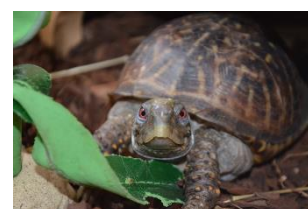


16th STUDENT ANIMAL WELFARE CONFERENCE

Sponsored by the Universities Federation for Animal Welfare



**Hosted by Hartpury University (via MS Teams),
Wednesday 27th April 2022**

Today's Proceedings

09.00	Join via Microsoft teams ready for a 09:15am start Join online here
09.15	Welcome by Dr Wanda McCormick, Head of Animal and Agriculture at Hartpury University
09.30	Welcome by Dr Stephen Wickens, UFAW
09:40	Keynote speaker- Walter Veit (University of Cambridge / University of Sydney): <i>Animal sentience and recent parliamentary bill</i>
10:05	Break

SESSION 1	
10:15	Georgia Oaten, Vicky Melfi, and Wanda McCormick (Hartpury and UWE PG): <i>The interplay between zoo visitors and macaques-</i> full title pending
10.30	Chloe Nicholls and Jonathan Amory (Writtle UG): <i>An investigation into interactions of white rhinos, with specific mention to calves, within a mixed enclosure at Colchester Zoo</i>
10.45	Daisy Hall and Lydia Bradwell (Brooksby Melton UG): <i>To what extent does measured height classification impact the retirement age of agility competing competing in the United Kingdom?</i>
11.00	Polly Doodsoon, Vicky Melfi, Lucy Dumbell, and Amanda Webber (Hartpury and UWE PG): <i>A different approach to improving animal welfare: Exploring public perceptions of 'Meet & Greet' animal experiences in zoos.</i>
11:15	Break
11:30	Holly Deacon and Jonathan Amory (Writtle PG): <i>An investigation into the milk replacer use of Sus scrofa domesticus in the farrowing crates</i>
11:45	Emily Boothroyd and Lydia Bradwell (Brooksby Melton UG) <i>Is there an effect on a horse's behaviour when presented with a human emotional cue?</i>
12:00	Lunch
SESSION 2	
1.00	Martha Hurrell and Phillip Watson (Hartpury UG) <i>The relationship between dairy farmers and their herd, exploring the potential effects on their mental wellbeing and welfare of the cattle</i>
1.15	Sarah Jowett, Zoe Barker, and Jonathan Amory (Writtle PG): <i>The structure and temporal changes in brokerage typologies applied to a dynamic sow herd</i>
1.30	Anna Pili and Vicky Melfi (Hartpury UG): <i>An exploration of potential causal factors of alopecia in a zoo-housed group of Hamadryas baboons (Papio hamadryas)</i>
1:45	Break (link tutors to discuss prize winners)
2:15	

2:30	Presentation of Awards- Dr Stephen Wickens (UFAW) Conference closes
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Abstracts

1. **Georgia Oaten, Vicky Melfi, and Wanda McCormick – The interplay between zoo visitors and macaques**

Abstract pending

2. **Chloe Nicholls and Jonathan Amory- An investigation into interactions of white rhinos, with specific mention to calves, within a mixed enclosure at Colchester Zoo**

For this study a series of 5-minute instantaneous scan sampling behavioural observations were recorded- and a number of ad lib interaction observations were recorded for a period of an hour over 10 different days. Using sociograms and chi-square goodness of fit tests to analyse this data a number of conclusions were drawn about the presence of the calves within the enclosure. Positive interactions were more common with both calves where negative interactions were more frequent throughout all animals within the enclosure. However-the negative interactions that occurred between any of the species were non-detrimental and didn't appear to impact the welfare of any individuals. This encouraged the idea that calves actually boosted the number of positive interactions and thus did not impact welfare. However-despite cows being tolerant individuals, a number of negative interactions came from the calves' mothers suggesting maternal behaviour could be a key factor to monitor before introducing an individual. Mixed species enclosures provide multiple benefits to both the animals and visitors'. For the animals it provides enrichment and increases activity levels and for visitors it encourages education via prolonged observation periods and increased behavioural activity within the animals. Mixed enclosures carry the risk of frequent negative interactions and management issues and with current information regarding ungulates in mixed enclosures it is difficult to make educated suggestions toward these factors. The mixed enclosure within Colchester Zoo holds rhinos and with the recent arrival of two young rhino calves it is imperative to make sure theirs nor others welfare is impacted by their interactions. White rhinos have a declining population and are frequently difficult to breed in captivity making the management of rhino- especially calves key. This study allows a baseline of knowledge into ungulate based mixed species and suggests a number of things to monitor and manage within them. In order for this study to give conclusive results it should be undertaken for a longer period of time with all individuals present within the enclosure.

3. **Daisy Hall and Lydia Bradwell- To what extent does measured height classification impact the retirement age of agility competing competing in the United Kingdom?**

The competitive canine sport of dog agility is a test of a handler and dog's ability to negotiate a set sequence of 15-20 obstacles, with the fewest incurred faults and in the fastest time. Being open to dogs of all breeds and sizes, the practice of 'measuring' dogs into a determined height classification prior to competition is utilised to for fairness of result and in improving the safety of welfare of competing dogs. Under current Kennel Club regulations there are four such height classifications in agility; however, the amount of research regarding differences between these height classifications is limited, as is there regarding the retirement of agility dogs from competition. Data for this study was collected through an online questionnaire from which responses regarding the dog's height, reason for retirement, ages of competing and additional factors, were then analysed by the researcher. Findings reported that medium dogs had the oldest mean retirement age within this study of 9.50 years old, whilst large dogs had the

youngest retirement mean age of 8.15 years old. Combining the age of two lowest and highest height classifications, small and medium dogs had an older retirement age (mean = 9.32 years old) than intermediate and large dogs (mean = 8.28 years old). These findings suggested that height classification does impact retirement age of agility dogs, however other factors such as the competing level of the dog were also shown to be of great influence on the retirement age of agility dogs - in particular, the level at which the dog had been previously competing at. Comparing differences in retirement age across a broad range of factors and comparing these to applicable literature, this research project aimed to identify the connections between their Kennel Club height classification and retirement age in agility dogs within the United Kingdom.

4. Polly Doodsoon, Vicky Melfi, Lucy Dumbell, and Amanda Webber: A different approach to improving animal welfare: Exploring public perceptions of 'Meet & Greet' animal experiences in zoos.

Opportunities to interact with non-human animals have become a commodity sold by tourist attractions worldwide. People want to touch, feed and be photographed with wildlife and are willing to pay for these opportunities. Many zoos offer such interaction opportunities; where visitors can 'meet' their chosen species at an additional cost to the zoo entrance fee. Existing studies have explored the impact of these interactions on animal welfare, or educational benefits to participants, however the wider impact has largely been ignored; what are the general public's perceptions of zoos offering these experiences?

As zoos strive to be educational conservation organisations, they must ensure that all operations are supporting their mission and not undermining it. However, we currently do not know how these 'Meet & Greet' (M&G) opportunities are interpreted by the people exposed to them. M&Gs have the potential to encourage support for conservation or to reinforce an image of zoos as entertainment centres that are exploiting animals for profit.

I propose that there are five main aspects of public perceptions that need to be explored in relation to M&Gs; where current research suggests that there could be potentially negative outcomes for zoos and captive animals. These are:

1. Entertainment value of M&Gs
2. Image of zoos and zoo animals
3. Animal welfare perception
4. Good pet perception
5. Conservation concern

This research will explore M&G opportunities currently available in the UK, how these are advertised by zoos, and the general public's perceptions of them. The results will be used to provide recommendations for zoos and other wildlife tourism attractions, to ensure that human-animal interactions are offered in a responsible way.

5. Holly Deacon and Jonathan Amory- An investigation into the milk replacer use of *Sus scrofa domesticus* in the farrowing crates

Worldwide, increasing litter sizes in *sus scrofa domesticus*, has led to difficulties in on farm welfare management of pigs pre-weaning. Large litter sizes places high physiological pressure on the sow, partly due to a higher demand for milk than possible to produce. Milk replacer acts as a supplement to sows' milk and has been increasingly provided to piglets in farrowing crates. This study aims to investigate the relationship between size and milk cup use, or milk replacer directed behaviours in individual 20-day old piglets in farrowing crates.

The main hypotheses of this study are that smaller piglets drink from the milk cup more frequently than larger piglets, and the frequency of waiting at the milk cups is significantly higher in smaller piglets. To test the hypotheses cameras were placed over 16 litters of 20-day old piglets for 48 hours each to observe interactions with, or around, the automatically refilling milk replacer cups. Bout frequency and duration was taken for each individual milk replacer use, as well as timings of each use. In addition to this, all aggressive, joining, and waiting social behaviours around

the milk cup were recorded for each individual piglet. The piglets were weighed in the first week of life and at the end of the observation period, all piglets were then categorised into sizes for early and late weights, both within and between litters. Results were analysed using a two-sample t-test. The results show an effect in the same direction as hypothesised for frequency of milk cup use when tested against, early size both within ($P < 0.001$) and between litters ($P = 0.003$), and late size within ($P = 0.009$) and between litters ($P = 0.044$). The results also confirm the hypothesis that smaller piglets had to wait to use the milk cup more than larger piglets ($P < 0.001$), the P-value was found to be the same across all size categories.

These results suggest that the smaller piglets may benefit and require milk replacer more than larger piglets, further implying they are the most disadvantaged by the trends of increasing litter size. The tendency for smaller piglets to need to wait to use the milk cup may suggest that there could be a benefit in introducing more than one milk replacer source into farrowing crates, or changing the design of milk cups to be more accessible to more piglets at one time. Further research into the impact of more than one milk cup on the health and welfare of piglets may help inform future farm management protocols. Another line of research that may be beneficial is investigating how the design of milk replacer cups may impact the frequency, duration of use and the subsequent impact on piglet growth pre-weaning.

6. Emily Boothroyd and Lydia Bradwell: Is there an effect on a horse's behaviour when presented with a human emotional cue?

The study 'Is there an effect on a horse's behaviour when presented with a human emotional cue?' is designed to observe a horse's behaviour when shown facial expressions to improve health and safety when working in the equine industry. To investigate this topic, prior research was done to explore the importance of face recognition from animals and the benefits of understanding horse behaviours. This further investigation researches how future training and our relationship with horses can be influenced by human facial cues and the possibility of showing negative behaviour. The practical observation was conducted at Brooksby Equestrian Centre, Melton Mowbray, in the indoor arena to decrease external distractions. Eight horses ranging in sex, breed, and age were used to complete this study. Two volunteers from the Equine Performance with Business (Top-Up) Degree assisted in handling the individual horses and creating the facial expressions. Each horse took part in the habituation process of the markers used and in a pilot study before the experiment. The investigation involved three facial expressions shown directly at the horse: happy, sad, and angry – for twenty seconds each. Each round of facial expressions was repeated three times in varied orders to rule out boredom or other factors that may influence the data collected. An ethogram was filled out to record the observed behaviour, recording the order of when each behaviour was shown. Data then were statistically analysed using an online SPSS programme.

7. Martha Hurrell and Phillip Watson- The relationship between dairy farmers and their herd, exploring the potential effects on their mental wellbeing and welfare of the cattle

Farmers have had a relationship with their dairy cows for millennia, however the type of relationship this is, and how it then effects farmer wellbeing, as well as cow welfare, has rarely been investigated. This study investigates this relationship, and the association between all three factors, with the use of semi-structured interviews, wellbeing assessments for the farmers, and on-farm welfare assessments of the cattle. Through completing a Spearman Rank correlation, no significance was found, however the thematic analysis did help to give a deeper picture of situations which may cause individuals to struggle with their mental wellbeing. However, an interesting trend in the data set was identified, whereby the farmer with the highest mental health score, had the highest welfare score, and the farmer with the largest herd size had the poorest mental health, and one of the poorest welfare scores. When discussing qualitatively, the stressors which impact farmers, it was found that parallels can be drawn from this research to the existing literature, such as work by Truchot and Andela (2018) who found common stressors included financial worry and uncertainty for the future. This further strengthens the grounding in reasons which may cause

farmers to struggle. The patterns which were seen within the raw data do leave this research open to further study, especially when larger sample sizes could be used. Herd size could also be investigated and expanded on with the extreme ends of the data set, particularly small or large herds, whether this impacts farmers in the way in which this study has found.

8. Sarah Jowett, Zoe Barker, and Jonathan Amory- The structure and temporal changes in brokerage typologies applied to a dynamic sow herd

Brokerage typologies represent an aspect of sociality by describing the social structure, at a group and individual level, concerning the direction and flow of behaviours or information within, and between subgroups. While animal studies have identified keystone individuals, capable of imparting positive and negative effects on conspecifics, none have characterised social networks based upon brokerage roles. This study applied a brokerage model to a dynamic breeding sow herd (average size = 78) to investigate the direction aggression flows within and between subgroups (based upon connectedness). In total, 42 h of video observations were obtained over two production cycles. Each production cycle covered 21 days, and behavioural observations occurred on days 1, 2, 3, 7, 14, 20, 21. The social network metrics of degree centrality (number of interactions) and brokerage position (the extent to which individuals lie on the directed path between two previously unconnected individuals) were analysed to describe the directional flow of agonistic behaviours within the networks and investigate the relationship between sociality and brokerage typology. Brokerage typologies are described as coordinators, gatekeepers, representatives, consultants, and liaisons. Aggressive behaviours included biting, thrusting, chasing, and displacement. The results revealed all pigs have brokering capability regardless of social connectivity, with a relationship between the level at which a sow is interacting and the brokerage typology they typically engage. Coordinating and consulting behaviour was typically engaged in by the highest connected sows. Significant differences in initiated behaviour (outdegree centrality) and received behaviour (indegree centrality) were found between the specific brokering roles in both production cycles, with coordinators found to be the most aggressive individuals in both networks. Results also reveal a consistency in group-level structure over two production cycles with further consistency in individual behaviour by coordinators and consultants. This preliminary study of brokerage types in a dynamic sow herd demonstrates the capacity to extend the traditional social network metrics currently applied in animal science research. It further provides an individual-level criterion to describe how behaviour is enabled to flow through a network.

9. Anna Pili and Vicky Melfi- An exploration of potential causal factors of alopecia in a zoo-housed group of Hamadryas baboons (*Papio hamadryas*)

The aetiology of alopecia (hair loss) in captive non-human primates is poorly understood. Contradicting results on the effects of sex, age and seasons, limited studies on the effects of social and self-plucking and lacking research on zoo-housed hamadryas baboons (*Papio hamadryas*), suggest further investigation is needed. Therefore, the present study aimed to explore potential causal factors of alopecia in a zoo-housed group of hamadryas baboons. Alopecia severity scores were recorded in summer and winter. Behavioural observations were performed during summer; the creation of a grooming ethogram informed the grooming intensity scale; auto-grooming and allogrooming frequencies were recorded daily through continuous behavioural observations; opportunistic observations allowed the attribution of grooming intensity scores, resulting in individual attribution of grooming abilities (i.e., mean grooming/plucking intensity). All males were determined as good groomers while majority of females were mild and poor groomers, suggesting plucking was female-based. Nevertheless, sex/age did not affect alopecia severity scores ($p=0.247$). Furthermore, groomers' grooming abilities and auto-grooming frequencies were not found to be associated ($p=0.828$) nor were both associated with alopecia severity scores of groomers ($p=0.253$; $p=0.222$). However, alopecia severity scores of groomed individuals were significantly affected by grooming abilities and allogrooming frequencies of individuals that groomed ($p=0.041$). Plucking may be classed as a stereotypic behaviour induced by stress/frustration potentially related to captive environments. This may be supported by the significant

increase in alopecia severity scores in winter compared to summer ($p=0.046$), possibly suggesting increased plucking due to increased time spent indoors. Nevertheless, despite signs of pain, groomed individuals did not react adversely, and grooming was periodically reciprocated by plucking, implying plucking to be kin of grooming. Plucking may therefore be socially learnt/transmissible. However additional health, internal and external related factors may have affected alopecia in this group, implying need for further exploration.