proportion of landlords adopting a no-pets policy increased over time; Which specific concerns do landlords have about pets; and What factors, if any, might increase landlords’ willingness to allow pets? Preliminary analyses indicate an increase over time in the proportion of ads explicitly stating a no-pets policy, from less than a third in the early 2000s to more than half in recent years; and these proportions were related to fluctuating vacancy rates. Interviews with landlords revealed concerns about pets that focused mostly on potential damage to rental units, with their concerns often based upon past experiences. However, landlords also reported encountering similar problems when renting to tenants without pets. Further, although 18/32 of landlords interviewed had initially posted ads stating a no-pets policy, 8 of those 18 said that they would nevertheless consider pets under some conditions. We outline these in the poster, and suggest that pet owners can increase their ease of finding housing by addressing these factors.

## ***P23 – AN EXAMINATION OF THE ASSUMPTIONS MADE ABOUT SHOREBIRDS' PERSONALITY AND EMOTIONS AND THE CONSERVATION-RELATED IMPLICATIONS***

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Animals' physical features can impact assumptions made about them, and such assumptions may influence the value individuals place on these animals' lives. To examine how physical features may impact assumptions made about shorebirds, 235 participants were asked about their tendencies to attribute personality and emotions to birds, both in general and in relation to one of six birds depicted in a photograph. Participants who felt comfortable assessing the personality and emotions of their assigned bird did so using standardized personality and emotion assessments. Participants also were asked how much money they would donate to conservation efforts targeted at the species pictured and whether they were active supporters of wildlife. There was no relationship between birds' appearances and assessments of personality or emotion. However, wildlife supporters were more likely than non-supporters to believe the bird in the photo felt emotions ( $\chi^2 = 3.70$ ,  $df = 1$ ,  $p = 0.05$ ) and donated more in the virtual scenario ( $t = 2.17$ ,  $df = 232$ ,  $p = 0.03$ ). In addition, people would donate more if they believed the bird in the photo felt emotion ( $t = 3.49$ ,  $df = 232$ ,  $p = 0.001$ ), that birds have emotions ( $t = 2.32$ ,  $df = 232$ ,  $p = .02$ ), and that birds have individual personalities ( $t = 2.53$ ,  $df = 232$ ,  $p = 0.01$ ). Although no discernable relationships between birds' physical features and attributions of personality or emotions were found, this study provides insights into factors that influence the value individuals place on the protection of shorebirds.

## ***P24 – EVIDENCE SYNTHESIS OF EQUINE-ASSISTED PSYCHOTHERAPY LITERATURE: CURRENT KNOWLEDGE AND FUTURE RESEARCH DIRECTIONS***

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Equine-assisted psychotherapy (EAP) is an innovative emerging approach to mental health treatment. This narrative synthesis explores the current state of knowledge and areas for future research in EAP. Specifically reviewed are qualitative and quantitative empirical studies, including both articles published in peer-reviewed journals and research presented in theses and dissertations. We selected twenty-four studies for final inclusion in this study, dating from between 2005 and 2013 and including the first EAP empirical research completed in 2005. Four of these studies are peer-reviewed journal articles, while 20 are master's theses or doctoral dissertations. The reviewed qualitative research provides initial evidence for the value of EAP for enhancing adolescents' communication and relationship skills. The reviewed experimental and quasi experimental research provides initial evidence for the value of EAP for enhancing children's and adolescents' emotional, social, and behavioral functioning. Yet, conclusions about the effectiveness of EAP must still be considered preliminary due to various methodological limitations in the reviewed research. Limitations of the reviewed experimental and quasi experimental studies included one group pretest-posttest designs, combining EAP with non-EAP psychotherapy, and high attrition, all posing threats to internal validity. Noted limitations of the reviewed survey research were low response rates and problematic sampling strategies that affect external validity inferences. A common methodological limitation of many of the reviewed qualitative, survey, and meta-analysis studies was the inclusion of varying equine-assisted therapy modalities together, without separating them out for data analysis, thus obscuring modality-specific findings. The narrative review concludes with recommendations for future research.

## ***P25 – DEVELOPMENT OF AN OBSERVATIONAL DOG BONDING MEASURE FOR ANIMAL-ASSISTED INTERVENTIONS***

**Martinez, S.C.<sup>1</sup>, Cano, A.<sup>1</sup>, Johnson, A.<sup>2</sup>, Casey, R.<sup>1</sup>, & May, D.<sup>1</sup>**

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Although there are pet attachment scales available for studies of human-animal interaction, it is also important to assess attachment and bonding to animals used in intervention studies. Observational scales are also needed to accurately assess bonding behavior. The purpose of this study was to develop and test a new measure to assess dog bonding during the course of an animal-assisted intervention that utilized shelter dogs. Participants in the study were adjudicated adolescents residing at two juvenile detention centers ( $n = 138$ ; Mean Age = 15.6 years;  $SD = .93$ ). All youth trained or walked shelter dogs for two one-hour sessions each week and attended a humane education class for ten weeks. Thirty dogs were trained and walked across the ten-week program. A 12-item observational checklist was created based on prior work on dog bonding as well as feedback from the third author on previous behaviors observed in similar programs. Twenty-three raters were trained in the observational measure with weekly meetings and a coding manual. Descriptive information about the measure will be presented. In addition, multilevel modeling analyses were conducted to test inter-item reliability because ratings were nested within raters and participants, who were rated multiple times over the course of the program. The results of this study have implications for research on bonding with non-companion animals as well as behavioral assessment of human-animal interaction. Logistical challenges will also be discussed in the development and implementation of observational rating measures.<sup>1</sup>



**P26 – VALIDITY OF THE CHILDREN’S TREATMENT OF ANIMALS QUESTIONNAIRE IN AN ETHNICALLY DIVERSE SAMPLE OF CHILDREN: A RASCH ANALYSIS**

*Student Award Nominee*

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*Purpose:* The current study reports findings from a psychometric analysis of Spanish and English translations of the Children’s Treatment of Animals Questionnaire (CTAQ; Thompson and Gullone 2003). Specifically, the current study extends what is known about the psychometric properties of the CTAQ by using traditional and item response theory analyses.

*Methods:* Data were collected as part of a larger study of children’s exposure to animal cruelty in households experiencing intimate partner violence. Participants ( $n = 217$ ) ranged in age from 7 to 12 years (77% racial/ethnic minority). A Rasch analysis was conducted using the software, Winsteps (Linacre, 2013). Single dimensionality, item and person fit, reliability, invariance in item functioning, and targeting of the measure were assessed.

*Findings:* The CTAQ showed adequate fit to the Rasch model with one modification—specifically, removal of item 5 was required. A Rasch principal components analysis of residuals indicated a single latent construct among the 12 remaining items. Rasch-Andrich thresholds increased with category values indicating scale use was appropriate and no disordering of categories was evident. The sample was also well targeted. Notably, evidence of differential item function was found across Spanish and English translations.

*Conclusion:* Our results suggest the CTAQ is well suited for children ages 7 to 12 years who are at risk for engaging in animal cruelty. However, several items in our Spanish translation of the measure need to be verified and/or modified in a culturally considerate context if the translated version is to be implemented in future studies.

## **P27 – EFFECTS OF THERAPEUTIC RIDING ON MEASURES OF STRESS IN HORSES**

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With the increasing popularity of equine-assisted activities, it is important to evaluate how participating in therapeutic riding may impact the horses involved. This study measured salivary cortisol and behavior to assess if therapeutic riding was associated with higher stress levels compared to mainstream riding.

Saliva was collected for six weeks from six adult horses (median age = 17 years). To account for the individuality of basal cortisol levels, each horse served as its own control. Two groups of six riders (all 8–14 years old) participated: one mainstream, able-bodied riding group and one therapeutic riding group, including students with various mental health diagnoses. Salimetrics swabs were used to collect saliva. Cortisol concentrations were measured using an enzyme immunoassay. The horses' behavior was video-recorded and scored using an ethnogram developed for therapeutic riding.

Salivary cortisol concentrations were compared between each activity (therapeutic riding, mainstream riding, and rest) by nonparametric Wilcoxon matched-pairs signed rank test. Changes in cortisol did not vary significantly during the different activities. Changes measured at 30 minutes into rest, mainstream, and therapeutic riding were 0.147, 0.0762, and -0.032 respectively ( $p = 0.625, 0.25, 0.125$ ). Delta values at 60 minutes were -0.0177, -0.002, and -0.031 ( $p = 0.156, 0.313, \text{and } 0.438$ ). Similarly, the horses' behavior did not change significantly during the different activities. Thus, our findings suggest that horses do not experience significantly higher stress during therapeutic riding than mainstream riding. Future research should explore the effects of husbandry and veterinary management practices on stress in therapeutic riding horses.

## ***P28 – DEMOGRAPHIC AND CONTEXTUAL FACTORS AND ACCESS TO HUMAN–ANIMAL INTERACTION***

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Understanding the contextual and demographic factors that play a role in pet ownership has been an understudied area in human–animal interaction (HAI). Factors such as financial resources, discretionary time, and residential location (urban vs. rural settings) may influence individuals' interaction with animals. The goal of this study was to assess the relationship between demographic characteristics and HAI.

Participants were 567 late adolescents; 69% reported having a pet, and 31.4% participated in an animal-related extracurricular activity. Given the high percentage of both female and White/Caucasian participants, we explored whether either of these individual characteristics predicted likelihood of being involved in HAI. We also examined whether maternal education level (as a proxy for socioeconomic status) predicted involvement in HAI. White/Caucasian participants were 2.68 times more likely to have an animal and 2.47 times as likely to be involved in animal-related activities compared to other participants. Having a mother with four or more years of college education was negatively related to pet ownership. There were no gender differences in pet ownership, but females were 1.67 times more likely than males to participate in an animal-related activity.

Chi-square and logistic regression analyses were used to assess if residential locale and HAI. Locale type significantly predicted HAI;  $\chi^2(2, n = 533) = 7.55, p = .02$ . Individuals who lived in urban areas were half as likely as individuals in rural areas to participate in HAI.

These findings underscore the importance of understanding how demographic and contextual characteristics influence how and why people engage with animals.

## ***P29 – WHAT THEY NEED WHEN A PET DIES: A SOCIOLOGICAL RESEARCH ON PET FUNERAL SERVICES IN JAPAN***

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**Background:** Despite the decreasing budgets for human funeral, many pet owners have started using pet funeral services for their beloved animals nowadays in Japan. However, there is a paucity of available sociological data of people's needs and attitudes toward such pet funeral services.

This study intends to find out Japanese people's needs and attitudes toward pet funerals, focusing especially on pet cremation services and their sociological impacts, on society and humans as well as on the animals cremated there.

**Methods:**

**Phase I:** Various information was gathered in 8-month-long fieldwork in a pet funeral service in Yokohama, Japan—including *insider* information on business contents, such as how to: operate a cremation process and comfort grieving customers.

**Phase II:** Standardized questionnaires were developed, containing 14 questions, taking 15-20 minutes to complete on a voluntary, anonymous basis, were given to 19+ year-old university students in Tokyo ( $n = 130$ ; 102 females and 26 males). The questionnaires include experiences of pet keeping, death, funeral, cremation services, emotional experiences of pet owners, their needs and choice criteria, using open-response questions and multiple-choice questions. Data were coded and analyzed by SPSS ver.16.

**Results and Conclusion:** Respondents who have bereaved their pets tend to approve of cremation ( $p < 0.05$ ) but to prefer burial under the earth if their pets' size is small ( $p < 0.05$ ). 55% of those who prefer cremation would like to witness the whole process though it costs more, which indicates

***P30 – BENEFITS FROM THE HOMELESS PEOPLE/DOGS RELATIONSHIPS FACED WITH THE LACK OF CONSIDERATION WITHIN THE REHABILITATION PROCESS IN FRANCE***

**Charlotte Nivelet, Céline Sissler-Bienvenu, Hanna Lentz, Kate Atema and Christophe Blanchard**

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200,000 homeless individuals were estimated to live in France in 2014. Additionally, it is estimated that 25% of homeless people in France own one or more dogs. Little research has been done, however, to understand why homeless individuals keep dogs; the quality of bond between homeless and their dogs; and the benefits and risks of this relationship.

A study conducted in Reims (France) in 2012, in collaboration with homeless support organizations, entailed observations to collect information about types of dogs, their state of health and wellbeing, as well as 15 interviews with homeless dog-owners. Results showed that the presence of a dog increases the owner's sense of responsibility perceived social strength, as the last remaining link to society. The relationship between homeless and their dogs increases opportunities for successful reintegration into society.

However, another study conducted in 2012 in 201 French shelters showed that 80% of homeless shelters in France do not accept the dogs. Phone interviews were conducted with Directors of these shelters by phone to verify if they accept dogs, as well as the reasons for their policy. We concluded that perceived nuisance associated with dogs is insignificant according to shelters that welcome animals. For shelters that refuse dogs, data revealed lack of knowledge about dealing with dogs, including resistance to making sheltering more difficult by adding problems (security, cohabitation, dirtiness, disease).

Benefits of human/dog relationships in the rehabilitation process need to be further explored and communicated with social stakeholders in France in order to better meet the rehabilitations needs of homeless with pets.

**P31 – INTERACTIONS WITH DOGS DO INFLUENCE  
PSYCHOPHYSIOLOGICAL STATES OF HUMANS IN ANIMAL-  
ASSISTED EDUCATION SITUATION**

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Animal Assisted Education (AAE) has become popular program for children and educator in the past decade, but as because of the lack of history, not much experimental evidence is available to support its' effects.

In our study, we have examined the effects of interacting with dogs under stressful situation by measuring psychological and physiological indexes. Thirty-four adults (age 20-29, 17 male and 17 female) participated. They were randomly assigned to dog, stuffed dog, or plant conditions. The experiment consisted of 5 stages, 1) 5 min. resting, 2) 10 min. mental rotation task, 3) 5 min. interaction with dog, stuffed dog, or plant, 4) 10 min mental rotation task, and 5) 5 min resting. After each stage, saliva was collected for the cortisol assay, and participants filled in Two-Dimensional Mood Scale (TDMS). Throughout the experiment, heart rate, respiration and skin conductance were measured by Polymatell AP1132 (Digitex Lab.).

TDMS result showed that dog condition participants showed some arousal after the interaction ( $p < .05$ ). No group differences were observed in cortisol level (n.s.). Other measures are still under analysis, but our results suggest that interaction with dogs lead to some kind of physiological arousal.

## **P32 – ANIMAL-ASSISTED INTERVENTION FOR TRAUMA: A SYSTEMATIC LITERATURE REVIEW**

**Marguerite E. O’Haire<sup>1</sup>, Noémie Guérin<sup>2</sup> and Alison Kirkham<sup>1</sup>**

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*Introduction:* The objective was to collect and synthesize the existing empirical literature on animal-assisted intervention (AAI) for trauma, including posttraumatic stress disorder (PTSD).

*Methods:* A systematic literature review was conducted in accordance with the preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines. Data extraction items were selected to meet three specific aims: (1) describe the characteristics of AAI, (2) evaluate the study methodology, and (3) summarize reported outcomes.

*Key Literature:* Ten studies met the inclusion criteria. Six were peer-reviewed journal articles and four were theses, all published since 2004. Study samples comprised of children and adolescents who had experienced physical and/or sexual abuse ( $n = 7$ ), adult war veterans ( $n = 2$ ), and college students who viewed a traumatic video ( $n = 1$ ).

*Main Findings:* The presentation of AAI was highly variable, with no protocol replicated in more than one study (Aim 1). The evidence base was subject to many methodological weaknesses, such as a lack of attention control groups and the use of biased informants (Aim 2). The most commonly reported outcomes included reduced depression ( $n = 6$ ), reduced PTSD symptom severity ( $n = 5$ ), and reduced anxiety ( $n = 4$ ).

*Conclusions:* This review demonstrates that AAI is in the first phase of research as a new intervention for trauma, in which pilot studies are conducted to show feasibility and potential benefits. This critical stage of intervention development should be continued in conjunction with standardized manual development to enable consistent implementation and more rigorous evaluation across samples.

## ***P33 – THE HISTORY OF DOG BITE MISINFORMATION IN UK NEWS MEDIA AND PUBLIC POLICY***

*Student Award Nominee*

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Over the past 25 years, the issue of dog bites in the UK has maintained a consistently high profile, both in the news media and in policy-making discussions. Dog bite fatalities are subject to overrepresentation by the media, which increases the perception of risk by the general public. This manifests in hysteria, which is acknowledged and affirmed by the government through legislative change.

To support the argument for the inherent dangerousness of dogs, journalists and policy makers quote national hospital incidence figures for patients given the diagnosis code W54 (i.e. 'bitten or struck by a dog') (Orritt, 2014). These figures are frequently assumed to be exclusively bites, or described as 'dog attacks' implying premeditated acts of aggression. Additionally, the illustrative conjecture by Thomas and Banks (1990) of 230000 bites/annum is consistently recycled. Despite this figure being 25 years old and unevidenced, it has been used recently to estimate costs to the NHS and to support the amendment of the UK Dangerous Dogs Act 1991.

Additionally, the focus on comparative risk posed by different breeds, as promoted by breed specific legislation, has led to the use of unsupported maximum bite force figures and terminology (e.g. 'locking jaw'), particularly in the news media.

The authors present examples of unevidenced estimates and inaccurate terminology pertaining to dog bite incidence and bite strength, from both the public sphere and scientific literature. It is imperative that the scientific community accepts its responsibility to provide and disseminate accurate estimates, alongside guidelines for their proper interpretation.



## P34 – THE WELFARE OF REPTILES FOR CONSUMPTION

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The majority of research associated with reptiles for consumption appears to refer to traditional medicines or potential public health implications, however, the management, welfare and use of reptiles within stored liquids, such as alcohol, has had limited research associated with it. It has been noted that reptiles such as snakes and lizards may be put into alcohol for a number of different reasons, either singly or in combination, including: for preservation of an animal for food, for use as an ingredient of an alcoholic beverage, for religious/traditional/ornamental reasons, for use as a raw material in commercial products (e.g. bags, belts) and for medicinal purposes (Somaweera and Somaweera, 2010). Limited information is available on how such reptiles are caught/hunted and managed, especially on a commercial scale. Research generally focuses on a specific species or taxon (e.g. snakes) and investigates the contents of the particular product (e.g. the species used, the alcohol content (Lachenmeier et al., 2009)) or the impact on the environment. Therefore, this review highlights the need for research into the collection, management and welfare of these animals.

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## P35 – THE USE OF ANIMALS IN MAGIC SHOWS

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Throughout history a variety of magicians have used a number of animals in their performances; common species include both domestic companion species such as rabbits and other species such as doves and ducks (Huan, 2010). However, there appears to be little research looking into the frequency of magic shows using animals, the treatment of animals (e.g. housing and handling methods) during such magic shows (and how these differ between individual magicians), the equipment involved (e.g. the Bengal Net), and the potential stress to animals that such shows may involve (especially prey animals, for example rabbits). A wide range of magical props and literature relating specifically to animals used in magic is available online and demonstration of the tricks and procedures involved in using live animals is readily available on social media (e.g. YouTube). This paper reviews the human-animal relationship within magic, looking at both positive and negative aspects, and suggests the need for further scientific research, especially that which is focused on understanding the use and welfare of animals in this context.

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## P36 – COGNITIVE AND COMPOSITE BEHAVIOURAL ASSESSMENT OF WELFARE IN CATS LIVING IN SINGLE AND MULTI-CAT HOUSEHOLDS

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Over 40% of UK cats live in multi-cat households, but it is unclear how much this influences welfare. Our aim was to use a composite behavioral measure (Cat-Stress-Score; CSS), and a cognitive welfare measure (“judgment bias”) to compare single and multi-cat households with and without owner-reported agonistic signs. Participants ( $n = 128$ ) were recruited from a separate longitudinal study, and visited in their homes. After habituation, three CSSs using a nine-point scale were recorded. Cats were trained and tested with a judgment bias protocol developed from dog studies for  $\leq 5$  days (15 trials/day). Owners completed questionnaires that included questions on cat interactions. Agonistic signs were used to define groups within multi-cat households, and mean CSS scores were categorized. 33% ( $n = 42$ ) cats completed the judgment bias task. Mann-Whitney  $U$  (judgment bias) and chi-squared (CSS) tests were used to compare groups. Mean cat age was 14.46 (range 9–22) months, 30 cats were male (2 unneutered) and 12 neutered females. No significant difference in judgment biases or CSS was found between single and multi-cat households, nor between multi-cat households with and without agonistic signs ( $p > 0.15$  in all cases). Variation in factors out-with experimental control potentially influenced this result. However, findings are consistent with faecal and urinary cortisol comparisons between single and multi-cat households, suggesting we need to re-evaluate the general assumption that group living is consistently “stressful” for cats.

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## ***P37 – THE BEHAVIORAL, SOCIAL, AND HORMONAL OUTCOMES OF DOGS RESCUED FROM CANINE COMMERCIAL BREEDING ESTABLISHMENTS***

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Past research has shown that dogs that are reared and maintained in adverse and socially deprived environments demonstrate multiple behavioral and psychological abnormalities. We explored differences in the behavior and cortisol levels of dogs rescued from commercial breeding establishments (CBEs, aka puppy mills) during social interactions with humans. Twenty dogs (8 CBE, 12 other backgrounds) currently residing at Hearts United for Animals sanctuary were observed while interacting with an unfamiliar researcher and then tested on a food-based pointing task. Salivary cortisol levels were assessed at three time points. Initial analyses revealed that CBE dogs showed lower levels of human-directed social behavior, including a longer latency to initiate contact (Mann-Whitney  $U = 21$ ,  $Z = 2.09$ ,  $p = .04$ ) and look at the researcher (Mann-Whitney  $U = 19$ ,  $Z = 2.24$ ,  $p = .03$ ), and exhibited more fear-related behavior, including spending more time in a crouched position (Mann-Whitney  $U = 23$ ,  $Z = 2.26$ ,  $p = .02$ ) and less time in locomotion (Mann-Whitney  $U = 20.5$ ,  $Z = 2.26$ ,  $p = .03$ ). CBE dogs were less likely to accept food from the researcher ( $\chi^2 = 5.69$ ,  $p = .02$ ), so their ability to follow social cues to locate hidden food items could not be assessed. Differences in cortisol levels will be discussed, though nearly half of the CBE dogs did not produce enough saliva to assay, perhaps due to heightened stress (i.e., sympathetic suppression of digestive functions). These findings shed light on the difficulties that dogs' from CBEs face in forming positive relationships with humans and call attention to the need for considering the source of our pets.

## ***P38 – HUMAN NAMES AS COMPANION ANIMAL NAMES: A NEW FASHION OR A STEADY TREND?***

**Michał Piotr Pregowski**

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Our relationships with nonhumans are predominantly affected by how we describe them, as well as by giving some of them individual names. Most animals (wild, pests, cattle, etc.) are never granted such privilege. Despite a few grey areas (e.g., some zoo animals are named, most are not), we persistently give names to the members of one particularly significant and abundant category: companion animals.

By naming an individual we not only choose how we want to represent that particular animal, but also how others are to perceive it (Borkfelt, 2011). A predominant contemporary Western perception of the companion animal is that of a friend or family member. Would such perception be reflected in how we name our dogs, cats and rabbits? Furthermore, do people frequently use human names to name their companions? And is using human names in such context an emerging fashion?

This paper presents the analysis of database records of the names of animals laid to rest at the largest Polish pet cemetery, Psi los, between 1993 and 2013. Within the 10,150 records subjected to categorization and temporal analysis, there was a steady trend of using human names—local, foreign, historical, and derived from pop culture—in roughly 50% of cases throughout the 20-year span (lowest/highest scores: 46.59% / 55.43%). A relatively high frequency of using foreign names (average: 18.95% per year), and a tendency to choose less popular or less contemporary local names, were also observed.

## ***P39 – PERSPECTIVES OF VOLUNTEERS IN A NON-LETHAL SUBURBAN DEER POPULATION MANAGEMENT PROJECT***

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Increasing densities of both people and wildlife in suburban environments have introduced a challenging conversation between state wildlife management agencies and the ethnically diverse populations inhabiting suburban communities. State wildlife agencies have facilitated mechanisms to exchange information and perspectives, but direct participation of suburban communities in implementing wildlife management and conflict resolution strategies is rare. In 2014, the Village of Hastings-on-Hudson, New York, USA, began a comprehensive project to manage local deer populations, and to mitigate and measure their impacts. Centered around a deer porcine zona pellucida (PZP) immunocontraception study, this project uniquely relies heavily on the participation of resident volunteers. To better understand their motivations and experiences, we conducted semi-structured interviews of 17 resident volunteers. As expected, views of deer among participants were diverse. Reported motivations for participating included civic pride and a sense of responsibility to help solve a problem that concerned them. Notably, participants reported a shift in perspective as a result of experiential learning. Individuals who discussed having had a positive volunteer experience described an increase in understanding of suburban wildlife and respect for the challenges of wildlife management. Volunteers who had a negative experience described either an increase in frustration with deer or with wildlife management. All individuals, independent of the quality of their volunteer experience, described elevated understanding of the bureaucratic and logistical challenges posed by suburban wildlife management. On the basis of this study, we recommend that policies and resources be developed to assist communities in implementing locally-driven alternative management programs.

## *P40 – IMAGES OF APES, AND WHAT THEY TELL US ABOUT HUMANKIND*

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This slide lecture closely analyzes representations of simians in popular and scientific illustrations, revealing paradigms beneath the threshold of conscious awareness. Western culture has, long before Darwin or Linnaeus, often implicitly understood apes and monkeys as being almost synonymous with humankind. Apes and monkeys are usually conspicuously absent from the animals depicted in traditional paintings of the Garden of Eden, since the artists tacitly assumed that they were, together with humans, represented by Adam and Eve. Throughout Western culture, pictures of simians have been consistently anthropomorphized, but they vary greatly in representing different aspects of, or perspectives on, human society. In legends, apes have often been degenerate human beings, who were punished for hubris, such as the people who built the Tower of Babel. Accordingly, primates were often represented both as demonic, in Medieval and post-Darwinian culture, and as fools, in Aesopian fables. In Early modern times, apes and monkeys were often represented as primeval human beings, which may be divided into mischievous children, common in Rococo paintings, or wild men and women, popular in the Renaissance and revived in the early to middle nineteenth century. Several illustrators used iconography borrowed from the Bible by depicting monkeys in the traditional manner of Adam and Eve, sharing an apple underneath a tree. These four categories – demons, fools, children, primitives – continue to dominate Western representation of primates in contemporary times. Simians, in consequence, may at times enjoy human privileges but are also forced to share blame for human failings.

## ***P41 – STRESS AMONG ANIMAL SHELTER WORKERS AND THE HUMAN-ANIMAL BOND***

**Margaret Schneider and Jesse Roberts**

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Anecdotal evidence indicates that people who work in animal shelters experience high levels of stress. Corroborating research largely focuses on stress related to euthanization. Yet, our preliminary consultations with administrators and front-line workers suggested broader sources of stress. Therefore, this research was designed to document the range of stressors experienced by shelter workers. The objectives were, a) to identify stressors unique to shelter workers, and b) to determine whether current models of occupational stress are relevant to shelter workers. This paper reports the results that reflect the workers' relationships with animals and how those relationships can engender stress.

This research was a qualitative study involving semi-structured interviews with 22 women (ages 22-59) who work in a total of six animal shelters in southern Ontario, Canada and in northeastern United States. Data were analyzed using the constant comparison method to identify common themes and sources of stress. Some sources were generic conditions that can be found in many types of organizations. However, others pertained to care of animals, particularly dogs. These included euthanasia, contact with the public who are adopting or surrendering animals, as well as providing animals with sufficient exercise, training and attention in settings that are underfunded.

This paper highlights the fact that the people whom the public entrusts to care for abandoned animals experience a high level of occupational stress. The paper concludes with strategies that can ameliorate this stress and also benefit the welfare of the animals.



## **P42 – PAST EXPERIENCE INFLUENCES THE SOCIAL BEHAVIOR OF COWS (*BOS TAURUS*) AND PIGS (*SUS SCROFA*) IN THE SANCTUARY SETTING**

**Larisa Schuckle and Malini Suchak**

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The long-term effect of early traumatic experiences in humans and some nonhuman animals is well documented. The current study explored the role of past history on the social behavior of cows and pigs currently housed in the sanctuary setting. Participants were adult cows ( $n = 8$ ) and pigs ( $n = 10$ ) housed at the Woodstock Farm Animal Sanctuary. We recorded affiliative and agonistic behavior and used a linear mixed model to determine which elements of past experience explain the variance in social behavior at the sanctuary. In cows, agonism was best explained by a model including early separation from the mother (AIC = -177.99,  $\chi^2 = 4.13$ ,  $df = 0$ ,  $p = 0.127$ ) and affiliation was best explained by the amount of time an individual spent restrained early in life (AIC = -137.73,  $\chi^2 = 3.15$ ,  $df = 0$ ,  $p < 0.001$ ). In pigs, the full model had the highest explanatory power for agonism (AIC = -116.98,  $\chi^2 = 6.72$ ,  $df = 0$ ,  $p < 0.03$ ) and affiliation (AIC = -255.06,  $\chi^2 = 4.68$ ,  $df = 2$ ,  $p = 0.09$ ). Interestingly, there was also significant effect of time spent at the sanctuary on agonism for pigs ( $Z = -2.58$ ,  $p < 0.01$ ), and a similar trend in cows ( $Z = -1.82$ ,  $p = 0.07$ ); animals with longer tenure at the sanctuary exhibited lower rates of agonism. These results show that past experience can influence social behavior in a myriad of ways and but also highlight the possibility for recovery in the sanctuary setting.

## ***P43 – GOVERNING DOGS: AN AUTO-ETHNOGRAPHIC TALE OF REDEFINING SERVICE DOG IN CANADA***

**Brooke Sillaby**

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The number of dogs being used to assist individuals by providing therapy, support and service is steadily growing (Huss, 2009). According to Huss (2009), there are an estimated 10 to 30 thousand assistance dogs working in just the United States alone. Research in the area has focused on their use and benefits, ignoring the more pressing public policy implications of: infection control, ethics and public safety (Weese, 2009).

How should service dogs be classified? Will one definition make it more or less difficult for people with disabilities to use a service dog? Will a more expansive definition mean that all companion dogs are basically also service dogs? Does Canada's health care system have the ability to properly handle and manage service dogs? By answering these questions the author looks to develop a clear and practical definition of what constitutes a service dog.

Using auto-ethnography the author will reflect on her experiences with raising, training and working with service dogs; while exploring the cultural, political and societal perspectives regarding service dogs. Through an examination of the literature and interviews with trainers and service dog handlers, particularly those who train their own dogs, the author feels she will gain a deeper understanding of the debates surrounding how a service dog is classified and the consequences or implications of this definition for individuals, organizations and health care professionals.

With a more transparent definition of what constitutes a service dog, the author believes it will be easier for the public to identify the legitimate teams and therefore less stressful for persons with disabilities who choose to rely on a service dog.

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Weese, S. (2009). *A Need for a Better Definition of Service Animals*. From <http://www.wormsandgermsblog.com/2009/06/articles/animals/dogs/a-need-for-a-better-definition>

## ***P44 – OPTIMAL DOG VISITS – A RANDOMIZED CONTROLLED STUDY (2015–2018)***

**Karen Thodberg<sup>1</sup>, Poul Videbech<sup>2</sup>, Tia Hansen<sup>3</sup>, Birthe Houbak<sup>1</sup>, Pia H. Poulsen<sup>1</sup> and Janne W. Christensen<sup>1</sup>**

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Visitor dogs in nursing homes are becoming widespread and accepted as a valuable intervention. Previously we found that interaction with visiting animals is important for the response, and that the degree of cognitive impairment affects the response to the human–animal dyad.

The aim of our next study is to investigate whether enhancing the activity during a dog visit, thereby providing the possibility for a more intense contact can induce an even stronger effect, both immediately and in the longer term.

The study is a stratified randomized controlled study, where the participants are allocated to receive one of three different visit types; (A), Dog – Low Activity, (B) Dog – High Activity and (C) No Dog High Activity. Before the random allocation to visit types, the participants are divided into two categories depending on their cognitive functional level, leading to 6 treatment groups.

Our effect measures are the behavior displayed by the residents during the 12 visits; development in the prevalence of depression symptoms; progress in cognitive impairment; and finally the changes in behavior scored by the nursing home staff. The latter will be measured by a scale developed by the project.

It is highly relevant and needed to find and optimize non-pharmacological treatments and relevant activities for the increasing population of nursing home residents with disabilities such as dementia and related problems.

The knowledge from this new project will enable us to provide guidelines for optimal interventions with dogs for nursing home residents with different abilities and levels of cognitive impairment.

***P45 – UNDERSTANDING THE EXPERIENCE OF THE INTEGRATION OF VOLUNTEER ANIMAL TEAMS TO IN-HOME FAMILY PRESERVATION SERVICES***

**Kate Trujillo<sup>1</sup>, Tanya Greathouse<sup>1</sup>, Kevin Morris<sup>2</sup> and Julia Roguski<sup>3</sup>**

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This qualitative study uses both individual interviews and focus groups to examine the experiences of volunteer animal handlers and child welfare professionals of integrating Animal Assisted Intervention (AAI) to intensive in-home family preservation services. The study address questions such as: What are the experiences of integrating AAI to this area of social work practice? What are the barriers? What are the benefits? In depth interviews with teams and staff who are currently working to expand in-home family preservation to include AAI as part of their services aim to understand these questions. The participants are part of the Savio Study, a randomized clinical study of an AAI protocol in family preservation services that have been providing these services over the past two years. Families receiving these services are struggling with severe issues such as mental health issues, substance abuse, interpersonal violence, and poverty.

Findings from this study will be discussed and analyzed in relation to the themes previously identified as critical to the implementation of AAI in professional social work such as animal selection, animal training and socialization, animal welfare, handler preparation and training, and selection of the environment where the intervention will occur. Implications for future models of delivering AAI as part of intensive in-home family preservation services will be discussed.

## ***P46 – ARE COWS DANGEROUS TO WALKERS? A SCOPING REVIEW***

**A. P. Fraser-Williams<sup>1</sup>, C. Westgarth<sup>1,2</sup> and K. M. McIntyre<sup>1,2</sup>**

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Anecdotal evidence suggests that people coming into contact with cattle whilst participating in outdoor pursuits such as walking can sustain severe, even fatal injuries. This has negative implications for farmers, cattle welfare and public health. The objective of this study was to perform a scoping review on the problem of cow injuries to walkers and here we outline the findings of a literature review; a review of UK media reports; and guidelines currently available to the UK public for walking near cattle. Bibliometric databases of published research, media reports within Lexis Library, and Internet searching for guidelines were examined using key search terms. Eight key published studies were identified. Fifty-four cattle attacks on members of the public out walking were reported in the media from January 1st 1993 to May 31st 2013: approximately one quarter resulted in fatality and at least two-thirds involved dogs. Dog walkers and cows with calves were particularly problematic. Twenty pieces of commonly occurring advice were found within various guidelines, with some contradictions especially regarding management of the dog. There are no definitive approved guidelines, no published studies describing the prevalence of cattle attacks on members of the public, and no system in place to specifically record and document attacks. Cattle attacks on walkers are an under-investigated and potentially under-reported issue. Further work is required to assess their full public health impact, analyse risk factors, and enable creation of consistent preventative guidelines.

## ***P47 – EUTHANASIA DECISIONS IN THE SHELTERING INDUSTRY: A CRITICAL INQUIRY***

**M. K. Workman**

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In order to understand how euthanasia decisions are made in animal shelters, this study investigated euthanasia decision-making processes in shelters across the United States. Respondents ( $n = 62$ ) to an online survey answered questions about shelter demographics, euthanasia policies, variables for euthanasia candidacy, and specific case studies. Data was analyzed using descriptive statistics. Only two-thirds (66%) of shelters were identified by respondents as having a written euthanasia policy. Fifty percent (50%) of respondents indicate that medically based euthanasia decisions are not made by veterinary professionals. Medically-based euthanasia decisions are most likely to be due to terminal medical conditions, not treatable ones. Eighty-three percent (83%) of respondents indicate that behavior based euthanasia decisions are not made by animal behavior professionals. Behavior-based euthanasia decisions are based primarily on risk assessments and predictability of future behavior. Tools used to gather information about an individual animal's behavior (canine and feline behavior assessments) are neither scientifically validated nor reliably predictive as demonstrated by a review of current scientific literature. Additionally, this work addresses the varying ethical perspectives required to contemplate medically based euthanasias (Ethic of Care) and behavior-based euthanasias (Utilitarianism/Deontology). Having a written euthanasia policy, requiring medical and behavior professionals to participate in the decisions, collaborating with researchers to improve data collection tools and building bridges with other organizations will help save lives in our animal shelters.

## ***P48 – AN EVALUATION OF THE ROLE THE INTERNET SITE PETFINDER PLAYS IN CAT ADOPTION***

**M. K. Workman and C. L. Hoffman**

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To better understand factors contributing to a cat's adoption success, this study explored the association between an adoptable cat's popularity on Petfinder.com and length of availability on the adoption floor of a managed intake animal shelter. This study also examined factors contributing to a cat's popularity on Petfinder and the percentage of adopters who visited Petfinder prior to making adoption decisions. One-third of adopters surveyed ( $n = 248$ ) reported visiting Petfinder before adopting. Photographs of available cats ( $n = 892$ ) from two months to sixteen years of age were reviewed. Number of clicks per day cats received on the site was negatively correlated with length of availability ( $r = -0.49$ ,  $n = 892$ ,  $p < 0.001$ ). Age at adoption was positively correlated with length of availability ( $r = 0.50$ ,  $n = 892$ ,  $p < 0.001$ ) and negatively correlated with number of clicks per day ( $r = -0.29$ ,  $n = 892$ ,  $p < 0.001$ ). Primary coat color was a strong predictor of number of clicks per day ( $F_{(6, 885)} = 7.60$ ,  $p < 0.001$ ) and length of availability ( $F_{(6, 885)} = 2.93$ ,  $p = 0.008$ ). The only variable within the photographer's control significantly associated with number of clicks per day was whether there was a toy in the photo ( $F_{(1, 844)} = 3.95$ ,  $p = 0.047$ ). Although cats' physical characteristics are strong predictors of their popularity, strategic use of toys in cats' photographs may promote adoptions of cats typically overlooked.

## ***P49 – PHYSICAL ACTIVITIES AND SOCIAL INTERACTIONS OF GUIDE DOGS AND PET DOGS***

**Mariko Yamamoto<sup>1</sup>, Sayaka Seto<sup>2</sup>, Mirai Fujita<sup>2</sup>, Nobuyo Ohtani<sup>2</sup>, Mitsuaki Ohta<sup>2</sup> and Lynette Hart<sup>1</sup>**

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Daily activities of guide dogs during their working and relaxing periods are not fully understood. Our U.S. study has indicated that guide dogs had physical activities and social interactions at similar levels or greater than pet dogs. We investigated whether results are similar in Japan where environmental aspects differ. The web-survey was provided to guide dog partners and pet dog owners, through guide dog training organizations, and groups for pet dog owners.

We collected answers from 169 guide dog (GD) partners, 239 pet dog owners (43 large dogs (LD), and 196 small/medium dogs (SD). GD had longer daily walking durations than SD (mean min/day—GD: 73.8; LD: 70.1; SD: 53.3, Mann-Whitney *U* test with Bonferroni correction—GD/SD:  $p < 0.001$ ,  $r = 0.25$ ). Other than walking, all dogs received similar durations of physical activities, but GD had less access than LD to open areas, such as dog parks ( $p < 0.001$ ,  $r = 0.28$ ). In an average day, GD interacted with more people than SD ( $p < 0.001$ ,  $r = 0.21$ ), and greeted fewer dogs than LD and SD ( $r = 0.37$ ,  $0.29$ , respectively, both  $p < 0.001$ ). GD spent time alone less than LD and SD (mean hours/day—GD: 2.3; LD: 5.6; SD: 5.0, GD/LD:  $r = 0.24$ ; GD/SD:  $r = 0.38$ , both  $p < 0.001$ ). Japanese guide and pet dogs participated similarly to the U.S. dogs in physical activities. But in Japan, a highly populated country, it may be challenging for the guide dog partners to find safe areas to let their dogs run; the dogs had fewer interactions with other dogs. We appreciate partial support from Pfizer/Zoetis.



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