

## 1 Discussion point

### 2 Prevention of sheep worrying in the UK: Rethinking the approach

3

4 James A. Oxley<sup>1</sup>, Brian Evans<sup>2</sup> and V. Tamara Montrose<sup>2</sup>

5

6 <sup>1</sup> Independent Researcher, 35 Farnes Drive, Gidea Park Romford, Essex, RM2 6NS,

7 UK

8 <sup>2</sup> Department of Animal and Agriculture, Hartpury University Centre, Hartpury GL19

9 3BE, Gloucestershire, UK.

10

11 Contact: [James\\_oxley1@hotmail.com](mailto:James_oxley1@hotmail.com)

12 Keyword: Sheep, Worrying, Dogs, Prevention

13

## 14 Introduction

15 Livestock worrying occurs when dogs attack or chase livestock, and also describes

16 dogs simply being at large in a field containing livestock (Dogs (Protection of

17 Livestock) Act, 1953). Under this act if a dog worries livestock the person in charge of

18 the dog is guilty of an offence and may risk prosecution. Owners may also be liable to

19 pay compensation to farmers for livestock deaths or injuries (Animals Act, 1971).

20 Farmers may also shoot dogs which are attacking or chasing livestock (Animal Act,

21 1971). Worrying can have a significant impact on livestock as pregnant ewes may

22 abort lambs and worrying can cause significant injury, mis-mothering, suffering and

23 even death (Phythian et al., 2011; National Sheep Association, 2016). From the

24 farmer's perspective, attacks on livestock also cause various problems including

25 stress, anxiety, concerns about reduced animal welfare and financial losses (National  
26 Sheep Association, 2016).

27

28 Livestock worrying has been frequently noted in past years within the UK (e.g.,  
29 Ainsley, 1968) and to date continues to remain commonplace (Stocker et al., 2015). A  
30 general increase in the annual incidents of dog worrying was recorded by police forces  
31 from 2011-2015 (e.g., 2011: 691 cases; 2012: 738 cases; 2013: 1074 cases; 2014:  
32 1002 cases; 2015: 1069 cases) (National Sheep Association, n.d.-a). It is important to  
33 note that these figures are likely to be lower than the actual occurrence due to under-  
34 reporting by farmers (e.g., only 37% of sheep farmers were noted to contact the police  
35 every time they have an attack) (National Sheep Association, 2016) and not all cases  
36 are evident in police reports (National Sheep Association, n.d.-a). Recently, the  
37 National Farmers Union Scotland also stated that an increase in livestock worrying  
38 incidents from 93 to 133 occurred from 2014-2015 (NFU Scotland, 2016). The National  
39 Sheep Association's 2016 survey highlighted that 33% of farmers suffered between  
40 two and five attacks each year (with some respondents encountering 50-100 or even  
41 greater incidents) with on average five sheep being injured and four sheep being killed  
42 (National Sheep Association, 2016).

43

#### 44 Method

45 To further investigate the recent incidence of sheep worrying as a result of dog attacks  
46 in 2016, the authors searched and reviewed online news articles, through Google  
47 news (UK pages only) in local and national news within the UK. The search terms  
48 were ('Sheep' OR 'Livestock') AND ('Worrying') AND ('Dog').

49

## 50 Results and Discussion

51 In total 20 news articles were found between January and July 2016. Of those articles  
52 which provided specific figures, 217 sheep in total were killed (average 11.4; ranging  
53 from 0 – 116 per incident) and 22 sheep in total were injured (average 1.8; ranging  
54 from 0 – 6 per incident). Of those sheep injured, the main body locations were the  
55 neck, shoulders and legs. In the majority of these cases (15/20) the owners or dog  
56 could not be located. For three of the incidents an individual was charged by the police.  
57 In two cases the dogs involved were shot as a result of attacking sheep. Of the 20  
58 incidents, seven occurred in March, four in April, four in June, two in February, two in  
59 July and one in January. This pattern is possibly representative of seasonal patterns  
60 resulting in an increase in dog walking in rural locations, or associated with the  
61 presence of lambs which could spur attacks by dogs. A concerning aspect of these  
62 news articles is that in four cases it was stated that these incidents of sheep worrying  
63 had occurred at the location on multiple previous occasions.

64

65 There is a key focus on methods to prevent livestock worrying. The National Sheep  
66 Association (2016) found that 64% of sheep farmers put warning posters/signs up on  
67 their land stating that dogs need to be kept on the lead. However, previous research  
68 suggests that online advice of best practice may vary for dog walkers in fields where  
69 livestock are kept (Fraser-Williams et al., 2015). Additional prevention methods and  
70 campaigns have included the Kennel Club and the National Farmers Union  
71 collaborating to provide information to dog owners (NFU, 2015). This has included the  
72 utilisation of signs and posters informing walkers of the need to place their dogs on a  
73 lead. Similarly, the National Sheep Association have also issued guidance for farmers  
74 (National Sheep Association, n.d.-b) and provided plastic signs free of charge,

75 highlighting the need to keep dogs on a lead and noting that permitting dogs to chase  
76 or attack sheep is a serious welfare offence (National Sheep Association, n.d.-c). In  
77 addition, the National Sheep Association, in conjunction with the Sheep Veterinary  
78 Society and Farmers Guardian produced a poster for veterinary surgeries highlighting  
79 that livestock worrying is a criminal offence which may result in fines or prosecution,  
80 the welfare implications for sheep and that the dog may be shot or destroyed (National  
81 Sheep Association, n.d.-c; Stocker et al., 2015). Initiatives such as 'SheepWatch UK'  
82 have also been set up to record dog attacks on sheep, investigate the cost of such  
83 attacks and aim to educate the public (Sheepwatch UK, n.d.). Despite these efforts,  
84 incidents of sheep worrying are a frequent occurrence.

85

86 Owner awareness and understanding of the impact of livestock worrying is a  
87 fundamental factor in preventing these incidents. Despite current campaigns,  
88 continuing education to improve awareness and compliance is needed for dog owners  
89 to ensure that dogs are kept on leads when near to livestock and that owners are  
90 aware of where their dogs are at all times. Further consideration of how best to prevent  
91 sheep worrying would be beneficial. Currently prevention materials tend to  
92 predominantly focus on the dangers of fines and prosecution, and on sheep welfare  
93 (NFU, 2015; National Sheep Association, n.d.-c). While these are important  
94 considerations, increased focus on the dangers to the dog in terms of being shot or  
95 having a destruction order placed on them may be beneficial in increasing owner  
96 concern. Over 305 dogs have been killed by farmers for livestock worrying over the  
97 past six years in England and Wales, with an average of one dog a week being shot  
98 (BBC news, 2016). Whilst dog owners may oppose measures that are perceived to

99 restrict the freedom of their pets (e.g., Williams et al., 2009), concern over the loss of  
100 their dog may encourage compliance with leashing.

101

102 Another method that may encourage greater leashing of dogs around sheep may  
103 relate to strategies that encourage compliance with social norms or pro-social  
104 behaviour. Compliance with social norms can encourage owners to clean up their  
105 dog's faeces (Webley and Siviter, 2000; Lowe et al., 2014). Dog owners are also more  
106 likely to keep dogs on their leads when they believe others expect their dogs to be  
107 leashed (e.g., Williams et al., 2009). Greater focus on promoting the concept that most  
108 dog owners keep their dogs on leads when walking near sheep, and that doing so is  
109 an important aspect of responsible pet ownership may be of value. Adapting signs to  
110 encourage prosocial behaviour may also be useful. Images of watching eyes can  
111 reduce the occurrence of antisocial behaviour such as littering (Ernest-Jones et al.,  
112 2011; Bateson et al., 2013) and bicycle theft (Nettle et al, 2012). Incorporation of  
113 watching eye images on preventative signs and posters may also be useful in this  
114 context.

115

116 A further consideration could involve making dog owners better consider the threat  
117 that their dog poses to the sheep. The National Sheep Association (2016) found that  
118 farmers believed that one of the most common causes of sheep worrying was owners  
119 not thinking that their dog would attack or chase livestock. There is a danger that while  
120 owners may recognise that dogs in general pose a threat to other animals, they do not  
121 believe this to be true of their own dog. Owners may feel more compelled to keep their  
122 dog on a lead when they better recognise that their dog represents a threat to other  
123 animals (Williams et al, 2009). Greater owner education and a focus in preventative

124 materials on ensuring that owners recognise the dangers posed by their dog to sheep  
125 may be beneficial and help to combat the potential belief by owners that their own dog  
126 is different and not a threat.

127

128 In contrast to sheep worrying, livestock guarding dogs are currently used to protect  
129 livestock on farms in a number of countries and have been found to be a highly  
130 efficient, environmentally friendly and non-lethal method of protecting livestock (van  
131 Brommel and Johnson, 2015; Potgieter et al., 2015). However, to the authors'  
132 knowledge minimal research has investigated the use of these dogs in the UK and  
133 how effective they are.

134

135 In conclusion, further investigation is needed into methods to prevent livestock  
136 worrying. Consideration and testing of the efficacy of new prevention materials and  
137 approaches is important. Systematic study of how best to appropriately inform dog  
138 walkers of the risks and dangers of worrying, as well as exploration of dog owners'  
139 perception of the likelihood, outcomes and prevalence of worrying is warranted. The  
140 death rate of ewes and lambs, as well as the rate of incidence, also needs to be  
141 accurately assessed and the economic effects of these rates highlighted within the  
142 UK. Assessment of police and local council support provided for worrying would also  
143 be beneficial. Further study of worrying could also be undertaken with sheep farmers  
144 to investigate this topic in more detail. Gathering information ranging from qualitative  
145 interviews into the impacts of worrying on farmers (e.g., both psychological and  
146 financial) to in-depth quantitative records of incidents, e.g., such as farm information  
147 (size, set-up, security, fencing type, etcetera), location (public paths through/near farm

148 and distance, footfall), frequency of previous incidents, identification of cause of attack,  
149 and prevention methods used will be helpful in elucidating the scale of the problem.

150

151 Conflict of interest: None

152

153

154

155

156

## 157 **Reference**

158 Ainsley, J.K., 1968. A Case of Sheep Worrying, *The Police Journal*. 41, 27

159

160 Animal Act, 1971. Legislation. Available at:

161 <http://www.legislation.gov.uk/ukpga/1971/22/contents> Accessed July 6, 2016.

162

163 Bateson, M., Callow, L., Holmes, J.R., Roche, M.L.R., Nettle, D., 2013. Do images of  
164 'watching eyes' induce behaviour that is more pro-social or more normative? A field  
165 experiment on littering. *PloS one*. 8: e82055.

166

167 BBC News, 2016. Hundreds of dogs shot for worrying sheep. Available at:

168 <http://www.bbc.co.uk/news/uk-england-35960051> Accessed July 28, 2016

169

170 Dogs (Protection of Livestock) Act, 1953. Legislation. Available at:

171 <http://www.legislation.gov.uk/ukpga/Eliz2/1-2/28> Accessed July 27, 2016

172

173 Ernest-Jones, M., Nettle, D., Bateson, M., 2011. Effects of eye images on everyday  
174 cooperative behavior: a field experiment. *Evolution and Human Behavior*. 32: 172-  
175 178.

176

177 Fraser-Williams, A.P., McIntyre, K.M., Westgarth, C., 2016. Are cattle dangerous to  
178 walkers? A scoping review. *Injury prevention*. 0 1-5.

179

180 Lowe, C.N., Williams, K.S., Jenkinson, S., Toogood, M., 2014. Environmental and  
181 social impacts of domestic dog waste in the UK: investigating barriers to behavioural  
182 change in dog walkers. *International Journal of Environment and Waste*  
183 *Management*. 13: 331-347.

184

185 National Sheep Association, 2016. Sheep worrying by dog survey (April 2016).  
186 Available at: <http://www.nationalsheep.org.uk/workspace/pdfs/2016-results.pdf>  
187 Accessed July 27, 2016.

188

189 National Sheep Association, n.d.-a. Sheep worrying survey results. Available at:  
190 [http://www.nationalsheep.org.uk/dog-owners/sheep-worrying/2462/sheep-worrying-](http://www.nationalsheep.org.uk/dog-owners/sheep-worrying/2462/sheep-worrying-survey-results/)  
191 [survey-results/](http://www.nationalsheep.org.uk/dog-owners/sheep-worrying/2462/sheep-worrying-survey-results/) Accessed July 29, 2016.

192

193 National Sheep Association, n.d.-b. Advice for farmers. Available at:  
194 <http://www.nationalsheep.org.uk/dog-owners/advice-for-farmers/> Accessed July 28,  
195 2016.

196



197 National Sheep Association, n.d.-c. Dog Control Signs. Available at:  
198 <http://www.nationalsheep.org.uk/dog-owners/dog-control-signs/> Accessed July 27,  
199 2016.

200

201 Nettle, D., Nott, K., Bateson, M., 2012. 'Cycle thieves, we are watching you': impact  
202 of a simple signage intervention against bicycle theft. PloS one. 7, e51738.

203

204 NFU, 2015. New partnership for NFU and The Kennel Club. Available at :  
205 [http://www.nfuonline.com/back-british-farming/love-your-countryside/new-  
206 partnership-for-nfu-and-the-kennel-club/](http://www.nfuonline.com/back-british-farming/love-your-countryside/new-partnership-for-nfu-and-the-kennel-club/) Accessed July 28, 2016.

207

208 NFU Scotland, 2016. Livestock Worrying Incidents Highest for Six Years. Accessed  
209 at: [http://www.nfus.org.uk/news/2016/march/livestock-worrying-incidents-highest-six-  
210 years](http://www.nfus.org.uk/news/2016/march/livestock-worrying-incidents-highest-six-years) Accessed July 27, 2016.

211

212 Phythian, C.J., Michalopoulou, E., Jones, P.H., Winter, A.C., Clarkson, M.J.,  
213 Stubbings, L.A., Grove-White, D., Cripps, P.J. & Duncan, J.S., 2011. Validating  
214 indicators of sheep welfare through a consensus of expert opinion. Animal. 5: 943-  
215 952.

216

217 Potgieter, G.C., Kerley, G.I. and Marker, L.L., 2016. More bark than bite? The role of  
218 livestock guarding dogs in predator control on Namibian farmlands. Oryx, 50(03),  
219 pp.514-522.

220

221 SheepWatch UK, ND. A community response to a National Problem. Available at:  
222 <http://www.terena.co.uk/sheepwatch-uk.html> Accessed July 29, 2016.  
223

224 Stocker, P., Wilson, J., Bebbington, T., Lovatt, F., 2015. Sheep health: Sheep  
225 worrying. *Veterinary Record*. 177: 131-131.

226 van Bommel, L. and Johnson, C.N., 2014. Where do livestock guardian dogs go?  
227 Movement patterns of free-ranging maremma sheepdogs. *PloS one*, 9(10),  
228 p.e111444.  
229

230 Webley, P., Siviter, C., 2000. Why Do Some Owners Allow Their Dogs to Foul the  
231 Pavement? The Social Psychology of a Minor Rule Infraction. *Journal of Applied*  
232 *Social Psychology*. 30: 1371-1380.  
233

234 Williams, K.J.H., Weston, M.A., Henry, S., Maguire, G.S., 2009. Birds and beaches,  
235 dogs and leashes: Dog owners' sense of obligation to leash dogs on beaches in  
236 Victoria, Australia. *Human Dimensions of Wildlife*. 14: 89–101.