

DEER COMMISSION FOR SCOTLAND

CLIMATE CHANGE & SUSTAINABLE DEER MANAGEMENT WORKSHOP

1. Introduction

On 30 March 2009, the Deer Commission for Scotland (DCS) hosted a workshop to 'explore the linkages between climate change and deer'. The workshop was chaired by Simon Pepper, Deer Commission for Scotland Board member and thirty-one delegates, mainly researchers, attended. The workshop was held at the Birnam Arts and Conference Centre, Birnam, Perthshire.

The day was divided into two parts. The morning session set the scene with presentations from:

- Gavin Barrie, Scottish Government, on the implications of Government climate change policy;
- Julian Holbrook, SNIFFER/Scottish Climate Change Impacts Programme, on the changes we are likely to be seen in the climate of Scotland;
- Justin Irvine, Macaulay Land Use Research Institute, on the impact of climate change on deer population trends; and
- Kelly Moyes, Cambridge University, on climate change and the timing of breeding of red deer on Rum.

During the afternoon session facilitated syndicate groups looked more closely at specific issues. The day concluded with a plenary feedback session and an open discussion.

2. Aims of the Workshop

The aims of the workshop were to better understand the relationship between climate change and deer management and to identify where research is currently taking place and where new areas of work are needed to increase understanding. DCS also need to better understand how climate change will impact upon deer managers and what advice and guidance it can give as a result of a better understanding of research and of Government policy on climate change.

3. Discussion

The following points represent the main messages from the syndicate groups and plenary discussion. These do not necessarily represent the view of DCS and are the views of the individuals and organisations present.

There is a need for research to better understand the spatial-specific (geographic) seasonal effects of weather (wind as well as temperature and rain) on life-history variables (e.g. fecundity, survival and sex ratio) of the performance (weight) of all species. There is a need for research to better understand the impact that climate change will have on the distribution of deer populations in Scotland. Densities and movement patterns of red deer and roe deer may alter whilst there is also the potential for fallow deer to expand their range.

The interactions between climate change, deer and how the habitat will respond are complex and inter-related and there is a need for research to tease out these interactions. Of particular interest is the impact of climate change on plant community species composition, diversity and performance and how this affects carrying capacity. Land use will change as a result of climate change either directly, or as a result of policy measures particularly those adapting to, or trying to mitigate, climate change. This may affect agriculture by changing levels of grazing or introducing different breeds of stock, or forest cover, location and composition with increased planting of woodlands. There is a need for research to better understand how deer populations will respond to these and other changes in land use and as the effects will be different across the country these impacts need to be assessed at a local level.

The most appropriate research approach to study these effects is through modelling techniques but there is a need to have long-term data sets across a range of sites for the parameterisation of models and for the testing of models. The long-term study on Rum has provided preliminary data on the response of deer reproductive phenology to climate change but there is a need for a wider range of sites and deer management circumstances to be considered. A Macaulay Institute and Forest Research project, funded by Scottish Government through its Flexible Fund, to develop and implement a set of indicators to monitor the health and performance of deer is one such study which will provide baseline data on indicators of climate change on deer across Scotland.

Long-term monitoring programmes are resource intensive and there is a greater role for practitioners to be more involved in data gathering. Deer managers already collect data in the form of cull, count and larder records. However, there is scope for deer managers to be more proactive in collecting, collating and reporting data on deer populations and condition, as well as more widely on habitat parameters that are indicators of climate change. Deer managers represent a huge potential resource for gathering geographically widespread climate change data, at a local level over a long period of time. There is a corresponding responsibility for statutory bodies to utilise this data and to make the results and conclusions readily available in a useful format so that deer managers gain the maximum value from their own data. Data analysis and reporting require significant resources, as does awareness-raising, training and support to deer managers to empower them to establish and maintain long-term monitoring programmes. The Macaulay Institute and Forest Research project on monitoring deer health and performance is based on this principle. Empowering deer managers to collate data over the long term that informs statutory bodies about the impact of climate change that is also of use to deer managers themselves.

There is a need for research to better understand how resilient different habitats are to the effects of climate change. However some changes are inevitable and will require adaptation. For example a likely increase in deer in and around towns will bring more people from the urban centres into contact with deer and consequently tick and Lyme disease. Research on approaches to managing tick and vector interactions is required. Research to better understand the public's perception of deer and their access behaviour will facilitate the application of research findings.

Government policy on climate change is likely to impact on deer managers across the country, however it is unclear what the future priorities might be. In the broadest sense the overriding objective could be management for minimum carbon loss. This would favour woodland and blanket bog and could increase pressure to control deer numbers in these habitats. Habitats are currently designated to protect their biodiversity. As the focus shifts and the intrinsic value of carbon rises this could lead to designations based on a habitat's ability to sequester and store carbon with a corresponding shift in management objects to protect this resource. An integrated framework for land management is essential for future policy implementation.

4. Summary

The following points are a summary of the discussion and do not necessarily represent the view of DCS as they are the views of the individuals and organisations present. Research is needed to better understand:

- The spatial-specific seasonal effects of weather on life history variables as well as their performance of all deer species;
- What impact climate change will have on the distribution and densities of populations of deer species found in Scotland;
- The relationships between climate change, deer population dynamics and habitats in order to understand the impact on plant community species, diversity and performance and how this affects carrying capacity; and

- The impact of land use change, e.g. differing levels of livestock grazing changes to forestry cover, location and composition with increased planting of woodlands or agricultural crops having a higher value.

Modelling these interactions using long-term data that need to be collected which will give a better understanding of how deer populations will respond to these and other changes in land use. There is a need to establish and maintain long term monitoring such as the current Scottish Government-funded Forest Research project to develop and implement a set of indicators to monitor the health and performance of deer across Scotland. This provides more scope for deer managers to be more involved in collecting, collating and reporting consistent data on deer populations and condition, as well as more widely on habitat parameters that are indicators of climate change across the country.