Progress on research on stakeholder preferences for deer management

Key questions on collaboration

The two central questions we are examining within the project are:

- 1. Can collaboration between stakeholders enhance deer management to maintain or increase the benefits obtained from wild deer while at the same time reducing some of the costs imposed by deer?
- 2. What are the barriers that hinder effective collaboration and how can they be overcome?

Choice experiments: what are they and why are they useful?

One of the ways in which we will be tackling these questions is through the use of a technique called 'choice experiments'. Choice experiments are increasingly applied in the areas of economics and healthcare, to determine the relative preferences of groups of people towards different groups of benefits or costs, where the benefits and costs themselves may be conflicting. For example, within healthcare, shorter waiting times, longer appointment times and faster referrals are all benefits, but it may not be possible to deliver them all simultaneously. A choice experiment could be used to quantify patients' relative preferences for each of these three factors by presenting patients with various scenarios summarising the state of each factor, and asking them to indicate their preferred scenario. This could then inform management decisions to improve the overall service. Where monetary values are included within the choice experiment, it is also possible to place a relative monetary value on changes in the different factors, which could then be used to quantify benefits in monetary terms or to guide investment strategies. Choice experiments can therefore play an important role in informing management and policy decisions.

How we are planning to use choice experiments in the project

The choice experiment component of the RELU collaborative land management project has the following aims:

- Investigate stakeholder preferences for deer management in quantitative terms
- Quantify extent of potential gains through collaboration
- Quantify trade-offs that stakeholders are willing to make between different outcomes
- Quantify the extent to which stakeholder preferences and trade-offs are influenced by the need to collaborate
- Quantify extent to which incentive payments may influence this
- Determine the extent to which preferences and trade-offs differ between stakeholder groups and across regions

For effective deer management at the landscape scale, we are interested in the tradeoff between different benefits and costs arising from wild deer. Three of the principal impacts are the cost to the economy/society via road traffic accidents, the cost to conservation interests via grazing or browsing, and the private benefits via stalking. These impacts are defined as 'attributes' within the choice experiment, and can broadly be categorised as road traffic accidents, conservation impacts and deer numbers respectively. The aim of the choice experiments is to present different scenarios to a range of participants, built around various levels of these 'attributes', to investigate what scenarios are preferred.

By necessity, in order to examine these tradeoffs in a rigorous statistical manner, the choice experiments must deal with a simplified hypothetical world, but the choices involved must still be feasible in the eyes of the participants to ensure that the results are reliable. There is a growing scientific literature on the methodology surrounding choice experiments, including the number of different levels of each attribute that can be included in relation to the sample size of respondents in order to achieve statistically reliable results.

For the choice experiments in the RELU deer project, we will be using three levels for each of the attributes described above. For simplicity and ease of description at present, we will refer to the levels within each of the attributes as low, medium and high, but these terms will be quantified as far as possible for the real choice experiments so that they are relevant and realistic in relation to specific locations and the associated stakeholders. This is an element of the design for which we will be seeking expert stakeholder input prior to running the choice experiments themselves.

Thus, a number of possible different choice scenarios (also known as 'bundles') may exist. Examples of these bundles are illustrated in the following table:

Choice bundle ID	Level of RTAs	Conservation	Deer numbers
		impact	
1	Н	Н	Н
2	Н	М	М
3	М	М	М
4	Н	Н	L

Of these four, the first three bundles are feasible, but the fourth one is unlikely to occur in reality. Unfeasible bundles such as this last one are removed from the choice set prior to running the experiment (again in consultation will expert stakeholders), to enhance its realism and to increase the statistical power.

Our plan is to present participants individually with a series of choices between several 'bundles' and ask them to select their preferred choice bundle in each case. The results of this can be analysed to give us information on the absolute preferences of different stakeholders towards deer management. Later in the same meeting, we will follow this up with a similar choice experiment, but this time, with an additional attribute, which will be one relating to the extent of collaboration (e.g. options such as the status quo, DMG meetings but no formal targets, DMG meeting including cull targets). The final stage will be to introduce a payment attribute, which would be equivalent to a 'deer stewardship' type payment, so that, for example, if deer numbers were managed to increase public benefits (e.g. reduce impact on conservation and road traffic accidents), the landowners would receive a payment. Effective management in this way would be likely to involve some degree of collaboration, and through the choice experiments, we will be able to determine the perceived 'cost' of collaboration and also the levels of incentives that could be applied in a policy context to encourage it.

When will we be doing them, and what are we up to now?

Clearly, the success of the choice experiment and its usefulness in terms of its applicability to policy depends on the design and use of appropriate attribute levels. We plan to conduct the first choice experiment in mid-November, with two more to follow before the end of the year. Therefore, over the next few months, we will be making contact with various expert stakeholders in different parts of the country, so that we can identify suitable areas in which to conduct the experiments, refine our attributes and their levels, and identify other experts to consult at the initial planning stage. This process has now started, and through it, we hope to make the choice experiment relevant, and as realistic as possible, for the different areas.

Would you like to get involved?

If you would like to get involved by suggesting study sites or by taking part in the choice experiment work itself, please get in touch with Norman Dandy (tel. 01420 526 228, email: norman.dandy@forestry.gsi.gov.uk).

Piran White 25 July 2007