Institution: University of Lincoln

Unit of Assessment: UOA6

Title of case study: Effect of Electronic Training Aids (E-collars) on Pet Welfare

1. Summary of the impact

Our research into the use, welfare consequences and efficacy of handheld e-collars in pet dog training is directly linked to current Government policy. It has stimulated debate and action by both anti-collar campaigners and the manufacturing industry; e.g. industry bodies are now working with Government to produce guidelines to reduce risks identified. Further, the success of our research approach has encouraged new investors in similar work, i.e. the welfare impact on cats of electronic containment systems that depend on proximity to a boundary to reliably trigger a warning tone prior to any aversive stimulus – a previously unresearched area and unresearched species.

2. Underpinning research

1. A critical appraisal of published literature, and analysis of data from a public call for evidence on experience with e-collars (CAWC Committee Report[1]- Mills 2008-12). This systematically established the assumptions and quality of evidence both for and against the use of these devices. It identified that whilst there was good evidence to indicate that these devices ***could*** cause suffering, there was insufficient evidence to confidently infer that they ***necessarily*** caused welfare problems. Critically, the research identified key gaps in our knowledge and understanding, including: the absence of research to test the claim that e-collars are essential for the effective treatment of any problem; an important distinction between hand-held devices, which depend on an operator for activation and boundary fence systems, where the animal's behaviour intrinsically controls the delivery of the aversive stimulus.

2. Model building and field study (Defra Project AW1402[2], £469k – Cooper, Lincoln and FERA, University of Bristol 2008),

Firstly we developed a realistic *in vitro* model of the relevant properties of a dog's neck skin (wet and dry) that affect electrical conduction and pain perception *in vivo.* This allowed, for the first time, the assessment of e-collar products by probable severity in vivo according to their design and settings[3].

Secondly (Cooper, Mills, Ligout, Wright, Lincoln, with colleagues at University of Bristol), we undertook the first large scale case-controlled field study of pet dogs who had previously experienced training with e-collars, to evaluate evidence for long term welfare problems. This established that there was a sub-population of e-collar, but not control, dogs that showed behavioural and physiological signs of welfare concern. The study confirmed the CAWC finding that recall-related problems (e.g. livestock chasing) were the commonest indication for e-collar use in U.K. pets.

3. Comparison of training efficacy and welfare of dogs using versus not-using an e-collar (Defra Project AW1402a[4], £69.9k Cooper, Mills, Cracknell and Hardiman, Lincoln 2010). This evaluated differences between dogs with recall problems being managed using e-collars versus a reward-based training programme. Best practice procedures were assured by using trainers either recommended by Electronic Collar Manufacturer's Association (ECMA), or affiliated to the Association of Pet Dog Trainers (APDT). Owners were generally satisfied regardless of training method, but those who worked with reward-based training were more confident of applying the training themselves. More potential signs of distress and less environmental interaction were recorded in the e-collar trained group. There was an elevation in corticosteroids in e-collar dogs on return to the training context, which suggested a conditioned aversion. The results established that e-collar use is not significantly more effective than reward-based training, but carries more risks to dog welfare.

3. References to the research

1. CAWC 2012. The use of electric pulse training aids (EPTAs) in companion animals. Report by Companion Animal Welfare Council Working Group. Chair Daniel Mills. Members. Published 10 September 2012. Available from: www.cawc.org.uk/node/103
2. Defra AW1402 (2013) Studies to assess the effect of pet training aids, specifically remote static pulse systems, on the welfare of domestic dogs. University of Lincoln / University of Bristol / Food and Environment Research Agency. Final report prepared by Prof. Jonathan Cooper, Dr.

Hannah Wright, Prof. Daniel Mills (University of Lincoln); Dr. Rachel Casey, Dr. Emily Blackwell (University of Bristol); Katja van Driel (Food and Environment Research Agency); Dr. Jeff Lines (Silsoe Livestock Systems). Published June 10th 2013. randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=17568

3. Lines, J. A. and van Driel, K. and Cooper, J. J. (2013) *The characteristics of electronic training collars for dogs.* Veterinary Record, 172 (11). p. 288. ISSN 0042-4900: dx.doi.org/10.1136/vr.101144

4. Defra AW1402a (2013) Studies to assess the effect of pet training aids, specifically remote static pulse systems, on the welfare of domestic dogs; field study of dogs in training. Final report prepared by Prof. Jonathan Cooper, Dr. Nina Cracknell, Jessica Hardiman and Prof. Daniel Mills (University of Lincoln). Published June 10th 2013. randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=15332

4. Details of the impact

The use of e-collars (or "shock collars") to train pets is a controversial and emotive subject globally. Proponents claim they are valuable tools for addressing undesirable behaviours such as livestock worrying and save lives as a result; whilst opponents claim they are "barbaric" and unnecessary. Following the creation of the Animal Welfare Act in 2006, National and local UK governments came under sustained pressure from organisations such as the RSPCA and Kennel Club to ban these devices (1,2,3). However Defra determined there was insufficient research of a suitably rigorous scientific nature to introduce an evidence-based blanket ban on their use across the UK. Consequently they launched competitive tenders in 2007 to investigate the physical properties of owner-operated electronic collars, their use in the UK, their consequences for dog welfare and their efficacy in addressing referred behaviours. Our engagement with stakeholders at the time (e.g. Mills working with CAWC which was feeding into DEFRA) and expertise in managing other controversial projects (e.g. Cooper's work on battery hens), along with our research reputation in clinical animal behaviour, meant the University of Lincoln was in a strong position to lead successful initial and follow-up bids for this research.

Annual progress reports were presented to stakeholders from Defra, the Welsh Assembly (who unilaterally introduced a ban in 2010 (4)) and Scottish Government (who delayed introduction of planned legislation pending the results of our research). Whilst maintaining the necessary confidentiality of results, the project team continued to maintain a dialogue with other interest groups on both sides of the debate, such as the Kennel Club, Association of Pet Dog Trainers (APDT) and industry representatives such as Electronic Collar Manufacturers Association (ECMA). This included distribution of detailed research methodologies, discussion of training approaches and recruitment of trainers for study, and in case of ECMA providing copy of raw data for independent analysis of study findings, in order to maintain confidence in the integrity of the results as and when they were made available.

Following lengthy deliberation by government policy makers, Defra published the study reports in June 2013, having prepared policy statements for use by UK Governments (5). This initiated publicity campaigns by UK Kennel Club (6) and ECMA (7), national media attention (8,9) and discussion by veterinary (6), pet training (10) and pet owning interest groups (9), globally, partly managed by our Press Office. The research has therefore had major impact on legislators, campaign groups and the pet industry, specifically:

Government Policy: Defra and Scottish Parliament (5) have now indicated that they do not plan to introduce legislation on electronic training aids but will work with industry on standards and use, the Welsh Assembly will review the ban in Summer 2014.

Industry: ECMA is working with Defra on self-regulation; changing its processes to address issues raised in the study (7). These include a revision of the quality of training manuals, tighter regulation of outputs of devices and a change in the standards used for reporting of collar electrical outputs in line with techniques developed during the study.

Culture and Society: Campaigners against the use of e-collars In the U.K. and abroad (e.g. Canada, see: www.banshockcollars.ca/alerts.php) have used the results to strengthen their

argument for an outright ban. For example the Kennel Club (6,8,9) have highlighted our finding that e-collars are not significantly more effective, but pose greater welfare risks than reward based training for even severe problems such as livestock chasing. Likewise training groups such as APDT have used our results to support their policy opposing the use of aversives in training.

Animal Health and Welfare: Not only are these results impacting directly on animal welfare, with changes being implemented by industry, but by raising awareness of our potential to address such issues, we have engaged with other stakeholders to address their concerns. For example, following a series of meetings with trustees of the charity Feline Friends (Derbyshire), they donated £100k to the University to support research aimed at addressing the impact of electronic containment systems ("invisible fences") on cats; systems and species devoid of research as noted in the CAWC report.

Our research impacts on important concerns for society in the U.K. and abroad. By working with stakeholders at all stages of the process, we have been able to produce impacts that are deep and wide ranging, influencing government policy, industry practice, advocacy and the culture of pet trainers and owners considering their use globally.

5. Sources to corroborate the impact

1. House of Commons Hansard Report 2007. Electric shock training devices bill. 2nd reading.
www.publications.parliament.uk/pa/cm200607/cmhansrd/cm070427/debtext/70427-0003.htm
www.publications.parliament.uk/pa/cm200607/cmhansrd/cm070427/debtext/70427-0004.htm
www.publications.parliament.uk/pa/cm200607/cmhansrd/cm070427/debtext/70427-0005.htm

2. Scottish Government 2009. Analysis of responses to the consultation on the use, sale, distribution and possession of electronic training aids.
www.scotland.gov.uk/Publications/2009/07/28114139/1

3. Welsh Government Cabinet Statements 2008. Electric shock collars.
wales.gov.uk/about/cabinet/cabinetstatements/2008/electricshockcollars/?lang=en

4. The Animal Welfare (Electronic Collars) (Wales) Regulation 2010.
www.legislation.gov.uk/wsi/2010/943/contents/made

5. Defra Policy Statement (10 June 2013).

6. Vetsonline (25 July 2013). Calls for shock collar ban after damning research.
www.vetsonline.com/actualites/detail/68294/calls-for-shock-collar-ban-after-damning-research.html

7. Electronic Collar Manufacturers Association 2013. Latest news including statements on published work. www.ecma.eu.com/accueilen.htm

8. Daily Telegraph (25 July 2013) Official studies strengthen case for electric collar ban, says dog group. www.telegraph.co.uk/lifestyle/pets/10200202/Official-studies-strengthen-case-for-electric-collar-ban-says-dog-group.html

9. BBC Breakfast News (27 July 2013). www.petforums.co.uk/dog-chat/317635-bbc-breakfast-shock-collars.html

10. Association of Pet Dog Trainers (21 June 2013). Latest report on shock collars.
www.apdt.co.uk/news/latest-report-on-shock-collars-2013-06-21