



RSPCA AUSTRALIA

Animal welfare science update

April 2004 Issue number 8

This is the eighth Animal welfare science update provided by the RSPCA Australia office. The aim of the update is to keep you informed of developments in animal welfare science that relate to the work of the RSPCA. The update provides summaries of some of the most relevant scientific papers and a detailed bibliography of other articles that have been received by the RSPCA Australia office in the past few months.

Companion Animals

1. Puppy school and retention of dogs in the home

The experience of dogs during puppy hood has a great influence on their subsequent behaviour as adults. With adopted shelter dogs, their experience as puppies may affect the likelihood of them being kept or returned to the shelter. This report describes a survey of owners who obtained puppies from a Minnesotan Humane Society Shelter and the early learning experiences and retention rate of the dogs they adopted. The survey revealed that puppies that went to socialization classes before they were 16 weeks old were significantly more likely to be kept than puppies who received no formal socialization training or went to training when they were older. The paper discusses that this may be because the puppy is more aware of how to behave and the owner is more aware of the expectations of owning a dog.

Duxbury, MM; Jackson, JA; Line, SW; Anderson, RK. (2003) Evaluation of association between retention in the home and attendance at puppy socialization classes. *Journal of American Veterinary Medical Association*. 223(1) 61-66

2. Dog training methods

While the methods employed by owners to train their dogs may greatly influence the retention rate of dog ownership and the relationship between dog and owner, the choice of method also directly influences the welfare of the dog itself. The authors' hypothesis in this study was that negative reinforcement, or punishment for undesirable behaviours, may result in chronic or acute pain, fearfulness, aggression or anxiety in the dog indicating a poor state of welfare. This report surveyed UK dog owners regarding the methods used to train their dogs (reward- or punishment-based training) and the effectiveness of such training techniques with respect to the dogs' behaviour. They found owners use a mixture of reward and punishment techniques. Respondents tended to say reward based training resulted in a more obedient dog, whilst negative reinforcement did not always alleviate bad behaviour (e.g. dog does not stop chewing slippers when scolded). Although it was not conclusively found that punishment is an ineffective method of training, there were more behavioural problems associated with this technique which may lead to poor welfare.

Hiby, EF; Rooney, NJ; Bradshaw, JWS (2004) Dog training methods: their use, effectiveness and interaction with behaviour and welfare. *Animal Welfare*. 13: 63-69

Farm Animals

4. Housing conditions vs. stocking density in broiler chickens

One of the chief welfare concerns with meat chickens is overcrowding. This large-scale study of broiler chicken farms in the UK included data from approximately 2.7 million birds from ten major broiler producers and compared the effect of different stocking densities on the mortality, physiology, behaviour and health of the chickens. Other conditions were kept in accordance with individual company policy. The welfare of the birds was measured by total mortality from introduction into the house as day old chicks to slaughter at 39-42 days, and individual bird behaviour and health, concentrating on leg conditions and walking ability, when the birds were fully-grown. Stocking densities ranged from 30 to 46 kg per square metre. The study found that there was a higher level of individual problems for the chickens such as slow growth, injuries from contact with other birds and leg problems with higher stocking densities, but there was unexpectedly significantly greater mortality rate between the different companies. From these results the authors conclude that, although higher stocking densities are detrimental to chicken welfare, environmental conditions such as temperature, humidity and ammonia concentration are of a greater welfare concern. This conclusion is based on overall mortality rather than the conditions of individual birds.

Dawkins, MS; Donnelly, CA; Jones, TA (2004) Chicken welfare is influenced more by housing conditions than by stocking density. *Nature*. 427:342-344

5. RSPCA UK Freedom Food scheme

The RSPCA UK Freedom Food scheme for the welfare of dairy cattle is designed to assure consumers the product comes from animals raised with a high standard of welfare. This paper reports on an independent review of this scheme. The study compared various indicators of welfare on farms following the RSPCA UK Freedom Food scheme and farms that did not. The study examined farm records of conditions and disease incidence and recorded independent observations of the farm environment and the behaviour and physical circumstances of the cows. Results showed that, on the whole, animals had a better general body condition and lower incidence of mastitis in Freedom Food farms, but tended to have more leg and locomotion problems. The authors suggested that because farmers adhering to the FF standards spend more attention to cleanliness and hygiene their cows were in a better condition, but circumstances which were not investigated such as space in the barns may have been more restrictive leading to leg problems. There was no difference between the farms in milk production and breeding levels. No farm was found to have consistently poor levels of welfare, but each had different problems. These results were formed from a single half-day visit to each farm and subsequent analysis of farm records, and therefore have limitations, but may provide some useful evidence for the improvement in the standards applied under the scheme.

Main, DCJ; Whay, HR; Green, LE; Webster, AJF (2003) Effect of the RSPCA UK Freedom Food scheme on the welfare of dairy cattle. *The Veterinary Record*. 153:227-231

6. Tooth clipping in piglets

To prevent damage to the sow's udder and to littermates, the needle teeth of newborn piglets are often cut short by clipping or grinding. Many farmers consider this practice harmless, but there is contention regarding its long-term implications in terms of subsequent tooth and/or gum damage,

the pain inflicted on the piglet by the procedure, and the actual damage needle teeth can inflict on the piglet's mother and siblings. This French study looks at the effect of tooth shortening by two different methods on the microscopic structure of the teeth. Twenty newborn piglets were used in this experiment: each piglet had some teeth shortened by grinding and some shortened by clipping, the remaining teeth were left undisturbed. The piglets were then left to grow with their mother. Four piglets were killed each on day 3, 6, 13, 27 and 48 days after the operation. Teeth were extracted and examined under a microscope. Inspection of the teeth revealed lesions and abscesses similar to those that cause severe pain in human teeth. Teeth shortened by clipping had more damage than grinding, and teeth collected further in the experimental period had time to develop more problems. The authors conclude that teeth shortening in newborn piglets cause severe mouth and tooth pain and the validation of the practice should be re-evaluated.

Hay, M; Rue, J; Sansac, C; Brunel, G; Prunier, A (2004) Long-term detrimental effects of tooth clipping or grinding in piglets: a histological approach. *Animal Welfare*. 13: 27-32

7. The assessment of farm animal welfare

The November 2003 edition of *Animal Welfare* was dedicated to the proceedings of the 2nd International Workshop on the Assessment of Animal Welfare at Farm and Group Level. This workshop was aimed at discussing and developing reliable, practical, and comprehensive protocols and methods to determine the state of welfare in farm animals world wide, and how to match the science of animal welfare to the production process and values of consumers.

Webster, AJF; Main, DCJ (*Guest Editors*) (2003) Proceedings of the 2nd International Workshop on the Assessment of Animal Welfare at Farm and Group Level. *Animal Welfare*. 12(4)

Animals used for sport and recreation

8. Animal Welfare Forum

Each year the American Veterinary Medical Association holds an Annual Welfare Forum. In 2003 the topic was "The Welfare of Zoo Animals". The forum discussed why zoos and aquariums are good for people, animals and the environment; the focus points of zoos; ways to improve the well being of captive animals by training, environmental enrichment and stress relief and the long term goals and direction zoos are taking in the future.

American Veterinary Medical Association (2003) AVMA Animal Welfare Forum: The Welfare of Zoo Animals. *Journal of American Veterinary Medical Association*. 223(7): 958-980

Wildlife

9. Wildcats and dingoes

Scottish wildcats and Australian dingoes are able to breed with feral and domestic cats and dogs. It is therefore very difficult to define purebred animals for protection strategies and conservation management. This discussion paper argues that the current problem of distinguishing "natives" from "introduced" species should not be given the emphasis it currently has. The authors suggest existing populations of wildcats and dingoes, although probably not as genetically distinct as their

ancestors, still have important places in the ecosystem and the culture of the area and should be preserved in the state they are in today. Humans could help conserve the population by desexing companion animals and practicing effective pest animal control, and devoting more time and money to habitat protection.

Daniels, MJ; Corbett, L (2003) Redefining introgressed protected mammals: when is a wildcat a wild cat and a dingo a wild dog? *Wildlife Research*. 30:231-218

10. Translocated squirrels

In Australia, “problem” or “nuisance” animals such as possums and magpies are often moved from urban areas to less populated areas with the belief that it is better to relocate the animals than kill them. Similar problems occur in the United States with the Eastern grey squirrel. This paper shows that, in the case of squirrels, the animals seldom settle down or even survive in the new environment. Thirty-nine adult squirrels that had been reported by residents were caught from suburban backyards, fitted with radio collars and released into a research reserve. In less than two months all but one squirrel had died or disappeared (97%). This is considerably higher than the survival rate for “native” squirrels in the reserve (approximately 50%). These results support a number of other studies around the world and reinforce the fact that there are significant problems associated with relocation of “troublesome” animals. Other methods, such as exclusion from human residences or even humane killing may provide more humane and effective solutions to this problem.

Adams, LW; Hadidian, J; Flyger, V (2004) Movement and mortality of translocated urban-suburban grey squirrels. *Animal Welfare*. 13: 45-50

Humane killing

11. Is pain special?

A life free from pain is regarded as fundamental to a high quality of life for all organisms. But should physical pain outrank other forms of suffering? This commentary paper argues that there are many things which cause suffering and distress and physical pain should not be constantly segregated and considered more important than emotional pain, fear, anxiety, isolation, boredom, frustration etc. All should be considered equally when assessing the welfare of animals.

McMillan, FD (2003) A world of hurts – is pain special? *Journal of American Veterinary Medical Association*. 223(2): 183-186

12. Indicators of death in cetaceans

The International Whaling Commission has published three criteria for determining insensibility and death in whales and other cetaceans: relaxation of the lower jaw; no flipper movement and sinking without active movement. Only one of these criteria has to be met before the animal may be considered dead, and the interpretation may be influenced by personal subjectivity. A recent meeting of animal welfare scientists sponsored by RSPCA UK was held to discuss these criteria and develop a more thorough set of tests to determine the state of stranded or hunted whales. Thirty-five “yes/no” questions were developed and workshop participants ranked these in order of importance. Breathing rate, cardiac activity, coordinated swimming and eye surface temperature were considered the most valuable indicators of consciousness, unconsciousness or death. The

participants concluded that decision regarding the state of a cetacean should not be based on one single test, but a combination of these. The results of the survey showed that experts consider the current standards to be inadequate and needs to be revised as soon as possible.

Butterworth, A; Sadler, L; Knoelrd, TG; Kestin, SC (2004) Evaluating possible indicators of insensibility and death in cetaceans. *Animal Welfare*. 13:13-17

13. Stunning catfish

The most common method used in the Netherlands to prepare catfish before processing is to chill them in iced water. An alternative to this method may be electrical stunning, and this report investigates the minimum current required to render fish unconscious and whether fish can still respond after stunning. Various voltages were applied to 58 African catfish and measurements of brain and heart activity were taken by electroencephalogram (EEG) and electrocardiogram (ECG). It was found that by applying minimum voltages of 350V and current of 600 mA for 1.2 seconds, at least 91% of the fish were deemed to be unconscious. The fish recovered after about 23 seconds. Another experiment was carried out to determine the effect of pre-stunning and killing by gill cutting on the response to noxious stimuli. Seven fish were stunned using the minimum voltage determined by experiment one and then killed by gill cutting. The response to noxious stimuli (jumping after pricking the tail) was observed, and two fish there was still showing a response for up to five minutes. Control fish where were killed but not pre-stunned showed responses for up to fifteen minutes. The results of these experiments showed that the minimum voltage required to render catfish unconscious was 350 Volts, but fish still respond to noxious stimuli after this procedure, indicating that more research is required to optimise the stunning procedure.

Lambooi, E; Kloosterboer, RJ; Gerritzen, MA; van de Vis, JW (2003) Head-only electrical stunning and bleeding of African catfish (*Clariad gariepinus*): assessment of loss of consciousness. *Animal Welfare*. 13:71-76

Miscellaneous

Science in the Service of Animal Welfare

The February 2004 edition of *Animal Welfare* published a supplement volume detailing the proceedings of the UFAW International Symposium on “Science in the Service of Animal Welfare”. The aim of the symposium was to discuss how to apply and transfer animal welfare science to animals under human care. Issues focused on were different methods of monitoring and assessing animal welfare, public opinion and what is acceptable to our society, the role of animal welfare scientists and how to implement the science into the practice of animal welfare.

Kirkwood, JK; Roberts, EA; Vickery, S (*Editors*) (2003) Proceedings of the UFAW International Symposium: Science in the Service of Animal Welfare. *Animal Welfare Volume 13 Supplement*

Other papers received by RSPCA Australia this quarter

- D'Eath, RB; Keeling, LJ. (2003) Social discrimination and aggression by laying hens in large groups: from peck orders to social tolerance. *Applied Animal Behaviour Science*. 84: 197-212

- Estevez, I; Keeling, LJ; Newberry, RC. (2003) Decreasing aggression with increasing group size in young domestic fowl. *Applied Animal Behaviour Science*. 84: 213-218
- Forsyth, DM; Hone, J; Parkes, JP; Reid, GH; Stronge, D. (2003) Feral goat control in Egmont National Park, New Zealand, and the implication for eradication. *Wildlife Research*. 30: 437-450
- Lewis, RS; Hurst, JL. (2004) The assessment of bar chewing as an escape behaviour in laboratory mice. *Animal Welfare*. 13: 19-27
- Macdonald, DW; Baker, SE. (2004) Non-lethal control of fox predation: the potential of generalized aversion. *Animal Welfare*. 13: 77-87
- Rochlitz, J. (2004) The effects of road traffic accidents on domestic cats and their owners. *Animal Welfare*. 13: 51-57
- Turner, SP; Horgan, GW; Edwards, SA. (2003) Assessment of sub-grouping behaviour in pigs housed at different group sizes. *Applied Animal Behaviour Science*. 83: 291-302
- Waiblinger, S; Menke, C; Korff, J; Bucher, A. (2004) Previous handling and gentle interactions affect behaviour and heart rate of dairy cows during a veterinary procedure. *Applied Animal Behaviour Science*. 85: 31-42
- Wilson, ML; Bloomsmith, MA; Maple, TL. (2004) Stereotypic swaying and serum cortisol concentrations in three captive African elephants (*Loxodonta africana*). *Animal Welfare*. 13: 39-45.