

Identifying gaps in knowledge and understanding of sustainable deer management in Scotland

The aim of this project was to analyse existing wild deer research and identify specific research and evidence gaps which require to be addressed in order to meet the challenges for each of the five priorities outlined in *Scotland's Wild Deer - A National Approach (WDNA)*. The project was commissioned by Scottish Natural Heritage, Forestry Commission Scotland and Scottish Government and conducted by a team from both SRUC and UHI's Centre for Mountain Studies.

The primary objectives of the project were to: identify and distinguish between gaps in knowledge (i.e. gaps that require further research) and gaps in the way knowledge and information is communicated between stakeholders, therefore representing barriers to achieving the WDNA challenges; and provide recommendations for further research and activities that will address gaps and contribute to meeting the challenges under the five WDNA priorities.

Cross-cutting issues

A number of themes and issues identified were relevant across all the WDNA priorities:

- Improved communication, information sharing and conflict management are required in order to overcome cross-boundary challenges and mistrust, and facilitate understanding between the different perspectives of the many stakeholders. Building trust will improve the uptake of research and strengthen collaboration.
- Knowledge exchange of existing research and best practice is often more important and more relevant than undertaking new research.
- Improved public engagement and education is needed in order to better inform the public's perception of deer management.
- Upland, lowland, peri-urban and urban areas have their own issues and gaps, but there are also common issues across these areas.
- There is a need to carry out research at a range of spatial and temporal scales.

Main findings by WDNA Themes

WDNA 1 - Collaboration and Effective Deer Management Planning and Implementation: A wider understanding of different stakeholder perspectives and cultures is required to underpin conflict management processes and the future management of deer management groups. Sharing of knowledge and data is necessary for improved deer management planning and this depends on overcoming mistrust between stakeholders. Understanding deer movements and habitat utilisation and how this is influenced by management activities emerged as a key research gap. A lack of available data on local trends and patterns was considered a barrier to improving this evidence base.

WDNA 2 - Healthy Ecosystems: Although a considerable amount of research has been carried out on the impacts of deer and other herbivores on habitats and species, there remain knowledge gaps in this area. Most of the key research gaps relate to a need for a better understanding of herbivore impacts and interactions across a range of temporal and spatial scales, and more knowledge on the influence that deer and deer management have on ecosystem services. One of the main knowledge transfer gaps relates to the need to facilitate understanding of the herbivore impact assessment methodology and the practical use of HIA data within the deer management planning process, through the provision of skills training.

WDNA 3 - Lowland and Urban Deer: Research gaps that did emerge as important for the lowland and urban deer context tended to reflect those that are also pertinent in the uplands. There is a need to understand the effectiveness of existing collaborative structures and linked to this are more context specific knowledge transfer challenges related to incentivising and involving stakeholders in lowland and urban areas e.g. local authorities and the public, and ensuring that decision making incorporates multiple perspectives. A further research gap concerns the relationship between deer population dynamics and habitat impacts in lowland and urban areas. There are related knowledge transfer needs for improved gathering and sharing of information about local deer populations.

WDNA 4 - Economic and Community Development: In this particular challenge, nearly all the gaps identified were research gaps rather than knowledge transfer or exchange gaps, contrary to the other challenges. The key research gaps related to a need for more studies on socio-economic impacts at local and site level, the venison supply chain and the potential for diversification, as well as cost-benefit analysis on alternative deer management models, both for upland and lowland wild deer. Unlike the other challenges, the gap analysis also identified a particular policy gap, to gain improved clarity as to what the vision for wild deer management should be at the national level. Clearly the WDNA was designed to fulfil this role, which suggests stakeholders either feel it is not providing the vision or they are not fully engaged with the process.

WDNA 5 - Training and Wild Deer Welfare: In this theme gaps predominantly related to knowledge transfer gaps and/or gaps in uptake of training and/or practice - communicating knowledge and facilitating knowledge uptake as opposed to carrying out new research. The enhancement of data driven management processes is a strong cross-cutting theme within WDNA 5, particularly in relation to improved accuracy and coverage in cull records as a basis for welfare assessments and wider sustainable deer management processes. A second critical cross-cutting theme which has emerged as a key priority knowledge transfer opportunity is the further professionalisation of deer management through enhanced training provision and uptake in key areas; participatory approaches, Information Technology and Habitat Impact Assessment. Increasing the uptake and direct relevance of habitat assessment and management to all deer managers represents a cornerstone of WDNA 5.

As part of the project a web-based deer research resource has been created that provides an online database of deer research relevant to the five WDNA priorities (www.deerscotland.info). The full report will be published shortly.

Holland, J., McMorran, R., Morgan-Davies, C., Bryce, R., Glass, J., Pollock, M., McCracken, D., Glass, R., Woolvin, A. & Thomson, S. 2017 *Meeting the challenge of wild deer research to support delivery of sustainable deer management in Scotland*. Report prepared for Scottish Government, SNH and FCS by SRUC's Hill & Mountain Research Centre and UHI's Centre for Mountain Studies under Project SCL/025/15

ENDS

Photograph caption: Gaps in the existing knowledge-base were identified by gathering the views of stakeholders at a series of workshops, through an online survey of researchers and policy makers, and through a review of published and un-published research material. Workshops were run across Scotland, including four regional stakeholder workshops, one trainers' workshop and one researchers'/policy makers' workshop.