MSc Rural Development and Resource Management

Deer Management in Northumberland: Current Practices and Future Options

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Confirmation

I can confirm that this report is my own work and that all sources are fully referenced and acknowledged.

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Glossary of Acronyms

ASNW – Ancient and Semi-Natural Woodland

BGRP – Black Grouse Recovery Project

DEFRA – Department for the Environment, Food and Rural Affairs

DMG – Deer Management Group

MOD – Ministry of Defence

NNPA – Northumberland National Park Authority

NNWP – Northumberland Native Woodland Project

SAC's – Special Areas of Conservation

SSSI – Sites of Special Scientific Interest

Executive Summary

The overall aim of this piece of research is to investigate the future options for deer management in Northumberland through a review of current knowledge on deer management practices in the UK, an explanation of how deer management groups work and an examination of what practical action could be taken to improve the management of deer in Northumberland.

The research process for this project included the analysis of policy papers and past research, a series of in-depth semi-structured interviews and attendance at national, regional and local conferences and events.

The results of this project were gathered through public organisations and a range of stakeholders involved in the management of deer in Northumberland.

The results of this research have led to a series of recommendations for the future management of deer in Northumberland. These include the further identification of training opportunities for deer stalkers, the production of a detailed map of deer management for the case study area, the further development of collaboration in deer management through existing projects and the identification of potential leaders of a collaborative approach in the deer management community.

Introduction

The social, economic and landscape impacts of wild deer and the management of the wild deer population in the UK have not previously been the subject of sustained social science research and analysis. However, in recent years the challenges surrounding the management of deer have begun to attract the attention of academics, with the Rural Economy and Land Use Programme funding a project to examine collaborative frameworks in land management by using the integrated management of deer in the UK as a case study. This project reflects a growing concern on the ground about how to manage the increasing deer populations in a way which recognises different legitimate interests. This MSc dissertation provides a social science perspective on deer management based on the case study of Northumberland. It focuses in particular on what kinds of individual and collective action is needed to improve the current situation. The project was funded by Northumberland National Park Authority, Rural Development Initiatives and the Centre for Rural Economy. The overall aim of the research is to:

> "Investigate future options for deer management in Northumberland."

Though specifically focussed on Northumberland this dissertation is a response to current issues relating to the management of deer on a local, regional and national

scale. The management of deer and wider issues related to game products are becoming increasingly important politically on a UK wide basis, with consultations launched in 2006 with regard to game licensing and deer management due to report on new legislation in autumn 2007. In addition, the increased focus on biodiversity and conservation has brought deer populations into focus. The Deer Initiative was created in 1995 to oversee and 'ensure the delivery of a sustainable, well-managed wild deer population in England and Wales' (Deer Initiative 2007). The initiative comprises of a number of both public and private organisations involved in the management of deer in the UK, and deer are managed under the protocols of the 'Deer Accord' which aims for a 'partnership' approach to deer management. On a regional level, deer management is an important issue and is highlighted in the 'Regional Forestry Strategy for the North East of England.' The strategy highlights the North East region's 'broad-based forestry sector' (Regional Forestry Strategy for the North East of England p.7) and also includes action plans to cover the years 2005-2008, including objectives to 'enhance and protect the region's landscape, the quality of the environment and biodiversity' (Regional Forestry Strategy for the North East of England, p. 4) and an action to 'investigate the establishment of a North East deer management group' (Regional Forestry Strategy for the North East of England, p. 21). These national and regional reports and initiatives highlight the fact that a lot of resources are now going into deer management nationally and that several different practical models of deer management are now in operation.

Recognising this experience will be important to understanding the Northumberland case study, and therefore the first objectives of the project is:

> "To review current knowledge on deer management practices in the UK in order to identify common practice in other areas of the UK, to understand why deer management is a difficult issue and to explain how deer management groups work."

On a local level in Northumberland, a report written by Kit Brown in 2006 on behalf of the Northumberland Native Woodland Project Steering Group examined the condition of ancient semi natural woodlands in Northumberland over a 3 year period. Brown highlighted that 61% of ancient woodland in Northumberland is in an 'unfavourable declining' or 'partially destroyed' condition and that 'deer browsing in particular appears to be impacting adversely on the success of natural regeneration of native species' (Brown, 2006, p. 7). Brown noted that the most desirable option in Northumberland is to 'reduce deer numbers to a point where fencing and individual tree protection is unnecessary' (p.28) and recommended that 'the formation of deer management groups as a way of obtaining a coherent and sustainable strategy to protect woodlands from damaging levels of browsing should be explored' (p. 35). This dissertation investigates whether Brown's recommendation that deer management groups are formed in Northumberland is viable and/or desired by those who would be involved in such groups.

As such the second objective of the dissertation is:

> "To examine what practical action could be taken to improve deer management in the Northumberland case study through in-depth interviews with those involved in land management in the area in order to make a series of practical recommendations about future action to improve deer management."

To address the two objectives the dissertation is split into three sections. The first section of the dissertation is based on a review of the limited number of documents, publications and literature regarding deer species and deer management, and the role of common resource management in wild deer populations. The second section provides an explanation and justification of the methods used in the collection of data during the research process. The third section of the dissertation provides the results of the research process. This section defines the nature of the problem in Northumberland, the current deer numbers and the current management in place. In addition, the future options for deer management in Northumberland are highlighted, followed by a number of recommendations for the future.

Chapter 1: Deer populations and Deer Management: A Review

1.1 Deer in the UK

In the UK there are six species of deer. These are red deer (Cervus elaphus), sika (Cervus nippon), fallow (Dama dama), roe (Caproleus caproleus), muntjac (Muntiacus reevesii) and Chinese water deer (Hydropotes inermis) (Gill, 1992). Of these species, red and roe deer are native to the UK, and fallow, sika, muntjac and Chinese water deer have been introduced to the UK from abroad (Defra and Forestry Commission, 2004).

The precise number of deer in the UK is difficult to quantify. Prior (1987, p.3) highlighted that "we may have 300,000 red deer (290,000 of them in Scotland), 300,000 to 400,000 roe deer, 50,000 fallow deer, perhaps 10,000 sika and an uncounted multitude of muntjac and some Chinese water deer." These figures can be compared to more recent population estimates from 1996 which, when calculating road traffic accidents involving deer, calculated a UK roe population of 500,000 and an estimated 750,000 head of other deer species in the UK (Groot Bruinderink and Hazebroek, 1996). In addition, Mayle (1999) considers the six species of wild deer in Britain today to have a total population 'of around 1 million.' The inconsistencies in population estimates and the lack of definite and reliable figures for UK deer numbers is highlighted by Smart et al (2004, p.99) who note that "although some deer populations have been monitored for many years, the

data that exist on a national scale are biased geographically, the effort accorded to different species inconsistent, and the quality between regions highly variable".

Regardless of a lack of definite population estimates for UK deer, there is a general consensus in the literature that deer numbers are increasing. Prior (1994, p.26) notes that "the most important increase in deer populations occurred during the 20th century and is linked to one major change in land management: the big increase in afforestation which has occurred since 1920." It is clear that changes to land use have affected deer populations, as Staines (1974, p.12) suggests, "most British [deer] species have benefited from the increase in forestry plantations…and are well adapted to woodland with understorey." Mayle (1999, p.1) highlights these changes further, noting that "woodland clearance and over hunting reduced deer in historic times, but during the 20th century deer species have re-colonised both ancient and new woodlands over much of their former range".

1.2 Increasing deer numbers and the effects

While it is difficult to accurately quantify UK deer numbers on a national scale, it is perhaps adequate to understand that deer numbers are increasing. As Staines (1974, p.14) suggests, "the distribution of deer is largely a result of mans influence in increasing forestry plantations, but deer are also highly successful mammals." This combination is further detailed by Prior (1987, p.3) who notes that "through

Europe the increase in hoofed game [has been] as dramatic as the reduction in wild stocks of pheasants, partridges and other game birds." This increase in wild deer populations can also be attributed to other factors, including the fact that "wild deer in Britain have no natural predators" (Prior, 1994, p.26). In addition, increases in deer numbers can also be considered from an ecological perspective. As Ratcliffe and Mayle (1992, p.2) suggest, "deer populations will increase in numbers until food shortage or social behaviour triggers regulatory population mechanisms". These 'mechanisms,' which suggest a reduction in deer numbers, do not often occur before serious damage has occurred. This highlights one of the reasons why from an economic perspective in forestry, human intervention in deer populations is necessary.

In addition, Fuller and Gill (2001, p.93) highlight a range of other factors which have resulted in an increase in deer populations in the environment, including "beneficial changes in agriculture such as the increased growth of winter cereals and a reduction in extensive livestock husbandry." As well as changes to forestry and agriculture previously highlighted which have proved beneficial for a burgeoning deer population, Fuller and Gill (2001, p.194) also note that the hunting of deer has "become subject to tighter control and management" and that the warming of the UK climate over the past 200 years has been beneficial for deer. Changes to land management and the subsequent increase in deer populations in the UK have required a different approach to wild deer management.

Deer in the UK need to be managed in such a way that a sustainable wild population can be achieved. There are several reasons why deer management is a necessity. Firstly, both established and newly planted woodlands for conservation of biodiversity and recreational usage can be adversely affected by an unmanaged deer population. Secondly, there is an imperative to prevent damage to crops in both the agricultural and forestry sectors to prevent economic loss. Finally, deer are a significant cause of road traffic accidents.

1.3 Deer damage to agriculture, woodlands and commercial forestry

Wilson (2003, p.1) on behalf of the Department for Food, Environment and Rural Affairs, highlights that the '"likely annual cost to agriculture of damage by deer in England may be around £4.3 million, or within the range £1.1 to £5.6 million." The research considered the Government Office regions in England, and in highlighting the North East, Wilson notes that the "estimate of likely annual costs of deer damage to agriculture [in the North East] is £191,100". This compares favourably with figures from the South West and Eastern regions with estimates of £986,400 and £951,900 respectively. While agricultural damage is still an issue, it is clear that deer damage to woodlands in the North East is potentially more significant.

The relationship between deer and woodlands is a strong one, and forms much of the literature on deer and the natural environment. Prior (1987, p.3) highlights this relationship, commenting that "all deer prefer to live in woods, and though some

species take farm crops as a large proportion of their diet, all of them eat the leaves and twigs of bushes and trees to some extent." In addition, McKinley (1999, p.11) further highlights the favourable conditions for deer in woodlands, noting that "[deer] find shelter, security, breeding terrain and much of their food in woodlands, and most of the economically significant damage they cause occurs in woodlands."

Significant damage to commercial forestry interests is highlighted in the literature, both in the establishment of new woodlands and forestry plantations and browsing damage caused by deer later in the growth stages of the trees. Ratcliffe and Mayle (1992, p.4) note that "roe deer browsing on commercially important tree crops can reduce early height increment and therefore increase establishment costs." The 'browsing' by deer in woodland environments which "refers to all forms of feeding damage other than bark stripping…which involves the removal of twigs, shoots, leaves, needles, buds or flowers from either young trees or coppice stools" can cause significant economic damage to commercial forestry interests. Ratcliffe and Mayle (1992, p.4) further highlight this in the future management of forestry after the establishment stage when "browsing [by deer] may also result in trees producing multiple leading shoots which can cause economic loss by reducing timber quality."

In addition to browsing, deer also damage commercial forestry plantations by bark stripping and fraying. Not all deer strip bark from trees, and not all tree species are

affected. As Mayle (1999, p.5) suggests, the tree species of “Norway spruce, lodgepole pine, larch, ash, willow and beech are favoured” and the only deer species which will “peel and eat bark are red, sika and fallow deer.” Tree fraying can also affect the “quality and quantity of timber produced from commercial forests” (Armstrong et al, 2003, p.11) as “male deer mark their territories and clean the velvet off their newly grown antlers by rubbing or fraying them on young, whippy trees” (Mayle, 1999, p.5). Tree fraying can cause serious damage to young trees and therefore stifle woodland regeneration. In the same ways that bark stripping differs between species, tree fraying by roe deer is usually “in spring or summer whereas red, fallow, sika and mature muntjac deer usually do this in the autumn” (Mayle, 1999, p.5).

From a commercially managed forestry perspective, deer damage can have a negative effect on the regeneration of woodlands. Gill (2000, p.1) highlights the grazing pressure from deer on woodlands which ‘”severely reduces seedling diversity and delays the growth of the few remaining survivors.” During this re-growth period, deer browsing and grazing can be particularly damaging and can “severely undermine the viability of coppicing systems of woodland management”(Harmer et al, 1997, p.203).

While commercial coppice management is negatively affected, this form of woodland management is also often used in conservation and amenity woodlands. This form of management provides a worthwhile link between commercial forestry

and conservation, something which is increasingly intrinsically linked in the management of woodland areas. Putman and Moore (1998, p.142) highlight this link and note that “deer damage to conservation habitats in England and Wales is largely restricted to woodlands…the major problem is damage to coppice re-growth on sites where coppice management has been recently introduced.”

1.4 Deer impacts: economic hindrances v biodiversity conservation

There is an interesting relationship which exists in the literature between the significant economic damage which occurs by deer in commercial forestry, and the potential benefits that a wild deer population has for woodland biodiversity and conservation. While it is clear that unacceptable damage does indeed occur in areas of woodland for conservation, in particular coppiced areas, the literature does suggest that there are potential benefits for conservation areas. In addition, if land is managed for deer stalking, this can also affect and alter how the woodland is managed. This perhaps leads to different approaches to deer management. As Price and Thomson (2004, p.7) reflect in their work on red deer in Scotland, those involved in the “management of either forestry or biodiversity regeneration will have a differing view on what are acceptable levels of impact from those responsible for areas focussed on deer stalking.”

In terms of native woodland, and consequently also often the conservation of biodiversity, deer can play an important role at low densities of population. Palmer

et al (2004, p.2882) note that “browsing can help to control dense shrubs, and their selective feeding patterns create a mosaic of vegetation which can enhance biodiversity”. In some management approaches, the presence of deer and the ‘damage’ they cause may be a benefit or detriment to the woodland, depending on the rationale for management. It is clear that all the different factors of management and impacts of deer on the environment have to be considered on a landscape and local scale. Price and Thomson (2004, p.2) highlight this and note that ”it should be recognised that the term ‘damage’ is subjective, and implies that deer primarily have negative impacts on diverse aspects of the national heritage…[but] there are also positive effects of deer.”

This notion of considering damage to woodland as subjective is important and further highlighted by Putman and Moore (1998, p.144). They note that when woodlands are managed for conservation value, there is a risk that the management objectives of particular sites may be “infected by worries from economic forestry.” This highlights that management objectives often differ, and that “managers of conservation areas may forget that the objectives of management are clearly distinct from economic forestry when confronted by unchecked growth or lack of regeneration [in conservation woodlands] for example.”

In addition, the ‘damage’ and environmental changes induced by rising deer populations can often be attributed to other sources. As Fuller and Gill (2001,

p.196) comment, there are other factors which “may be changing simultaneously which could induce ecological changes similar to those predicted to occur in response to rising numbers of deer.” These other factors could include the “influence of canopy closure reducing bramble, increasing soil nitrogen changing vegetation, the effects of other mammalian herbivores and climate change” (Fuller and Gill 2001, p.197).

It is clear that the management of deer in woodlands must form part of a wider management strategy. A wider strategy takes account of the positive and negative aspects of having deer present in the environment, the different impacts and the different scale of these impacts. As Gordon et al (2004, p.1026) comment, “it is fundamentally important to understand the scales of impact driving vegetation or landscape change is large herbivore dominated ecosystems.” This idea of ‘scale’- management on a landscape level and management on a more focussed localised level, is also highlighted in the literature. For instance, Gordon et al (2004, p.1025) note, “heavy grazing at the landscape scale may lead to…a reduction in diversity, whereas at local scales heavy pressure on preferred vegetation might locally increase diversity through the provision of new germination niches by trampling or improved nutrient cycling.”

1.5 The management of 'common' resources

It is worthwhile to attempt to understand some of the problems which may arise in relation to the management of deer as a natural common resource. In law, wild deer are a 'common' resource in the environment, and as such, useful comparisons can be drawn in the literature between the management of deer and the management of common grazing rights. Understanding the implications of deer being a common resource is vital to the successful management of the species. Tremblay et al (2004) note that in the creation and operation of deer management groups, the notion of a common resource can prove difficult as the natural resource in this instance is an asset as well as a threat to ecosystem integrity. This imbalance between the positive effects of having deer in the environment and the negative effects of the damage they cause is also highlighted in the literature in regard to common interests. Brown and Slee's 2004 work on the grazing rights of common land in Scotland can be applied to the management of the common resource of wild deer species. They note that many authors on the subject suggest that the joint use of resources would always tend towards failure due to the inherent conflict between individual and common interests. The main purpose in the common management of wild deer is generally to maintain a 'sustainable population' (Defra and Forestry Commission England, 2004) of wild deer, but this may not always be in the interests of all individuals involved in deer management.

The literature on common resource management assists in understanding the conflicts and interests involved in collective and individual action to manage deer. This issue is highlighted by Brown and Slee (2004, p.7) as a common property issue, as they note that “the rational individual would always have an incentive to extract an additional resource unit, as all the benefit would be theirs alone while the costs would be spread amongst all the users.” It is clear that this can be applied to the example of the conflict between deer stalkers and woodland managers. It soon becomes evident that an increase in deer numbers is beneficial for the deer stalker and costly for the woodland manager and that a decrease in deer numbers is costly to the stalker and beneficial to the woodland manager. Any attempt at collaborative deer management through a group should attempt to balance these inconsistencies between individual stakeholders.

It is clear that deer management is about social and political relations as well as economic and ecological imperatives. The balancing of positive and negative aspects of deer population is examined in the work of Bullock (1999, p240) in the case of Scottish red deer. Bullock notes that there are “individuals who have bought land which is valued for the access it provides to the deer population for stalking” but that this must be contrasted with a wider range of interests which are affected by deer populations. These interests may include ‘”and which is planted for forestry, grazed by sheep, managed for the shooting of grouse or valued (by owners or society) for its wildlife or landscape value.” Deer populations affect

these wider interests and, as Bullock (1999, p.247) suggests, the “grazing pressures of an increased deer population can be a costly externality.”

1.6 Deer Management Groups: A model for the management of common resources?

As the literature suggests, deer can be costly and need to be managed in the environment. Deer management groups are seen as a form of collective and collaborative action which aims for a sustainable population. It is clear that a co-operative approach is beneficial to deer management and that this is largely due to the ‘common’ nature of wild deer. As Steffens and Schmid (1996, p.6) suggest, “deer have a number if characteristics affecting the interdependence of the parties involved.” They highlight that “deer move around in partly predictable, partly random patterns…and property lines do not follow the habitat requirements of deer.” It is clear in this instance that some form of a collaborative approach to deer management is worthwhile as “it is not feasible for an individual to fence an area, invest in deer management, and then keep the benefits for him/herself” (Steffens and Schmid 1996, p.6).

In the past however, deer management has been individualistic in its approach, as all parties have traditionally had a range of different priorities and goals. Bullock (1999, p.236) highlights this point and notes that in deer management historically there has been an “inherent preference for individual strategies founded on

competition, strategic behaviour and environmental uncertainty." In addition, there seems to have been an approach in some areas which bordered on the disorganised as "deer are not formally owned…and therefore neither forestry owners nor estate owners incur liability" (Hanley and Sumner 1995, p.90). Bullock (1999, p.236) states when discussing the management of red deer in Scotland, "[historically] there have been tacit agreements, but the normal situation has been one of mutual suspicion as evidenced by past attempts to fence in this common resource."

There is a large amount of information in the literature in regard to the management of deer through specific deer management groups (DMGs). These groups aim to co-ordinate the management of deer in a particular locality at either a local or landscape scale, and in managing deer contribute to "reducing damage, maintaining a healthy population balance, and taking a harvest of venison, sport or recreation" (Prior 1987, p.3). The majority of the literature suggests that a collaborative approach to deer management is really the only sensible option for effective management of the species. Ratcliffe and Mayle (1992, p.2) suggest that "in British forests there is seldom justification for not managing deer populations in some way," and note that as deer freely move around in the environment and do not conform to ownership boundaries, then "landowners and managers occupying continuous areas of deer range must co-operate." The Institute of Chartered Foresters (1989, p.6) continue on the subject, and highlight the need for this co-ordinated approach as "owners of forests and woodlands should recognise that

there are circumstances in which they would be very foolish not to liaise with their neighbours."

Prior (1987, p.40) highlights that the management of deer can be a frustrating process, and when an individual attempts to control deer which are "on his land one day and somewhere else the next" it becomes clear that the movement of deer is the main problem in managing them. The movement of species also proves difficult in coordinating and sustaining a collaborative approach, although as the Institute of Chartered Foresters (1989, p.6) suggests in this situation, all parties involved should "negotiate an equitable course of action."

While collaboration is recommended in the academic literature, this may prove more difficult on a practical level. One main problem is balancing the varying aims and objectives of stakeholders engaged in the process of deer management and what their rationale for management is. In woodlands, McKinley (1999, p.28) suggests that the main priority should be woodland viability, and that "the objectives of any deer management system [should be] dictated by the needs of woodland management rather than dealt with as a separate sporting issue." Bullock (1999, p.28) stresses that deer management groups have been useful in building communication links between stakeholders and that this has helped to reduce the "strategic uncertainty…of one agents actions being dependant upon those adopted by another." In this instance it is clear that collaboration is useful, but this does not always solve the problem of divergent interests. As Tremblay et

al (2004, p.2) clearly highlight; “the sustainable management of the natural heritage [requires] the integration of complex ecological processes, social, cultural and political values, as well as economic feasibility.”

In addition to the often polarised objectives of stakeholders involved in deer management, is the way in which deer management groups and the effect this can have on the success of such forms of management. In Scotland, Bullock (1999, p.237) suggests that deer management groups are not always effective, and have been formed with outside interference. He suggests that they have “not been formed endogenously and can therefore impose no sanctions on wayward estate owners.” This notion of the way in which local deer management groups are formed is an important issue in the literature, and local knowledge is seen as central to the process. In relation to the management of common resources, Agrawal and Gibson (1999, p.638) highlight the importance of local knowledge and participation, and note that “actors in the local space may be the more appropriate source of rule-making for a significant range of problems because of their specialised information about the local context and resources.”

Highlighting that the local actor establishment of deer management groups is essential for their success, Morley (2003, p.7) comments that the endogenous ‘bottom-up’ approach to the creation of a group is the “only way that land management requirements can be taken into account” and that the impetus for the establishment of a group should “come from the landowners and managers

themselves.” In addition to this, Gordon (2003, p.52) highlights that local actors should be involved in the process throughout, and that “the active participation of the majority in drawing up deer management plans is also a prerequisite for effective participatory involvement in deer management.”

Chapter 2: Methodology

This chapter provides an explanation of the different research methods used in the research process and the reasons why these methods were chosen. Three different methods were used; the analysis of policy documents and past academic research papers, a series of semi-structured interviews with stakeholders in the case study area and active participation in a range of conferences and events. The final part of this chapter introduces the case study area of Northumberland.

2.1 Analysis of policy documents and past research

The first method used was a desk based study to review all of the relevant academic literature in relation to all of the aims and objectives of the project. This included analyses of:

- The literature on deer species, their history and the economic effect of deer damage in woodlands, the different types of deer control and the effects of deer on woodland biodiversity.

- The current national policy context in terms of deer management and the prospects for the future arising from this, and the role of the Deer Initiative in UK deer management.

- The literature on the role of different stakeholders in deer management groups (DMGs), the rationale for DMGs and case studies of current groups.

This analysis of relevant documents allowed me to address the first research objective of the project which was 'to review current knowledge on deer management practices in the UK in order to identify common practice in other areas of the UK, to understand why deer management is a difficult issue and to explain how deer management groups work.' In order to address the second objective of the research project which was 'to examine what practical action could be taken to improve deer management in the Northumberland case study through in-depth interviews with those involved in land management in the area in order to make a series of practical recommendations about future action to improve deer management' then primary research was required. This was conducted through a series of semi-structured interviews, and participation in conferences and events.

2.2 Semi-structured interviews

The semi-structured interviews were conducted over the period November 2006 through to June 2007. In total sixteen interviews were conducted face to face, one was conducted by email correspondence and one conducted over the telephone. A set of similar questions were asked in each interview, and these can be seen in appendix 1. In addition to the semi-structured interviews, I attended four

conferences and events including the national conference of the Deer Initiative in Derbyshire.

The process of selecting people to interview relied on a process of 'snowballing' with one interview leading to another. I attended a meeting of the NNWP in early November enabling me to make the contract for the first interview. It was clear that those involved in deer management in Northumberland are generally closely linked and this was advantageous in organising further interviews. I aimed to ensure that I interviewed those involved in deer and land management across the National Park and its surrounding area. To monitor geographical coverage and to keep a note of progress, a map of the area was marked up as the research progressed.

There are many benefits to using semi-structured interviews, and this research method was ideally suited to the subject matter due to the wide range of different stakeholders involved. Many of the interviews were held in the home of the interviewee, and this was advantageous as it seemed to make the interviewees' at ease in the situation. As Flowerdew and Martin (2005, p.42) suggest, speaking to interviewee's "on their own territory' is useful for a successful interview as it "can facilitate a more relaxed conversation…and allow the interviewer to learn more about the person".

This approach was particularly suited to interviewing the deer stalker and gamekeeper stakeholders in the research study. These stakeholders were often difficult to contact and to make arrangements for an interview, but the semi-structured interview when it did occur was successful. Often in these instances, my agricultural degree background and my interest in countryside issues seemed to break down a barrier between myself as the researcher and the interviewee. The conversations I had with some interviewees were wide ranging and covered issues other than those being studied as part of the research. This had a positive effect on the data gathered in terms of helping to build trust, although it did sometimes prove difficult to keep focussed on the specific aim of the interview. The benefits of the process far outweighed any disadvantages, and as Flowerdew and Martin (2005, p.43) suggest; “sharing a similar identity facilitates a rapport between interviewer and interviewee…producing a rich and detailed conversation”.

Throughout the research process, the importance of the credibility of me as a researcher and the choice of semi-structured interview techniques as a research methodology was highlighted. One estate gamekeeper who was interviewed commented that I was the first ‘normal’ person he had met from an academic background. We were able to build up a rapport; and he further commented that in his previous experience of being interviewed by researchers, the interviewer usually ‘had no idea about what we actually do.’ Throughout the interview process in the interviewees’ home I was able to explore issues in depth and as Bryman (1988, p.54) highlights “the interviewee [was able to] explain the complexities,

contradictions and mundane details of their everyday lives". As such, the semi-structured interviews often lasted longer than I had initially anticipated.

In addition, after one interview with a deer stalker I was asked to go and shear some sheep for the interviewee at his farm. This further enabled us to build a rapport after our first meeting, and indicated that not only did he trust me as a researcher but also as an independent individual away from the research. I was able to discuss the progress of my research while working and this gave further credibility to my research process. The second meeting gave me the opportunity to ask more probing questions, a more fluid conversation developed than during our first meeting and I was able to gather data that was "rich, detailed and multi-layered" (Burgess 1984, p.32).

2.3 Participation at events and conferences

The conferences and events attended throughout the research process included the Deer Initiative conference, an event to discuss game meat marketing in Northumberland and a seminar on deer management. These were a useful addition to the semi-structured interviews, and provided an ideal networking opportunity and the chance to arrange further interviews. By attending national, regional and local events, it was possible to build a picture of deer management in the UK by contrasting the different scales of management in different areas of the UK.

2.4 An introduction to the Northumberland case study

This project is based on a case study Northumberland, which can be seen in the map in figure 1:

Figure 1: Map of the research area (www.northumberland propertysearch.com 2007)

The county of Northumberland is sparsely populated. The population totals 307,190 people (ONS, 2001) and the population density is low at 61 people per km^2 (Northumberland Info Net 2007). The main industries in the largely rural county of Northumberland are land based agricultural and forestry enterprises, and the importance of these is highlighted in the employment statistics for the county. Those in employment in agriculture, forestry and fishing represent 2.3% of the

workforce of Northumberland, in comparison to an England average of 0.8% engaged in such employment (Northumberland Info Net 2007).

The high quality of the natural environment is a feature of the county of Northumberland. There are a range of designations. Northumberland National Park has been officially designated since 1956 and covers 405 square miles (NNPA 2007). In terms of environmental sites, Northumberland has a larger than average number of SSSI's. There are 113 SSSI's in Northumberland as a whole covering a total of 56,307 hectares which represents 11.2% of the total land area of the county. This compares with the percentage area cover for England of 8.2% (Northumberland Strategic Partnership, 2005).

Land ownership in the county includes a large number of estates, both public and private. Traditional agricultural and sporting estates are prevalent in the county, as are the publicly owned estates of the Forestry Commission at Kielder Forest and the Ministry of Defence at Otterburn Training Area. In addition, Northumberland has a high proportion of tree covered ground representing 16% of the land area (Forestry Commission 2002). The largest proportion of this forest cover is coniferous plantation for commercial forestry, which represent 72% of total forest cover (Forestry Commission 2002).

Chapter 3: Results

3.1 Defining the Nature of the Problem: Current deer numbers and management in Northumberland

The research project is a response to the findings and conclusions of a survey conducted by Kit Brown on behalf of the NNWP. The survey highlighted the extent and condition of the ancient woodlands in Northumberland and found that a large proportion of the damage which occurs in these woodlands is attributable to grazing by mammals, and in many instances directly attributable to the browsing of flora and fauna by wild deer. From this perspective, it was clear that there is a problem with deer in Northumberland.

The assumption that deer are too numerous and are causing ecological and landscape problems is also evident in national level reports and the objectives of national deer projects. The Deer Initiative aims to promote and encourage the management of deer in England and Wales to achieve a 'sustainable and balanced population of wild deer' (Deer Initiative, 2006 pp15). In their annual review of 2005/2006, the Deer Initiative notes that they 'continue to work with a wide range of partners to promote collaborative deer management at a landscape scale, particularly to address the issue of woodland SSSI improvement (Deer Initiative, 2006 p.6). In terms of national SSSI improvement, the government has 'a target of 95% of SSSI's to be in favourable condition by 2010' (Deer Initiative,

2006 p.6) and woodlands form a significant part of this figure. Nationally, it is clear that SSSI targets are behind the current sustained importance of deer management. John Robbs, the Wildlife and Countryside Director for Defra highlighted this at the national Deer Initiative Conference, noting that the Deer Initiative is 'aiding national conservation targets with their work and this is important form a national government perspective.' In addition, Jonathan Spencer, the Senior Ecologist for the Forestry Commission at the same conference noted that 'it is unlikely that deer management will disappear from the political agenda anytime soon.' He highlighted that 'ancient woodlands are on the political agenda at present' and that policy targets (such as those on SSSI's) 'drives resource allocation and action on deer management.' He made clear that the SSSI target from government is the main driver and commented that 'the condition of SSSI's has led to the current deployment of priority support for deer management.'

With an appreciation of this national picture, it is then useful to further consider the case study area of Northumberland and the work of the NNWP in regard to the status of woodland SSSI's and other ASNW sites. Brown's survey work noted that the area of ASNW in Northumberland is only 0.5% of the land area of the county, and that very few of these woodlands exceed 10ha in size (Brown, 2006 p.10). The report found that 61% of the ASNW sites in Northumberland were in an 'unfavourable or partially destroyed condition' (Brown, 2006 p.7). While this did show that a large proportion of ASNW sites were damaged and that a significant amount of this damage was due to deer, the report also did highlight that '96% (by

area) of SSSI woodland sites were in favourable or recovering condition. In their glossary of SSSI terms, Natural England highlight that 'favourable' condition suggests that the 'SSSI is being adequately conserved and is meeting its conservation objectives, however there is scope for the enhancement if these sites' (Natural England, 2007). Although a large proportion of the ASNW sites surveyed in Northumberland were in poor condition, as Brown notes, 'those designated as SSSI's (and arguably therefore the sites of greatest conservation value) are predominantly in good condition' (Brown, 2006 p.7).

In their 2005/2006 annual review, The Deer Initiative highlighted a number of woodland SSSI's as 'priority areas in which resources will be allocated' (Deer Initiative 2006 p.6). None of these priority areas were in the north, and were focussed on areas south of the midlands including the south east and south west of England. In addition, the Deer Initiative promotes collaborative and sustainable approaches to deer management through a number of 'deer liaison officers.' There is currently no officer for the north of England, and the point of contact for any stakeholders involved in deer management in north whom may wish to contact the Deer Initiative is their head office in Wrexham, Wales. In their annual review, the Deer Initiative comments that they will 'continue to pursue opportunities to generate enough support for a deer liaison officer in the Northern region' (Deer Initiative, 2006 p.8).

From a conservation perspective in Northumberland; considering the work of the DI and the results of Brown's survey work in relation to the condition of SSSI's in

Northumberland, it seems that the notion of a real 'problem' with deer in Northumberland does not exist on the same scale as other parts of the UK such as the south west and south east regions. Deer have been shown to cause significant problems for ASNW sites in Northumberland, but SSSI's are in a favourable and acceptable condition. The absence of a deer liaison officer for the north and the aim of the DI to 'generate enough support' to provide such a contact in the future perhaps suggests that deer and the impacts associated with their presence in Northumberland are not as much of a 'problem' and pressing issue for land management as it is in other parts of the UK. The 'problem' in Northumberland needs to be understood as largely confined to ASNW sites. The issue of deer impacts is different in the small ASNW sites surveyed by Brown in comparison to the larger areas of commercial forestry in the county. Other deer impacts, on commercial forestry for instance, certainly do exist but the primary research suggest that this is controlled by current deer management practices and while it can be problematic, is largely under control.

3.2 Current responses to deer in Northumberland

Considering deer to be a 'problem' is a subjective opinion, often based on experience and knowledge of deer impacts in a localised area. This was highlighted in the primary research. A range of different, and at times conflicting, interests and priorities for land management were evident in the interviews. It is clear that the management of deer in Northumberland is viewed as an 'externality'

of other land management approaches. It is clear that individual opinion on the nature of the deer 'problem' depends on the type of land management that individual (or the organisation they work for) is practising or promoting. Land in Northumberland is managed for a range of different uses, many of which run concurrently with other land management practices. These include;

- The commercial forestry sector
- Arable and pastoral agriculture
- The training of army personnel
- Conservation
- Recreation and amenity
- Commercial shooting
- Deer stalking

This broad range of land management practices have an equally broad range of priorities and processes attached, and the presence of deer in these different managed environments is not necessarily always considered a 'problem.' Quite clearly in some instances, such as land managed for deer stalking, the presence of deer is positively encouraged.

In the collection and analysis of academic papers and policy documents for the desk-based study section of this dissertation, it was clear that in sufficient numbers deer are a significant problem for commercial forestry, agriculture, conservation

and the general public through an increase in the number of road traffic accidents involving deer. To focus in on the case study area of Northumberland, it is evident from the research conducted on behalf of the NNWP that deer are a problem to the regeneration of existing woodlands and the establishment of newly planted woodlands. However, the results of this research with recreational stalkers, the Forestry Commission, the Ministry of Defence, forestry consultants and estates showed that while there was overall agreement that in sufficient numbers deer are very damaging at present there is not a substantial problem with deer numbers.

There was scepticism on the effectiveness of certain types of management technique. Some interviewees highlighted that deer management work to protect newly planted trees, including protective tubes and deer fencing was not always practical. There is broad consensus both in the existing academic research and practical experience in Northumberland that deer fencing is costly, unsightly, sometimes difficult to erect and can negatively impact on other animals which may be part of a separate conservation management approach to the same woodland. An example of this in the case study area is the impact of deer fencing on the population of black grouse. The Black Grouse Recovery Project includes many of those stakeholders involved in deer management in Northumberland and aims to address some of the issues related to the conservation of this species, one of which is the number of bird strikes against deer fencing.

In meeting with Northumbria Wildlife Trust during the research, it was possible to see at first hand the relationship between deer management and protected sites. The Wildlife Trust is responsible for 65 reserves across Northumberland, which represents 2% of the total land area of the county. All of the sites are SSSI's, SAC's or have some sort of protected status attached to them. Deer have not been a significant problem on any of their sites. The Wildlife Trust sites are considered on an individual basis in regard to the management of deer, and as highlighted by the interviewee, the aim is to 'link the sensitivities (or members) with pragmatism (in regard to the deer 'problem').' The deer management of the Northumbria Wildlife Trust sites is therefore tailored to suit each site and consists of deer fencing, tubing and culling dependant upon the level of damage and environmental issues relating to the site

Many interviewees commented that while deer are a 'problem' if left uncontrolled, the 'problem' with deer in Northumberland would be much more severe if the current management taking place in the county did not occur. It became clear that the deer 'problem' should be based on a thorough understanding of the differential impacts on different types of land use/habitat/landscape and the appropriate management techniques for controlling deer. In terms of current deer management in place in Northumberland, this is a combination of deer fencing in some areas, protective tubes for newly planted trees and culling. The majority of those interviewed during the research process highlighted culling as the most effective option and noted the disadvantages of deer fencing and, to a lesser extent,

protective tubing. The levels and standard of culling across the case study area was variable. Some interviewees had a zero tolerance strategy in order to protect interests such as newly planted trees and a successful grouse shoot. Others culled deer based on previous cull levels, population dynamics and a series of historic data as part of a more organised deer management plan.

3.3 Land management priorities and contrasting opinions of the deer 'problem'

While the majority were of the opinion that current deer management practice was effective at controlling numbers one interviewee considered that 'people are underestimating the problem with deer, and while there will always be a problem, it is important to reduce the number.' This particular interviewee was involved in commercial forestry and commented that the deer management which they conducted was driven by a need to protect commercial forestry interests and also to conserve the environment in woodlands. The interviewee noted that the woodlands under their management were being converted to broadleaved varieties of trees and as such a zero tolerance culling approach to deer was taken in order to reduce numbers.

In one interview with a forestry consultant it was noted that there were some problems with the current approach to management, the consultant noted that the problem with the current deer management in Northumberland is that it is so

variable. He noted that ‘some estates have their own keeper, some do not carry out any management at all and some do not even own the sporting rights to their woodlands.’ Another interviewee, the forestry manager on an estate in North Northumberland, noted that their neighbouring estates did not control deer as aggressively as they did as the other estates have different priorities. He noted that ‘we have no expectations of others to control deer, but we certainly wouldn’t object if they did.’ It is clear that although the deer ‘problem’ does not seem to be as severe as other areas of the UK in regard to impacts, the semi-structured interviews highlighted that some collaboration was required in Northumberland in order for all stakeholders to fully understand the issues. While some stakeholders will be of the opinion that their current approach to deer management is sufficient, others would disagree. An attempt at collaboration would help to rationalise opinion and provide a more standardised approach to deer management. However, this should be balanced with an understanding that all situations are slightly different in regard to the deer management which is required.

A distinctive feature of the results of this research was the way in which the different stakeholders involved in deer management approach the notion of there being a ‘problem’ with deer in Northumberland. Stakeholder views are predominantly based on the priorities of the land management in which they are involved, but also on individual sensitivities and personal opinion which can affect the way in which deer management may be discussed between researcher and interviewee.

3.4 Limitations of the research

It was clear that the views of some interviewees were influenced by a sense of wariness of me as a researcher. Some interviewees were wary of revealing too much information about the extent of the deer management work they carried out. It was made clear throughout the process that this was an independent piece of research, the rationale behind the project and the funding arrangements for the research were highlighted, but also I was often informed of their individual views of Northwoods and NNPA. The views voiced represented a cross section of both positive and negative opinion. Some of those interviewed had often been involved with one or both of the funding organisations, and had negative opinions about some of these experiences which perhaps informed their view about working with the funding organisations on deer management. This is potentially a barrier to creating a deer management group, or at least a more collaborative approach to the management of deer in Northumberland. It is this issue of what should be the way forward for deer management in Northumberland that is the subject of the next chapter.

3.5 A Deer Management Group for Northumberland?

The NNWP report into the state of ASNW in Northumberland showed that there was a significant problem with deer management in particular types of landscape and habitat in Northumberland. However, this research has demonstrated that a

significant amount of high quality deer management does take place in the county but is done by individual land owners /managers or by deer management groups as part of a broader management strategy for the land under their control. In the previous chapter I reported on how different stakeholder opinions on the nature of the deer problem were resulting in practical action in the county. In this chapter I consider how management could improve through a process of collaboration with others involved in the management of deer.

The perception that there is a need for collective action is not new. There is already a deer management project which has been running since 1989 in connection with the Forestry Commission at Kielder Forest. The 'Waterhead Deer Project' aims to 'make a significant contribution to the body of knowledge on the relationship between deer impacts, deer biology and deer management (Stewart and Gill, 2006). The group was initiated by the Forestry Commission and a number of interested stalkers, and rents an area of Forestry Commission owned woodland close to RAF Spadeadam on a peppercorn rent basis. The land is rented on the proviso that the information gathered, such as population density and dynamics, are fed back into the Kielder Deer Management Strategy to influence and inform the future management of deer in the forest area.

The results from the Waterhead group therefore have an effect on the deer management decisions made within Kielder Forest. By considering the academic literature through an in depth analysis, and attending conferences and events, it is

clear that this is a worthwhile method of attempting to effectively manage deer and aim for a sustainable deer population. The deer management literature and policy documents suggest that deer management should only take place after a thorough understanding of the impacts has been gained, and the 'Waterhead Deer Project' helps provide this impact assessment function for Kielder Forest.

The relationship between the data collection work of the 'Waterhead Deer Project', the deer management strategy and the team of wildlife rangers at Kielder seems to work well. It is clear though that the management of deer is a long term process. The group has gathered data since 1989, and the priorities and objectives of the group have changed over time and will continue to evolve. This shows that any attempt at forming a more collaborative approach to deer management is not a short term solution to some of the ecological and economic impacts caused by deer in Northumberland. Throughout the research process, it has also become obvious that deer management does not always automatically mean deer stalking, and that a proper understanding of the impacts of deer on forestry and conservation is required in order to make suitable decisions on deer management.

3.6 Collaborative approaches and stakeholder involvement

In considering whether or not a DMG is suitable for Northumberland, it is clear that all stakeholders should be included in any collaborative attempt at deer

management. This however could potentially be difficult to achieve, and problematic to try and address the priorities of all stakeholders involved. This was highlighted by Steve Cresswell, of the 'Marches Deer Project' in the East Midlands at the Deer Initiative conference. Cresswell highlighted that the obstacles for setting up a DMG included the fact that 'recreational stalkers want to keep deer numbers disproportionately high' and that 'landowners who are already conducting deer management, regardless of the standard and level, feel that they are already doing enough and do not want to collaborate.' These problems are potentially highly relevant to understanding barriers to collective action in Northumberland. The East Midlands experience highlights the importance of working to change existing behaviours, attitudes and practices as well as setting up new structures or encouraging new activity. Such work would need very careful management to avoid the perception that agencies were coming in 'thinking they know better' when stakeholders think their own practice is appropriate and works well with local circumstances.

Current management practice in the case study area could therefore be both helpful and an obstacle to setting up a potential Northumberland DMG. The Forestry Commission at Kielder have their own group with the 'Waterhead Deer Project' and in addition the Ministry of Defence at Otterburn Training area have a 'Defence DMG.' This manages a small number of deer on the Otterburn estate, with a definite focus on educating stalkers in order for the deer management on

the estate to work successfully with the wider aims of defence land management policy.

Any future attempt at increasing collaboration and the quality of deer management in the county would need to work with existing groups recognising their successes and good practice and valuing the knowledge that those involved would bring to deer management. It is clear that the management approaches of the Forestry Commission at Kielder and the Ministry of Defence at Otterburn are both well organised. This view seems to be held widely by those stakeholders involved in deer management in the case study area and interviewed during the research, in particular in regard to the deer management in place at Kielder Forest. When the formation of a DMG was mentioned during the interviews, many interviewees commented on the work of the Forestry Commission at Kielder. This was largely positive demonstrating the respect that the Forestry Commission have for their well organised approach to deer management at Kielder Forest.

The primary research through the semi-structured interviews suggested that while a collaborative approach to deer management could enable stakeholders to manage deer populations more effectively and aid decision making, it is unlikely to work successfully on a large scale. Most interviewees suggested that a DMG for Northumberland was a worthy proposal, but any attempt to manage deer in such a way on a county wide basis was both impractical and unworkable. Many interviewees felt that Northumberland was too big an area to be covered by a

DMG that would be effective. In addition, the large areas of the county under public ownership such as Kielder Forest and Otterburn Training Area are perhaps best suited to having a deer management plan which complements the priorities of the wider land management, which happens at present. The Forestry Commission and the Ministry of Defence in Northumberland should be involved with a potential collaborative approach to deer management, but their existing policies and groups should not be compromised. While all stakeholders should be involved in any attempt at increasing collaboration, it would perhaps be more worthwhile to concentrate on areas in the county where little deer management currently takes place. This was highlighted in the small areas of damaged ASNW highlighted by the NNWP report of 2006.

A large number of the interviewees in the semi-structured interviews highlighted that they thought that some sort of better organisation of the management of deer was required in Northumberland, but that this did not necessarily mean that a DMG should be created. However, there was some agreement throughout the research process and in the interviews when asked what a potential DMG would comprise of. Many commented that it would be quite sufficient for a small DMG to cover small areas of the county where a number of estate boundaries meet and where deer impacts have been particularly damaging. This has the potential to be more successful as a way of sustainably managing deer on smaller scales rather than at a whole county level. This approach is also similar to experience with

DMG's in Scotland. This was highlighted in email correspondence with a facilitator of a DMG in Scotland. The facilitator noted that;

> 'DMG's are now well established in Scotland and I can see no particular reason why they should not work equally well in the North of England where adjacent land holdings need to collaborate in the management of a shared resource. Each DMG tends to be a little different reflecting the local circumstances and, being entirely voluntary, that is quite appropriate.'

3.7 Local Knowledge and Education

It is clear that a collaborative approach to deer management in Northumberland would need to work in a similar way to the Scottish example above, and reflect local circumstances. In the Northumberland case study, a deep understanding of the current management should be considered and the value of local knowledge of those stakeholders involved in land and deer management in the county should not be underestimated. This is an effective tool and integral element of creating a more sustainable approach to deer management.

In terms of other results from the research, the overwhelming message was that a collaborative approach does not necessarily mean a large DMG. One interviewee commented that more organisation as required, but that this should not be 'some

new layer of bureaucracy, it would have to be between existing deer organisations and without more subscriptions.' In addition, many interviewees commented that 'we just need to get people talking more' and that a large part of the success of any collaborative approach would enable stakeholders to 'know more about what everyone else is doing.' It was clear that for many deer managers, a more clear appreciation of the management approaches undertaken by other stakeholders is required.

The education of stalkers was also a regular thread throughout the research process, with some in the stalker community appreciating the value of deer management qualifications, but only the large public landowners in the county highlighting this as a definite requirement for stalkers. There is scope for the continued education of recreational stalkers but this requires 'buy-in' from the stalking community. This was noted by one stalker interviewee who noted that such an approach would 'benefit the stalking skills base…but we are a conservative bunch with a bit of a 'loner' streak.' This highlighted that more work needs to be done on involving recreational stalkers and land owners who potentially favour a more individual approach to deer management. This is one of the challenges of increasing collaboration in deer management in Northumberland.

One way in which NNPA and Northwoods could act proactively in regard to the increased education and training of stalkers in the case study area would be to look at opportunities for funding training in stalking. Not only would this raise the

skills levels of recreational stalkers and facilitate the exchange of good practice between the already established groups involved in deer management, but this process of ongoing training and education between all sectors of the deer management community could potentially be the first step in promoting closer collaboration on deer management in Northumberland.

3.8 Recommendations

1. Deer management qualifications are useful in improving both the quality of deer management and in providing a means of identifying any problems with deer management in a common setting. It is recommended that NNPA and Northwoods work together with the BDS and other stakeholders to identify these further training opportunities, which will improve the quality of deer management and provide a qualified stalker community for effective deer management in the case study area.

2. It would be helpful for all stakeholders to have a definitive map of the deer management in the case study area and would aid collaboration. It is recommended that NNPA and Northwoods work to produce a map which details where deer management takes place, in what form this management occurs and details of who is engaged in this management.

3. An increased awareness of deer management and an aim towards collaborative approaches should not lead to a proliferation of meetings and events to deal with the issue. It is therefore recommended that any collaborative approach to deer management initially works within the bounds of existing related projects such as the NNWP and the BGRP.

4. Ideally, increased collaboration in deer management should come from a bottom-up, grassroots level. Due to the nature of land ownership and control in the case study area, it is likely that some public organisation involvement is required. NNPA and Northwoods should attempt to identify the 'key players' in the deer management community who could potentially lead the collaboration towards the sustainable management of deer in the case study area.

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Appendix 1

The set of questions which formed the basis of the semi-structured interviews included:

1. What are your main land management priorities?
2. Do you regard deer to be a problem on your land, and in the wider area of the county of Northumberland?
3. What deer management is carried out on the land you manage?
4. Do you have any deer management qualifications, and do you think these are important?
5. What are your thoughts on current deer management in Northumberland?
6. How much contact would you say people have with each other in regard to deer management?
7. The government would like a ‘sustainable population of wild deer.’ From your perspective, what do you think this means?
8. Would a DMG in Northumberland help to manage deer in Northumberland more effectively? If so, from your perspective, what would a Northumberland DMG look like?