COLLABORATIVE FRAMEWORKS IN LAND MANAGEMENT:

A Case Study on Integrated Deer Management

Project Newsletter Number 5.

RURAL ECONOMY AND LAND USE

Editorial

www.macaulay.ac.uk/RELU

Welcome to the fifth newsletter for the RELU Deer Project. In this issue we are considering what progress we have made against the original project proposals. The project is currently addressing core issues that were identified by stakeholders in the original Network Award. The team is addressing other issues through involvement with a number of other studies from which we will be able to draw down results. A brief introduction is provided to these with contact links. Deer management needs to be flexible to cope with the rapidly changing political climate and we would welcome further feedback from stakeholders on currently perceived priorities. Towards the end of the project we will also be asking for comments on how useful our participatory approach has been in your view.

Towards 'real world research'

This project is unusual in that as well as being interdisciplinary the objectives were developed together between researchers and practitioners through an initial Network Award and the research is mostly conducted with stakeholders across the field of deer management. In this way we have sought to undertake 'real world research' to tackle practical problems, through an approach involving different academic disciplines in combination or separately. The issues raised during the Network meetings are summarised below with an assessment of how we have approached these in this and related projects to date so that we can identify gaps that we should try to fill during the remaining period.

Collaborative management

- Methods to monitor and evaluate collaboration
- Decision making processes
- Methods for stakeholder interaction
- Need for exemplar case studies

Analysis of national level stakeholders is reviewing stakeholders and their goals. **Local case study interviews** provide practical information on interactions and **choice experiments** are investigating stakeholder decisions. There is a range of issues involved in the different **case study areas**, enabling us to use different approaches. Research at the University of St Andrews is also exploring the potential applications of participatory rural appraisal

Natural heritage

- Impacts of deer on species and landscapes
- Methods to monitor impacts for practitioners and researchers
- Need for inter-species impact measurement

Some data has been collected to support the 'perceptions' work from sites within the Marches area, with additional information from interviews and comparison of **case study sites.** Scottish Government funded projects are investigating **diffuse impacts of deer,** and **sheep-deer grazing relationships** and a Forest Enterprise funded project is investigating **practical methods for monitoring deer impacts.**

Socio-economic

- Need for economic data especially regarding venison
- Need to reconcile legislation and review incentive schemes through assessment of agricultural support and wildlife policy
- Need to explore differences between Scotland, England and Wales in terms of legislation and management approaches

A study on the **venison market** explored motivations, barriers and economic aspects of venison production and sale. This is currently being written up. A paper is in draft on the **history, development and implications of legislation** surrounding deer management. This and the **case study interviews** explore regional differences.

Public awareness

- Better understanding of public awareness and perceptions of deer (including disease issues)
- Cultural differences and influences on perceptions of deer
- Attitudes to deer in other countries

Perceptions of woodland landscapes was investigated with a number of 'user groups' on site (see Newsletter 4) and Science week events on **public perceptions** evaluated views on deer and woodland impacts. A PhD at the University of St Andrews is exploring the **impact of culture on sustainable deer management. Deer and disease** issues are being investigated through another RELU project (below), and the **Peri-urban deer project** is considering public perceptions in an urban environment. The **Deer Vehicle Collisions** project is also relevant to these issues so an update is provided on page 6.

Knowledge transfer and role of research

- What barriers are there to practitioners using all knowledge available?
- Information dissemination and transfer of research findings to practitioners
- How to combine local and scientific knowledge
- Problems in linking data sets
- Potential for action research

The **participatory GIS** work explores how to include practitioner knowledge to improve a computer model to predict deer movement. A **database of literature relating to deer management** is soon to be placed on the project website. Reflecting on our **participatory interdisciplinary research** within the project team helps us understand how to combine different forms of knowledge.

Methods to assess diffuse deer impacts in the wider countryside

This Scottish Government funded project based at Macaulay, ended in March 2008.

Under European and UK legislation managers are obliged to include natural heritage objectives when managing land in the wider non-designated countryside. However, due to the complexity of natural heritage and land planning policy managers are often unaware of the need to consider these issues.

Deer are the largest wild grazers in Scotland and have a significant ecological role, but do not come under any statutory framework with respect to land management and are not subject to planning or development controls. Existing policy and guidelines tend to focus on habitats and species in isolation with competing objectives resulting in conflicting management advice. This reduces the effectiveness of policy and incentive schemes available for management of the non-designated countryside.

A fictitious case study area was used to examine the implications of natural heritage policies on land managers, and the impacts of deer management on wider countryside objectives. The aim was to produce an approach to aid the development

of general agreement on reasonable and legislative compliant objectives, indicators and targets in relation to deer impacts outwith designated sites.

Participatory GIS was used to model deer impacts on the landscape and identify potential “hotspot” areas where deer densities may be above that tolerated by particular habitats. Collating and displaying this information using PGIS in a workshop setting encouraged dialogue between land managers and local agency staff, who developed an understanding of each other's objectives and motivation for actions. The process highlighted gaps in information that could be filled using knowledge from local land managers and local/regional agency staff. The main outputs were;

- A legislation and policy audit identifying advantages and conflicts between objectives, including a potential strategy for implementing these objectives in the wider countryside
- A prototype participatory GIS-based tool to express deer-related public objectives for use in developing policy compliant sustainable deer management

Both the policy audit and the GIS start by addressing generic issues and then apply these in a specific case study area for simplicity and clarity.

To meet policy objectives, it is essential to engage land managers at the earliest stage so that workable assessment methods, effective monitoring and interpretation of the impacts on the natural heritage can be developed.

For more information about the project contact j.irvine@macaulay.ac.uk

Deer interactions with other grazers

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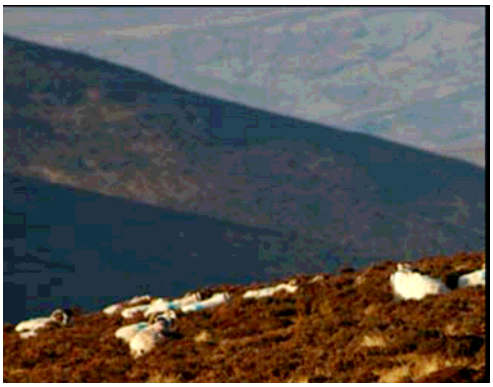
A Scottish Government funded study based at Macaulay is looking at deer and sheep grazing impacts and range use in the Scottish uplands. Heather moorland is internationally important because of its biodiversity and landscape characteristics. Grazing by deer and sheep is a key factor affecting the condition of heather moorland with woody species such as heather being less resistant to grazing pressure than herbaceous plants. Heavy grazing can lead to the replacement of heather with grassland communities.



Justin Irvine

Recent changes in the Common Agricultural Policy reforms have led to a steady reduction in sheep numbers in the uplands. At the same time deer numbers are reported to have increased substantially possibly due to climate and habitat changes. Reduction in sheep grazing is predicted to have a beneficial effect on upland heathlands by reducing grazing pressure, however some suggest that deer may move in to replace the sheep. The consequence of this shift in grazing pressure on upland moorland habitats is not fully understood.

The effect of grazing by deer and sheep and its consequences for plant species diversity was measured at sixteen sites across Scotland during 2007. Data on herbivore dung counts, grazed heather shoots, sward heights and plant species composition from 140 plots within these sites is being analysed to determine the extent to which heather use is related to the relative density of deer and sheep.

Local site factors such as rainfall and soil fertility will be taken into account when investigating how deer and sheep grazing affect plant species diversity.

Complementary work on sheep and deer interactions and grazing effects ongoing at the Macaulay Institute's research farm is investigating deer and sheep grazing patterns and impacts in relation to habitat types and weather. The animals are fitted with GPS collars to monitor how patterns of deer grazing respond to the removal of sheep over the next 3 years.

Monitoring deer impacts on vegetation

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Methods to assess and monitor the severity of browsing on planted trees in woodland have been available to ecologists for some time. However as the interest in deer impacts has widened to include effects on vegetation structure and bio-diversity, methods that reflect these have proved to be too time-consuming for use other than for research. Managers have been seeking quick and simple methods to determine the effects of deer on woodlands. As a result, field trials have been run by Forest Research using three different methods to try to assess which, or which aspects of each method, will be most effective for general use.

Animal disease risks

http://www.forestresearch.gov.uk/fr/INFD-77CEKT

This 3-year project **Assessing and communicating animal disease risks for countryside users** is investigating how to improve understanding of the risks of diseases such as Lyme Disease to those using the countryside. The project is evaluating how to communicate the degree of risk effectively, and how to encourage preventative action to ensure that the countryside continues to be a source of pleasure and well-being.

Isobel Cameron

The public is increasingly encouraged to participate in activities in forests and wild lands in the UK. These inevitably incur certain risks, one of the most insidious being the possibility (albeit tiny) of acquiring a disease from wild animals. For example, ticks can be vectors of the bacterial infection leading to Lyme Disease. Both diagnosis and treatment can be problematic so prevention of acquiring such disease is highly desirable. Surprisingly little is known about how best to warn countryside users about the potential risks without scaring them away or spoiling their enjoyment.

The programme requires an understanding of the views of those who manage the countryside, those who access the land and those who have contracted diseases from animals. There are three phases.

1. Understanding the present
2. Identifying possible futures
3. Actions for possible futures

Each phase involves scenario analysis, risk analysis and risk perception. The inter-disciplinary team of researchers from Forest Research, and Universities of Oxford and Surrey includes forest and parasite ecologists, environmental and social psychologists and social and political scientists. The programme is funded through RELU with additional funding from the Forestry Commission and the Universities of Oxford and Surrey.

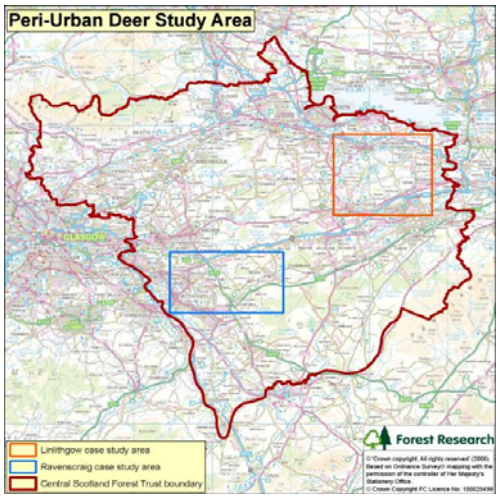
Developing methods to monitor performance and health of deer

The Scottish Government, via the Deer Commission for Scotland, have commissioned Forest Research and the Macaulay Institute, to develop a suite of measures of deer performance and health over the next 2 years. The project which started in January 2008, will focus on open hill red deer across Scotland and aims to develop a robust monitoring system that can not only be applied in the long-term but one that is appropriate for deer managers to undertake independently in the future. A Steering Group has been formed in which potential indicators of deer performance and health have been discussed and proposed. The current phase of the project involves the recruitment of a minimum of 20 large open-hill estates, through the distribution of a project leaflet to suitable estates, and the development of a pilot data collection package.

If you would be interested in becoming involved with the project please contact the Project Officer, rebecca.brassey@forestry.gsi.gov.uk

Peri-urban deer project http://www.forestresearch.gov.uk/fr/INFD-7D4AXC

Deer are increasingly interacting with people in urban areas through the expansion of such areas, increasing creation of deer habitat through projects such as the Forestry Commission's 'Woodlands In and Around Towns', and deer population expansion. Interactions include road traffic accidents, browsing of gardens, parks and cemeteries, and even wanton acts of cruelty with deer being set upon by dogs. Usual management methods such as culling may be more difficult to practice and less popular with peri-urban communities.



The project, which is focused on the Central Scotland Forest Trust (CSFT) area, examines the interaction of roe deer with people in peri-urban environments, and aims to develop a 'responsibility framework' for deer management in these areas, to help to identify appropriate stakeholder groups and preferred management policies.

Local communities will be asked about their interactions with deer and their preferences for management. The objectives are to

- Establish the distribution and scale of the peri-urban roe deer population within the CFST area
- Use thermal imaging techniques within two case study areas, Ravenscraig and Linlithgow to assess roe deer population density / distribution
- Increase knowledge of public attitudes to deer-human interactions within peri-urban areas

Local deer managers will be asked to comment on the suggested options for management. The project started in November 2007, will run for 18 months and is funded by the **Deer Commission Scotland** through the Scottish Government. More details can be found at the link above.

Deer Initiative Deer-Vehicle-Collisions project to continue

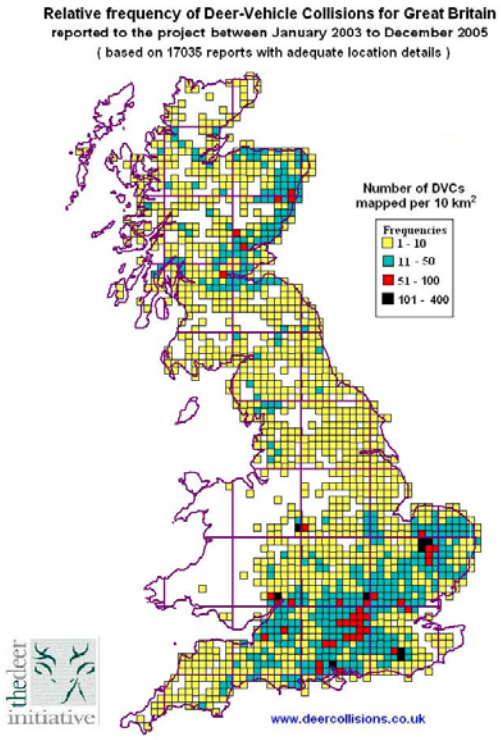
The following update on this project was kindly provided by Jochen Langbein.

Traffic collisions involving deer have presented a major animal welfare problem in the UK for many years, and lead to around 500 human personal injury accidents and several human fatalities every year. Ever increasing numbers of deer vehicle collisions (DVCs) are also reported throughout much of Western Europe and North America, with figures in the US alone now running at over 1,500,000 DVCs per year.

The UK National Deer-Vehicle-Collisions Project was set up in 2003 through ***The Deer Initiative*** with lead funding for the study coming from the ***Highways Agency*** and the ***Scottish Executive***. The main aims of the project for the first three years were to assess for the first time the true nation-wide scale and geographical distribution of the problem, and build a database to help identify hot spots and priority areas for mitigation.

There is no legal obligation to report collisions with deer or other wild animals to any authority. Hence the research could at best aim to obtain as large and stratified a sample of records as possible via a wide range of potential data sources including roads authorities, police, insurance companies, forestry managers, animal welfare organisations and others involved in dealing with injured deer at the road side, along with additional reports logged by individuals at the dedicated project web-site www.deercollisions.co.uk. By December 2005 over 30,500 distinct records had been collated by the project, providing a good basis for national mapping. Comparison of data samples captured by differing sources enabled estimation of the true toll of deer involved in collisions with vehicles in Britain, to be at least 42,500 and potentially exceeding 74,000 per annum (Deer Initiative, 2007). Over 80% of DVCs each year are recorded in England, with highest frequencies consistently from the south-east where traffic volumes are also greatest. Given that Scotland has somewhere in excess of 50% of Britain's deer population, the low percentage of DVCs recorded here may seem surprising. However once traffic volume is taken into consideration the actual risk of involvement in a collision with a deer is in fact roughly twice as high per vehicle-mile driven in Scotland as compared to England.

With ever increasing traffic levels and continuing spread of deer into peri-urban areas it is inevitable that this problem will continue to worsen unless concerted action is taken. Further support for the project from the ***Highways Agency*** and the ***Deer Commission for Scotland*** will allow continued monitoring of trends in DVCs over the coming years, focussing mainly on the best national sources of data including RSPCA and SSPCA, police accident records, road maintenance contractors, and forestry and deer managers. In addition, since 2005 the Deer Initiative project has increasingly looked into preventative measures; through both media releases to raise public awareness at a national level (timed to coincide with annual peaks of DVCs during late autumn and spring), as well as practical roadside trials to assess the potential of novel wildlife deterrents and interactive road signage. To date evidence remains lacking for any lasting effect of acoustic or optical wildlife deterrents under UK traffic conditions, or indeed for most other individual preventative methods. At high risk sites best results are likely to be achieved through working in close partnership with road authorities, forest and deer managers to develop local DVC prevention strategies which carefully integrate those roadside measures most suited to the local situation, with action to raise public awareness and management of the deer population.



See http://www.deercollisions.co.uk/pages/latest.html for detailed reports on the DVC project and www.thedeerinitiative.co.uk for further information about other work of The Deer Initiative.

Project team meeting

The team spent 3 very interesting days in the Poole Basin Case study area in late June. The area is of particular interest with large tracts of land managed by Government (MoD) and Non Government, (Woodland Trust, RSPB) Agencies, as well as private owners. The sika population is readily visible in certain places and helps to maintain the designated lowland heathland habitats.

Sundew taking advantage of deer track-ways

The team discussing issues whilst viewing sika

However there are concerns about impacts in gardens and to agricultural crops on tenant farms. This is comparable to the issues we have come across with tenant farmers and crofters in our case study sites in Scotland.

Photos Brenda Mayle

Science Week March 2008

The project team had a very successful involvement with the ESRC 2008 Festival of Social Science. Members of the public in Aberdeen and Edinburgh were invited to express their preferences for different woodland landscapes. They were then presented with information on the biodiversity value of different woodland types and the management required to maintain these woodlands and provide for these multiple uses, and asked to express their preferences again to see whether the new information changed their preferences for woodland type.

Feedback from you

Contact details for the Project team can be found at the individual university and institute websites or www.macaulay.ac.uk/RELU

Macaulay Institute: Justin Irvine Stefano Fiorini	Forest Research: Brenda Mayle, Liz O'Brien, Robin Gill, Norman Dandy, Helen Armstrong
University of York: Piran White, Zoe Austin, Jim Smart	DICE University of Kent: Douglas MacMillan
University of St Andrews: Rehema White	University of Edinburgh: Steve Yearley
University of Aberdeen:	René van der Wal, Amy Turner

We would like to thank everyone who has supported the project so far especially practitioners in the field study sites and look forward to this continuing and productive dialogue throughout the project. If you know of others who would like a copy of the newsletter please let us know. If you no longer wish to receive this newsletter or have any comments on it please contact **Brenda Mayle, Ecology Division, Alice Holt Lodge, Wrecclesham, Farnham, Surrey GU10 4LH** brenda.mayle@forestry.gsi.gov.uk

For feedback on any presentations we have given please see the questionnaire at www.macaulay.ac.uk/RELU/presentations_questionaire_July2007.doc

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