



Monitoring Framework for Scotland's Wild Deer: A National Approach (wDNA)

Introduction

To establish a monitoring framework for the wDNA, DCS will lead development of a set of indicators to report on progress against the vision of the wDNA. These indicators should reflect trends in the state of the environment, economy and society as they relate to wild deer. The set of indicators below represents a first draft set of indicators, which will continue to be developed. Where possible the indicators link to existing national monitoring frameworks and sources of information.

wDNA Indicator set

The purpose of these indicators is to describe in total the progress towards the vision and the three outcomes in the wDNA and to capture the impacts of the wDNA. This is particularly relevant in monitoring any environmental impacts as identified through the statutory Strategic Environmental Assessment process.

The monitoring framework has been divided into two tables, Table 1 containing indicators showing progress towards the wDNA vision and Table 2 lists the Scottish Government's National Performance Indicators on which the wDNA has a bearing.

All of these indicators have been considered by FCS, SNH and DCS staff and by the DCS Board. When considering indicators it is important to remember that any 'snapshot' of figures on an annual basis will not tell the whole story - understanding the trends of the full set of indicators, combined with the reporting on the delivery of the annual action plans, will give a fuller picture of the impact.

Detailed technical notes are also being developed and will be published on the website, setting out the exact measurements, or details of how these will be developed where the information is not already collected.



Table 1: wDNA Indicator Set

No.	Indicator	'Scotland's Wild Deer: A National Approach' Outcome	Why has this indicator been selected?
Vision: widespread understanding and achievement of 'sustainable deer management'			
S1	Proportion of DMGs developing and implementing effective collaborative Deer management plans	High quality environment Sustainable economic development Social well-being	This indicator has been selected as it provides a measure of collaborative deer management planning and progress. When reporting on the indicator the numbers developing plans and the numbers implementing will be separated out.
Outcome: A high quality, robust and adaptable environment			
S2	Proportion of designated sites impacted by deer in favourable condition	High quality environment	Ensuring that designated sites are in favourable, or recovering condition, is the key concern of the DCS/SNH/FCS Joint Working programme. This indicator will track progress towards meeting the Scottish Government's overall target of 95% of sites in favourable condition.
S3	Condition of Biodiversity Action Plan Priority habitats impacted by deer	High quality environment	Conserving Scotland's biodiversity is a key aim of the wDNA, and a key area of work for SNH. This indicator, from Scotland's Biodiversity Indicators, measures the condition of Biodiversity Action Plans (BAP) habitats. This includes 41 'priority' habitats that occur in Scotland. Deer can impact on some of these habitats, and this indicator will report the condition of those habitats. This indicator is included as it links to impacts on priority environmental interests in the wider countryside, beyond designated sites.
S4	Condition of soils impacted by deer	High quality environment	The condition of Scotland's soils is of great importance, not only because of the flora and fauna that the soils support, but also because of the carbon storage in the soil, particularly in peatlands. Deer can impact negatively on these peatland soils where there is excessive trampling. The Scottish Government's Scottish Soil Framework is establishing monitoring and indicators for the condition of Scotland's soils, and the most relevant of these to deer will be selected.



S5	Area of woodland with active, approved deer management plans	High quality environment Sustainable economic development	This indicator, from the Scottish Forestry Strategy measures areas of woodland, including any associated open areas, where specific deer management plans are in place. These plans require a strong focus on achieving reductions in deer impacts on biodiversity and tree growth. Having such active management in place will be required if progress is to be made towards the forest cover target (indicator N3).
S6	Genetic status of red deer on refugia islands	High quality environment	Minimising the spread of non-native species is a key objective of the wDNA. In order to maintain some red deer populations free from the genes of sika deer the Government has set up red deer refugia on some west coast islands. Deer on these islands will be monitored for the presence of sika genes.
S7	Number of deer species present in Scotland	High quality environment	Two species of non-native deer are established in Scotland - sika and fallow. Experience in England suggests that potential impacts of other non-native species on biodiversity and other land-uses in Scotland, in particular muntjac, would be strongly negative. It is therefore important that monitoring is in place to ensure that action is taken to prevent release and establishment of other species.
S8	Number of deer culled as reported on cull returns to DCS	High quality environment Sustainable economic development	DCS currently collects returns from land owners and managers on the number and species of deer culled each year. This data provides an indication of where deer are being shot and if over time culls are increasing, decreasing or involving different species. This could, for example, give us an indication of the spread of non-natives to new geographic areas, or show areas of increased culling effort, which could be used to review delivery of management plans.
S9	Number of people on the DCS Fit and Competent Register	High quality environment Sustainable economic development Social well-being	This indicator allows us to track the number of people who are on the DCS Fit and Competent Register and are able to cull deer out of season or at night. It can show both the scale and trends of deer management issues that currently require out of season culling, and provides one measure of skills.
Outcome: Sustainable economic development			
S10	Number of FTE in employment in deer sector	Sustainable economic development	The PACEC report (The Contribution of Deer Management to the Scottish Economy, PACEC 2006) estimated deer sector employment in Scotland at just over 2,500 full time equivalent jobs in 2005. Tracking deer sector employment is an important measure of sustainable economic development, particularly in times when all sectors of the economy are under pressure in the economic downturn. DCS will work with the sector to capture figures for deer sector employment periodically.



S11	Value of deer sector to Scottish economy	Sustainable economic development	The PACEC report estimated the value of deer management to the economy to be over £100 million in 2005. As with deer sector employment, it will be important to track this value over time to understand the contribution of the deer sector to Scotland's sustainable economic development.
S12	Customer profile of venison consumers	Sustainable economic development	Increasing the appreciation of venison secures added value for the wild deer resource, and can also be used to provide a 'hook' to explain the need to implement deer management to the wider public. This measure has been chosen to indicate if venison consumption is being spread to a new customer base, and to track changes in that customer profile over time.
S13	Venison returns made to DCS	Sustainable economic development Social well-being	DCS currently collects returns for venison dealers around Scotland. This information can be used to measure the number of deer carcasses sold through these licensed dealers and also provides an indication of compliance with European hygiene legislation.
S14	Number of people with a deer related qualification	Sustainable economic development Social well-being	The trend in this will help us gauge the development of skills and uptake of formal qualifications of deer stalkers and managers.
S15	Number of people developing deer management skills and knowledge through CPD and training events, including Best Practice Events	Sustainable economic development Social well-being	This will help us to gauge, year-on-year, uptake of deer-related training that does not lead to a formal qualification. This will include people who already have gained a deer related qualification, adding depth to indicator S14 by illustrating the continuing development of new skills or updating of existing skills.
Outcome: Social well-being			
S16	Public perception of wild deer	Social well-being	Understanding how people in Scotland view wild deer will help us understand their expectations for the management of deer. This is becoming increasingly important as deer management is required closer to large centres of population. It will also help identify economic opportunities, like the market for deer and wildlife watching activities. Work in this area is currently being developed by DCS and it may not be possible to identify a precise measure. Examples that may be developed might be awareness of deer in the local area; awareness of deer management; or importance attached to wild deer as a national resource.



S17	Number of Deer Related Road Traffic Accidents	Social well-being	Tracking the number of deer related road traffic accidents is important in understanding the scale of the issue on both a national and local basis. Tracking also allows understanding of where the issues are most serious and can help to direct mitigation measures and monitor their success. DCS is funding the Scottish element of the UK-wide deer-vehicle collisions project, with results expected in 2010.
S18	Number of Deer offences	Social well-being	This indicator has been selected to track the number of deer offences. It allows us to see trends over time in deer related incidents. This information is valuable, both in terms of estimating the potential scale of deer welfare concerns and economic loss, and can back up anecdotal evidence of concerns. DCS will work with colleagues including the Partnership Against Wildlife Crime to determine the most appropriate measures.
S19	Incidence of Lyme disease	Social well-being	Tracking the interaction between deer and human health is important, particularly as more and more people take part in outdoor activities. The NHS collects data on the incidence of Lyme disease.

Table 2: Scotland's Wild Deer: A National Approach: National indicators

No	Indicator	'Scotland's Wild Deer: A National Approach' Outcome	Why has this national indicator been selected?
N1	Proportion of protected nature sites in favourable condition	High quality environment	This indicator is a National Performance Framework target, and is of the highest priority for all of the joint agency partners (and reflected in the Corporate Targets for both DCS and SNH). The Joint Working programme is aimed at tackling those sites that are not in favourable condition and are impacted upon by deer. It is estimated that around 12% of the sites that require action are impacted by deer, so this is a national target that actions in support of the strategy can have a direct impact upon. The target is to achieve 95% of sites in favourable condition by 2010.
N2	Biodiversity: index of abundance of terrestrial breeding birds	High quality environment	This indicator was selected for the National Performance Framework because terrestrial breeding birds are a good indicator of overall biodiversity. Birds respond quickly to variation in habitat quality, through changes in breeding output, survival or dispersal. Since most bird species are relatively easy to identify and count, are geographically widespread, are abundant and active during daytime, and are intensively counted and recorded annually, they are often used as indicators of environmental change. Deer can impact positively (by grazing vegetation to a height that creates a habitat) or negatively (by destroying vegetation that provides habitat).



N3	Proportion of Scottish forestry cover	High quality environment Sustainable economic development	The Scottish Forestry Strategy, published in 2006, contains the long term aim to increase Scotland's woodlands increase from 17.1% of land cover to 25%. This is seen by the Scottish Government as key to Scotland's contribution to tackling climate change. Deer can impact adversely on the development of new woodlands by grazing young trees. Therefore if forest cover is to be successfully increased, we will need to ensure that adequate deer management is in place, and this will be monitored by indicator S5.
N4	Proportion of adults making one or more visits to the outdoors every week	Social well-being	This indicator was selected by the Scottish Government as outdoor recreation is beneficial for health and well-being. It also provides opportunities for people to come into contact with, and increase their understanding of, the natural environment. Outdoor recreation has multiple motivations, and this indicator will include those accessing the countryside for recreational stalking and those whose visit to the outdoor is motivated or enhanced by seeing wild deer. This indicator provides a measure of the numbers of people who gain benefit and enjoyment from nature and biodiversity and improve their understanding of the importance and functioning of the natural environment.