Institution:
University of Lincoln

Unit of Assessment:
6 – Agriculture, Food and Veterinary Sciences

Title of case study:
Evidence-Based Legislation: Use of Electronic Training Aids in Companion Animals

Period when the underpinning research was undertaken:
2008 - 2013

Details of staff conducting the underpinning research from the submitting unit:

Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
COOPER Jonathan	Associate Professor in Animal Behaviour and Welfare	1 Jan 98 to date
MILLS Daniel	Professor of Veterinary Behavioural Medicine	18 Apr 94 to date

Period when the claimed impact occurred:
2015 to date

Is this case study continued from a case study submitted in 2014?
Y

1. Summary of the impact (indicative maximum 100 words)

The use of e-collars or "shock" collars in dog training is highly controversial. Opponents state their use is cruel and unnecessary, whilst advocates claim they are an effective tool to address challenging behavioural problems. DEFRA funded research at University of Lincoln demonstrated that these devices carry substantial risks to dog welfare and are no more effective than reward-based training at addressing behavioural problems. The work has been the key evidence base for policy review leading to maintenance of existing bans and introduction of new legislation in UK and abroad to control their sale and use.

2. Underpinning research (indicative maximum 500 words)

Electronic training aids (or e-collars) include a range of devices used in dog training, such as hand operated training collars, anti-bark collars, and invisible fence containment systems [reference 1]. These work by delivering an electronic stimulus, normally via collar born electrodes to the dog's neck, but successful training particularly using remote, hand operated devices relies on accurate timing by operator [1,2,5]. The use of e-collars (or "shock collars") in pet animal training is a controversial and emotive subject, with advocates of their use claiming they are valuable tools for addressing undesirable behaviours such as livestock worrying and saving pet lives as a result; whilst opponents of their use claim they are cruel, barbaric and unnecessary. Although calls to ban use of e-collars were considered during introduction of the Animal Welfare Act (2006), the UK government determined there was insufficient relevant research of a suitably rigorous nature to introduce a blanket ban. Consequently, DEFRA commissioned research in 2008 (AW1402) and 2010 (AW1402a) to investigate the physical properties of hand operated e-collars, their use in the UK, their consequences for dog welfare and their efficacy in addressing referred behaviours. University of Lincoln also led Companion Animal Welfare Council's (CAWC) review of the use of all forms of e-collar [1] and completed a substantial field study investigating invisible fence containment systems in cats [6].

The CAWC review [1] critically appraised existing literature and whilst we found there was strong evidence that these devices can cause suffering, it could not be concluded that this suffering was unnecessary. We also identified a clear distinction between handheld training devices which depend on an operator's competence and boundary fence systems in which the animal's behaviour intrinsically controls the delivery of the aversive stimulus.

Project AW1402 [2,4] reviewed the design of handheld devices and assessed their potential to cause pain in dogs. We found that e-collar trained dogs showed significantly more behavioural and physiological signs of poor welfare compared to dogs trained by positive reinforcement. We

also verified that recall-related problems, such as livestock chasing were the commonest reason for e-collar use and that inappropriate use by owners led to unacceptable suffering and poor training outcomes in pet dogs. We concluded that effective use of the devices relied on skilled operation, and that the general dog owning population lacked the knowledge and understanding to achieve desirable outcomes without unnecessary suffering for dogs [2,5].

Professional dog trainers could, however, have the skills and experience to modify dog behaviour using e-collars without substantial adverse effects on welfare. Project AW1402a, therefore, conducted a "gold-standard" assessment of dog welfare and training efficacy involving professional trainers with experience of the use of these devices [3,5,7]. This project demonstrated that even where professional trainers used e-collars, there were unacceptable welfare risks to the dogs during training compared to dogs trained using reward-based training. Furthermore e-collar training was no more effective than reward-based training for addressing challenging off lead problems such as poor recall and livestock chasing [3,5,7].

3. References to the research (indicative maximum of six references)

3.1 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. http://eprints.lincoln.ac.uk/14640/1/CAWC%20ecollar%20report.pdf

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

3.3 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 Jonathan Cooper, Nina Cracknell, Jessica Hardiman and Daniel Mills (University of Lincoln). Published June 10th 2013. Available from http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=15332 http://eprints.lincoln.ac.uk/14566/3/__ddat01_staffhome_bjones_Downloads_11168_AW1402aSID5FinalReport.pdf

3.4 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: http://dx.doi.org/10.1136/vr.101144 https://veterinaryrecord.bmj.com/content/vetrec/172/11/288.full.pdf

3.5 Cooper, J.J., Cracknell, N., Hardiman, J., Wright, H. and Mills, D. 2014. The welfare consequences and efficacy of training pet dogs with remote electronic training collars in comparison to reward based training. PLoSONE 9: e102722. https://doi.org/10.1371/journal.pone.0102722

3.6 Kasbaoui, Naïma, Cooper, Jonathan, Mills, Daniel S. et al (2016) *Effects of long-term exposure to an electronic containment system on the behaviour and welfare of domestic cats.* PLOS One, 11 (9). e0162073. ISSN 1932-6203 https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0162073 http://eprints.lincoln.ac.uk/25199/1/25199%20journal.pone.0162073.PDF

3.7 China, L., Mills, D.S. and Cooper J.J. 2020. Efficacy of Dog Training With and Without Remote Electronic Collars vs. a Focus on Positive Reinforcement. https://doi.org/10.3389/fvets.2020.00508

4. Details of the impact (indicative maximum 750 words)

Our evidence that e-collars are no more effective than reward based training, but carry greater risks to dog welfare, has resulted in changes in government policy to restrict use in UK and abroad, as well as greater awareness in dog owning population, such that use has declined from 6% of dogs in UK in 2013 to 1% of dogs in 2019.

In summary, the direct impact of our research on UK Policy (*See 'A' below*) includes:

1. Upholding ban on e-collars in Wales (Lysons 2015) **[5.1]**
2. Prohibiting use in dog training in Scotland (Scottish Executive 2018) **[5.2]**
3. Commitment to ban sale and use across UK (DEFRA 2018) **[5.3]**

Internationally the research has resulted in (*detailed in B*):

1. Maintaining restriction of use in Norway (Mejdell et al 2017) **[5.4]**
2. Policy change by key European professional body (ESVCE 2018) **[5.5]**
3. Banning use in dog training in Holland from 1st July 2020 **[5.6]**

A: Impact on UK Government Policy

We had regular steering meetings with representatives of DEFRA, Welsh Assembly and Scottish Executive to present provisional findings and final reports. Prior to completion of project, the Welsh Assembly banned use of e-collars, but were subsequently challenged by Electronic Collar Manufacturers Association. The first tangible evidence of the impact of our research was therefore its extensive citing in the Welsh Assembly's defence and subsequent upholding of the ban (Lysons 2015, **[5.1]**).

In October 2015, we presented our research and its policy implications to stakeholders at Scottish Executive and these were included in subsequent launch of public consultation on use of e-collars in pet training (Scottish Executive 2015, **[5.7])**. The consultation concluded restriction on use was required and we presented our research at a stakeholder meeting held in the Scottish Parliament in November 2017, organised by UK Kennel Club, attended by MSPs from all parties and representatives for veterinary, welfare and dog training bodies **[5.8]**. We discussed the potential impact of alternative approaches and – in accordance with the Kennel Club's view based on our research **[5.9]** - concluded that total ban was more appropriate approach to minimize risk to dog welfare.

In January 2018 we attended the debate in Scottish Parliament on use of e-collars in pet training, where we had a further opportunity to present the research work to MSPs. The opening statements by MSP Maurice Golden, cited our research as main evidence for introducing a ban, and this was widely supported by representatives from all parties (Official Record Jan 25 2018, **[5.2])**. The session concluded with a statement that Scottish Government would preclude use of e-collars in cat and dog training and guidance was formally introduced in October 2018 (Scottish Executive 2018, **[5.2])**. Without completion of our extensive research and subsequent dissemination to stakeholders, it is unlikely that such unambiguous, evidence-based legislation would have been introduced.

Following further presentations to Westminster MPs in March 2018, a UK wide consultation was launched which again cited our published research as background for potential introduction of regulation (Defra Consultation Launch, **[5.10]**). The responses also cited our research as key evidence to support ban on use of remote training collars and DEFRA announced commitment for a ban on sale and use of hand operated e-collars in dog training across UK **[5.3]**. Legislation

is expected to be presented to parliament following completion of legal processes in spring 2021.

B: Impact on International Policy

The most significant verifiable evidence of impact has been in Europe, with research used to justify continued restricted use of e-collars in dog training for example in Norway **[5.4]** and changes in professional body's position on e-collar training and which has supported introduction of new legislation in Netherlands **[5.6]**.

In 2017, the Norwegian Government commissioned a review of use of electronic stimuli in a wide range of animal management contexts included electric fencing for containing livestock and the use of remote e-collars in dog training with a view to policy review. This review included our research on remote e-collars as key evidence to maintain their ban of use of e-collars in dog training, except under extreme life-threatening situations **[5.4]**.

The European Society of Veterinary Clinical Ethologists, a key body influencing veterinary position across Europe, have shifted their policy to strongly oppose use of e-collars in dog training and to advocate that European governments review their policy regarding use on e-collars on welfare grounds **[5.5]**. This change in position has followed reviews of evidence by its members, regarding dog welfare and training, which cite our research regarding efficacy and welfare concerns with e-collar training (Masson et al 2018, **[5.5]**). This shift in veterinary position has in turn led to national legislation, with Dutch government banning of e-collars in dog training from July 2020, using change in ESVCE policy statement on e-collars as justification for ban **[5.6]**.

5. Sources to corroborate the impact (indicative maximum of 10 references)

5.1 Lysons R. 2015 A review of recent evidence in relation to the welfare implications for cats and dogs arising from the use of electronic collars. The Welsh Assembly Government. Available from https://gov.wales/electronic-collars-dogs-and-cats-review-welfare-implications

5.2 Scottish Parliament Official Report 25 January 2018 and Guidance on Use of E-collars October 2018.

5.3 Defra Statement on banning e-collars August 2018.

5.4 Norway Review.

5.5 ESCVE Paper and Position Statement (Testimonial).

5.6 Announcement of Dutch Legislation.

5.7 Scottish Executive Public Consultation on Use of electronic Training Aids. November 2015.

5.8 Meeting with MSPs November 2017 (Testimonial).

5.9 Kennel Club Briefing paper on prohibiting electronic training aids.

5.10 Defra Announcement of Consultation March 2018.