

they would care for their herds of domesticated animals. Despite claims to the contrary, there is no comparable alternative to this superb example of species management.

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Dr Bradshaw and Professor Bateson reply:

Edmund Marriage raises three main concerns about the welfare implications of stalking: specifically, the proportion of deer that escaped injured, the length of time taken to die by body-shot deer, and the effect of disturbance on the behaviour of deer.

No one would dispute that careful management of stalking is important from the point of view of welfare (Bateson 1997; Bradshaw & Bateson 2000a, b). We estimated, from retrospective and current cull records, that 2 per cent of deer culled by rifle by professional stalkers escaped wounded. This percentage is bound to be higher where culling is carried out by inexperienced or incompetent individuals. Training schemes, such as those provided by the British Deer Society, proficiency in the use of firearms and an adequate shooting protocol are important in preventing unnecessary injury and suffering (FAWC 1985; Agricultural Departments 1989; Green 1992).

How much deer suffer when fatally shot in the heart, spine, liver or lungs is hard to ascertain. Loss of consciousness will not be instantaneous as with head and upper-neck shot deer. It should not be assumed, however, that all body-shot deer will feel pain. In studies on humans, initial freedom from pain was reported in one-third of

emergency department patients, whose injuries included cuts, fractures and amputations, and in 70 per cent of wounded soldiers (references in Wall [1984]). Nobody should be complacent about wounding deer – swiftly despatching deer shot in the chest must always be a priority. Nevertheless, the evidence from humans does emphasize the point that the welfare costs of wounding should not be exaggerated.

Stalking, hunting with hounds, tourist activity, orienteering events and other forms of human disturbance can all cause deer to leave the immediate area for a few hours or even days (Jeppesen 1987; Bateson 1997; Bradshaw & Bateson 2000a). Supporters of hunting often refer to the beneficial effects to farmers of the hounds 'dispersing' the deer (eg Charles Harding [2000] in his written testimony to the Burns enquiry: see, <http://www.huntinginquiry.gov.uk/mainsections/huntingframe.htm>). This is only one of many possible behavioural responses to disturbance or perceived threat. Edmund Marriage gives an example of another (point 3). Many factors will influence the response of a deer: individual differences in their behaviour and their past experience, reproductive status, sex, the nature and degree of disturbance, the habitat, season and so on. We did consider ways to assess disturbance from stalking as well as hunting, but in the study area in which we worked it would be difficult to disentangle the effects of different types of disturbance. They are, in any case, likely to be cumulative (Jeppesen 1987). There is no evidence of the type of extreme consequence of disturbance cited by Edmund Marriage. Red deer thrive in the South West irrespective of whether the culling is carried out using both methods or by stalking alone. Furthermore, roughly four-fifths of the current culling in stag-hunting country is carried out by stalkers. Therefore, any increase in stalking arising

from a hunting ban is unlikely to have a substantial effect on the behaviour of the deer.

Finally, we must take issue with the comments on the effects of a hunting ban on deer numbers. Since the early 1990s an annual census of red deer numbers on Exmoor has been carried out by the Exmoor and District Deer Management Society. These data are the best available estimates of population trends, although we accept they are liable to underestimate numbers. The census shows no evidence of a decline since hunt licences were revoked. The National Trust adjusts cull figures each year according to the results of this census. If deer are no longer killed on National Trust land by hunting it follows that, in order to maintain previous cull levels, more deer must be killed by rifle.

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