

**Output:** A review of systems, based on new and existing ideas, which could be used to monitor competence in Scotland

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## 1 Background:

In 2005 the DCS asked whether deer hunters should ‘demonstrate a degree of competency’. The response to this question in the Close Seasons consultation was general ‘agreement that competence should be demonstrated’ in order to enable the public to have confidence in hunters’ handling of issues of public safety, deer welfare and food safety. However there was divergence on what competence meant and how it should be assessed.

In this report competence means that an individual has “sufficient skills and knowledge to carry out their job to an acceptable standard”<sup>1</sup>. The DCS’s draft definition of competence<sup>1</sup> proposes that there are three aspects or components of competence:

1. Ensuring public safety (operator and others)
2. Safeguarding deer welfare (shot and dependent)
3. Ensuring food safety (minimising contamination and clear traceability)

Monitoring of a hunter’s knowledge of deer biology, behaviour and habitat was also considered by the DCS and is widely included in hunter training programmes in other countries.

At present the existing systems that assess competence in Scotland, through the Fit and Competent Register and the Deer Stalking Certificates, have gaps in who is assessed and what skills are assessed<sup>2</sup>.

The objective of this report is to present options that could be used in Scotland for monitoring competence.

Deer populations are often monitored for management purposes and data from hunters may be used. Population management systems were therefore also reviewed to determine whether they could have a wider application for the monitoring of hunters’ competence.

## 2 Method:

Representatives of authorities responsible for hunting from seventeen countries<sup>3</sup> were surveyed by phone and written questionnaire between October and December 2007. They were asked to provide information relating to the monitoring of deer populations, deer welfare, public safety, food safety and biology and habitat in relation to the questions outlined below. The eight European countries selected were mainly northern and central European and so had some similarities with Scotland in terms of hunting history, culture or

<sup>1</sup> Findlay, J. A draft definition of competence including the scope, standard and measures required. Undated. Reference: Competence C2.1.1

<sup>2</sup> Daniels, M and Findlay, J. A report on the limitations and costs of current systems and identity needs in terms of testing competence for welfare and safety. Undated. Reference: Competence C1.1.1

<sup>3</sup> The term ‘country’ is used to include countries, American states and Canadian provinces.

ethics. The four American states and two Canadian provinces were selected as they all had relatively high numbers of deer hunters.

Questions asked on how competence is monitored	
Is the ability of hunters monitored in your country?	Is the data on monitoring used or reported? If so how?
Who monitors the ability of hunters?	What are the strengths of your national monitoring system?
How do they monitor the ability of hunters?	What are the weaknesses of your national monitoring system?
When do they monitor the ability of hunters?	Are there any new ideas or proposals for monitoring hunters' ability in your country?
How often do they monitor the ability of hunters?	How much does the monitoring system cost?
Where do they monitor the ability of hunters?	What happens if a hunter does not meet requirements?
What proportion of hunters are monitored each year?	Is the data on monitoring used or reported? If so how?
What happens if a hunter does not meet requirements?	

Participating countries			
Europe		America	Canada
Czech Republic	Liechtenstein	Michigan	Ontario
Denmark	Belgium	Texas	Manitoba
Netherlands	Germany	New York	
Hungary	Norway	Pennsylvania	
France	Sweden		
Holland			

### Ensuring public safety (operator and others)

A number of countries use the frequency and trend analysis of incidents reported to the authorities as an indicator of the sector's safety record. It should be noted that there is little evidence that there is a public safety issue in Scotland.

For accurate monitoring, incidents linked to deer stalking would have to be separately identifiable from other hunting incidents. In the UK there is not a requirement to report firearms incidents to the authorities<sup>4</sup> therefore unless the incident results in criminal proceedings it will not necessarily be recorded. Some serious and fatal incidents will be reported to HSE under the Reporting of Incidents, Diseases and Dangerous Occurrences Regulations (RIDDOR) 1995 if they meet the criteria of "arising out of or in connection with work" (Regulation 2(2)(c))<sup>5</sup>. Stalking incidents associated with employees and clients on stalking days are therefore likely to be reported under the RIDDOR regulations. However this source would not capture all stalking incidents, such as those which have occurred as injuries to private landowners and / or tenants engaging in recreational deer stalking.

However this data source could form the basis of useful indicator. From HSE statistics, incidents related to hunting Standard Industrial Classification (SIC 01500) with an agent code of 99.01 (firearms) can be extracted, and providing sufficient information is included in the comments section, incidents related to stalking could be separated from other types of hunting. Between April 2001 and March 2007 there were no injuries by firearms in relation to stalking activities reported under the RIDDOR regulations. One relevant non-firearm incident was recorded in 2001/2002; a stalker was airlifted to hospital after falling and injuring his knee whilst carrying a firearm<sup>6</sup>. Within the data supplied by the HSE, incidents related to slaughtering activities have been classified as hunting. If the use of this data source is to be explored, it is recommended that incidents within the rural and agriculture industry are reviewed to ensure that all relevant incidents are being attributed to hunting through the coding system. Another possible route to obtaining the information required could be the Procurator Fiscal service, however this would only relate to fatalities.

Therefore there is no immediately clear, reliable indicator of stalking related incidents, industry self-reporting could be used but it is likely to under-estimate reality.

### Safeguarding deer welfare (shot and dependent)

<sup>4</sup> Personal Communication, Home Office, Crime Strategy Unit, Crime and Drugs Strategy Directorate, 19 December 2007

<sup>5</sup> Personal Communication, HSE Infoline, Caerphilly Business Park, Caerphilly, 27 December 2007

<sup>6</sup> Personal Communication, HSE, Corporate Science and Analytical Services Directorate, 19 December 2007

A comprehensive monitoring system should include reliable data on deer wounding as it is an issue of public interest and concern. There are a range of options for practically monitoring deer welfare:

- a. Reporting by hunters and hunting ground owners, game dealers and vets. If the data on wounding is likely to come from a number of sources (hunters, hunting ground owners, game dealers and vets) incidents need to be cross-referenced to ensure that each is not recorded multiple times.
- b. Surveillance, research and checks carried out by wildlife officers or research organisations, which could include X-raying carcasses to check for bullets from wounding incidents. (It is recognised that this type of sampling is less useful where rifles are used for hunting and not shotguns.)

### **Voluntary approach to reducing geese wounding in Denmark**

In Denmark, research commissioned by the Forest and Nature Agency (their national wildlife agency) identified that wounding rates of pink-footed geese were unacceptable in relation to the Danish Game Act. An action plan was developed to resolve the issue by the Danish Council for Wildlife (a board of stakeholders) which would give hunters the opportunity to resolve the issue on a voluntary basis with the threat that, if this was not successful, limiting of hunting opportunities or protection may be necessary. This system and the motivations behind it have some elements in common with the Voluntary Initiative used in the UK by the pesticide sector (see the innovation section for further details).

The success of the voluntary approach was monitored by a research project undertaken by the National Environmental Research Institute; this assessed the level of embedded shot by X-raying cannon-netted samples of live geese.

Research is still underway to evaluate wounding in roe deer populations using a similar methodology as the geese project but sampling is less straight forward. Adopting a similar technique in Scotland would require live capturing or hunting of deer with ammunition which can be identified so that any embedded bullets met by the researchers can be distinguished.

Access to deer populations is a key issue which must be addressed. In Denmark, the research was conducted on a state-owned wetland site, and the mobility of the geese species meant that a representative sample could be obtained. In Scotland, private landownership presents a barrier to accessing a sample. Land in public ownership, such as the Forestry Commission could be used; however the habitat and hunting model are likely to differ from other areas of Scotland so this may not constitute a representative sample. The practicalities of sampling deer by this method would have to be investigated as deer could either be sedated and X-rayed in the field or destructively sampled.

Destructive sampling (i.e. killing) of deer populations (particularly red deer) is likely to be unpopular, especially where population structures are carefully managed by estates and deer management groups. However the importance of obtaining a representative sample cannot be underestimated as certain segments of the deer population, such as mature stags, may be more commonly shot at than others in the population, and the type of hunter associated with the hunting may also differ.

A strength of this technique is that the effect of all hunters is assessed, including hunters who are not resident in the country.

This technique will have high resource requirements to study a sample of a sufficient size to be statistically robust. In order to observe the effects of any initiative to reduce wounding, data would have to be gathered over several years and wounding within the different age groups analysed to identify long term trends.

- c. Surveying a sample of hunters each year to collect information on how many deer they wounded during the season so that wounding statistics can be calculated (number of deer wounded, action taken to track wounded deer, whether the wounded animal was recovered and entered the food chain).

This approach is used in Norway where a sample of active hunters is asked to provide information on wounding each year by anonymous questionnaire<sup>7</sup>. In Norway they know who hunts large game as hunters pay a hunting licence fee each year and take the shooting proficiency test. A weakness of adopting this technique in Scotland would be identifying the sample to use, as a database of hunters is not held for Scotland so creating a sample would not be straight forward. The DCS Fit and Competent Register is not a suitable sample as it may not cover all active hunters. Alternatively deer hunters could be identified through firearms licences for rifles, but neither of these proposals would capture non-resident hunters. The anonymity offered by this technique is likely to encourage high returns however the data cannot be validated so could be skewed by hunters in response to unpopular hunting regulations. Based on the results of a survey of this nature, the Scottish hunting authorities would be able to decide if remedial action is required to address wounding issues and take action through appropriate channels such as legislation and education.

- d. Requiring all game carcasses to be presented to a state-employed vet for assessment of shot placement, gralloching, transport and storage

The strengths and weaknesses of this option will differ depending on how the measure is implemented and whether hunters are held individually accountable for poorly shot deer. In Liechtenstein, shot placement is assessed by a vet employed by the Home Office for the Forest, Nature and Landscape (ANWL). Hunters responsible for incorrect shot placement will be questioned, which can lead to a fine or their hunting certificate temporarily or permanently revoked. Adopting the technique in Scotland would most likely entail inspections at approved game handling establishments.

To be a fair way of monitoring competence it must be recognised that factors beyond the control of the hunter can affect the point of impact. Therefore if individuals are to be held individually accountable it is important that hunters are given the opportunity to explain or justify why the deer has been shot outside the vital areas. Action should only be taken if a long term trend is clearly evident rather than a singular occurrence. Unless hunters are happy with the methodology used, results are likely to misrepresent the situation as hunters will not submit the worst carcasses.

Within the context of commercial stalking, some stalkers are unlikely to shoot a sufficient number of carcasses for their competence to be reliably assessed. Before taking clients stalking, estates often require them to demonstrate sufficient competence with a firearm. For the purposes of monitoring competence, stalking customers could be treated as one entity and an assessment of their combined / group competence could then be used to ensure that landowners are seeking high enough competence before allowing individuals to stalk on the estate. Therefore an assessment is made of the estates' general standards rather than individual competence.

During 2001, permanent wound tracts were studied in 943 Scottish red deer carcasses<sup>8</sup>. Carcasses were sampled at approved game handling establishments (although unlike the system used in Liechtenstein, observations were not linked back to the hunters.) The

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<sup>7</sup> A copy of the questionnaire is included in Beedell, J and Teanby, A. A review of different options, based on new and existing ideas, used in different countries and for different species for monitoring competence. 2007. Smiths Gore, for the DCS.

<sup>8</sup> Urquhart, K.A, McKendrick, I.J. (2003) Survey of permanent wound tracts in the carcasses of culled wild red deer in Scotland, *Veterinary Record*, **152**, 497-501.

study highlighted the weaknesses of assessing shot placement at these establishments. There are two main weaknesses, entry wounds may no longer be distinguishable following evisceration and heads and lower legs have been removed so shots to these areas cannot be identified (5% of carcasses had no identifiable wound tracts).

If shot placement is not assessed at the individual level, attributing carcasses to a hunter class or group could be useful as it would allow information or education campaigns to be effectively targeted. Urquhart and McKendrick (2003) demonstrated that there may be some value in this as 17.9% of male carcasses had been shot more than once, compared to 10.2% in female and juvenile carcasses. This indicates that a higher degree of competence is demonstrated by hunters targeting female and juvenile carcasses as nine out of ten times one shot was sufficient, in mature males one shot is sufficient on approximately eight out of ten carcasses. They proposed that adult males are predominantly culled by sporting tenants, landowners and their guests, whereas females and calves are mostly culled by full-time professional stalkers hence the higher degree of competence observed.

### **Ensuring food safety (minimising contamination and clear traceability)**

There is an existing system for ensuring the safety of food entering the food chain, which includes the Food Standards Agency, game dealers and vets. It should be possible to extract data on venison from it and use it to inform monitoring of deer welfare (e.g., the effect of shot placement on food safety). A key measure might be the number of carcasses presented that are not suitable for the food chain and the reasons why (e.g., shot placement, incorrect gralloching, sick / diseased animal, incorrectly transported / stored).

A potential area in this field for monitoring or research is gralloching. It is recognised that such as assessment might be difficult as gralloching happens on the hill and so this could be a focus for training and not monitoring. Many different techniques are practiced, some of which will be more hygienic than others<sup>9</sup>. Identification of best practice techniques would reduce the potential impact and increase the safety of wild venison; publication of the DCS's best practice guides on gralloching should be of benefit as long as its recommendations are taken up<sup>10</sup>.

### **Deer biology, behaviour & habitat, impact on forestry and farming**

This is less associated with hunters' competence although hunters are needed to maintain deer populations at required levels. Many countries rely on hunters to supply hunting returns to be able to make population estimates and there is often an element of compulsion on hunters and hunting ground owners to provide the information.

### **The Voluntary Initiative: Monitoring competence of pesticide use**

The Voluntary Initiative was developed in 2001 by the farming and crop protection industry as an alternative to the pesticide environmental impact tax under consideration by government<sup>11</sup>. There are some parallels with the "carrot-and-stick" technique used in Denmark to reduce wounding in pink-footed geese, as the Voluntary Initiative was sector led, and developed in response to the "stick" proposed by the government. The Voluntary Initiative aimed to demonstrate and raise the competence of individual operators and the industry as a whole. As such it is essentially an industry-led competence monitoring and reporting system with a focus on improved performance. The programme initially ran for five years, with eighteen key targets to meet which were set by an independent steering group (see Annex 1).

<sup>9</sup> Comment made by a veterinarian during the Data session at DCS Next Steps Seminar 20/11/07

<sup>10</sup> The two best practice guides are currently in draft form.

<sup>11</sup> Voluntary Initiative, <http://www.voluntaryinitiative.org.uk/Content/Default.asp>

The targets or changing behaviour indicators set for the industry sector relate to assessments of competence, continued professional development, environmental performance and equipment testing. These included the number of operators registered with the newly created National Register of Sprayer Operators (NRoSO), which was open to holders of appropriate National Proficiency Tests Council (NPTC) certificates of competence, or those applying pesticides under grandfather rights (born before 31 December 1964). NRoSO members are required to meet continual professional development (CPD) targets every three years so that their membership can be renewed.

Another of the Voluntary Initiative's targets related to the proportion of the agricultural area sprayed by machines which have passed the National Sprayer Testing Scheme (a MOT-style test for agricultural sprayers). Another key target was the number of farmers with a crop protection management plan (a document which sets out the farms crop protection strategy or policy in much the same way as deer management groups produce deer management plans). The pesticide industry participated through the Crop Protection Association, by preparing Environmental Information Sheets for operators to use; these detailed the environmental impact of all their products. Best practice was also sought through the publication of a comprehensive series of guides.

By the 31 March 2006 deadline, the Voluntary Initiative had successfully met most of and exceeded many of its targets (see Annex 1). The steering group chairman Professor Barry Dent OBE commented in his report to Government that, "the programme has moved beyond a tax prevention package to a framework of principles and practices that will help in the achievement of objectives for the Government's Strategy for Sustainable Farming and Food."<sup>12</sup> The steering group have made proposals to the Government for the scheme to continue with revised targets set every two years.

As the Voluntary Initiative was stakeholder-led, industry buy in was strong with a high proportion of farmers engaged. The industry was incentivised by the opportunity to avoid the proposed tax by addressing the problems itself.

The independent steering group is a real strength; it is composed of representatives of government departments, environmental organisations and industry bodies. Its credibility is important as it sets the targets against which the industry is assessed, and the government bases its decision with regard to the pesticide tax upon them. The initiative takes a holistic approach addressing all potential sources of environmental damage. In addition to the indicators related to membership, machinery testing and CPD, environmental indicators such as pesticide residues in water are used to assess performance relative to the ultimate aims of the Voluntary Initiative of reducing the industry's environmental impact. The strength of these indicators has been criticised by the steering group, who suggest Government funded research may be necessary to develop more robust indicators. Indicators are utilised in a similar manner as examining the level of embedded shot in Danish geese and deer carcasses. They provide the means by which aspects of the sectors impact upon the environment can be measured. The CPD element of the Voluntary Initiative is points based requiring NRoSO members to obtain 30 points from eligible events over 3 years; some criticism has been made that actual learning events account for small a proportion of points.

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<sup>12</sup> The future for the voluntary initiative, Proposals from the voluntary initiative steering group, October 2006.

### **3 Summary: recommendations for a monitoring system that could be used in Scotland**

#### ***Principles for monitoring hunters' competence in Scotland***

Based on the review of hunting and other industry systems, certain elements or principles of those systems could be used to monitor hunters' competence in Scotland. There are wide range of options available for Scotland, ranging from industry-led self-regulation through to more regulatory or legislative approaches. If a system is introduced, it is recommended that it has the following characteristics:

- a. The purpose of the system should be to enable monitoring of hunters' competence in order to ensure that hunters meet an agreed standard of skills and knowledge, and provide data to enable further improvement of hunting standards
- b. There should be one Scotland wide system that is comprehensive and engenders public support
- c. Data collection and analysis should be transparent i.e., it should be clearly stated why the data is collected, how it is done and how statistics are calculated
- d. The data should be published. A review/steering group of interested parties and stakeholders should review the data and revise the training and testing of hunters' competence as necessary. They should make their decisions, the data they are based on and their rationale public
- e. The monitoring system must be simple to administer and for people to submit data to
- f. The ethos and culture of the monitoring system will be critical to its success. If people who provide data trust the system and understand that its purpose is to support deer hunting and improve it, rather than penalise hunters, it is more likely to succeed.

#### ***Options for monitoring hunters' competence in Scotland***

The following options for monitoring competence appear to be the most appropriate for Scotland:

1. **Ensuring public safety (operator and others)** could be done using data on firearms related incidents if incidents relating the hunting can be separated from other incidents and if all incidents are recorded. This could be done by combining data from the HSE and introducing a requirement for hunters to report all serious incidents.
2. **Safeguarding deer welfare (shot and dependent)** could be done by surveying a sample of hunters each year, as is done in Norway. A challenge with this approach in Scotland is identifying and contacting active hunters. Other countries use the database of hunters who have applied for an annual hunting licence as their active hunter population.
3. **Ensuring food safety (minimising contamination and clear traceability)** is well monitored by the existing system in Scotland.
4. **Deer biology, behaviour & habitat, impact on forestry and farming** could be done by adding to the survey of deer populations already carried out by the DCS. If this is done, it should be made clear to estates why and how much data is required.

Key to successful monitoring systems in other countries are that they use the best available data and they rely on co-operation and trust from hunters – both tenets would be essential for successful monitoring of hunters' competence in Scotland.

## Annex 1: The Voluntary Initiative changing behaviour indicators / targets

Changing Behaviour Indicators	At start of Voluntary Initiative 1 April 2001	Target by 31 March 2006	Achieved by 31 March 2006
National Register of Sprayer Operators (NRoSO) members	0	17,500 (70% arable area)	22,404 (80% arable area)
National Sprayer Testing Scheme (NSTS)	Est. 5% sprayed area	80% sprayed area	>76% sprayed area
Crop Protection Management Plans	Area covered Est. 120,000 ha	1,200,000 ha (30% arable area)	972,000*
BETA qualified agronomists & farmers	0	750	836
Half Day Operator Roadshow Training events	0	150	1324
Active agronomists on BASIS Professional Register (Former CPA distributor members advisers staff only)	85% Est.	100%	100%
Environmental Information Sheets (EIS) published (CPA members only)	0	650	770
Number of revised product labels (CPA members only)	0	100%	100%
POWER	0	100	35

**\*STOP PRESS**

Latest data from Defra, LEAF and Scottish Quality Cereals show that farmers covering at least 2.4m ha have committed to do a Crop Protection Management Plan.

End