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ANIMAL WELFARE SCIENCE UPDATE

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The aim of the animal welfare science update is to keep you informed of developments in animal welfare science relating to the work of the RSPCA. The update provides summaries of the most relevant scientific papers and reports received by the RSPCA Australia office in the past quarter. **Email science@rspca.org.au to subscribe.**

ANIMALS USED FOR SPORT, ENTERTAINMENT, RECREATION AND WORK

Difference between natural and artificial weaning of foals

In domestic breeding systems, foals are artificially weaned by separating them from their mothers at the age of 4-7 months. As weaning is abrupt, it poses several welfare risks including severe emotional stress and can lead to nutritional, social and environmental challenges. Under natural conditions it is believed that weaning occurs gradually when the foal is older, however little is known about natural weaning. The aim of this study was to collect information on the natural weaning process in foals, and to conduct a study on spontaneous weaning.

The review of existing literature showed that in natural conditions, the weaning process is gradual and occurs over several months, mainly initiated by the foal. The weaning process is driven by progressive decrease in suckling frequency with a change to a more varied diet, and the development of a larger social network. However, there is large variation between different foals. In most cases total weaning occurs around the age of 9-11 months or before the birth of the next foal. In natural conditions, the weaning process is only nutritional, as the bond between foal and dam remains after weaning.

A study of 16 Icelandic mare-foal pairs showed that average weaning age was 9 months. After weaning, the foals remained close to their mothers and there were no signs of stress in the foal during or after weaning. The results of this study suggest that weaning was driven by the foal voluntarily, it did not produce stress and other than suckling activity, weaning did not change the foals' relationship with their mothers. These findings suggest that keeping the foals and mares together for longer could be beneficial for foal welfare.

Henry S, Sigurjónsdóttir H, Klapper A et al (2020) Domestic foal weaning: Need for re-thinking breeding practices? Animals 10(2), 361.

Injuries resulting from the use of spurs in different equestrian sports

Equestrian sports are highly popular in terms of participation, viewership and attendance at events. However, the use of animals for human entertainment has been criticised by the general public concerned about the welfare of the horses. Spurs are a piece of equipment worn by riders to stimulate the horse to move, change direction or activity. However, the use of spurs has recently come under scrutiny as its misuse can result in bleeding. The aim of this research was to investigate the use and type of spurs across equestrian disciplines in the UK and then evaluate these findings with injuries associated with spur use.

This UK study was based on a survey circulated via social media platforms, industry connections and national online media sources. Participation was limited to people who were over 18 years old, resided in the United Kingdom and either owned, loaned or shared a horse. The survey included questions about type of equestrian sports, use of spurs and evidence of skin lesions.

From the 628 participants of the survey, 47% reported to use spurs. Male participants were more likely to use spurs than female participants. Participants involved in some disciplines such as reining and polo were more likely to use spurs than participants who were involved in endurance riding. Overall, 34% of participants who used spurs reported skin injuries associated with spur use. The implication of this study is that now policy makers and riders can use this evidence to generate competition regulations that protect the horses' welfare.

Lemon C, Lewis V, Dumbell L et al (in press) An investigation into equestrian spur use in the United Kingdom. Journal of Veterinary Behavior.

Developing a tool for assessing welfare in horses and donkeys

Public concern for the welfare of animals is increasing, however assessing welfare of animals can involve multiple challenges. There are several protocols for assessing welfare in horses, donkeys and mules (equids), however, most of them are specific for each context and there is no protocol that can easily be applied worldwide. The aim of this work was to develop the Equid Assessment, Research and Scoping (EARS) tool that can be used to assess welfare of equids by animal welfare organisations in any context.

The first part of this study was to develop the EARS tool based on already existing welfare protocols and new welfare indicators. The EARS tool is based on a series of questions aimed at gathering information about an animal and was produced using three previously established welfare protocols as a starting point. It is composed of 290 questions that collect information on 19 welfare indicators. Then the second part of this study was to evaluate the EARS tool in a variety of contexts in 19 countries.

Overall, the findings of this work show that the EARS tool was a useful, versatile and rapid method for conducting welfare assessments of equids in a range of different situations and that the tool can be used by most staff after training. The implication of this work is that there is now an available tool that can address the complex issue of assessing equid welfare in a variety of contexts across the world. Development of such datasets can provide information and insight into which populations of equids are at greatest risk of compromised welfare and require urgent action. This information can be used by animal welfare organisations to inform decision-making processes about how charitable funds are spent and where to target interventions.

Raw Z, Rodrigues JB, Rickards K et al (2020) Equid Assessment, Research and Scoping (EARS): The Development and Implementation of a New Equid Welfare Assessment and Monitoring Tool. Animals 10(2), 297.

Factors associated with rehoming horses listed with an equine charity

The number of horses needing to be rehomed in the UK has risen in the last 10 years. From information gathered through a UK-based equine rehoming charity, on average 66 horses are listed for adoption per month with only 13.6 animals being rehomed within 39 days. To investigate this further, this present study followed 791 horses listed in an equine charity. Out of the 791 horses followed, 51.8% were rehomed; 39.8% of which found homes through the charity and 60.2% through other routes. Thirty-six animals died and the remainder were left waiting for homes.

The main reasons for rehoming listed by owners are: lack of time, lack of money, personal health issues and change in family circumstances. Horse behavioural issues made up only 5.9% of the reasons for rehoming, however it is possible that this is understated by the original owners to increase the chances of rehoming. Accurate information about the reasons for surrender are vital for successful rehoming.

It has been found that more information can be gained through direct conversation with the owners than from questions asked through shelter paperwork. Therefore, confidential face-to-face interviews with owners looking to surrender their animals is preferred over simply asking for documents to be submitted.

Factors found to influence successful rehoming include the type of home being sought and the skill of the new rider. These factors are different from those that reduce the time it takes to rehome horses. Horses who were suitable for beginner riders and over the age of 5 years, were rehomed faster than horses listed as skilled or companion only animals. Owners who were willing to transfer ownership and opened the listing nationwide also rehomed their animals faster.

Rosanowski SM, Verheyen KLP (2019) Factors associated with rehoming and time until rehoming for horses listed with an equine charity. Veterinary Record 185(12).

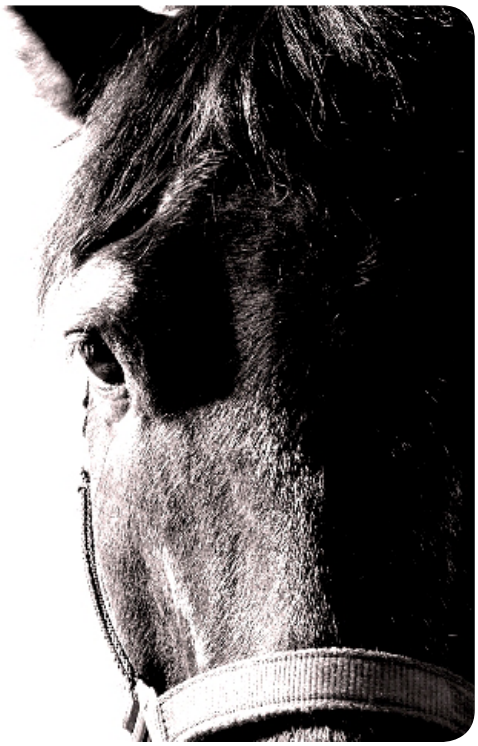
RESEARCH COMMENT: Educational programs for existing and prospective horse owners are needed to reduce relinquishment rates in the UK

The equine sector is rapidly increasing in the UK. Currently, the population is about 847,000 animals including horses, donkeys and mules. Most of these animals are kept for sports activities or as companions. Despite its popularity, the equine sector lacks strict regulations and guidelines to safeguard the welfare of these animals. For example, there are no regulations for breeding or ownership.

This research comment builds upon the study conducted by Rosanowski and Verheyen (2019, see above) and gives further explanations of the factors involved in the success of re-homing horses. Overall, the main reasons for re-homing horses involved lack of time, money and change in the owner's circumstances. All of which represent key aspects of responsible pet ownership. Characteristics of the horse are also key elements for re-homing success. For example, horses and ponies that are suitable for first-time owners, with good character towards humans, are more likely to be re-homed within 200 days.

Purchasing a horse in the UK is accessible, as some individuals are sold for as little as £5 ($10 AUD). Low prices may encourage people to buy horses that they cannot actually afford, highlighting the need for educational programs targeted to existing and prospective horse owners. By providing information about the complexity involved in taking appropriate care of horses, it may be possible to achieve greater understanding about the costs and time involved in maintaining a horse, which in turn, may reduce relinquishment rates and improve horse welfare.

Williams J (2019) Gaining insights into factors associated with rehoming of horses from equine charities. Veterinary Record 185(12):370-372.



COMPANION ANIMALS

Public perception of the welfare of dogs

Government and industry regulation relating to standards of care for animals are influenced by social expectations. Thus, it is important to understand how people in the community perceive animal welfare in different contexts. Dogs are found in a wide range of contexts, including companion, research, security, livestock herding, detection, assistance and sporting. In general, it is known that peoples' attitudes towards animals and their treatment can vary by animal type and their context. The aims of this work were to explore if peoples' perceived level of dog welfare depends on the context of the dog's role and the level of importance of dog welfare.

This study was composed of a survey that was hosted by a secure website and distributed using social media platforms, web forums and emails. People agreed to voluntarily answer the survey. Data was collected over a 15-week period in 2009. It is important to consider that by using voluntary participants, the results are likely biased towards people who have positive attitudes towards animals.

The results from this work showed that 95% of participants agreed that the welfare of dogs is important to them. Participants usually rated their own dog's welfare higher than that of other people's dogs. Overall, participants rated companion dogs, guide and assistance dogs and police and rescue dogs as having the highest welfare, while they rated racing dogs, feral dogs, stray and fighting dogs as having the lowest welfare. The information generated from this work can help inform actions and effective resource allocation towards improving dog welfare.

Cobb ML, Lill A, Bennett PC (2020) Not all dogs are equal: perception of canine welfare varies with context. Animal Welfare 29(1):27-35.

CASE STUDY: How universities in Beirut, Lebanon deal with free-roaming cat (*Felis Catus*) populations

This case study investigated the management and welfare policies of the two main universities in Beirut, Lebanon - The American University of Beirut and The Lebanese American University. These universities have embraced the free-roaming cat population in their facilities and have put in place important actions to ensure the welfare of these animals.

Both universities acknowledge the positive aspects of having cats on their campuses including aiding pest control, as well as providing emotional support for students and staff. Both universities host around 300 cats. Thus, managing their wellbeing is a big challenge. The main practices implemented include veterinary care, sterilisation, health monitoring, adoption programs and provision of food. For instance, feeding stations have been established on the campuses, and a designated staff member at each university provides a balanced supply of dry and wet food. This has led to a healthy population of cats roaming free on campus premises.

The management and welfare policies implemented by these Lebanese universities may encourage institutions in other countries to adopt more proactive measures to protect the welfare of stray cats. By promoting good pet ownership, universities are also educating students and staff about the duty to care for all animals. At the same time, these policies could serve to encourage government to develop regulations and control services that protect animals from harm.

Davey G, Zhao X (2020) Free-roaming cat (*Felis catus*) management and welfare policies in two university campuses in Beirut, Lebanon: Strengths, weaknesses, and opportunities. Journal of Applied Animal Welfare Science 23(1):41-53.

Australian snake owners are not fully meeting their pet's needs

The keeping of reptile pets is rapidly increasing in Western societies. In Australia, for example, it is estimated that a total of 124,650 snakes are kept in captivity as pets. This increase has been associated with the general perception that reptiles require lower maintenance than other types of pets, such as cats and dogs. However, several important husbandry practices need to be implemented to meet reptile welfare needs. Due to the increasing number in reptile pet owners, veterinarians are concerned that snake owners might not be aware of some key husbandry practices, as often the available information about reptile management and guidance is limited or inaccurate.

The aim of this pilot study was to identify husbandry practices among pet snake owners in Victoria, Australia. By completing an online survey, 251 snake owners described how they attempted to meet their snake's environmental, behavioural, dietary, social and health needs. Results from the survey show that most owners correctly identified their pet snake's natural climate and whether their snake was arboreal, terrestrial or aquatic. However, more than half of the owners kept their snakes in enclosures that were too small, not allowing the snake to fully stretch out. Most owners fed their snakes with dead adult rats or weaner rats, in agreement with the Code of Practice. However, the decision on how much to feed their snake is usually dictated by "common sense" (35%) rather than science-based information. It was also estimated that only 60 per cent of owners correctly identified their snake's activity patterns, which may limit owners' ability to detect health issues.

This is the first study reviewing snake owners' husbandry practices (enclosure space and behaviour monitoring) to inform in Australia, which may encourage a more thorough investigation of this area. Focusing on two key husbandry practices to inform educational campaigns may be beneficial in improving pet snake welfare.

Howell TJ, Warwick C, Bennett PC (2020) Self-reported snake management practices among owners in Victoria, Australia. Veterinary Record doi:10.1136/vr.105409.

Lop-eared rabbits are more likely to have poor welfare than erect-eared rabbits

Breeding for specific traits is a common procedure in domesticated animals. Recently, breeding for extreme characteristics has been scrutinised, with the focus mainly on dog breeding. Wild rabbits are known to commonly have erect ears but lop-eared rabbits have become increasingly popular as pets. Lop ears, where the rabbit's ears are not erect but droop down, are heritable and can be passed to new generations through selective breeding. Lop-eared rabbits are believed to have higher risk of ear infections but it is currently unclear if breeding for lop ears is a welfare issue for rabbits. Therefore, this research aimed to assess whether rabbits having lop ears, an artificially selected conformation, has compromised welfare.

This study was conducted in the UK and examined 15 lop-eared rabbits and 15 erect-eared rabbits from a rescue centre. The rabbits' medical histories were examined and the rabbits were evaluated for signs of discomfort, pain, ear infection and dental issues.

The results showed that lop-eared rabbits were more likely to have ear pain, signs of ear infection and signs of dental pathologies than erect-eared rabbits. The signs of ear pain and ear infection may indicate that lop-eared rabbits are also more likely to be deaf than erect-eared rabbits. Based on these findings, the authors question the ethics of breeding and buying lop-eared rabbits as they are more likely to suffer from these health and welfare issues which can be chronic, painful and recurrent.

Johnson JC, Burn CC (2019) Lop-eared rabbits have more aural and dental problems than erect-eared rabbits: a rescue population study. Veterinary Record 185(24).

Why are protocol changes difficult to implement in animal shelters?

Animal shelters need intervention strategies that will help them to improve life-saving measures. Researchers create new protocols that can help animal shelters improve their practices. However, incorporating new protocols can be a challenge for shelters and as such, the improvements proposed by the researchers are not having the desired impact on animal welfare. Many shelters allow potential adopters and rescue dogs to spend time together, called 'meet and greet' sessions. Previous research has reported that the dog's behaviour during the 'meet and greet' has an important effect on the likelihood of adoption. The aim of this research was to evaluate the feasibility of animal shelters carrying out a new best-practice protocol for 'meet and greet' sessions and to identify the specific challenges that contribute to poor implementation of protocols.

This study was conducted in the United States and included seven animal shelters. Shelters were asked to follow their normal 'meet and greet' protocol for up to 5 months followed by a new 'meet and greet' protocol for up to 5 months. The new protocol was communicated by the researchers to the shelter staff through a workshop consisting of a lecture, role-play and a discussion session.

The findings of this study showed inconsistent use of the new protocol across all shelters. Shelters varied in budget, location and leadership organisation, which resulted in different responses and challenges including staff being unable to remember the details of the new protocol and in some cases shelter staff disagreed with the new protocol proposed by researchers as they believed it was of little benefit. These findings suggest that further research is needed to develop effective educational tools that address these barriers to implementation of new protocols and will allow new and improved protocols to be applied in animal shelters.

Protopopova A, Brown KM, Hall NJ (2020) A multi-site feasibility assessment of implementing a best-practices meet-and-greet intervention in animal shelters in the United States. Animals 10(1), 104.

Is a flank incision preferred over a midline incision when spaying cats?

When female cats are spayed, the incision can be made through the midline or through the flank. In the days after surgery, the wound needs to be observed to inspect if there are any complications to the wound. A wound on the flank is potentially easier to inspect than a wound on the midline, as it does not require handling and can be done from a distance. This is beneficial for cats who are not owned, who may be difficult to handle. However, it is not clear if a flank wound poses a greater risk of post-surgery complications than a midline wound.

A literature review identified three papers considered relevant in terms of evaluating if site of incision influences the risk of postsurgical complications.

These papers varied in some aspects. In some cases, the surgeries were conducted by students while in other cases they were conducted by experienced veterinarians. The papers also differed in the type of surgery conducted (removing ovaries only versus removing ovaries and uterus) and type of cats included (shelter cats versus companion cats). Overall, the main finding of this study was that other factors such as the surgeon's experience, sterility of the surgical procedure and type of anaesthesia used may have a greater effect on the risk of post-surgical complications than the type of incision.

Stavisky J, Brennan M (2020) Comparing wound complications associated with midline and flank approaches for spaying cats. Veterinary Record 186(6):188-189

FARM ANIMALS

Using frothy saliva as an indicator of stereotypies in sows

It has been estimated that over 90% of confined sows perform stereotypies. Stereotypies are repetitive behaviours that have no function or purpose. In sows, some common stereotypies are biting or licking of various objects. Stereotypies are associated with frustration and poor enrichment, and therefore are used as indicators of welfare problems in animal welfare protocols. The aim of this research was to evaluate if frothy saliva around the snout is a reliable and feasible indicator to evaluate stereotypies in sows.

This study visited 13 farms in Germany and evaluated 40 sows in each farm. Sows were assessed for stereotypies such as sham chewing, tongue rolling, teeth grinding, biting (bar, drinker or trough) and floor licking. Sows were also evaluated for frothy saliva around their snout, which develops when saliva is continuously moved by the tongue and thereby air is folded in creating froth. Each sow was observed for 15 seconds.

Overall, approximately 23% of the sows performed sham chewing and 49% of the sows had frothy saliva. The sows that performed sham chewing were more likely to have frothy saliva. The results of this study indicate that frothy saliva could be an acceptable indicator of stereotypies in confined sows. However, organic enrichment material such as straw can also produce frothy saliva, therefore further research is needed to address the relationship between frothy saliva and normal non-stereotypic eating activities of the sows.

Friedrich L, Krieter J, Kemper N et al (2020) Frothy saliva—A novel indicator to assess stereotypies in sows? Applied Animal Behaviour Science 222:104897.

Keeping dual-purpose laying hens decreases risk of injurious pecking

Commercial laying hen husbandry has several welfare challenges. One of these challenges is injurious pecking, which is an abnormal behaviour carried out by laying hens often due to poor or stressful housing and management conditions. It results in poor welfare, as injurious pecking is associated with feather loss, pain, reduced thermoregulation and a greater risk of cannibalism. Another welfare challenge in commercial farms is the killing of one-day old male chicks. A possible solution to this is to have dual-purpose laying hens where the males can be grown for meat production. However, it is not clear if dual-purpose hens present greater risk for injurious pecking than conventional laying hens.

This study was conducted in Hannover, Germany where over 11,000 conventional and dual-purpose laying hens were evaluated. All hens had untrimmed beaks and the two groups were housed in identical conditions throughout the study. Lesions associated with injurious pecking were assessed through a visual scoring method by a trained observer on a weekly basis and injuries were scored based on the body part affected and severity of the damage.

In conventional laying hens, feather loss began in week 23 and progressed over time as 50% of individuals presented feather loss at an age of 32 weeks and 92% of the hens were affected by the end of the study. In the dual-purpose hens, feather loss was only observed after week 34 and at the end of the study only 8% of the dual-purpose hens had been affected. No signs of injuries or severe feather loss was observed in the dual-purpose hens, whereas 50% of conventional laying hens had severe feather loss after week 48 and 10% of the hens presented skin injuries after week 63. These results indicate that keeping dual-purpose hens could be a possible alternative to avoid the practice of one-day old male chick culling and reduces losses due to injurious pecking.

Giersberg MF, Spindler B, Rodenburg B et al (2020) The dual-purpose hen as a chance: Avoiding injurious pecking in modern laying hen husbandry. Animals 10(1), 16.

Finding the preferred nest for meat chicken breeder hens

Finding the preferred nest for meat chicken breeder hens has multiple benefits for both hens and producers. Where hens' welfare requirements are met and they are provided appropriate nests, they are more likely to be healthy, present less aggressive behaviour and produce more eggs. Further, hens are more likely to lay eggs in a preferred nest which thereby reduces the number of eggs laid outside the nests (floor eggs). Reducing floor eggs is beneficial for producers because floor eggs can lead to economic losses.

This study conducted in The Netherlands involved 600 female and 54 male breeders, which were assigned to six even-sized pens. Each pen had four types of nests: a nest with plastic walls, a nest with plastic walls and a partition in the middle, a nest with wooden walls, and a nest with plastic walls and a ventilator underneath. Hens were observed and eggs were counted in each nest for 12 weeks. After 12 weeks, the preferred nest was closed and hens were observed for an additional two weeks.

During the first 12 weeks, the hens preferred the wooden nest, as more eggs were laid there and hens spent more time sitting in the wooden nest than in the other nests. The wooden nest also received less visits per egg laid. However, this resulted in higher crowding and aggressive behaviours in the wooden nest. The nest with the ventilator was the least preferred nest. After closing the wooden nest, the hens laid eggs in the nest that was closest to the wooden nest. These results indicate that the material used for nests is an important factor to consider when designing suitable nests.

van den Oever AC, Rodenburg TB, Bolhuis JE et al (2020) Relative preference for wooden nests affects nesting behaviour of broiler breeders. Applied Animal Behaviour Science 222:104883.

Expert opinions on animal welfare issues and their priority

Animal welfare is an area of increasing social concern. In the past, welfare of farm animals has focused on the minimal acceptable standards. Currently, focus has moved towards providing animals with positive welfare experiences. However, different stakeholders in the industry still have different views on what is important for animal welfare, which results in different opinions on which aspect of animal welfare to prioritise. The aim of this work was to obtain consensus from experts to prioritise the welfare issues faced by cattle, pigs, poultry and small ruminants in the UK.

This study included 58 experts. All experts were based in the UK, and had more than three years of experience in their field. Experts were practicing veterinarians, academics, charity sector employees, farmer representatives, and policy officials with responsibility for farmed livestock. A review of the existing literature was conducted to create a list of the main welfare issues faced by each species. The experts were then sent a survey with the list of welfare issues and were asked to use their expertise to rank the issues according to each of three criteria: severity, duration and prevalence.

The results of this study found that there were a number of common issues that had high priority in most species including: inadequate nutrition; lack of stockperson skills; inability of farm workers to recognise and/or treat pain or behaviour problems; foot and leg health resulting in lameness; long-term health issues; euthanasia delay and methods, and neonatal mortality. Welfare issues that were specific to each species included abnormal behaviours and poor housing in pigs and poultry, lack of veterinary care in beef cattle and sheep and poor handling and transport in sheep, beef cattle and poultry. The study prioritised a mix of animal, resource and management based factors influencing animal welfare. These factors can be addressed through further research, education, better communication and policy changes that aim to achieve improved farm animal welfare.

Rioja-Lang FC, Connor M, Bacon HJ et al (2020) Prioritization of farm animal welfare issues using expert consensus. Frontiers in Veterinary Science 6, 495.

Effect of automatic milking systems on the human-animal relationship

Automatic milking systems allow harvesting of milk without human intervention. This technology has provided farmers work flexibility, additional time to do other tasks, lower physical load and reduced working hours. However, stress levels and animal welfare standards in automatic milking systems and conventional milking systems have been reported to be similar and this is more likely associated with individual farm management than milking system type. This study aimed to identify if transitioning to automatic milking systems causes changes in the human-animal relationship.

This study was conducted in New South Wales, Victoria and Tasmania (Australia) and included five farms that were transitioning from conventional milking systems to automatic milking systems. The farms milked between 280 and 540 cows. Each farm was visited twice, once when they had the conventional milking system and once when they had completed the transition to the automatic milking system.

This study found that, in the automatic milking systems, farmers spent far less time in milk-harvesting-related tasks (e.g. fetching cows for milking, milking, and herd health practices) while still spending time in the vicinity of or in close contact with cows (e.g. hosing yards, moving fences, hoof care). After transitioning to automatic milking systems, cows presented shorter avoidance distance. Avoidance distance of cows to an unknown person is an indicator of the human-animal relationship, as cows exposed to negative handling are more likely to have a long avoidance distance. In this case, a decreased avoidance distance suggests a positive human-animal relationship. The findings of this study suggest that the farmer-cow relationship improved after transition to the automatic milking system as seen by the reduced fear responses expressed by cows when approached and handled. The near elimination of milk harvesting-related tasks, and the time spent near the cows and in close contact with the cows in the automatic milking system could have contributed to this change.

Wildridge AM, Thomson PC, Garcia SC et al (2020) Transitioning from conventional to automatic milking: Effects on the human-animal relationship. Journal of Dairy Science 103(2):1608-1619.

TRANSPORTATION OF ANIMALS

Using antiemetic drugs to prevent motion sickness in sheep

Transport by land or by sea can present several welfare challenges for livestock. One of these challenges is associated with motion sickness. Seasickness is caused by vertical and sideways movements that result in digestive disorders and loss of appetite, which is a contributing cause of mortality of sheep during live export. Antiemetics are drugs that are routinely used in humans and veterinary medicine to prevent vomiting.

This study conducted in Queensland, Australia, aimed to determine the effect of antiemetic drugs to prevent the symptoms associated with ship motion. It was hypothesised that giving antiemetic drugs to sheep would avoid the negative effects of ship motion on eating behaviour and body posture. The study involved six Merino sheep of approximately 30 months of age. The experiment took place in a crate with a moving floor that simulated ship motion. Before entering the experiment, the sheep had been trained to enter the crate.

The antiemetic drug had no effect on feed or water intake during motion. It also had no effect on the sheep's heart rate. With the antiemetic drug, sheep prehended (grasped) the same amount of feed with far fewer bites and in a shorter time than without the drug. The authors suggest this may affect rumen function over longer periods than provided for during the experiment. Sheep given the antiemetic also spent less time with their head against the side of the crate, a behaviour carried out to improve balance. Overall, these findings suggest that the sheep's balance may have been improved by providing the antiemetic drug however, more research is necessary to identify the best dose of antiemetic drug in sheep.

Santurtun E, Navarro G, Phillips CJ (2020) Do antiemetics attenuate the behavioural responses of sheep to simulated ship motion? Applied Animal Behaviour Science 223:104924.

The following article is authored by an RSPCA Alan White Scholarship recipient

Public perceptions of species' status matter for welfare and management

Conservation biology is an ever-evolving field of science, whereby, the control or eradication of a species depends on human attitudes towards those species. In most situations, conservation efforts aim to restore the ecological systems to their 'natural state', thereby favouring native animals in preference to introduced species. The conflict of opinions between conservation researchers and practitioners has given rise to several conservation frameworks. A traditional framework seeks to protect native species, whereas a functionalist framework seeks to conserve species based on their value to humans and a compassionate framework seeks to conserve all animals irrespective of their species. However, little is known about how these frameworks align with public values. To investigate this, this study conducted an online survey (n= 811) that examined public perceptions of four Australian species managed as pests, two of which are native species (kangaroos, dingoes) and two non-native species (horses, red foxes).

The results suggest that, in general, the public seeks to remove pests in order to protect human interest. Furthermore, the public favours protection of native species over the welfare of non-native animals. However in some cases the publics' view on 'nativeness' did not align with the legal definitions, indeed, they showed less approval of using lethal control for horse populations than for killing kangaroos. In conclusion, the majority of the respondents were supportive of the control of non-native species and pest species, suggesting their support of the functionalist view of conservation. These results highlight the conflicting views between different stakeholders (public vs ecologists) and the difficulty in achieving consensus for conservation efforts.

van Eeden LM, Newsome TM, Crowther MS et al (2020) Diverse public perceptions of species' status and management align with conflicting conservation frameworks. Biological Conservation 242:108416.

WATWC: Welfare Assessment Tool for Wild Cetaceans

For decades, marine mammals have been severely affected by human activities and anthropogenic environmental changes. Particular concerns include the potential short- and long-term impacts of whale watching, entanglement in fishing gear, injury and death due to ship strikes, and the impact of marine contaminants on biodiversity and the sustainability and health of many populations and species of marine mammals. Thus, it is essential to have tools to assess the impact of human activities on the welfare of wild cetaceans.

This study details the steps involved in the development of a welfare assessment tool for wild cetaceans (WATWC). Firstly, at a workshop attended by experts and stakeholders (n=7), it was agreed to use the Five Domains Model to evaluate the nutrition, environment, health, behaviour and affective (mental) state of wild cetaceans. The next step involved applying the model to six hypothetical scenarios (three concerning marine contaminants and three concerning whale watching) which were created by the research team and then assessed by 12 independent animal welfare scientists. Assessors found the pilot WATWC easy to use, although there was low agreement in their scores. The pilot WATWC was refined and tested by a different set of assessors who found that the refined version was clear and easy to understand and the agreement between assessors also increased.

This valid and reliable welfare assessment tool can help to assess the welfare of wild cetaceans in a number of different contexts. The authors suggest, for example, that this tool could be used to evaluate the impact of human activities on Hawaii Island spinner dolphins. The widespread use of welfare assessment tools, like the WATWC, could help to identify important information gaps and to contribute to policy decisions relating to human impacts on wild cetaceans.

Nicol C, Bejder L, Green L et al (2020) Anthropogenic threats to wild cetacean welfare and a tool to inform policy in this area. Frontiers in Veterinary Science 7, 57.

Welfare implications of deflighting zoo birds

Deflighting is the process of rendering birds unable to fly. In a zoological setting, it is done to allow birds to be kept in open-topped enclosures without the risk of the birds escaping. The procedure involves either the trimming of flight feathers on one wing or the surgical removal of part or the entirety of a wing depending on the method. The most common birds to undergo deflighting are large-bodied birds such as flamingos, pelicans, and storks. In rare cases, mainly in the US and in personal collections, parrots are also deflighted.

The justification of deflighting is generally centered around the belief that "the practice delivers benefits to the captive bird by, ironically, increasing its freedom within captivity", providing protection against ecological disruption in the event of an escape, increased ease of keeping large birds and an assumption that the species involved do not require flight in captivity because escaping predation and migration are not required. Odense Zoo in Denmark, which allows commonly deflighted species to retain their ability to fly, states that "the birds appear to fly for no other reason than just to fly." Although only an observation, this directly disputes the argument that flight is not required in captivity.

Legislation varies in different countries, with the most restrictive laws banning deflighting unless an exemption is sought. In Australia, the practice is generally allowed, although the zoo and veterinary associations surveyed are generally against the deflighting of birds unless all other avenues have been exhausted. Regardless of the laws, zoos within Europe are moving away from deflighting. The European Association of Zoos and Aquaria found that, while there are still many birds in zoos who have been rendered flightless, the animals in this group are of an older generation, with many zoos surveyed stating they no longer carry out the procedure.

Despite arguments for and against the deflighting of birds in captivity, there is no scientific evidence to support either position. More research is needed to uncover the impacts deflighting has on birds to allow the welfare of the individuals to be balanced with the practical conservation efforts of the zoo community.

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Stress in African elephants increases with more tourists

Wildlife tourism is often subject to criticism. However, if it is managed sustainably, it can aid in the protection of habitat, biodiversity, and ecological processes. In Africa, one of the most popular species kept in rescue centres and reserves is the African elephant (Loxodonta Africana). Elephant numbers are declining drastically due to habitat loss and poaching. Therefore, elephants, may associate humans with negative experiences, which may lead to negative reactions to the presence of tourists. To maintain sustainable wildlife tourism, and ensure a positive welfare state for these animals, it is important to understand the effect of tourism pressure (tourist numbers) on the stress response of elephants.

This study aimed to measure the physiological stress response of elephants to the number of visitors per month in the Madikwe Game Reserve, South Africa. For this, 43 dung samples from 13 elephants were collected to measure faecal glucocorticoid metabolite (fGCM) concentrations over 15 months. Factors like the season, age, and sex were all considered in the analyses. Over the duration of the study, tourist numbers ranged from 2156 to 3762 per month.

The main results of this research indicate that the fGCM concentrations of elephants were higher when tourist numbers were high. Overall, the elephants' fGCM concentrations increased by 112 per cent in the months with the highest tourist numbers, compared to the months with the lowest visitor numbers. This study confirms that high numbers of tourists increase stress levels in elephants, which needs to be considered and managed in wildlife reserves. Monitoring the welfare of these animals is essential, and the provision of refuge areas is encouraged. This will allow animals to have more control with tourist interactions, thereby decreasing levels of anxiety and stress in elephants.

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RSPCA

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