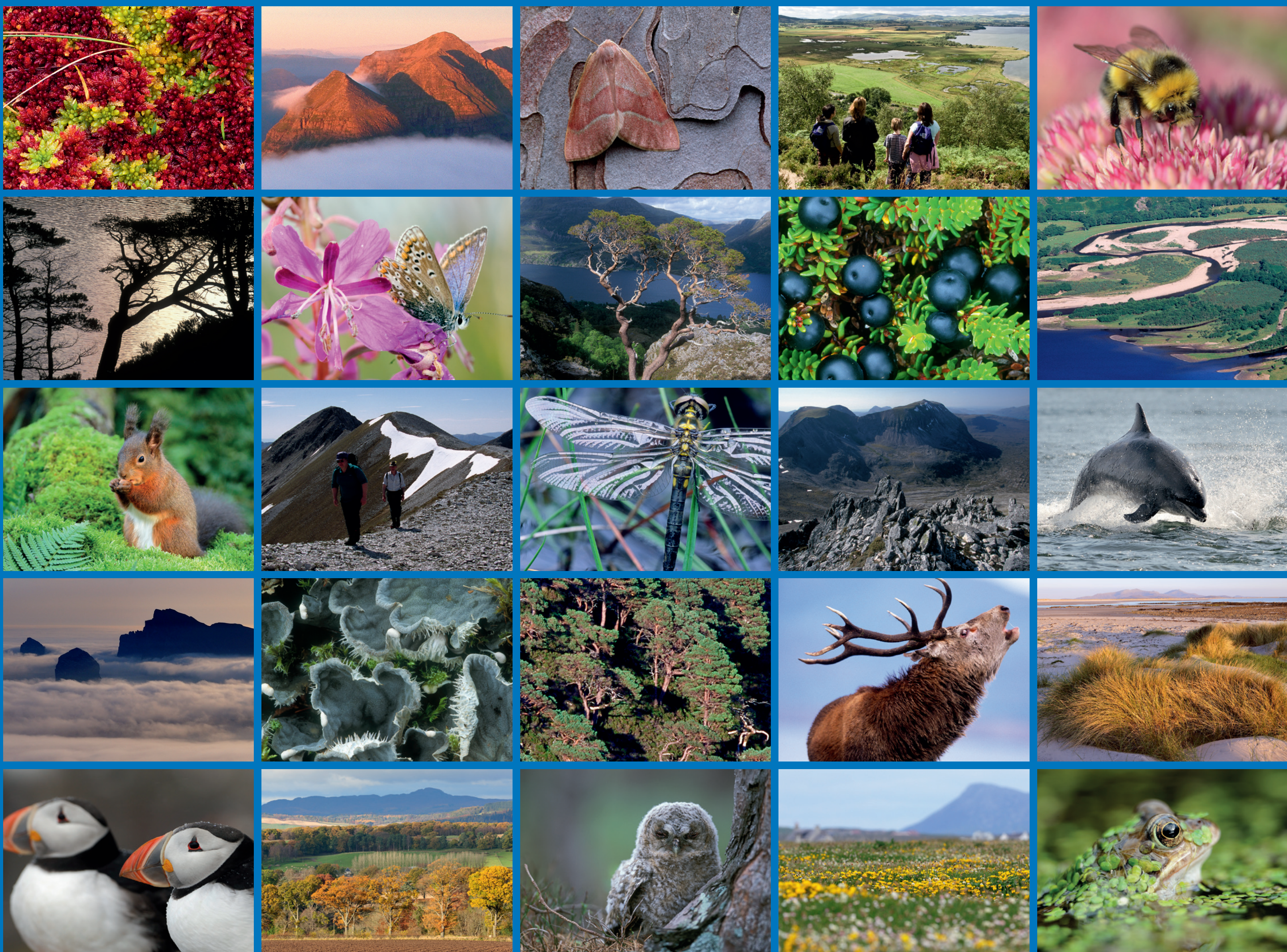
Scottish Natural Heritage
Commissioned Report No. 368

The Natural Heritage as an Economic Driver: Protected Areas Case Studies



Scottish Natural Heritage
All of nature for all of Scotland

COMMISSIONED REPORT

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The Natural Heritage as an Economic Driver: Protected Areas Case Studies

For further information on this report please contact:

Ralph Blaney
Scottish Natural Heritage
Great Glen House
INVERNESS
IV3 8NW
Telephone: 01463-725 231
Email: Ralph.Blaney@snh.org.uk

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COMMISSIONED REPORT

Summary

The Natural Heritage as an Economic Driver: Protected Areas Case Studies

Commissioned Report No. 368 (ROAME No. F05AC701)
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Background

This research concerns itself with the impact protected areas have on the local business community, investigating economic contribution as well as exploring perceptions of the natural heritage. Four case study areas were chosen for investigation: Forvie national nature reserve (NNR), St Abb's Head NNR, Beinn Eighe NNR, Loch Lomond NNR. Findings from different sources were triangulated to present an overall picture of the reserves' relationships with local businesses: NNR visitor research, reserve expenditure, and local business surveys.

Main findings

The different NNRs have different relationships with local businesses. Few businesses highlighted negative impacts. A significant proportion of businesses indicated they provided services to visitors who come to the area because of the natural environment (just over a third by Forvie to over half by Loch Lomond). Overall, it was identified that NNRs contribute a limited amount in monetary terms towards the local economy. For the four case study sites the contribution to the local economy was estimated to be at least £1.5 million a year in total, resulting in 27 full-time equivalent jobs. Although the economic importance of NNRs to the local economy is small in absolute terms, in some of the remotest locations it is extremely important and large in relative terms. This report was concerned with local impacts but clearly at regional and national levels this would be more consequent (as some staff live outwith the locality and suppliers come from elsewhere in Scotland). Growth in visitor numbers might be achieved by more information to local businesses. However, the main benefit arises to the Scottish population at large who express a willingness to pay for the conservation of the wildlife. There are also ecosystem services associated with NNRs, including many social/cultural benefits that these areas provide to the local community.

For further information on this project contact:
368, SNH, Great Glen House, Leachkin Road, Inverness, IV3 8NW
Tel: 01463 725 234
For further information on the SNH Research & Technical Support Programme contact:
DSU (Policy & Advice Directorate), Scottish Natural Heritage, Great Glen House, Inverness, IV3 8NW.
Tel: 01463 725000 or pads@snh.gov.uk

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Abbreviations

AILLFV	Argyll, The Isles, Loch Lomond and Forth Valley
AGLV	Area of Great Landscape Value
COBA	Cost Benefit Analysis
GDLS	Gardens and Designated Landscapes in Scotland
LLTRNPA	Loch Lomond and Trosachs National Park Authority
MA	Millennium Ecosystems Accounting Framework
NNR	National Nature Reserve
NP	National Park
NSA	National Scenic Area
NTS	National Trust for Scotland
RP	Regional Park
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SIC	Standard Industrial Classification
SPA	Special Protected Area
SNH	Scottish Natural Heritage
SSSI	Site of Special Scientific Interest
TEV	Total Economic Value
VMR	Voluntary Marine Reserve

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We should like to thank Alan Bell and Tim Jacobs at Loch Lomond, Eoghain Maclean at Beinn Eighe, Annabel Drysdale at Forvie and Liza Cole at St. Abb's Head for their assistance with this study.

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As ever errors of fact and interpretation are purely the responsibility of the research team of Claire Bereziat and Geoff Riddington of Glasgow Caledonian University.

1 INTRODUCTION

1.1 Background

Over the past decade Scottish Natural Heritage (SNH) has been expanding its focus from an organisation primarily concerned with the conservation, understanding and enjoyment of Scotland's wildlife and landscapes to one also concerned with facilitating the wider utilisation of the natural heritage to enrich the quality of life of Scotland's people. As part of this work there has been increasing interest in the impact SNH has not only on its visitors and the natural heritage but on the wider community.

Much of SNH's work is in remote and fragile rural economies. Sometimes, it is claimed, the layers of statutory protection given to the habitat, species, and landscapes of a region and implemented by SNH have a significant negative effect on development. Conversely it is also claimed that the same protection both brings direct expenditure (by SNH) into the economy and also attracts visitors who help the economies thrive. This report seeks to examine both these claims.

1.2 Aims

This project builds on the study recently carried out for SNH entitled "The economic impact of Scotland's natural environment" which quantified the benefits the natural environment provides each year to the economy.

The aim of this research project is to investigate further the extent to which the Scottish natural assets underpin business activities at a local level.

1.3 Definitions and Study Scope

Natural assets are defined as natural materials, processes, habitats and species and landscapes that exist within protected areas.
Protected area designations to be included in the study included:

- Natura sites:
    - Special protected areas (SPA)
    - Special areas of conservation (SAC)
- National nature reserves (NNRs)

Note that all of these are also designated sites of special scientific interest (SSSI). National nature reserves are all actively managed by SNH or an approved body through designation, and some have additional designations (e.g. Ramsar, or within a National Park). This study attempts to tease out the impacts associated with NNR status (in terms of positive management of the reserve), as well as other protected area designations (restricting built development).

Economic activity was to be classified into three main categories or ecosystem goods and services where possible.

1.4 Objectives

The objectives of this short study, as outlined in the Project's Statement of Requirements, are:

- To identify businesses operating in and/or making use of a specified protected area.
- To gauge these businesses' perceptions of the natural heritage in general, and the protected area in particular.
- To determine the value of the protected area in terms of the economic activity themes outlined above for these businesses (e.g. direct use, branding, attracting and retaining staff, etc).
- To explore barriers to exploiting these opportunities and how this may change in the future.
- To assess negative impacts on business growth of the protected area status, including businesses that do not make use of the natural heritage.
- To assess the potential for the development of business activity over coming years that makes use of the high quality natural heritage in protected areas, and what support this may require from the public sector.

2 METHODOLOGY

As mentioned in the previous section, the main focus of this study is an exploration of the economic impact NNRs have on the local business community.

The study was achieved primarily through interviews and surveys with businesses located in the four case study areas.

Two key data sources were used to triangulate the business survey results:

- the actual expenditure of the NNR in the local community, as provided by the NNR Managers.
- the expenditure by visitors to the NNR as identified in the 2006 NNR Visitor survey, following the research carried out in 2002/2003.

The following sections explain in more detail the methodology used for this research project.

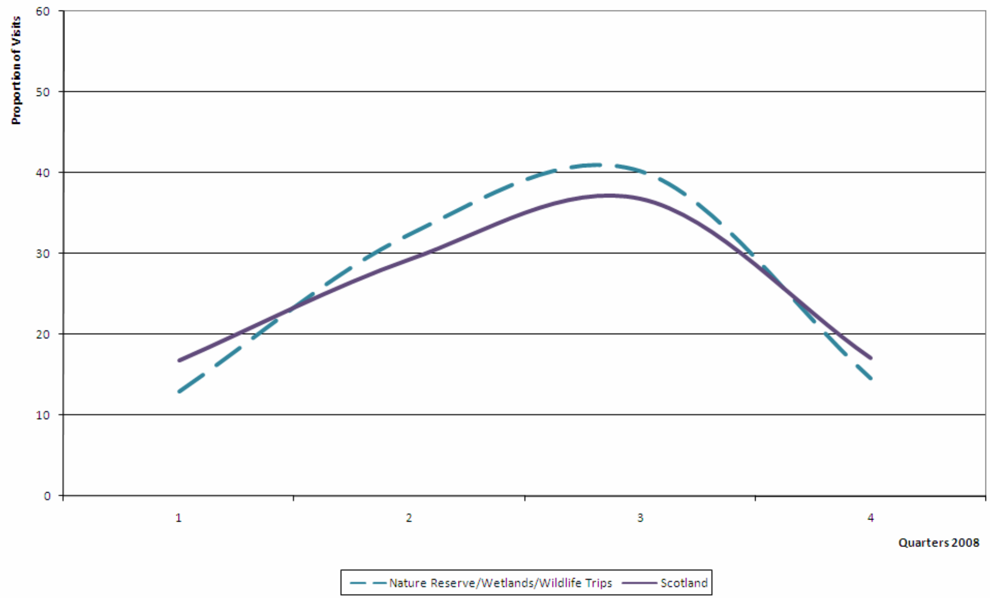
2.1 Literature Review

The Visitor Attraction Monitor 2008 (Moffat Centre/VisitScotland 2009) presents data by attraction category; one of which consists of Nature Reserves/Wetlands/Wildlife Trip Operators.

In 2008, these received just over 750,000 visits, representing 2% of total visits reported by all responding visitor attraction operators. Attractions realised an increase in visits of +2.8% on the previous year.

Visitation patterns identify high levels of seasonality, with 40% of visits occurring during the third quarter of the year, as shown in the figure below.

Figure 1 Quarterly Visitation Pattern to Nature Reserves, Wetlands and Wildlife Trips



The table below presents performance of only those attractions that present similarities to NNRs, such as nature or wildlife reserves managed by SNH, RSPB or Wildfowl and Westland Trust.

Table 1 Visits to Nature Reserves and Wildlife Sites in Scotland, 2008

Owner	Attraction	2008		2007		%08/07	Region	F	S
P	Loch Muick & Lochnagar Wildlife Reserve, by Ballater	48,654		48,441		+0.4	AB	F	
CT	RSPB (Vane Farm), Kinross	46,577		40,604	E	+14.7	PE		
CT	RSPB Nature Reserve, Lochwinnoch	30,874		31,517		-2.0	GG		
CT	RSPB Shetland (Sumburgh Head Reserve), Virkie	29,000	E	29,000	E	0.0	SH	F	
G	Sands of Forvie National Nature Reserve, Collieston	26,500	E	20,000	E	+32.5	AB	F	
CT	Loch of the Lowes, Dunkeld	20,402		18,378		+11.0	PE		S
CT	Caerlaverock Wildfowl & Wetlands Trust, Dumfries	13,936		15,785		-11.7	DG	F	
CT	Loch of Strathbeg Nature Reserve, Fraserburgh	13,000	E	11,855	E	+9.7	AB	F	
G	St Cyrus Nature Reserve, nr Montrose	12,844		16,108		-20.3	AB	F	
CT	RSPB Insh Marshes Nature Reserve, nr Kingussie	12,422		12,000	E	+3.5	HI	F	
CT	RSPB Loch Gruinart Nature Reserve, Bridgend	12,000	E	11,000	E	+9.1	AR	F	
G	Beinn Eighe NNR Visitor Centre (SNH), by Achnasheen	11,591		12,194		-4.9	HI	F	S
CT	Montrose Basin Wildlife Centre, Montrose	10,827		11,571		-6.4	AN		
G	Knockan Crag Visitor Centre, Ullapool	10,000	E	11,028	E	-9.3	HI	F	
CT	Loch of Kinnordy RSPB Reserve, Kirriemuir	6,000	E	7,500	E	-20.0	PE	F	
CT	RSPB Forsinard Reserve, Forsinard	3,959		3,829		+3.4	HI	F	S
G	Island of Noss, Lerwick	1,221		1,273		-4.1	SH	F	S

This table clearly shows that such attractions attract relatively low numbers of visitors compared with the rest of the visitor attraction sector.
The profile of visitors to 'Nature Reserves/Wetlands/Wildlife Trips' is as follows:

- Around 80% of visitors are adults;
- 47% of visits are from local residents and day trippers and 12% from overseas visitors;
- Some 2.7% of visits were educational visits from schools.
- Visitors are estimated to spend just under two hours on site.

The Scottish Recreation Survey (TNS, 2008) indicates that 47% of Scots visited the outdoors at least once a week in 2008. The main activity undertaken by 78% of respondents was walking (under 8 miles mostly, and staying under 3 hours). The second main activity most undertaken in the outdoors was 'to enjoy a day out' (by 6% of respondents). Whereas less than one percent of respondents indicated they specifically went to the outdoors to watch birds or other wildlife or nature, overall, a further 11% indicated they also pursued such activities, albeit this was not the main one.

The most popular places for enjoying the outdoors were local parks and open spaces (37%). Wildlife areas were frequented by 2% of respondents.

Interestingly, some 47% of UK visitors to Scotland undertook hiking/hillwalking/rambling/other walking activities in 2008, as shown in the following table.

Table 2 UK Visitor Activities undertaken in Scotland

	UK Holiday Trips (%)
Hiking/Hillwalking/Rambling/Other walking	47
Heritage, Architecture, Literature, etc	23
Shopping	14
Touring/Sightseeing	13
Wildlife watching & Zoo Park Visits	9
Watching performing arts (incl. cinema)	8
Adventure Sports	4
Fishing	4
Golf	3
Cycling	3

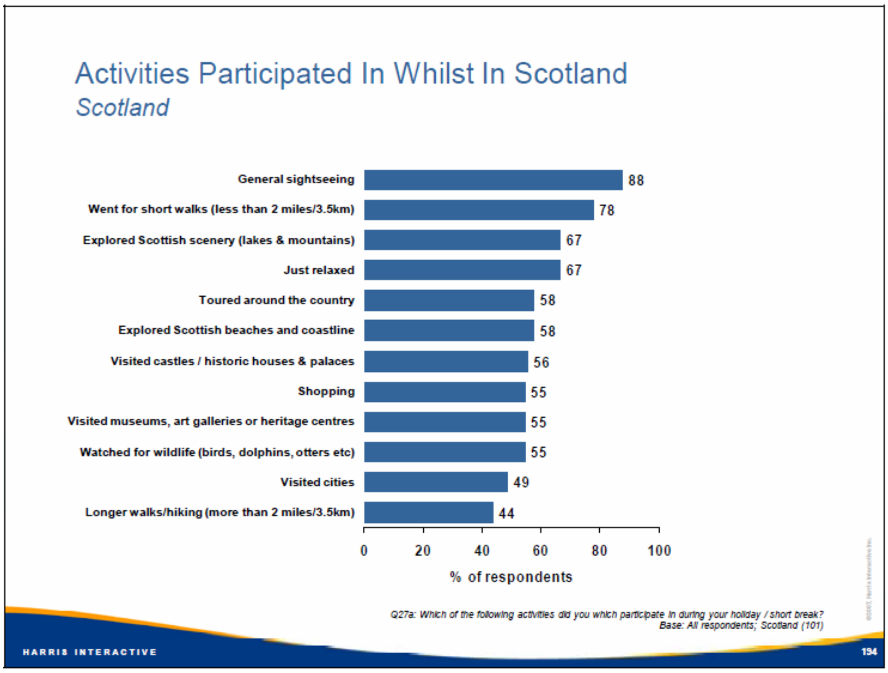
Source: VisitScotland (2009e)

Clearly, nature reserves can develop as outdoors destinations, to local populations as well as visitors from other UK destinations.

However, many are located in remote areas, with no public transport links. Considering that 39% of respondents to the Scottish Recreation Survey indicated they had travelled under 2 miles, whilst a further 34% travelled 2-5 miles, this highlights the limitations of remote areas in attracting local resident visitors – who constitute a significant proportion of visitors to nature reserves, as seen previously.

However, scenery remains the key 'pull factor' for many Scottish visitors holidaying in Scotland (Harris Interactive, 2008a), with exploration of the scenery and short walks being amongst the most undertaken activities, as shown in the figure below. Over half of Scottish holidaymakers also indicated having participated in some wildlife watching activity.

Figure 2 Activities Participated in whilst in Scotland, Scottish Tourists, 2008



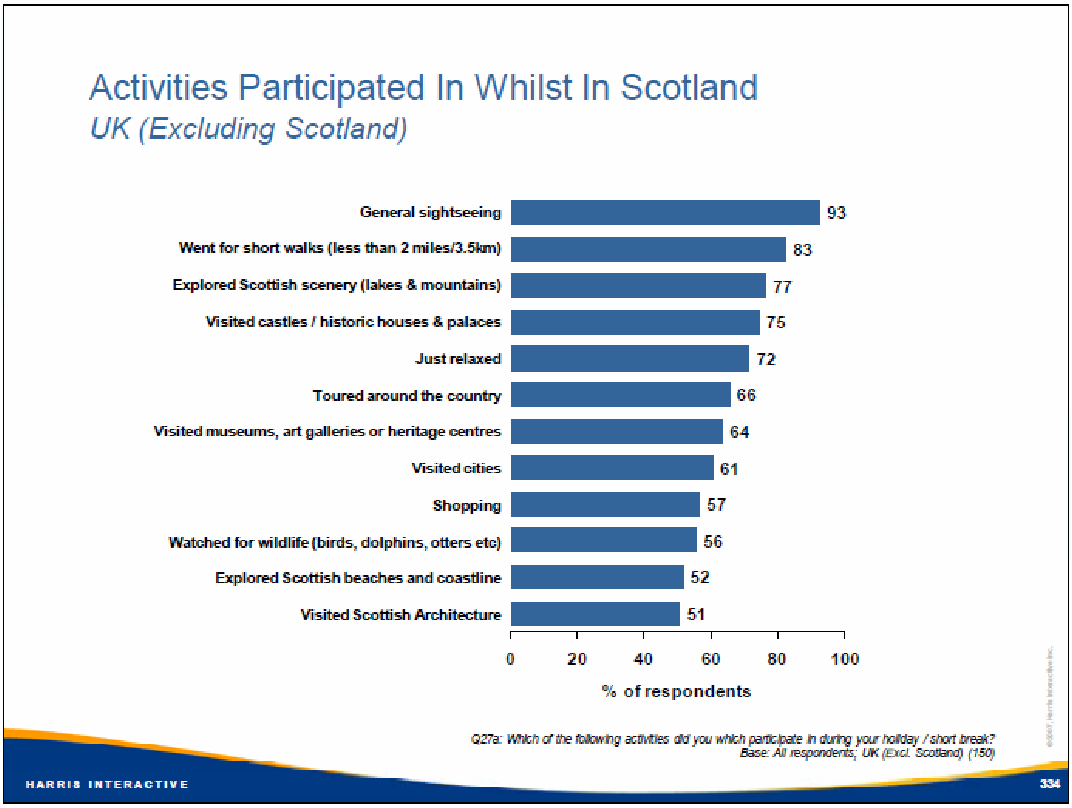
The scenery and beautiful landscape (24%) were also quoted as the principal highlight of Scottish visitors' holiday in Scotland.

Similarly, some 68% of English and Welsh visitors quoted the scenery as a very important factor for choosing Scotland as their holiday destination.

A higher proportion of English and Welsh visitors explored the Scottish scenery, and a similar proportion took part in wildlife watching activities than their Scottish counterparts.

The scenery and beautiful landscape (19%) also was the principal highlight of English & Welsh visitors' holiday in Scotland.

Figure 3 Activities Participated in whilst in Scotland, English and Welsh Tourists, 2008



Clearly, the outdoors and wildlife activities are popular with residents and tourists from Scotland, the UK and abroad. However, the number of visitors to nature reserves tends to be small (under 20,000), highlighting opportunities for developing local awareness of reserves as well as establishing them as tourism destinations.

The Report *The Economic Impact of Scotland's Natural Environment* (RPA/Cambridge Econometrics, 2008) found that:

- environmental assets underpin economic growth
- output from activities which depend on the natural environment is estimated at **£17.2 billion a year which is 11% of total Scottish output**
- this output support **242,000 jobs which is 14% of all full time jobs** in Scotland.

This project does not attempt to look at the national picture, but is concerned with the effect of SNH NNRs on the local economy; as a stimulus or an impediment to business development. In one sense it is an economic impact analysis in much greater detail than is usual and, on the other it is about the views of local business and how the reserves help and hinder their operations.

It is important to note that the project is not about is the value of the reserve, a problem that utilises the totally different total economic value (TEV) framework. A good example of the use of the TEV framework is the Natura 2000 (N2K) study (Jacobs, 2004). One of the sites analysed in that study is Forvie NNR and the results are discussed in the Forvie case study (Chapter 5). This project is required to utilise the ecosystems accounting framework alternatively identified as the Millennium Ecosystems Accounting Framework (MA). This approach is similar to the TEV framework but, to emphasise the benefits of sustainability, requires those costs and benefits to be associated with one of three functions:

- Provisioning; This relates to the use of the ecosystem to produce food, fuel, water etc
- Cultural: This is concerned with recreational and educational use of the ecosystem
- Regulating: This is concerned with the efforts needed to maintain the environment, plant and animal diversity etc.

DEFRA (2007) provides a comprehensive insight into the approach.

There is a substantial literature on how to value the benefits of each system, less on estimating costs. In general, because the MA and TEV frameworks are similar, these relate to valuation in a cost benefit analysis (COBA) sense, e.g. by observing willingness to pay. In the case of Forvie this had already been undertaken and we present in Chapter 5 a full MA analysis. For the others we simply present the figures as outlined in the following pages.

The literature on the economic impact is very extensive. An important piece of research is the RPA/Cambridge Econometrics (2008) study on the **Economic Impact of Scotland's Natural Environment.** The core of this study was the creation of a new "environment" sector built from 26 of the 128 industry groups. For example the sector included 30% of the value of the hotels and restaurants sector on the basis that half the hotel nights booked by holiday makers are dependent upon the natural environment and 60% of hotel rooms are booked by holiday makers. Similarly 95% of the value beers and ales sector was transferred into the new "environmentally dependent" sector. The report also classified these supplying industries into 4 activity groups broadly in line with the MA framework

1. Activities concerned with protection, restoration and enhancement (regulating)
2. Activities that make sustainable use of the environment as a primary resource (provisioning)
3. Activities dependent upon the quality of the environment such tourism and recreation (cultural)
4. Activities indirectly dependent upon the environment e.g. food processing dependent upon agriculture

Employees, expenditure (output) and Gross Value Added (GVA) for each of these sectors was identified and allocated to the "environmentally dependent" sector. The Scottish Input-Output table was then modified by subtracting *pro rata* from the rows and columns and aggregating the balance to provide a new row and a new column representing the environment sector. The inter sector flow was assumed to be zero.

Type 1 and Type 2 multipliers were calculated in the normal fashion by inverting the matrix formed by subtracting the matrix of direct coefficients from the identity matrix. The resulting Type 2 multipliers for the environment sector were Output: 2.3 and Employment: 1.57. Given a total demand for products from the sector of £8.6bn, the associated indirect and induced effects were estimated to be £17.2 bn.

Once the multipliers are identified, the national effect of a change in one location can be estimated. Two case study areas were examined; Cairngorm National Park and The Borders. The impact of the natural environment was estimated to be £71m and £245m respectively although the study recognises explicitly that a local input output table is required to make accurate assessments.

In addition to the quantification of the economic impact the study also examined wider economic benefits qualitatively

1. The importance of the environment in attracting businesses and individuals.
2. The importance of the rural hinterland to city economies.
3. The value of the environment for Scottish branding.
4. The ecosystem services provided and (non-user) values of landscapes and bio-diversity.

The discussion is wide ranging, sometimes almost banal, sometimes academic and complex. Identified opportunities, for example, range from angling through renewable energy to specialist mushrooms. The important conclusion, however, is that future growth is likely to make Scotland more dependent upon the natural environment and its maintenance.

At a more local level there have been a number of studies of specific environmentally based activities often in specific locations. Some examples are Riddington et al (2004), which looked at water based recreation in the Spey catchment, Radford et al (2004, 2009) which examined freshwater and sea angling in Scotland, Riddington et al (2008) which identified the economic impact of wind farms on tourism and Riddington et al (2006) which examined the economic impact of angling on the Kyle of Sutherland, a small remote fragile economy in the north of Scotland. The key characteristics of the approach in these studies are:

1. Establishing the number of annual activity days for a number of different types of visitor, ideally from a census of suppliers.
2. Establishing expenditure per activity day for each type of visitor broken down into main types of expenditure from a large sample.
3. A satellite tourism account that turns expenditure by category into local demand by industry grouping.
4. A specificly constructed local input output table (see Riddington et al (2006)).
5. A question in the survey that allows identification of the alternative actions if the activity was not available at the specific location which allows accurate assessment of displacement.

SQW (2006) discuss the assumptions underlying a general model to assess the impact of wildlife sites. Their approach is to define a range of location characteristics and associate these with the size of the multiplier to be utilised. This approach effectively sidesteps the need for a satellite account and a local input-output table for every new study. Our experience of the variance in multipliers for different regions and different activities is that they are not so large that major errors might result from this shortcut. The assessment of how to attribute expenditure to an activity and the subsequent analysis of displacement are far more important. Whilst the guidance given by SQW appear to be appropriate, if one can ask the visitor about the alternatives that they would take if the activity was not available it is our experience that this solves problems both in assessing displacement and in minimising errors from incorrect attribution.

There have been a number of other studies of the economic impact of wildlife and the environment such as the SEB (2007) study of the impact of diving on the economy of the Scottish Borders, the Shiel et al (2002) study of the impact of the Abernethy NNR on the local economy and the Dickie at al (2006) review study of the impact of spectacular bird species on the local economy. The methodology employed in each of these varies, for example, only SEB (2007) uses an appropriate local Input-Output table and most prefer to work with Scottish national multipliers. As discussed above not using a bespoke table would be acceptable if this was clearly recognised in the text; unfortunately this is not always the case.

Of far more importance is the issue of the proportion of the day's spend to allocate to an activity and the estimation of the substitution that might occur. In various RSPB studies (Dickie et al 2006) the general approach has been to allocate all the day's expenditure to the activity, however short the visit. For substitution the possibility that the visitor might simply substitute an alternative activity (and possibly one with a greater economic impact) is ignored. The sea eagle study is slightly different in that it allocates a proportion of the total cost of a visit (however long) on the basis of how a visitor responds to questions about whether "seeing a sea eagle" was a main or subsidiary reason for being on Mull. What is clear is the resulting estimate of the economic impact of these reserves is larger than would occur if less generous assumptions had been made.

Finally of particular interest to Forvie is the study carried out by the Fraser of Allander Institute into the proposed development by Trump International Golf Links Scotland of the Menie Links site (FOA 2009). The most interesting issue is the displacement effect; forecasting the outcome if the development did not go ahead. FOA uses two displacement figures 25% and 50% for construction, as recommended by English Partnerships. For operations on the finished product (golf course, holiday chalets and houses) the same displacement assumptions are made. This issue is critical. Aberdeenshire is a full employment local economy with substantial available land for housing. The 50% displacement seems very low. If the development did not go ahead it seems likely that houses will be built elsewhere by roughly the same workforce. When in operation the vast majority of local members will merely be transferees from other local courses and it seems likely that non locals would have played elsewhere in Scotland. This study by Fraser of Allander Institute emphasizes the importance of estimating displacement, a problem we return to in the methodology section.

2.2 Site Selection

The tender brief document specified that selection of sites should include "*at least one north and one south site (e.g. Highlands, Borders)*".

After considerable discussion the following four sites were selected:

- **St Abbs' Head NNR** in the Scottish Borders is an NNR, SSSI and SPA for its seabird interest and the intertidal area is part of a marine Special Area of Conservation (SAC). The visitor centre is managed by the National Trust for Scotland (NTS). Last visits figures published were in 2003, with 49,700 visits (Moffat Centre, 2004). Adjacent to the reserve is the voluntary marine nature reserve (VMR). The reserves operate closely and the expenditure of the VMR has also been considered. Any land based visitors are

indistinguishable from visitors to the NNR. The impact of water based visitors, chiefly divers, is the subject of a previous report and is discussed in the literature review.
- **Beinn Eighe NNR** in the Highlands is a very large reserve located at the eastern end of the Torridon mountain massif and overlooking the picturesque Loch Maree. Population in the region is very sparse.
- **Loch Lomond NNR** is at the western end of the central belt, at the edge of the Glasgow metropolis. It is effectively two reserves. The first area consists of four islands in the southern part of Loch Lomond. The largest of these, Inchcailloch, is a popular tourist destination and provides a network of paths, a toilet block, a picnic site, two piers and a small camp site. It is managed by the Loch Lomond and Trosachs National Park Authority (LLTNPA) and has a park ranger in the summer. The second area is located on the mainland close to the islands in the wetland at the mouth of the River Endrick. Although in some ways more accessible and with more abundant birdlife it is much less popular than its neighbour and other attractions in the area.
- **Forvie NNR** is a coastal site at the mouth of the River Ythan in North East Scotland. Forvie is adjacent to the town of Ellon within the commuter belt for Aberdeen. In 2004 it was used as a case study in the Scottish Government Report on the economic value of protected (Natura) sites.

These selected sites offer wide variety in
1. Location: north, south, east and west;
2. Physical geography: sea cliffs, inland lake, mountain and river estuary;
3. Management: SNH, NTS and LLTNPA;
4. Size (and Budget).

2.3 Identification of Local Area and Businesses

Businesses included in the research include:
a) Businesses operating directly in the selected areas (including the reserve managers);
b) Businesses employed from outside the area directly by the organisation;
c) Businesses in the "local" area.

Whereas businesses pertaining to a) and b) can be identified easily through a telephone or face to face interview with the relevant reserve managers, we have debated at some length how to define local.

2.3.1 Defining the "local area"

A specified distance is not particularly useful when dealing with both relatively densely populated areas such as the Scottish Borders and extremely sparsely populated areas such as the north-west highlands.

For the purposes of this project we initially set boundaries using GIS techniques alone (based on census output areas) that included a minimum population of 1000. These would, we believed, generate around 200 businesses including micro businesses such as bed and breakfast and self catering operations.

We then reviewed the boundaries to ensure that important local villages and towns were included within the boundaries of the "local area", as it is important to note that the finalised boundaries reflect population and economic characteristics and not geographical distances.

Thus, the boundaries for each NNR's local area varied as follows:

- for Loch Lomond NNR they were set at approximately 3km from the NNR boundary which includes the villages of Drymen, Balmaha and Gartocharn;
- for Beinn Eighe NNR they stretch as far as 25km from the NNR which includes Gairloch, Kinlochewe and Achnasheen;
- for St Abb's Head NNR, they were set at 4 km, which includes St Abbs, Coldingham and Eyemouth;
- for Forvie NNR, they were set at 5 km, including Ellon, Newburgh and Collieston.

Maps of each study area are included in Appendix 1.

2.3.2 *Identifying the businesses*

Once the boundaries were agreed, postcodes for each of the study areas were listed. These were used to ensure businesses found were located within the area boundaries.
The lists of businesses were compiled from a number of sources:

a) The face to face interviews,
b) Business directories,
c) Local and national accommodation registers,
d) Internet searches.

In total, we found 1,035 businesses located in all four study areas, as shown in Table 3 below.

Table 3 Total businesses in study areas

Study Area	**Total Businesses**
Beinn Eighe	215
Forvie	374
Loch Lomond	271
St Abb's Head	175
Total	**1,035**

Where numbers of businesses substantially exceeded 200 (i.e. Forvie and Loch Lomond study areas), businesses were coded according to their trade. Those deemed to have a direct relationship with tourism and agriculture were all included within the selected sample for interview as they were thought to be more likely to have a relationship with their local NNR.
To reach 200, the remainder of businesses for interview were randomly selected within each remaining trade category proportionate to the number of businesses within this category relative to the total population.

For example, there were 374 businesses identified in the Forvie study area.

Table 4 Selection of businesses in the Forvie NNR study area

Category of Business	No. of Businesses	*Suggested Sampling of Other Businesses*
Inclusion of Agriculture/Tourism Related Businesses		
Accommodation	7	
Agriculture Related	15	
Conservation	5	
Food & Bev	23	
Garden Related	10	
Golf	2	
Graphic Designers & Signage	5	
Horses/Riding	4	
Kilts, Tartans & Accessories	1	
Petrol Station	2	
Post Office	3	
Shop - Food	12	
Taxi/Vehicle Hire	8	
Tourism Related (attraction/activity/tours/gift shop)	8	
Total tourism and agriculture –related businesses	***105***	
	Remaining Businesses	***Target sample***
Sampling of Remaining Businesses	**269**	***95***
Architecture Related	6	*2*
Building/Plumbing/Joinery	54	*19*
Cleaning	8	*3*
Clothes	7	*2*
Complementary Therapies/Health	10	*4*
DIY/Hardware	3	*1*
Driving Schools	7	*2*
Engineering	13	*5*
Florist	2	*1*
Garage/Car Services	17	*6*
GP/Dentist/Retirement Homes/Chemist/Nursery	13	*5*
Hair/Beauty	13	*5*
Home Fittings	2	*1*
Industrial Equipment	12	*4*
Management/Accountancy/Finance/IT/H&S/PR/Bank	37	*13*
Miscellaneous	9	*3*
Music/Musicians	4	*1*
Oil & Gas Industry	12	*4*
Pets/Vets/Abattoir	5	*2*
Printing/Publishing/Photography/TV	6	*2*
Real Estate Development/Estate Agents	6	*2*
Removals/Storage	1	*0*
Shop - Misc	8	*3*
Support & Advice	4	*1*
Training/Schools	10	*4*
Total sampled businesses		***95***
Total businesses for interview	**200**	

The same methodology was applied to businesses in the Loch Lomond area, as shown in the Table below.

Table 5 Selection of businesses in the Loch Lomond NNR study area

Category of Business	**No. of Businesses**	***Suggested Sampling of Other Businesses***
Inclusion of Agriculture/Tourism Related Businesses		
Accommodation	70	
Agriculture Related	20	
Conservation	2	
Food & Bev	19	
Garden Related	8	
Golf	2	
Graphic Designers & Signage	1	
Horses/riding	3	
Kilts, Tartans & Accessories	2	
Post Office	2	
Shop - Food	7	
Taxi/Vehicle Hire	4	
Tourism Related (attraction/activity/tours/gift shop)	15	
Total tourism and agriculture –related businesses	***155***	
	Remaining Businesses	***Target sample***
Sampling of Remaining Businesses	**117**	***45***
Building/Plumbing/Joinery	28	11
Cleaning	7	3
Clothes	5	2
Complementary Therapies/Health	14	6
Driving Schools	6	2
Engineering	2	1
Florist	2	1
Garage/Car Services	9	4
GP/Dentist/Retirement Homes/Chemist/Nursery	5	2
Hair/Beauty	4	2
Haulage	2	1
Home Fittings	5	2
Management/Accountancy/Finance/IT/H&S/PR/Bank	12	4
Miscellaneous	4	2
Music/Musicians	3	1
Printing/Publishing/Photography/TV	5	2
Removals/Storage	2	1
Training/Schools	2	1
Total sampled businesses		***48***
Total businesses for interview	**203**	

Therefore, in total, the following number of businesses was identified for the first stage of the research, within all four areas of study:

Table 6 Businesses to be interviewed in each study area

Study Area	Total Businesses
Beinn Eighe	215
Forvie	200
Loch Lomond	203
St Abb's Head	175
Total	**793**

2.4 Research Methods: Business Surveys

The methodology employed two stages:

2.4.1 First Questionnaire: Telephone Interview

In the first instance, all 793 businesses to be included in the research were contacted by phone to establish:

a) Their business relationship with the NNR;
b) Their knowledge of the protected areas;
c) The scale of any impact.

The telephone interview was intended to act as:

a) A filter for the internet/mail survey to ensure it targets only those businesses who indicate the natural heritage has some impact (small or considerable; positive and/or negative) on their business;
b) A filter for the internet/mail survey to ensure it reaches only those businesses who have some interest in participating in the research and are likely to respond;
c) A means of obtaining a commitment to answer the second survey;
d) A tool to gather crucial baseline information, in case respondents are only willing to provide information for this piece of research.

We were extremely conscious of the very low response rates typically experienced in "cold contact" mail/internet surveys. In this specific case, where relevant businesses may be extremely small in number, we considered a high response rate as being absolutely essential, with the initial phone call, filtering and follow up calls as a necessary cost.

The telephone interview was set up on a Microsoft Access database to enable efficient management of calls as well as recording of data. It was also automated to inform interviewers whether businesses were eligible for the second part of the research or not.

Telephone Interviews were carried out in January 2010: Weeks 3 and 4 and February 2010: Weeks 1 and 2.

The first questionnaire is included in Appendix 2.

2.4.2 *Second Questionnaire: Internet/Mail Questionnaire*

Those respondents who identified that their local NNR had some impact on their business were asked whether they were willing to complete a second questionnaire which probed further those impacts.

They were given the choice to complete it either online or on paper. For those opting for the former, an email was sent reiterating the objectives of the research and providing the internet link to the survey. For those choosing the latter option, they were sent a questionnaire through the post, accompanied with a Freepost envelope to ensure only time resources were required from businesses.

The internet/mail survey was then issued to all those indicating a willingness to complete it.

Whereas the first telephone questionnaire investigated whether there was a business relationship between the business and its local NNR, this second questionnaire focused on establishing the economic impact the local NNRs have on their local businesses. It also provided a platform for businesses to share views as to how SNH (or other relevant bodies) could better engage with local businesses to maximise opportunities for business growth.

The survey was constructed using the package SNAP and both SNAP and SPSS were used to analyse the resulting data (descriptive statistics, factor analysis). Qualitative comments were re-coded individually to ensure all answers are captured.

The paper survey is shown in Appendix 3.

A chase up email or letter was sent in February 2010: Week 3 to those respondents who indicated they were willing to complete this second questionnaire but had not sent a completed response by then.

2.5 NNR Management Survey

One of the key economic drivers was thought to be expenditure by SNH in the local area.

Initially it was thought that a site visit incorporating an interview with management would be the most appropriate approach but upon telephoning the managers concerned it became clear that questions on budgets could not be answered in an interview situation and that other questions on staffing, organisation, volunteering etc could be answered using the phone and email.

After discussion with one of the Loch Lomond managers, a list of questions and a spreadsheet for completion were developed.

These are shown in Appendix 4.

2.6 The National Nature Reserve Baseline Visitor Survey 2006

The National Nature Reserve Baseline Visitor Survey published in 2006 reports on a survey of some 4,220 individuals conducted by NFO Transport and Tourism in the period September 2002 to August 2003. This survey covered age and sex of groups, purpose of the trip, transport to the sites and expenditure. In addition it looked at issues relating to public image and development of NNRs.

For this project we were provided with the raw data of the survey in SPSS format in order to extract information that might be relevant to this project.

Data for each of the case study areas was extracted and new variables constructed to reflect group sizes and types specifically; family groups, adult groups under 50 and adult groups over 30. Data for each individual reserve is presented within its respective Chapter.

The survey itself had two parts. All surveyed answered core questions on such issues as type of trip and length of time in the reserve. However, importantly, only a subset answered questions on the reasons for visiting the reserve and the expenditure when at the reserve. As an example the sample size for the Loch Lomond NNR was 875 but only 332 answered questions on expenditure and reasons. Normally this sample size is more than adequate but, in order to obtain a realistic estimate of the impact of the reserve, it was necessary to identify the proportion of each type of visitor that was primarily on the reserve to observe animals, birds and plants compared to those who were primarily interested in a pleasant place to walk, admire the landscape and picnic, activities which can usually also be undertaken elsewhere in the locality. In some cases the expected numbers in specific categories became lower than would be statistically desirable.

The “purpose” of the visit was also confused in that respondents could identify any number of reasons. In most cases two purposes dominated. First there were groups that explicitly came to the area to view wildlife. If “viewing flora” was identified as a reason it was always associated with “viewing fauna”. For the purposes of analysis, all the other reasons were bundled into a “walk etc” category.

Reported expenditure by the respondent is a subject of potential over estimation. The usual procedure is to simply multiply the reported expenditure by the number of activity days reported at the reserve. If the respondent was single this would be entirely appropriate but family situations reported expenditure may, at least in part, reflect expenditure for the whole group. The survey also included details of the group size associated with the expenditure, including the number of adults and children. For the purposes of this report adults and children were not considered separately and a single expenditure by head was calculated. Most surveys simply ask for expenditure from the interviewee on the assumption that the interviewee is randomly drawn from the population. There is a potential over-estimate in this approach with partners reporting expenditure both incurred individually and jointly. For example a child will record expenditure on an ice cream paid for by the parent. It is noticeable that the expenditure per head found in this survey is substantially lower than that typically reported in tourist surveys.

The survey records the “type” of visit e.g. day trip of less than 3 hours. The expenditure per head by type was combined with the type distribution and the number of recorded visitors to provide total expenditure for each “type” of activity.

2.7 Estimating the Economic Impact of Visitors to the NNRs

The standard approach to estimating economic impact starts by combining visitor expenditure per day, including accommodation expenditure for overnight visitors and multiplying by the number of activity days.

The problem is defining a "visitor day". Clearly including the daily expenditure of a local who walks the dog on the beach for half an hour in the morning would grossly over-estimate the importance of the reserve in the local economy. One convention is that if an activity takes more than 3 hours, all expenditure that day- including accommodation costs if relevant- are credited to that activity. Thus the total expenditure associated with the NNR is the aggregate of the expenditure for all types of visitor except those who visit for less than 3 hours. In this project if a visitor spends 2-3 hours in the reserve (half a day) then half the expenditure of that visitor is allocated. For visitors who spend 1-2 hours, then a quarter of the expenditure has been included.

This may still be an overestimate. There is, for example, a clear rationale for not including expenditures for those whose visit "type" is stated as "Passing through the area to/ from my holiday destination". More importantly, because most of our study areas are small a large percentage of the expenditure is likely to fall outside. For these reasons these estimates of total expenditure should be regarded as upper limits.

Although not the focus of the study it was decided to try to establish the economic impact of this expenditure. Unfortunately, as discussed in the literature review, there are far too many instances of poor and invariably inflated estimates of impact. Typically estimates of gross expenditure are multiplied by a "multiplier" derived at national level or published in the Tourism Multiplier Study (Surrey Research Group, 1993) to provide some supposed estimate of gross output. This is then divided by an average wage to give an estimate of employment.

A key first stage, which is invariably missed, is to identify the direct expenditure into the local economy as a proportion of the gross expenditure. Much visitor expenditure is in retail and it is only the retail margin (plus any local product in the shop) that forms part of the direct expenditure. In the case of fuel, for example, after VAT, fuel duty and the payments to the supplier are considered, this represents only 5% of the gross expenditure. Typically only half the gross expenditure actually enters the local economy.

From the direct expenditure we typically undertake two analyses. In the first we look at the demand for goods and service from other businesses in the local economy as a result of this direct expenditure. We then look at the additional indirect demand for goods and services from this demand and so on. This is known as a 'Type 1' multiplier. The second analysis adds to this "business to business supply chain analysis" by also tracing the effect of wages paid to local people. The wages manifest themselves in additional induced demand for goods and services in the local economy which in turn generates extra local wages and so on. When we combine the indirect (supply chain) and induced (wage) effects we have a 'Type 2' multiplier. In this project, to calculate contribution and impact of visitors to NNRs, we only use Type 2 multipliers.

Ideally our analysis should then trace the impact of each category of expenditure through the local economy. The expenditure by category is provided in the survey data but we have no data on the structure of the local economy to allow estimates of the indirect and induced outputs by category.

Because of these limitations, it was decided to employ ratios found in another very small economy, namely the Kyle of Sutherland (Glasgow Caledonian University and Cogent Strategies International, 2007). This study was of visitors who were fishing in the area, so that the expenditure pattern by category will not be identical to a typical visitor to the NNR. Neither, of course, will the economy of the Kyle be identical to say the Loch Lomond area. However we are confident that variances and associated errors will be small. Table 7 gives these ratios

Table 7 Summary Output Tables created for the Kyle of Sutherland Fishing Trust

	Direct Spend as % of Total	Type 1 Multiplier	Type 2 Multiplier	Local Jobs /£m Direct Spend
Visitors	75.9%	1.168	1.396	22.8
Day Trip	38.1%	1.203	1.442	13.6

Source: Glasgow Caledonian University and Cogent Strategies International, 2007

Using these ratios we obtain estimates of the gross value added (GVA) and associated jobs that result from the presence of the NNR. We term this the economic contribution of the NNR to the local economy. However this is not the Impact. Consider a cinema with four screens. The Contribution of a specific film is the box office turnover associated with that film. However if an individual comes to the cinema to see that film but is too late or the location is full then he or she is likely to watch another film. In these circumstances there will be no impact on turnover of the specific film; the economic impact is the difference between expenditure with and without the activity. Thus the economic impact of an NNR relates only to the expenditure in the local economy that would be lost if NNR protection (and by implication management) ceased.

The most effective method of identifying the level of substitution is to ask the visitor what they would do if a particular activity ceased. If they would continue to undertake the activity outside the region then the activity has an impact. If the visitor would simply do another activity in the same area then there is no impact. Incidentally this approach makes discussion of when it is appropriate to identify an activity with a day's expenditure unnecessary.

Unfortunately this question was not posed in the survey. As an alternative, we tried to identify substitute reactions from the reasons given for using the NNR. It is believed that, as a general rule, there is one group of visitors who would not continue to walk, picnic, look at views etc in the local area; these being serious naturalists. For the others the NNR is a label like country park or national scenic area and, assuming parking, footpaths and walks were still available we would expect their activity to continue in the area. However it is also recognised that much of the attraction of the NNR are the facilities, such as good paths and car parks, built by SNH specifically for the non-naturalist to enjoy the spectacular environments of the NNRs. For example, those who provided the "reason" that they saw the NNR in a guide book were clearly attracted by the facilities as well as maybe the description of the landscape, wildlife and biodiversity available on site, and would not necessarily have come to the area without the specific status. [1]

To cope with this uncertainty we produce two estimates. Firstly we identified as naturalists those who gave the reason for the visit as wildlife or flora and who stayed for

[1] Investment in paths both provides visitors with enhanced quality and protects the natural environment. In most cases rough paths existed prior to the investment so the impact for walkers is limited to the additional number attracted by the improved quality who would not have spent their time/money elsewhere in the locality. It is thought that this could be very small.

over three hours. Thus our lower economic impact figures relate only to the effects of gross expenditure of this group.

For our second estimates we initially tried to identify from the reasons given for the visit the role of the facilities. Unfortunately the two largest categories are *Walk/Exercise* and *Been Before/Come Regularly*, neither of which give an indication of likely substitute behaviour if the NNR facilities were not available. Given we have no way of knowing, **our second (upper) estimate assumes half the activity days would be lost to the local area.**

2.8 Estimating the Economic Impact of Expenditure by NNRs

Unlike visitor spend, expenditure by the NNR has a direct effect on the local economy. In the regional accounts expenditure of £100,000 will increase local output by £100,000.

The main focus of this project, however, is the way this expenditure will provide work for local firms and consequently how increased activity by these businesses will further stimulate other businesses. These effects are known as indirect, when they involve the purchase of raw materials locally, and induced when the wages of those involved result in increased demand for local products.

We approached the analysis in two ways.

1. In principle, as discussed above, each area and each pattern of demand will be associated with a unique set of multipliers. This occurs because important products may simply not be available locally and thus the expenditure flows out of the local economy. Generally speaking the smaller the area/economy, the smaller is the multiplier. Elsewhere in this study we have used multipliers and ratios derived from a study involving the small remote area of the Kyle of Sutherland. These were derived from specially constructed local input-output tables which reflect the limited business in the area. Although by no means perfect, these multipliers were thought likely to be very similar to the small local areas associated with this study. That said the results must be treated with caution.

   To estimate the indirect and induced effects of NNR spending we utilise the Kyle output multiplier. This provides the ratio of the direct expenditure to output. To estimate employment change we use the employment multiplier. This relates direct employment to final employment and is a simple shortcut that saves mapping expenditure change to employment change.

2. An alternative approach is to attempt to trace the effects sequentially. In each round the volume of the expenditure retained locally is identified and passed to the next round. For example suppose gross expenditure of £100,000 is split between £60,000 in wages for 2 staff and £40,000 for site maintenance. Only one of the staff lives locally so we assume only the wage of the second has a local impact. However of the £30,000 around 30% goes in direct taxes and national insurance, and 20 to 30% in rent or mortgage payments outside the local area. Of the balance some will go in indirect taxes, some in council tax and some in energy costs leaving only a very small percentage to be spent in the local pub and shop. Even then the trip to the hypermarket outside the local area and the expenditure on the foreign holiday means that as little as 5% of the wage ends up in the local economy.

The induced effect is dependent to a major extent on the boundaries of the case study area. For geographic reasons (i.e. long distances to alternatives) we might expect the local spend to be a higher percentage in the Beinn Eighe case than in Loch Lomond, where major retail complexes are a couple of kilometres from the boundaries. Similarly Forvie includes Ellon within its boundaries and St Abb's includes Eyemouth. For the purposes of this study however, we have assumed a uniform 10% of wages spent within the local community.

Other expenditure similarly leaks out of the local economy. In this case however we can directly identify in Round 1 the leakage by asking the NNR manager in the NNR Management Survey what is purchased locally. Similarly, in the internet/mail survey of local businesses, we asked where the local firms obtain their supplies. This allows us to estimate the local percentage by taking the average local percentage weighted by the importance of the NNR to the business and calculate the Round 2 effect. Impacts at Round 3 are so small that they can be safely ignored.

Aggregating these local effects and adding in the induced effects provides a second estimate of the economic impact of the NNR.

2.9 Estimating Total Impact from the Business Survey

The third source of information on economic impact is the second internet/email business survey where local businesses were asked their turnover and the percentage of their business dependent upon the NNR (and potential loss). As discussed in the relevant case study chapters the businesses established as being affected were initially identified in the telephone survey and in some cases this reduced the number taking the second survey quite dramatically. For example for Forvie only 7 were found to be eligible for the second survey, Unfortunately, even after an initial positive response to undertaking the survey and major subsequent attempts to obtain replies, the response rate was often lower than 50%. Again using Forvie as an example there were only 2 responses.

The aggregate contribution of the respondents clearly provides a lower bound, assuming, of course, a respondent is not confused on the nature and location of the NNR. An alternative is to assume that the sample, however small, also provides information on the non-respondents. It is believed however that those who had very substantial dealings with the NNR are more likely to have responded and consequently that the use of the mean would lead to a substantial over-estimate of the effects. In addition at both Forvie and St Abbs there were businesses with very atypical turnovers of £1m plus that had responded and which would potentially significantly bias the responses. The normal robust estimator of the centre of a distribution is the median. Using the median as the best estimator for the average of all the affected non-reporting business we obtain our upper estimate of the direct effect of the NNR. It should be emphasised this covers both businesses dealing with the NNR directly and businesses dealing with the visitors to the NNR.

The multiplier effect is estimated in exactly the same way as for the NNR expenditure survey. The percentage of the costs that goes on materials and services from other businesses was reported in the survey as was the percentage of attributed to local suppliers. These two figures together provide the percentage of the "additional" business attributable to the NNR that is passed on to other firms.

Both because we have no information on the home locations of workers in these business and the percentage of the income spent locally, we would expect the induced effects to be extremely small (<5%). Similarly second round effects would be extremely small (<4%) even if the data was available to make estimates at this level of accuracy sensible. As a consequence only the Type 1 round 1 estimates have been generated and added to the lower and upper contribution estimates.

2.10 Limitations

2.10.1 Dealing with Protected Area Status

There exists within the community considerable confusion on the various protection designations and the way they overlap. For many people the Loch Lomond National Nature Reserve was synonymous with the Loch Lomond and Trossachs National Park, and few could distinguish between the NNR and the national park, let alone an SPA and an SAC. Likewise the NNR and voluntary marine reserve (VMR) at St Abb's Head.

It is believed that for most tourists it is the quality of the landscape as defined nationally by national parks (NP) and national scenic areas (NSA) and locally by regional parks (RP), and areas of great landscape value (AGLV) that is of the greatest importance. In particular it is the confidence to undertake recreational activities in that environment such as walking and picnicking that is critical. However, NNRs also lie within (and associated designations protect) these beautiful environments and provide facilities for recreation, and as such, will attract people who are attracted by the landscape and amenities present at sites.

For this project it was important to ensure that respondents could distinguish between the different roles of the main designations.

Because of the overlap of designations we focus on the NNRs (which are better known because of visitor facilities) whilst identifying in the questionnaire any additional impact from the other designations. Thus for St Abb's Head we seek to distinguish between the relative attraction to visitors of:

1. The centre and its facilities (the NNR)
2. The wildlife (the Natura classifications)
3. The scenery (The AGLV classification)

This has been achieved by asking respondents to score, on a 1-5 Lickert Scale, what they believe to be the importance of each of these factors to their customers. We believe that there was confusion in the mind of businesses as to the area defined as an NNR, particularly for the Loch Lomond case study. It might be possible to ascertain this through surveying businesses that responded to the 2nd questionnaire, by asking them to mark the reserve on a map.

2.10.2 *Timing of the Research*

This piece of research was commissioned during the winter season (2009/10). Accommodation operators, in particular B&Bs and guest houses, tend to work seasonally, closing during the winter season.

3 RESULTS: CASE STUDY ONE: LOCH LOMOND NNR

3.1 Background to the NNR

Loch Lomond NNR located in the southeast corner of Loch Lomond, in the southern part of the Loch Lomond and Trossachs National Park which is deservedly world famous for its outstanding mountain scenery, beautiful wooded shores and islands.

The NNR is 430 hectares (ha) in size and boasts many diverse habitats which in turn support a rich variety of species. The reserve consists of:

- The islands of Inchcailloch, Clairinsh, Torrinch, Creinch and Aber Isle
- The wetlands at the mouth of the River Endrick
- Gartfairn Wood

SNH owns two parts of the NNR:

- Inchcailloch,
- and a small part of Gartfairn Wood.

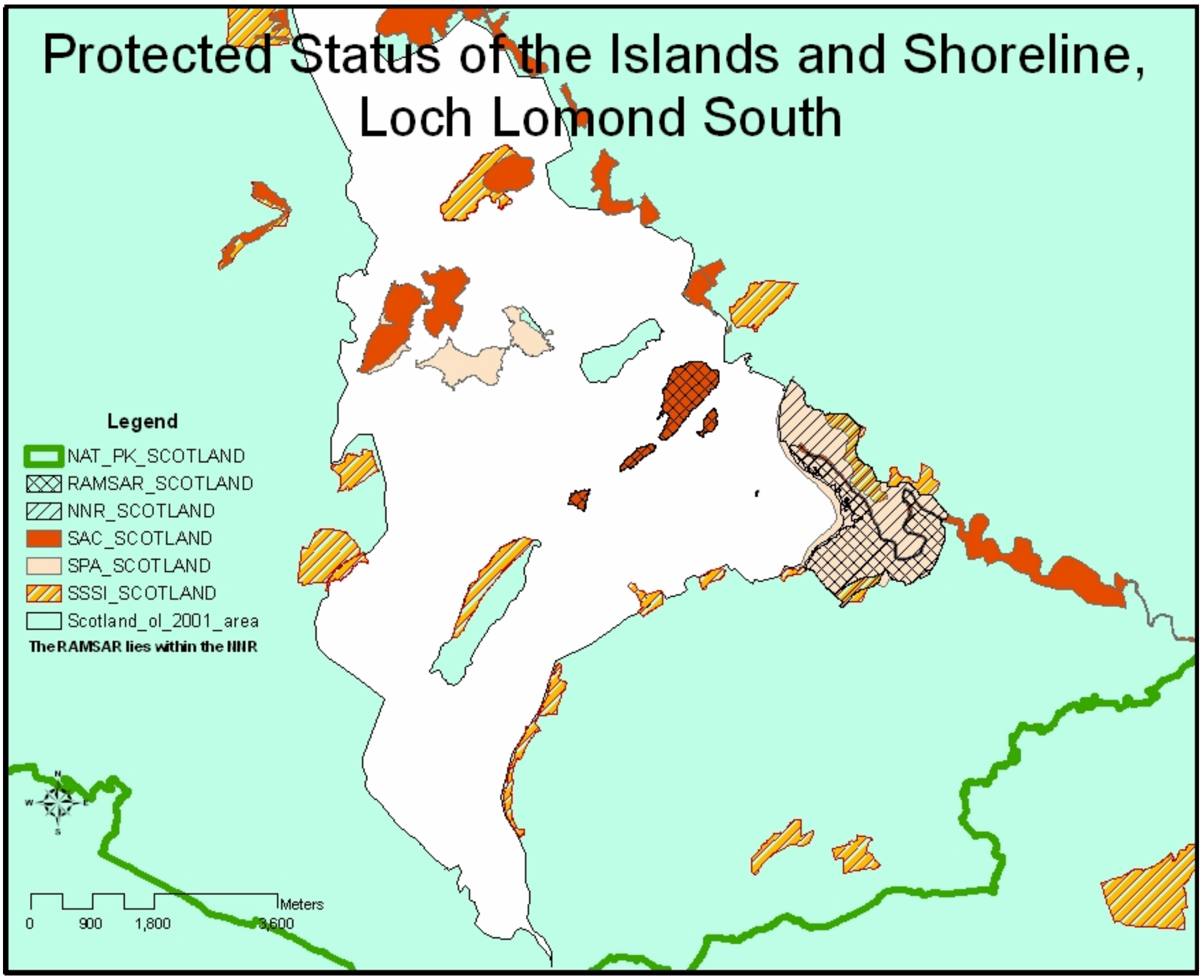
The remainder of the reserve is privately owned.

The reserve is managed in conjunction with its owners and tenants under agreements and in partnership with the Loch Lomond and Trossachs National Park. For example, the wetland area at Endrick Mouth is not owned by SNH but is the subject of a management agreement between the owners and SNH. Sheep and cattle graze over most of the area with the loch-side oak woodlands protected from depredation by fencing. Another example is the management of Inchcailloch for visitors. For a long time, the island was managed by SNH. In 2004, rangers working for the national park authority took over the island's management.

Some areas boasting nationally and internationally important habitats and species have led to the designation of additional protected status:

- Special protected area (SPA) and RAMSAR site:
    - **Loch Lomond** (as a roosting and feeding ground for Greenland white-fronted geese)
- Special Areas of Conservation (SAC)
    - **Loch Lomond Woods** (for its old sessile oak woods and otters)
    - **Endrick Water** (for its brook lamprey, river lamprey and Atlantic salmon)
- Sites of Special Scientific Interest (SSSI):
    - **Endrick Mouth and Islands** (for its breeding bird assemblage, as a roosting and feeding ground for Greenland white-fronted geese, greylag goose, presence of old sessile oak woods, beetle *Eutheia linearis*, hydromorphological mire range, flood-plain fen, bryophyte assemblage, vascular plant assemblage)
    - **Aber Bog, Gartocharn Bog & Bell Moss** (host basin fen)
    - **Portnellan, Ross Priory, Claddochside** (showcases the Quaternary of Scotland)

Figure 4 Overlaying of the Various Protected Areas in Loch Lomond NNR



3.2 Visitor infrastructure

The Island of Inchcailloch has been developed specifically as a visitor destination to interpret and showcase Loch Lomond's natural heritage.

There are two trails on the island (the Low path, a gentle woodland walk with a few slopes, and the Summit path, a more strenuous walk with a steep climb to the top of the island), information and interpretation boards, seating, landing jetties, a beach picnic site, toilets and a small campsite. An ancient ruined church with burial ground and a ranger base are also present. The island has also been made more accessible for visitors with a wider range of abilities. A park ranger is employed in the summer.

Inchcailloch welcomes many school children every year. In 2008/2009, eight schools and seven informal groups were assisted by the ranger service to visit Inchcailloch, culminating in a total of 129 ranger hours (Loch Lomond & The Trossachs National Park Authority, 2009). A number of events are also organised and hosted on the island to attract visitors.

It is possible to visit the island all year round weather permitting. Numerous private boats, both powered and unpowered come to the island. If a private boat is not available then there are hire facilities close by at Balmaha or a ferry from the boat yard. It is a short journey to the island and the ferry operates on demand all year round.

The small campsite on the island is extremely popular in summer with youth and family groups. At weekends early booking is essential to obtain a pitch.

The topography on the mainland makes access more difficult to other parts of the reserve, such as the wetland area. The Aber path, which runs from Gartocharn village to Endrick viewpoint, at the mouth of the River Endrick, takes visitors through farmland before arriving on the reserve's grounds, the path following the shore line through Shore Wood.

However, this part of the reserve is not heavily visited and within the reserve there is only one short surfaced path to the south of the river which appears to be used primarily by locals. Unlike Inchcailloch visitors might be expected to be interested in the wildlife as there is little else of apparent interest for the family.

3.3 Tourism Information

In 2008, VisitScotland estimates that UK residents took 1.64 million tourist trips to the Argyll, The Isles, Loch Lomond and Forth Valley (AILLFV) region, stayed for 6.12 million bed nights and spent £329 million in the area (VisitScotland, 2009a).

Similarly, overseas visitors took 0.29 million trips to the region, stayed 1.32 million nights and spent an estimated £89 million.

On average, UK tourists spent 3.7 nights in the area whilst overseas tourists spent longer, at 4.6 nights.

However, these figures do not take into account day trippers, which form a large part of visitors to the area.

With regards to other visitor attractions located in the postcode areas G63 0 and G83 8, the Visitor Attraction Monitor identifies three attractions, as shown in the Table below.

Table 8 Visitor Attractions in Postcode Areas G63 0 and G83 8

Name	Visits 2008	Visits 2007	% 08/07
Loch Lomond Park Centre, Luss	61,063	84,347	-27.6
Loch Lomond Park Centre, Balmaha	58,430	65,120	-10.3
The National Park Gateway	301,271	328,645	-8.3

(Source: Moffat Centre/VisitScotland, 2009)

Although these are located slightly outwith the case study area, they highlight the popularity and appeal of Loch Lomond as a tourism destination and the potential the NNR has as an appeal to visitors.

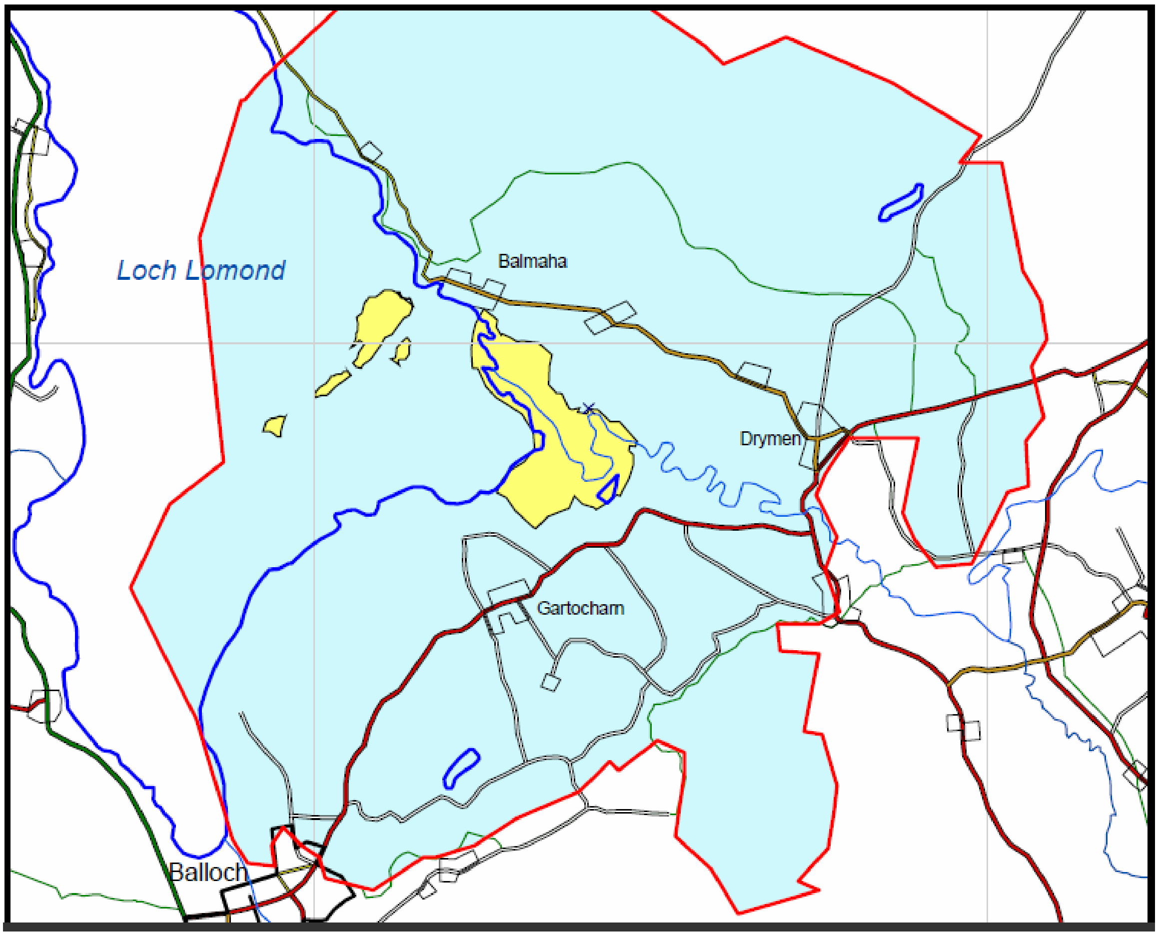
SNH estimate that some 15,000 visits are made to Inchcailloch in any year (Scottish Natural Heritage, 2008a).

Despite the lack of close car parking (a subject of some difficulty with the local community), on completion of the hard surfaced path, visits to the wetland increased from 2,500 to 3,500 (Interview with Tim Bell, NNR Manager).

3.4 Study Area

The boundary for this case study was set at 2.5 km, using GIS census areas and a common sense approach to ensure inclusion of appropriate villages and towns.

Figure 5 Loch Lomond NNR Case Study Area (with 2.5km boundary)



This area includes the local villages of Balmaha, Drymen and Gartocharn, where knowledge of the NNR and impacts are thought to be greatest. It excludes the urban sprawl of the Vale of Leven (Balloch, Alexandria, Renton, Bonhill and Dumbarton) and the tourist hub at Lomond Shores, Balloch.

The area includes a population of 2,449.

The postcodes list used to identify businesses located within this area can be found in Appendix 5.

3.5 Findings from the NNR Baseline Visitor Survey 2002/2003: Raw data analysis

3.5.1 Profile of visitors

In summary some 46% of visitors to Loch Lomond NNR are groups of day trippers and 49% overnight tourists, as shown in the Table below.

Table 9 Visitors to Loch Lomond NNR by Type

Type of Trip	Frequency	Percent	Visitors
On a short trip (of less than 3 hours) from home	216	24.7	4,197
On a day out (for more than 3 hours) from home	186	21.3	3,614
On holiday away from home in the area	371	42.4	7,208
Visiting friends and relatives on holiday in the area	31	3.5	602
Passing through the area to/ from my holiday destination	24	2.7	466
Others	45	5.1	874
Don't know/ Not stated	2	0.2	39
Total	875	100.0	17,000

There are a surprising number of visitors travelling over 30 miles (40.9%). Whilst 57% travel less than 30 miles.

Table 10 Visitors to Loch Lomond NNR by Distance Travelled

Distance Travelled	Frequency	Percent
Less than 3 miles	58	6.6
3 - 5 miles	75	8.6
6 - 9 miles	96	11.0
10 - 14 miles	90	10.3
15 - 19 miles	83	9.5
20 - 29 miles	99	11.3
30+ miles	358	40.9
Don't know/ Not stated	16	1.8
Total	875	100.0

This may be all day trippers from the east and south east areas of Glasgow or, indeed, anywhere in the central belt east of the M73. It may also reflect holidaymakers staying in Edinburgh who have a day out on Loch Lomond, as the following table seems to suggest.

Table 11 Visitors to Loch Lomond NNR by Distance Travelled and Purpose of Trip

	Total Respondents	Less than 3 miles	3 - 5 miles	6 - 9 miles	10 - 14 miles	15 - 19 miles	20 - 29 miles	30+ miles	Don't know/ Not stated
	Number	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**
On a short trip (of less than 3 hours) from home	216	8.3	7.9	12.5	9.3	10.2	13.0	37.0	1.9
On a day out (for more than 3 hours) from home	186	1.1	3.2	4.3	2.7	7.5	12.9	66.7	1.6
On holiday away from home in the area	371	7.5	10.5	14.0	15.4	10.5	11.3	29.4	1.3
Visiting friends and relatives on holiday in the area	31	12.9	9.7	16.1	6.5	9.7	6.5	35.5	3.2
Passing through the area to/ from my holiday destination	24	8.3	8.3	4.2	8.3	12.5	4.2	50.0	4.2
Others	45	8.9	17.8	6.7	8.9	4.4	4.4	44.4	4.4
Don't know/ not stated	2	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
Total	875	6.6	8.6	11.0	10.3	9.5	11.3	40.9	1.8

Transport used mirrors findings from other tourism studies in Scotland: it is completely dominated by the motor car.

Table 12 Visitors to Loch Lomond NNR by Transport Type

Transport Type	Frequency	Percent
Bicycle	12	1.4
Car or van	705	80.6
Motorcycle	3	0.3
Private coach or mini-bus	6	0.7
Public transport	46	5.3
Walked all the way	14	1.6
Boat/ ferry	75	8.6
Motor home/ camper van	3	0.3
Others	6	0.7
Don't know/ Not stated	5	0.6
Total	875	100.0

Half of visitors interviewed in 2002/2003 indicated they had spent between 2 hours and 5 hours in the NNR.

Table 13 Time Spent by Visitors at Loch Lomond NNR

Time Spent	Frequency	Percent
Up to 15 minutes	6	0.7
Over 15 minutes - 30 minutes	20	2.3
Over 30 minutes - 1 hour	85	9.7
Over 1 hour - 2 hours	153	17.5
Over 2 hours - 3 hours	200	22.9
Over 3 hours - 5 hours	237	27.1
More than 5 hours	157	17.9
Don't know/ Not stated	17	1.9
Total	875	100.0

On Inchcailloch a substantial number have had to hire a boat or paid for a ferry ride. Perhaps the proportion spending less than an hour or even one to two hours is the surprising feature, reflecting visitors to the wetland possibly.

The following table shows the reasons people quoted for visiting Loch Lomond NNR. A number of respondents ticked more than one reason.

Table 14 Reasons for Visiting Loch Lomond NNR

Reason for Visit	Frequency	Percent
Walk/ exercise/ fresh air/ good weather	61	24.6%
To see the wildlife/ birds/ geese/ bird watching	39	15.7%
Walk the dog	12	4.8%
Been before/ come here regularly/ nice place/ like it here	60	24.2%
Views/ scenery	23	9.3%
Just passing/ saw sign	14	5.6%
Staying in the area/ near to home	9	3.6%
Recommended by friends/ at accommodation	16	6.5%
Never been before/ wanted to see it	13	5.2%
Quiet/ peaceful	7	2.8%
Saw it in guide book/ magazines/ leaflet	10	4.0%
Sand / beach	14	5.6%
To participate in a sport e.g. hillwalking/ cycling/ paragliding/ shooting	28	11.3%
See plants/ vegetation/ wild flowers	2	0.8%
Wanted to see visitors centre	1	0.4%
Brought friend/ relative to see	2	0.8%
Family day out/ brought the children	8	3.2%
Other	13	5.2%
TOTAL RESPONSES	332	133.9%
TOTAL RESPONDENTS	248	

There was no obvious correlation between reasons given with the exception that those identifying closeness to site also suggested that they came to see the wildlife.

Wildlife is only important to a minority of visitors. However, for many visitors, Loch Lomond NNR is attractive because of its landscape, scenery and inherent beauty – all aspects towards which

NNR status has contributed to conserve. Nevertheless, for the majority, it is simply a good place to go for a walk and picnic in pleasant surroundings.

The following Table compares the reason for the visit with the type of trip (and the distribution of the subset with the full sample)

Table 15 Purpose of Trip by Type of Trip

	Walk	**Wildlife**	**Other**	**Total (248)**	**Total (875)**
On a short trip (of less than 3 hours) from home	41.0%	28.2%	23.6%	28.6%	24.7%
On a day out (for more than 3 hours) from home	27.9%	20.5%	30.4%	28.2%	21.3%
On holiday away from home in the area	27.9%	41.0%	39.2%	36.7%	42.5%
Visiting friends and relatives on holiday in the area	1.6%	5.1%	3.4%	3.2%	3.6%
Passing through the area to/ from my holiday destination	1.6%	5.1%	1.4%	2.0%	2.7%
Others	0.0%	0.0%	2.0%	1.2%	5.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Significantly those walking were predominantly local. Holidaymakers were far more likely to be interested in the wildlife.

Table 16 provides an equivalent analysis for journey distance

Table 16 Purpose of Trip by Distance Travelled

Distance Travelled	**Walk**	**Wildlife**	**Total**
Less than 3 miles	6.7%	7.7%	6.9%
3 - 5 miles	7.2%	10.3%	7.7%
6 - 9 miles	10.0%	12.8%	10.5%
10 - 14 miles	6.2%	5.1%	6.0%
15 - 19 miles	10.0%	2.6%	8.9%
20 - 29 miles	11.5%	7.7%	10.9%
30+ miles	48.3%	53.8%	49.2%
Total	100.0%	100.0%	100.0%

This table also highlights that people living over 30 miles away (who are more likely to be holidaymakers) were more likely to be interested in the wildlife.

3.5.2 Economic Impact of the Visitors

Day trippers, visitors on short trips and those visiting friends and relatives identified the lowest average spend, as could be expected, whereas those visitors on holiday (or on their way to their holiday destination) identified the highest average spends.

Table 17 Average Spend 2010 Prices per Visitor by Type of Trip

Type of Trip	Average Spend 2010 Prices
On a short trip (of less than 3 hours) from home	£9.74
On a day out (for more than 3 hours) from home	£13.19
On holiday away from home in the area	£34.66
Visiting friends and relatives on holiday in the area	£11.55
Passing through the area to/ from my holiday destination	£50.41
Others	£25.96
Don't know/ Not stated	£10.53
Total	£23.12

This expenditure is noticeably lower than in other areas, possibly reflecting the significant number of camping and caravanning sites close to the loch.

As discussed in Section 2.7 the economic contribution of the reserve to the local economy is based on the assumption that where the visitor spends a minimum of one hour on the reserve then the associated expenditure for the day should, at least in part, be attributed to the presence of the reserve. On the other hand the economic impact lower estimate is based only on the expenditure of wildlife watchers who spend over 3 hours on the reserve. The analysis is shown in Table 18.

The result of this analysis is that, whilst visitors to the reserve can be said to generate 4.5 jobs locally, the protected area status has far less impact. According to the lower bound estimate, only 0.2 resultant jobs result from the expenditure of visitors who visit the reserve for a significant part of the day to watch wildlife. Upper bound estimates generate a figure of 2.3 jobs created locally because of the protected status.

Table 18 Economic Impact of Visitors to Loch Lomond NNR

								Contribution		Impact				
										Lower Estimate			Upper Estimate	
Trip Type	**Spend/ Head**	**%**	**Visitors**	**Total Spend**	**Direct**	**Type 2**	**Day**	**Output**	**Jobs**	**Wild**	**Output**	**Jobs**	**Output**	**Jobs**
	(£)	(%)	(n)	(£)	(£)	(£)	(%)	(£)	(n)	(%)	(£)	(n)	(£)	(n)
On a short trip	9.73	24.7	4,570	44,476	16,945	24,435	52.4	12,812	0.2	2.4	591	0.0	6,406	0.1
On a day out	13.20	21.3	3,941	51,997	19,811	28,567	70.6	20,158	0.4	4.8	1,382	0.0	10,079	0.2
On holiday	34.66	42.4	7,844	271,870	206,349	288,064	63.5	182,854	3.4	3.6	10,454	0.1	91,427	1.7
Visiting friends	11.55	3.5	648	7,478	5,676	7,924	47.6	3,770	0.1	0.0	0	0.0	1,885	0.0
Passing through	50.40	2.7	500	25,176	19,109	26,676	40.6	10,837	0.2	0.0	0	0.0	5,418	0.1
Others	25.96	5.1	944	24,495	18,592	25,954	60.0	15,572	0.3	0.0	0	0.0	7,786	0.1
Don't know	10.53	0.2	37	390	296	413	37.5	155	0.0	0.0	0	0.0	77	0.0
Total	**23.12**	**100**	**18,500**	**425,882**	**286,778**	**400,342**	**60.8**	**246,159**	**4.5**		**12,427**	**0.2**	**123,079**	**2.3**

3.6 Findings from the Businesses' Short Surveys

3.6.1 Population and Response Rate

As explained in Section 2.3.2, some 203 businesses within the study boundaries were contacted by telephone to ascertain whether they were impacted in any way by Loch Lomond NNR.

In total, 119 businesses participated in this first interview (58.6%).

A final round of phone calls was made during the second week of February 2010. Each non respondent was called at least twice (including in the evening), without success.

In particular, we had problems contacting accommodation providers and farmers. With regards to the former, we suspect many were actually shut for the winter season. Although we tried to ascertain this, no information could be found online, and obviously, we were not able to speak to anyone to confirm this.

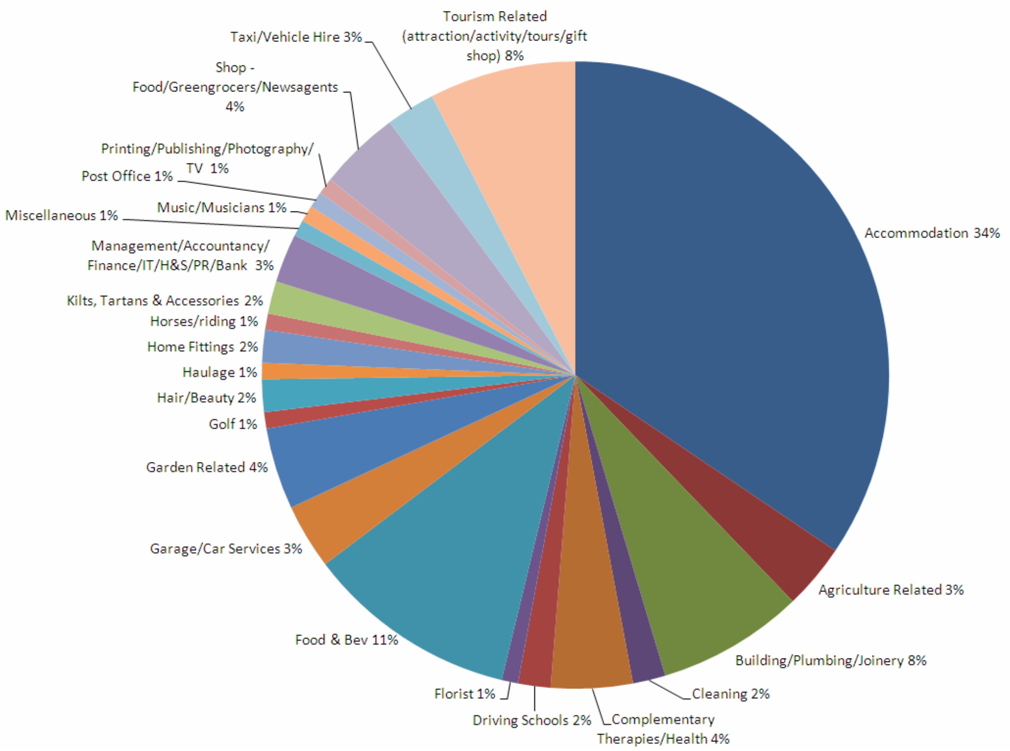
Table 19 Businesses' Short Survey: Response Rate

Short Interview Status	Frequency	Percent
All Businesses Contacted	203	
Short Interview Completed	119	58.6%
Did not want to participate	36	17.7%
Closed for winter season	3	1.5%
Non responses	45	22.2%

3.6.2 Businesses and their business relationship with Loch Lomond NNR

Overall, some 68.9 % of businesses indicated they did not use the NNR whether it be to carry out business activities in the reserve or supply businesses that work in the reserve.

Figure 6 Profile of Businesses Completing the Short Survey by Trade

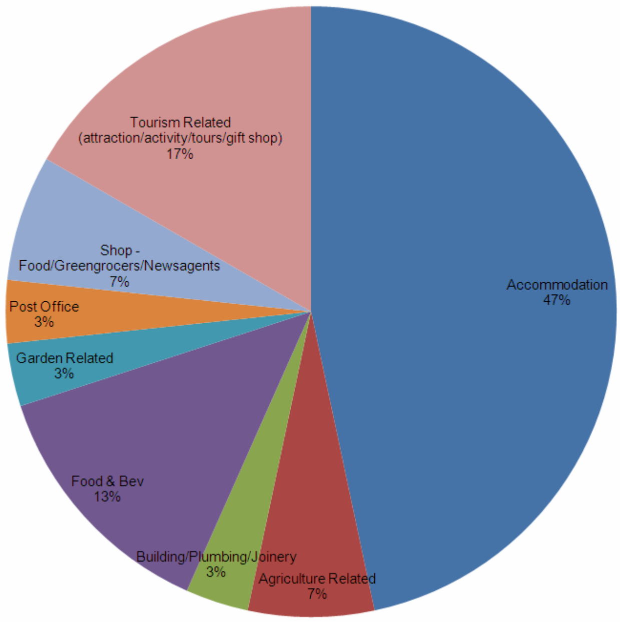


The following paragraphs show businesses' involvement with the Reserve.

These findings should however be treated with caution as the NNR Managers highlighted only one business was actually carrying out business activities on the reserve (grazing cattle). However, 30 businesses indicated they carried out business activities on the reserve. This would indicate confusion regarding the NNR and national park designations.

In total, three quarters of businesses interviewed indicated they did not carry out business activities in the Loch Lomond NNR itself. Of those that indicated they did carry out business activities in the Loch Lomond NNR itself, the majority were accommodation providers, as illustrated in Figure 7.

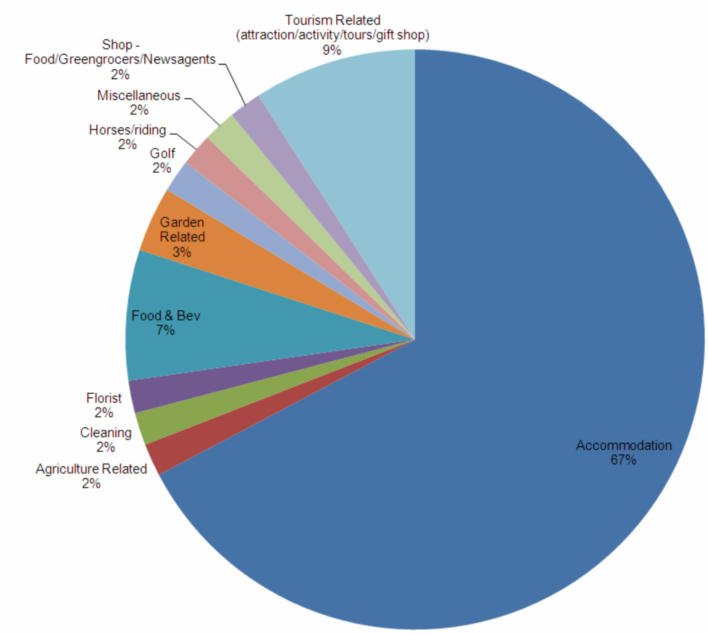
Figure 7 Businesses that carry out business activities in Loch Lomond NNR



Some 81.5% of businesses interviewed indicated they did not provide services to businesses that operate in Loch Lomond NNR.

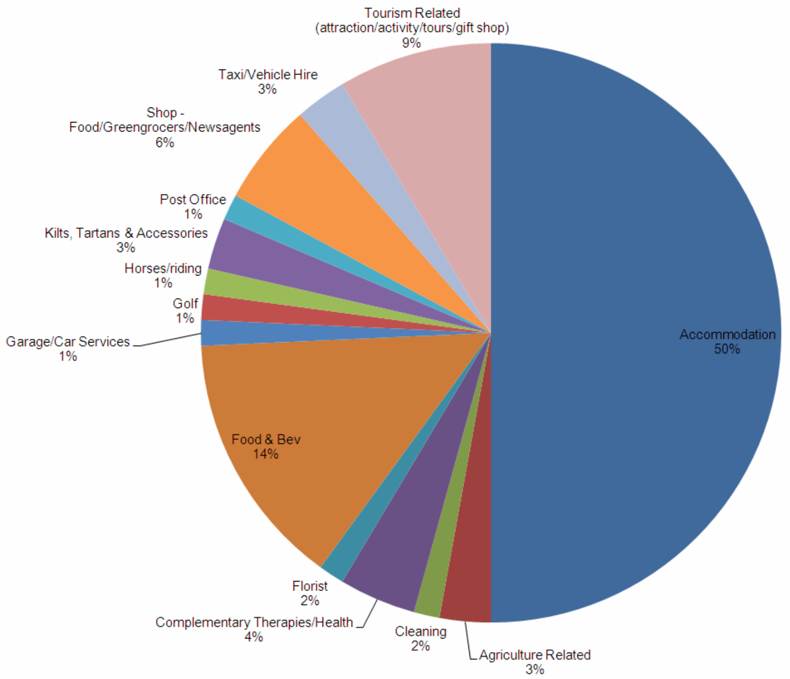
Some 46.2 % of businesses indicated that they had promotional materials on the reserve and may mention the area and NNR on their own promotional materials. However, none used them to promote their own business actively. The majority of those businesses are accommodation providers, as shown in Figure 8.

Figure 8 Businesses that Promote the NNR



Finally, over half of businesses interviewed (58.8%) indicated they provided services to visitors who come to the area because of the natural environment. However, they were not in a position to say whether visitors came because of the NNR itself, or because of the wider area.

Figure 9 Businesses that provide services to visitors who come to the area because of the natural environment



3.6.3 Awareness of Protection Designation

A surprisingly high percentage, some 89.9%, of respondents indicated they were aware that Loch Lomond NNR also boasted SPA, SAC, and SSSIs.

3.6.4 Negative Experiences due to Protected Area Status

Overall, some 91.6% of business respondents indicated that protected status had had no negative impact on their business.

Only 4.2% of business respondents indicated that protected status had hindered the development of their business activities, as shown in the following table.

Table 20 Protected Area Status stopped the development of some business activities (that would take place in the reserve)

	Frequency	Percent
True	5	4.2
False	102	85.7
Not Applicable	12	10.1
Total	119	100.0

The majority were to do with planning issues – which again may point to confusion between the NNR and the NP.

Similarly, when asked if they knew whether protected status had restrained the development of their customers' activities that would take place on the Reserve, only 2.5% indicated so.

Table 21 Protected Area Status stopped the development of customers' activities (that would take place in the reserve)

	Frequency	Percent
True	3	2.5
False	104	87.4
Not Applicable	12	10.1
Total	119	100.0

Some 10 businesses only (8.4% of respondents) highlighted other negative impacts related to the NNR. These are detailed in the Table below.

Table 22 Other Negative Impacts Related to Loch Lomond NNR

Trade Category	Comment
Accommodation	*"Litter"*
Food & Bev	*"Very strict on housing development causing difficulty for local development"*
Accommodation	*"The parking lot (up north of Milarrochy Bay) its not managed well, no litter facilities, no toilet facilities available. Should charge for parking"*
Accommodation	*"Damages to shores, don't let enough water out of loch"*
Post Office	*"Parking is serious concern, transport links restricted, poor infrastructure, maintenance needed and litter bins"*
Accommodation	*"Restricts extent of development"*
Accommodation	*"Lowered speed limits on boats, loss of business"*
Accommodation	*"Planning department would not allow them to change the windows into Doors - were told no"*

Clearly, the above comments further confirm that there is confusion of NP and NNR status, with many of the negative impacts quoted above relating to NP rules and legislation.

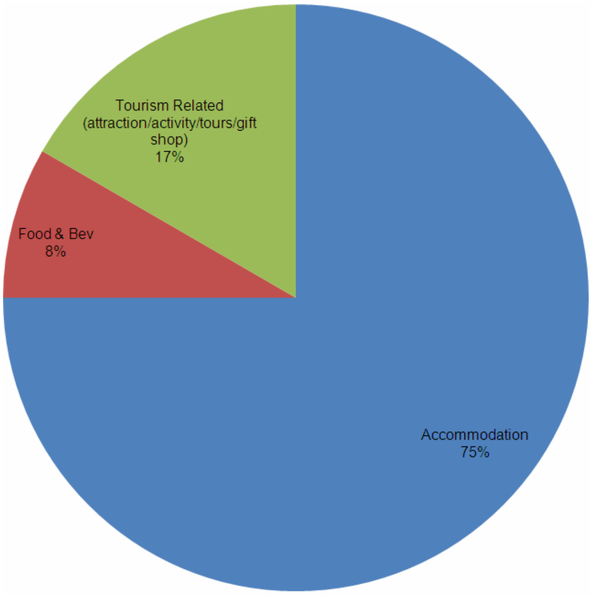
Two businesses volunteered that protected status had actually had a positive impact on their business.

The comments above illustrate the confusion that exists between the national park and the NNR, as discussed earlier. This confusion continues throughout the survey and results in accommodation businesses in the park claiming to be in the NNR (there is no accommodation in the NNR). It also leads to businesses claiming economic dependence on the NNR when they mean the NP and significantly inflating the positive (and negative) impact of the NNR.

3.6.5 *Importance of the NNR for Establishing the Business*

Some 12 businesses (10.1% of respondents) indicated they had established their business because of the NNR.

Figure 10 Businesses that established their business in the case study area because of the presence of the NNR



They are all tourism-related.

Business respondents were also asked whether Loch Lomond NNR is or was a factor in their employees' decision to live and work in the area.

Table 23 Do you know if Loch Lomond NNR is or was a factor in your employees' decision to live and work in the area?

	Frequency	**Percent**
Yes	7	5.8
No	103	86.6
Don't know	9	7.6
Total	119	100.0

Again, the seven businesses that indicated the NNR was a factor in their employees' decision to work in the area were all tourism related.

3.6.6 *Impact of the Loss of Protection on Businesses*

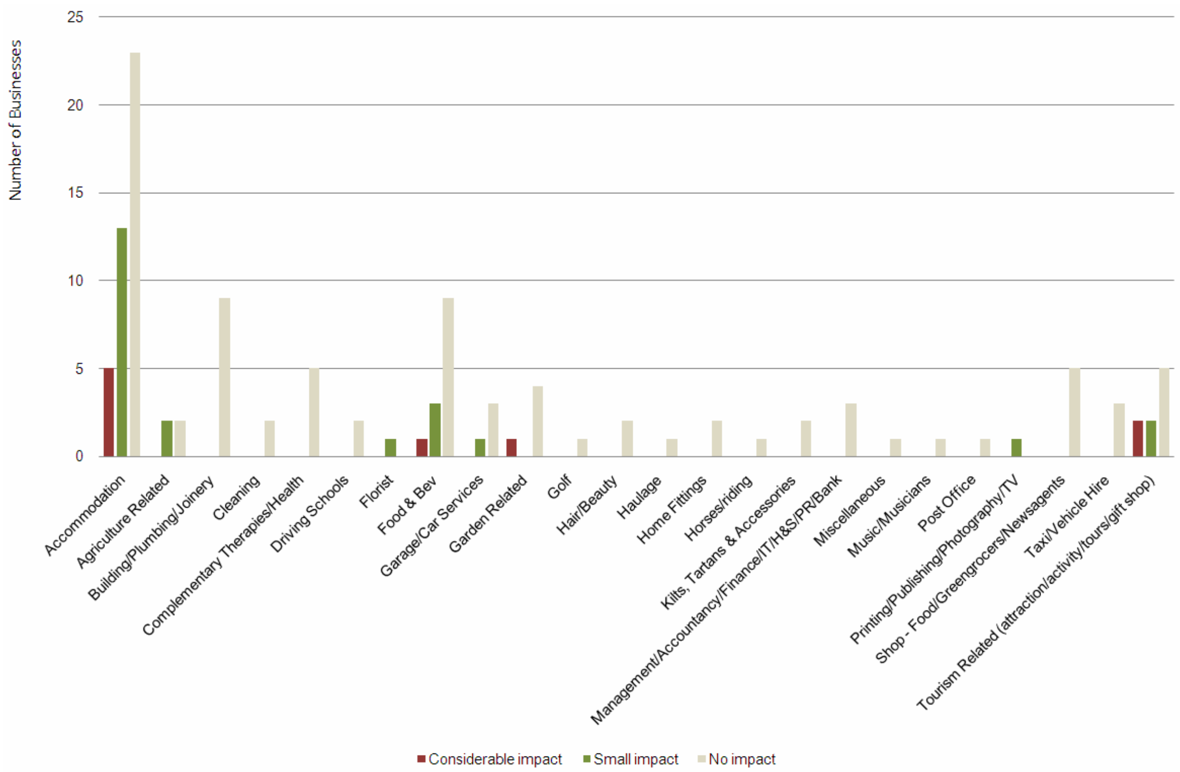
Interviewees were asked if the area lost this protection, what impact this would have on their business.

Just under three quarters of respondents indicated this would have no impact whatsoever on their business.

Table 24 Impact of the Loss of Protection on Businesses

	Frequency	Percent
No impact	87	73.1
Small impact	23	19.3
Considerable impact	9	7.6
Total	119	100.0

Figure 11 Impact of the Loss of Protection on Businesses by Trade Category



3.6.7 Conclusions and Next Step

Of the 119 interviews carried out with businesses located in the Loch Lomond NNR case study area, 39.5% indicated they had some sort of relationship with the NNR and/or were impacted by its existence.

As this project is interested in impacts of NNRs on businesses, we asked them if they were willing to participate in the second stage of the research, to help us identify impacts in more details.

Table 25 Eligibility for Second Part of Research

Eligibility for Second Part of Research	Frequency	Percent
Not Eligible	**72**	**60.5%**
Eligible	**47**	**39.5%**
Did not want to participate in second phase	3	6.4%
Agreed to complete online questionnaire	24	51.1%
Agreed to complete paper questionnaire	20	42.5%
Total	119	100.0%

3.7 Findings from the Businesses' Second Questionnaire

3.7.1 Population and Response Rate

In total, some 44 questionnaires were sent to businesses located in the Loch Lomond NNR case study area.

Some 21 questionnaires were received completed. As noted in Section 2.4.2, a chase-up email or letter was sent in the third week of February 2010 to businesses from whom we had not received a completed second questionnaire.

The following table details responses received by Trade Category.

Table 26 Response Rate Businesses' Second Questionnaire

		Received?	
Trade Category	**Total Sent** (Frequency)	**No** (Percent)	**Yes** (Percent)
Accommodation	24	50.0	50.0
Agriculture Related	2	50.0	50.0
Building/Plumbing/Joinery	1	100.0	0.0
Florist	1	100.0	0.0
Food & Bev	5	60.0	40.0
Garage/Car Services	1	100.0	0.0
Garden Related	1	0.0	100.0
Miscellaneous	1	0.0	100.0
Post Office	1	100.0	0.0
Printing/Publishing/Photography/TV	1	0.0	100.0
Shop - Food/Greengrocers/Newsagents	1	100.0	0.0
Tourism Related (attraction/activity/tours/gift shop)	5	40.0	60.0
Total	**44**	**52.3**	**47.7**

3.7.2 Profile of Responding Businesses

The majority of businesses were micro-businesses, employing less than 10 employees, with an average turnover of £85,294, and were directly involved in tourism activities.

Figure 12 Employees

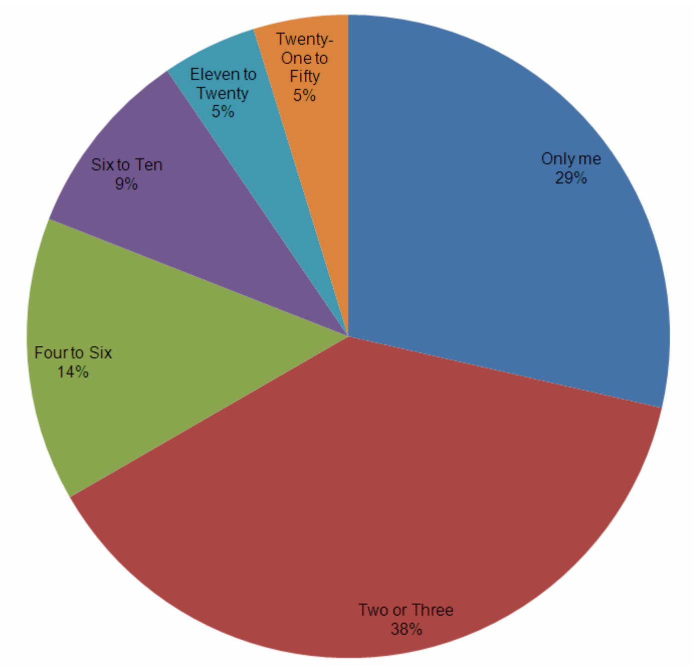
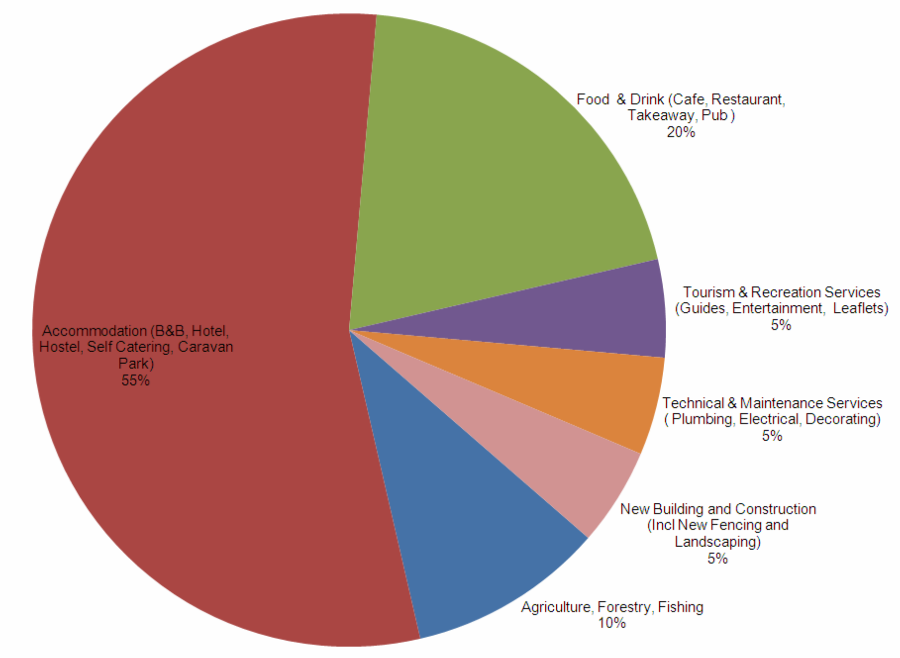


Table 27 Turnover

	Mean	Respondents	Std. Deviation
Turnover	£85,294	17	£175,681

Figure 13 Business Sector of Respondents



Some 60% are directly involved in tourism activities.

The following table shows the positive relationship between businesses and the NNR. Respondents could select more than one option.

Table 28 Businesses' Use of the NNR

	Frequency	Percent (Responses)	Percent (Respondents)
We work in the local reserve	4	10.5	20.0
We provide services to those who work in the local Reserve	3	7.9	15.0
We provide services to those who visit the Reserve	11	28.9	55.0
We provide services to those who come because of the quality of the local natural environment	10	26.3	50.0
We use the quality of the local environment to market the business	8	21.1	40.0
The Reserve does not affect my business positively	2	5.3	10.0
Total Responses	38	100.0	
Total Respondents	20		

Clearly, the natural environment plays a major role for responding businesses. However, confusion remains between the NNR, the NP, and the importance of Loch Lomond's natural environment as evidenced by the comments provided by respondents when prompted about other positive impacts the NNR may have on their business.

“Tourists come to visit and look at the sights.”
“The locus of our self catering eco-friendly lodge in its secluded forest setting; with its iconic background of Ben Lomond is second to none!”
“The national park is a unique selling point for the organisation and is a primary factor in the volume of visitors that pass through the doors of our office.”
“It is more the 'national park' rather than the 'nature reserve' within it that attracts tourists to the area.”
“Just run a self catering business. Being by Loch Lomond is the selling point.”
“Enhancement of walking or cycling routes around area; improved information and access areas.”

3.7.3 Impacts of the NNR on businesses

Businesses were further asked which following aspects of the Loch Lomond NNR were important to their business.

Table 29 Importance of Various Aspects of the NNR to Businesses

	Total Respondents Frequency	Very Important Percent	Important Percent	Neither Percent	Unimportant Percent	Not Available Percent
Good views and landscape	19	73.7	21.1	5.3	0.0	0.0
Good walks	19	68.4	26.3	5.3	0.0	0.0
Wildlife	19	36.8	57.9	5.3	0.0	0.0
Flora	19	31.6	63.2	5.3	0.0	0.0
Toilets	19	42.1	21.1	21.1	0.0	15.8
Cafe/Shop	18	27.8	27.8	27.8	0.0	16.7
Visitor Centre	19	42.1	26.3	15.8	0.0	15.8

The above table clearly shows that the quality of the natural environment and walks are “Very Important” to businesses in the Loch Lomond NNR case study area whilst “Wildlife” and “Flora” are “Important”.

Table 30 Importance of Various Aspects of the NNR Businesses are Important for Visitors

	Total Respondents Frequency	Very Important Percent	Important Percent	Neither Percent	Unimportant Percent	Not Available Percent
Good views and landscape	21	81.0	19.0	0.0	0.0	0.0
Good walks	21	66.7	33.3	0.0	0.0	0.0
Seeing Wildlife	21	42.9	57.1	0.0	0.0	0.0
Seeing Trees and/or Flowers	21	28.6	71.4	0.0	0.0	0.0
Toilets Available	21	52.4	23.8	14.3	9.5	0.0
Cafe and Shop Available	21	33.3	33.3	28.6	4.8	0.0
Information on Area Available	21	57.1	33.3	9.5	0.0	0.0

This mirrors the aspects businesses deem important to their business which is understandable considering the majority of responding business are tourism related, with a heightened sense of the importance of the views, landscapes and walks for visitors.

When probed further about negative impacts of the NNR on their business, businesses were offered a number of options to select from.

Table 31 Negative Impacts of the NNR on Businesses

Negative impacts	**Frequency**
I cannot carry out operations/activities as efficiently as could	2
I cannot get answers quickly because of the bureaucracy	5
I cannot undertake the construction work would like	5
It (the NNR) does not affect my business in a negative manner	11
Other negative impacts not specified above	-

This is consistent with the previous section's findings, where planning and building issues were highlighted by a small number of respondents who attributed those to the NNR.

Other negative impacts mentioned were:

"Long approach walk. Negative parking arrangements within the access area. 'No parking' signs everywhere"

"For the level of costs involved I believe that the level of services are atrocious. "

"At the present time there are no restrictions on boat use of Loch Lomond. "

"A very negative stance to beneficial development is adopted by the park authority and by consultees"

"Road, to Rowardennan, parking, facilities, bins"

"Preventing expansion of business that will bring jobs and money to the rural economy.

Based in Balmaha we run walking tours and holidays in the national park and visit Inchcailloch Island as part of our tours. However, the increasing noise pollution (jet skies, motorised paragliders, motor boats) is a problem."

"The reserve has increased visitor numbers, leading to more issues. Overall it reduces the positive impact that the area has for my visitors."

"Local Authority not doing enough to attract more visitors to Loch Lomond."

"The combination of nature reserve and national park bureaucracy has a very negative effect on planning matters in Gartocharn. No local-needs housing is being allowed; even after it being highlighted ."

"Conservation issues produce a stagnant and lifeless environment reserved for the few who wish to treat the countryside as a museum or theme park with little regard to those who are seeking to make a living."

"Very poor road from Balmaha to Rowardennan. Over last 6 years maintenance is very bad for the only route to Ben Lomond, the 2 camp/caravan sites and our lodge site. "

Again, some comments concern the bureaucracy which may be more directed to the NP rather than the NNR. However, some other comments highlight the need for further amenities such as car parking, bins, signage and good road infrastructure (some of which are also more for the NP than the NNR).

3.7.4 *Establishing the Proportion of Turnover Responding Businesses Attribute to Loch Lomond NNR which Remains in the Local Area*

Businesses were asked what proportion of their turnover they believed was due to work related to the NNR.

Table 32 Proportion of Turnover Related to NNR

% Turnover related to NNR	Frequency	Percent
80-99%	3	15.8
50-79%	1	5.3
25-49%	1	5.3
10-25%	3	15.8
5-10%	4	21.1
Less than 5%	7	36.8
Total	19	100.0

Three quarters of responding businesses indicated that less than one quarter of their turnover was related to the NNR. Four businesses only (26.3% of respondents) indicated over 50% of their turnover was related to Loch Lomond NNR.

However, when asked to estimate the percentage contraction their turnover would suffer should the NNR be closed off[2], 39% of respondents (seven businesses) indicated their turnover would contract by over 50%.

Table 33 Estimated Turnover Contraction should the Access to the NNR be Forbidden

% Turnover Contraction	Frequency	Percent
100%	2	11.1
80-99%	3	16.7
50-79%	2	11.1
25-49%	2	11.1
10-25%	2	11.1
5-10%	3	16.7
Less than 5%	3	16.7
None whatsoever	1	5.6
Total	18	100.0

When asked to detail more impacts of hypothetically prohibiting access to the NNR, answers showed bafflement from respondents, which again showed confusion with the NP.

Businesses were then asked what impact removal of the NNR status and protection designations (i.e. thus allowing built development to take place) would have on their business. **It should be noted that this estimate will include projected losses resulting from contraction in visitor numbers as well as losses arising directly from NNR expenditure.**

[2] A hypothetical scenario to simulate removal of the NNR from the local area.

Table 34 Impact on Business of Removal of Protected Area Status

Impact on Business	Frequency	Percent
Grow by more than 100%	1	5.0
Grow by between 50 and 100%	1	5.0
Grow by between 1 and 50%	9	45.0
No Impact	2	10.0
Contract by between 1 and 50%	7	35.0
Contract by between 50 and 100%	0	0.0
Close Business	0	0.0
Total	20	100.0

The important feature of this question is that for the Loch Lomond NNR, businesses on average believe that their businesses will grow if protection is removed; the overall impact of restricting built develpoment is negative. Again it must be emphasised there is considerable confusion between the NNR and the NP and there are a large number of non-respondents.

However, when asked to describe which aspects of their business they believed would be affected whether positively or negatively in the long term, the majority of comments identified there would be a rise in accommodation providers, creating a more difficult trading climate due to increased competition, as shown in the comments listed below.

"Development could bring more accommodation providers. Finite number of visitors with more providers means less per provider. "

"Positively - jobs, money going into the local rural economy. Negatively - business stability affected. "

"More accommodation would harm business"

"We would no longer be visiting the island in the main season. "

"The area is naturally beautiful, but services in the entire area are poor. More investment in the infrastructure would be desirable rather than just adding more accommodation. "

"We value the preservation of Loch Lomond but we also feel management of the area is key to enable local businesses like ours to thrive. Heavy restrictions and bans are not a solution as shown by the economic impact on Lake Windermere. "

"I cannot get planning to build a house/office. I work from home. "

"Less tourism, less money."

"Over-supply of accommodation provided, such as large hotels, would affect smaller businesses like us."

3.7.5 Identifying Multiplier Effects

In order to establish the economic value of upstream relationships, businesses were asked what proportion of their turnover was paid to their suppliers.

Table 35 Proportion of Turnover Paid to Suppliers

% Turnover Paid to Suppliers	Frequency	Percent
More than 80%	0	0.0
60%-80%	3	15.8
40%-59%	3	15.8
20%-39%	5	26.3
Less than 20%	8	42.1
Total	19	100.0

And they were further asked what proportion of these costs were paid to suppliers in the immediate locality.

Table 36 Proportion of Costs Paid to Local Suppliers

% Costs Paid to Local Suppliers	Frequency	Percent
More than 80%	1	5.9
60%-80%	1	5.9
40%-59%	3	17.6
20%-39%	7	41.2
Less than 20%	5	29.4
Total	17	100.0

This table illustrates the level of leakage of economic activity from the local area. This is not surprising given that the area is adjacent to the Glasgow conurbation.

For each business the value of the downstream activity that was associated with the proportion of the turnover attributable to the NNR, was calculated. This gives a first estimate of the additional spend in the local economy. [3]

3.7.6 Estimating the Impact of the NNR from the Business Survey

As discussed in Section 2.9, the business survey can be used to establish upper and lower bound of the impact of the NNR as a result of both direct spend and visitor spend.

The lower bound is based upon the actual returns from the businesses and the upper bound uses the median values as proxies for the central point of the non-responding businesses.

We have established from our telephone interviews that 47 businesses out of 119 successfully interviewed (i.e. 39.5%) were impacted by Loch Lomond NNR and therefore were eligible for the

[3] Translated into a percentage, 29.29% of the percentage of turnover attributable to the NNR was supplied locally. This figure is used in calculations for the NNR's contribution and impact.

second survey. Total businesses in the Loch Lomond NNR study area were 271. Therefore, assuming that the profile of non-respondents is similar to the 119 we interviewed, some 107 businesses in total would be impacted by the NNR.

The results are shown in the following table.

Table 37 Estimating the Impact of Loch Lomond NNR from the Business Survey

	Lower Bound Estimates			Upper Bound Estimates		
	Mean	**N**	**Total**	**Median**	**N**	**Total**
Turnover	£85,294	15	£1,279,412	£41,667	107	£5,112,745
Local Spend	£13,203	15	£198,047	£3,125	107	£485,547
Additional Local Spend	£3,442	15	£51,629	£406	107	£89,004
Contribution	£16,645	15	**£249,676**	£3,531	107	**£574,551**
Jobs			**4.5**			**10.3**

As expected the median figures are significantly lower than the mean figures. When the non-respondents are added in we get an additional £325,000 contribution and 5.8 jobs.

The results suggest that between £250,000 and £575,000 of local output could be attributed to the NNR with an associated range of jobs between 4.5 and 10.3. However, as discussed earlier, there is strong evidence of confusion between the NP and the NNR and the business survey is expected to have generated over-estimates.

Table 34 shows how businesses think they would cope in the event that the area lost its NNR status and protection designations. This is different from the previous question where closure is envisaged which would affect all visitor activities. The mean of Table 34 is 11.25%, indicative that the impact of the NNR is actually negative as overall, data shows that businesses would experience an increase in turnover if it lost its NNR status and protection designations. Using this figure we obtain a negative impact of just between £28,000 and £64,000 and around 1 job. Of course this growth will be counteracted by the loss of output and jobs actually in the NNR.

3.8 Findings from the Manager Survey: Cost of Running the Reserve

As discussed earlier, the islands in the reserve are managed by the park authority whilst the reserve is managed by SNH.

Managers of the reserves included in this research project were sent an income and expenditure spreadsheet (see Appendix 4) to enable triangulation of data received from businesses.

In this section budgets and costs are presented separately and the impact analysed for each.

The following table provides the main budget headings and economic implications for the River Endrick Mouth section of the NNR.

3.8.1 Expenditure

Table 38 Endrick Mouth (Loch Lomond NNR): Expenditure

EXPENDITURE	£	Local %	Local Impact
Management Agreements	**£13,000**	**100.0%**	**£13,000**
Staff (Professional)	**£45,000**	**0.0%**	**£0**
For Visitors (% or £)	£15,000		
For Farming (% or £)	£-		
For Conservation (% or £)	£30,000		
Fabric (Paths, Buildings): External Contracts	**£8,000**	**100.0%**	**£8,000**
For Visitors (% or £)	£3,000		
For Farming (% or £)	£-		
For Conservation (% or £)	£5,000		
Maintenance Materials (e.g. Timber, Cement)	**£4,000**	**37.5%**	**£1,500**
For Visitors (% or £)	£2,000		
For Farming (% or £)	£-		
For Conservation (% or £)	£2,000		
Information, Education & Research: External	**£1,500**	**0.0%**	**£0**
For Visitors (% or £)	£500		
For Farming (% or £)	£-		
For Conservation (% or £)	£1,000		
Other Physical Items (Vehicles, Stationary etc)	**£4,000**	**0.0%**	**£0**
For Visitors (% or £)	£1,000		
For Farming (% or £)	£-		
For Conservation (% or £)	£3,000		
TOTAL	**£75,500**	**29.8%**	**£22,500**
For Visitors (% or £)	£21,500		
For Farming (% or £)	£-		
For Conservation (% or £)	£54,000		

One key assumption of this table is that funds from the management agreement with the local landowner stay in the local area.

Management agreements are designed to promote a fully sustainable ecologically attractive environment and whilst this may result in a less commercial operation, the funds made available will usually compensate for any losses.

Table 39 gives the expenditure for Inchcailloch and the relevant local element.

Table 39 Inchcailloch (Loch Lomond NNR): Expenditure

EXPENDITURE	£	Local %	Local Impact
Management Agreements	**£0**		**£0**
Staff (Professional)	**£89,000**	**14.0%**	**£12,460**
For Visitors (% or £)	£49,000		
For Farming (% or £)	£-		
For Conservation (% or £)	£40,000		
Other Staff (Cleaners, Cooks, Drivers)	**£4,000**	**100.0%**	**£4,000**
For Visitors (% or £)	£4,000		
For Farming (% or £)	£-		
For Conservation (% or £)	£0		
MiscStaff (Training, Transport, Volume)	**£1,431**	**22.9%**	**£328**
For Visitors (% or £)	£656		
For Farming (% or £)	£-		
For Conservation (% or £)	£775		
Fabric (Paths, Buildings): External Contracts	**£6,375**	**100.0%**	**£6,375**
For Visitors (% or £)	£6,375		
For Farming (% or £)	£-		
For Conservation (% or £)	£0		
Information, Education & Research: External	**£1,100**	**100.0%**	**£1,100**
For Visitors (% or £)	£1,100		
For Farming (% or £)	£-		
For Conservation (% or £)	£0		
Other Physical Items (Vehicles, Stationary etc)	**£600**	**100.0%**	**£600**
For Visitors (% or £)	£300		
For Farming (% or £)	£-		
For Conservation (% or £)	£300		
TOTAL	**£102,506**	**23.9%**	**£24,535**
For Visitors (% or £)	£61,431		
For Farming (% or £)	£-		
For Conservation (% or £)	£41,075		

Total expenditure for Inchcailloch is just over £100,000 with around a quarter of this thought to be local.

As with the Endrick Mouth area there is no expenditure associated with commercial forestry or agriculture.

3.8.2 *Income*

The only income identified was for Inchcailloch. Some £990 was generated through the campsite on the island.

3.8.3 *Economic Impact*

Using the Kyle multipliers, as previously discussed, we obtain an estimate is an additional local output of £72,982 and an additional 1.17 FTE jobs.

Using the round by round approach (see Section 2.7 for detailed explanation), the induced element is assumed to be some 10% of the local. The local expenditure is reduced by the VAT (at 17.5%).

From the business survey it is estimated that 10.09% of the supply to the local businesses is sourced locally.

This proportion is applied to give the round 2 and round 3 indirect elements.

Finally the jobs per million effective spend figures from the Kyle study are used to calculate the impact on jobs.

The calculations are summarised in the following table.

Table 40 Induced, Indirect and Incremental Outputs and Jobs for Loch Lomond NNR Expenditure

				Notes
Local Wage	£16,460	**Induced**	£1,646	*10% of Local wages*
Other Local Spend	£30,903	Indirect 1	£25,495	*(Local spend -local wage)*0.825*
		Indirect 2	£7,467	*% Turnover supplied locally (29.29%)* Indirect 1*
		Indirect 3	£2,187	*% Turnover supplied locally (29.29%)* Indirect 2*
		Total	£35,149	*Indirect 1 + Indirect 2 + Indirect 3*
		Aggregate	£36,795	*Sum of Induced + Indirect*
		Jobs	0.72	*19.667*36,795/1,000,000*
Incremental Output	£72,982			*Total Expenditure (178,006)*0.41 (Multiplier =1.41)*
Incremental Jobs	1.17			*% Turnover to Local Suppliers (0.2929)*4 (Employment Multiplier *4)*

The major difference is due to the abnormally low percentage of the staff that live within the study areas. This substantially reduces the impact.

In addition the leakage out of the area is double that of an area like Forvie, in part because of the closeness of suppliers in Glasgow.

3.9 Summary

Loch Lomond NNR is estimated to welcome 18,500 visits each year, with the majority (c. 15,000) being to Inchcailloch Island.

We have analysed information collated from three sources:

- Visitors;
- NNRs; and
- Local businesses.

This has enabled us to draw a profile of visitors, local businesses, and identify businesses that are impacted by the NNR.

- **Visitor' Profile**: One third of visitors spend the whole day visiting the NNR. For a minority (16.5%) the visit is due to a specialist interest (wildlife/flora). For the majority of visitors, however, Loch Lomond NNR is a nice destination for a day in the outdoors. Significantly, those walking tend to be predominantly local, whereas wildlife was of far more interest to holidaymakers.
- **Local Businesses' Profile**: Over two thirds of businesses contacted do not carry out business activities in the reserve itself, nor do they supply businesses who work in the reserve. However, around half of businesses – in particular those related to tourism activities- hold promotional materials on the reserve. A small number of businesses noted negative experiences, particularly due to planning restrictions that affected their business development aspirations or that of their clients. However, this is likely to be related to the NP status rather than the NNR status. Just over one quarter of businesses identified that the hypothetical loss of protection status of the NNR would affect their business to some degree – in particular those that work in tourism. Overall, 40% of businesses interviewed were impacted by the NNR directly and/or indirectly.
- **Local Businesses impacted by the NNR**: The majority were micro-businesses with an average turnover of c. £85,300. Over half were directly involved in tourism activities and provided services to those who visit the reserve and to those who visit because of the quality of the local environment. It is estimated that 29.3% of the turnover of local businesses results from the NNR.
- **Impact of NNR Expenditure and Income**: Overall NNR expenditure is c. £178,000, three quarters of which are staff costs for conservation and visitor related professional jobs. Predominantly because of the home location of the staff just over one quarter of the expenditure is estimated to have a local impact.

We estimated the total contribution and impact of Loch Lomond NNR to the local business community in two ways:

1. Total 1: using the information provided by visitors we estimated what they spend in the NNR and the local businesses and the information provided by the NNR (as well as the induced and indirect impact).
2. Total 2: using the information provided by the NNR in terms of direct expenditure and the information provided by businesses who rely in part on the NNR (as some of their

turnover is apportioned either directly to the NNR if they supply services to the NNR, or to visitors who visit the NNR).

The figures obtained provide us with what we believe is a reasonable range to estimate the contribution of the NNR to the local business community and the impact of protected status.

Table 41 Summary of the Economic Role of Loch Lomond NNR

	Contribution				Impact			
	Lower Estimate		Upper Estimate		Lower Estimate		Upper Estimate	
	Output (£)	Jobs (N)	Output (£)	Jobs (N)	Output (£)	Jobs (N)	Output (£)	Jobs (N)
Information from the Visitor Survey								
Visitor Expenditure	246,159	4.5	246,159	4.5	12,427	0.2	123,079	2.3
Information from the NNR Manager Survey								
NNR Direct	178,006	4.0	178,006	4.0	178,006	4.0	178,006	4.0
NNR Indirect + Induced	36,795	0.7	36,795	0.7	36,795	0.7	36,795	0.7
Information from the Business Survey								
Business Survey	249,676	4.5	574,551	10.3	-28,089[4]	-0.5[4]	-64,637[4]	-1.2[4]
Total 1 = Visitor Expenditure + NNR Direct + NNR Indirect + Induced								
Total 1	**460,960**	**9.2**	**460,960**	**9.2**	**227,228**	**4.9**	**337,880**	**7.0**
Total 2 = Business Survey + NNR Direct								
Total 2	**427,682**	**8.5**	**752,557**	**14.3**	**149,917**	**3.5**	**113,369**	**2.8**

In conclusion, the total contribution to the local economy is estimated to be between £428,000 and £753,000 (8.5 and 14.3 jobs).

The corresponding impact lies between £113,000 and £338,000 (2.8 and 7.0 jobs). Given that 4 of these jobs are actually devoted to running the NNR it can be seen that the economic importance of the NNR in off-site job creation is small.

It should be noted that the apparent NNR/NP confusion by businesses calls into doubt the findings from the business survey to a degree (and thus the business survey contribution and impact estimations, as well as the Total 2 estimate).

[4] Businesses identified that overall, should Loch Lomond NNR lose its status and protection designations, they would see an increase in their turnover of around 11%. This percentage was applied to the lower and upper contribution figures to obtain the impact. Normally, we would expect the impact to be positive, with the upper estimate being higher than the lower estimate. However, since the impact in this case is negative, the contrary has occurred, leading to this atypical situation.

4 RESULTS: CASE STUDY TWO: ST ABB'S HEAD NNR

4.1 Background to the NNR

St Abb's Head NNR lies on the Berwickshire coast, five miles north of Eyemouth. It is 77 hectares (ha) in size, covering land, cliffs and low water. This variety of habitats host outstanding wildlife, both terrestrial and marine.

The land is both owned and managed by the National Trust for Scotland (NTS). However, NTS lease Northfield Farm to private businesses that provide an array of visitor facilities such as wool shop, café and art gallery. Similarly, it leases fields for cattle grazing

The reserve is for the most part funded by NTS, with SNH contributing some monies towards staffing, as per the concordat signed between NTS and SNH.

It is designated a site of special scientific interest (SSSI), a national nature reserve (NNR), a special protection area (SPA) for its seabird interest of international importance and the intertidal area is part of a marine special area of conservation (SAC).

In 1984, the voluntary marine reserve (VMR) was set up, the first of its kind in the UK. It encompasses the coastal waters immediately adjacent to the NNR. The VMR extends along 8 km of coast from west of St Abb's Head to Eyemouth, and covers 1,030 ha from high water mark to the 50 m depth contour. Because a healthy marine environment is inextricably linked to the health of the seabird population at St Abb's Head, the NTS also takes a very active role in the management of the VMR.

4.2 Visitor Infrastructure

St Abb's Head NNR has a car park located at Northfield Farm which is managed by NTS, as is the visitor centre. The reserve itself is open daily. However, the visitor centre opens from Easter to October.

The premises of the café, the wool shop and the arts gallery are leased by Northfield Farm. The coffee shop also opens from April to October.

NTS can organise guided walks by arrangement. Rangers also organise advertised events such as seashore safaris from May to September.

There is a way marked trail which runs half a mile along the cliff top runs from St Abb's to Pettico Wick.

4.3 Tourism Information

In 2008, VisitScotland estimates that UK residents took 0.36 million tourist trips to the Borders region, stayed for 1.3 million bed nights and spent £77 million in the area (VisitScotland, 2009b).

Similarly, overseas visitors took 0.05m trips to the region, stayed 0.35 million nights and spent an estimated £29 million.

On average, UK tourists spent 3.5 nights in the area whilst overseas tourists spent double the time, at 7.0 nights.

It should be noted that these figures do not take into account day trippers, which form a large part of visitors to the area. As the NNR is located some 30km north of Berwick, it is within day-trip distance from Edinburgh and the Lothians.

With regards to other visitor attractions located in the postcode areas TD14 5 the Visitor Attraction Monitor identifies two attractions, as shown in the Table below.

Table 42 Visitor Attractions in Postcode Areas TD14 5

Name	Visits 2008	Visits 2007	% 08/07
Edrom Nurseries	1450	1250	16.0
Eyemouth Museum	3692	3798	-2.8

Source: Moffat Centre/VisitScotland, 2009

The last estimates received for St Abb's Head NNR date back to the calendar year 2003 and were provided by NTS who manage the visitor centre on the reserve. In 2003, it was estimated the reserve had received some 49,700 visits. (Moffat Centre/VisitScotland, 2004).

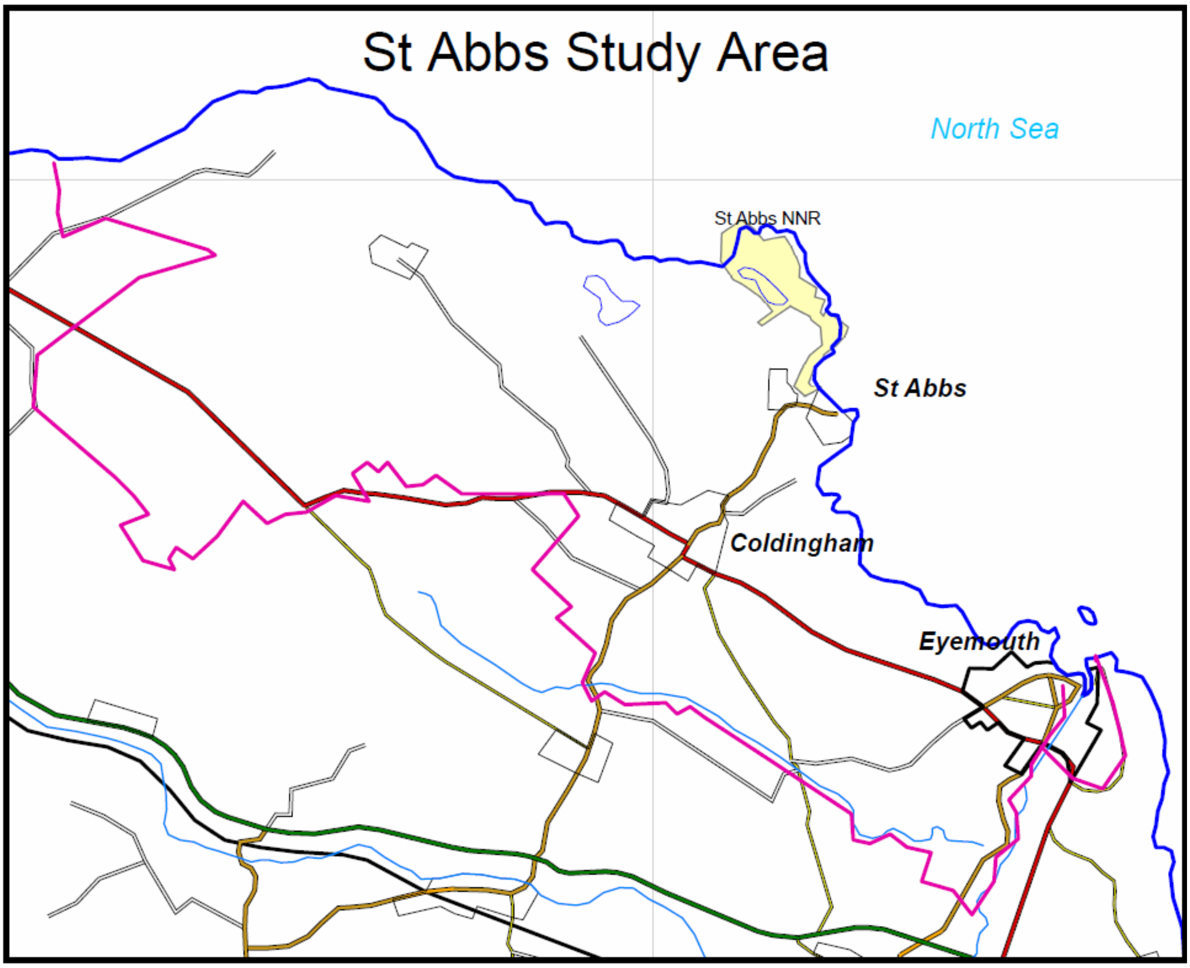
This is consistent with the visitor survey figures observed in NNR Baseline Visitor Survey 2002/2003 exercise, which estimated total visitor days was around 50,000 in 2002/2003.

This clearly shows that St Abb's Head largely exceeds (if numbers have remained similar to 2003 levels) local visitation levels.

4.4 Study Area

The boundary for this case study was set at 2.5 km, using GIS census areas and a common sense approach to ensure inclusion of appropriate villages and towns.

Figure 14 St Abb's Head NNR Case Study Area (with 2.5km boundary)



This area includes the local towns and villages of St Abbs, Coldingham and Eyemouth, where knowledge of the NNR and impacts are thought to be greatest. The total area has a population of 4,456.

The postcodes list used to identify businesses located within this area can be found in Appendix 5.

4.5 Findings from the NNR Baseline Visitor Survey 2002/2003: Raw data analysis

4.5.1 Profile of visitors

In summary just under 50% of visitors to the NNR were day trippers and around 45% were overnight tourists, as shown below.

Table 43 Visitors to St Abb's Head NNR by Type

Type of Trip	Frequency	Percent	Visitors
On a short trip (of less than 3 hours) from home	73	24.1	12,046
On a day out (for more than 3 hours) from home	76	25.1	12,541
On holiday away from home in the area	113	37.3	18,647
Visiting friends and relatives on holiday in the area	10	3.3	1,650
Passing through the area to/ from my holiday destination	12	4.0	1,980
Others	18	5.9	2,970
Don't know/ Not stated	1	0.3	165
Total	303	100.0	50,000

A large number of visitors travelled over 30 miles (46.2%), though most travelled less than this.

Table 44 Visitors to St. Abb's Head NNR by Distance Travelled

Distance Travelled	Frequency	Percent
Less than 3 miles	18	5.9
3 - 5 miles	16	5.3
6 - 9 miles	38	12.5
10 - 14 miles	23	7.6
15 - 19 miles	26	8.6
20 - 29 miles	40	13.2
30+ miles	140	46.2
Don't know/ Not stated	2	0.7
Total	303	100.0

The clear message of this table is that the numbers "residing" or on holiday in our defined local area is small. Consequently we could expect the impact from these visitors to be very small.

Table 45 Visitors to St Abb's Head NNR by Distance Travelled and Purpose of Trip

	Total Respondents	Less than 3 miles	3 - 5 miles	6 - 9 miles	10 - 14 miles	15 - 19 miles	20 - 29 miles	30+ miles	Don't know/ Not stated
	Number	%	%	%	%	%	%	%	%
On a short trip (of less than 3 hours) from home	73	4.1	2.7	17.8	8.2	9.6	16.4	41.1	0.0
On a day out (for more than 3 hours) from home	76	0.0	1.3	1.3	2.6	5.3	11.8	77.6	0.0
On holiday away from home in the area	113	11.5	9.7	18.6	12.4	9.7	15.0	23.0	0.0
Visiting friends and relatives on holiday in the area	10	0.0	10.0	20.0	0.0	30.0	10.0	30.0	0.0
Passing through the area to/ from my holiday destination	12	8.3	0.0	0.0	0.0	8.3	0.0	75.0	8.3
Others	18	5.6	5.6	5.6	5.6	0.0	5.6	66.7	5.6
Don't know/ not stated	1	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
Total	303	5.9	5.3	12.5	7.6	8.6	13.2	46.2	0.7

Transport used, as already mentioned, is consistent with tourist studies in rural Scotland, is completely dominated by the motor car.

Most interesting are the groups identified as arriving by boat/ferry. It is unclear if this refers to international passengers arriving at ports like Newcastle that are travelling North on holiday or just possibly, yachtsman stopping off in St Abb's, or visitors entering the NNR by boat from North Berwick (e.g. on diving trips).

Table 46 Visitors to St Abb's Head NNR by Transport Type

Transport Type	Frequency	Percent
Bicycle	3	1.0
Car or van	250	82.5
Motorcycle	1	0.3
Private coach or mini-bus	1	0.3
Public transport	19	6.3
Walked all the way	7	2.3
Boat/ ferry	12	4.0
Motor home/ camper van	2	0.7
Others	8	2.6
Total	303	100.0

Over half of visitors interviewed in 2002/2003 indicated they had spent between 2 hours and 5 hours in the NNR.

Table 47 Time Spent by Visitors at St Abb's Head NNR

Time Spent	Frequency	Percent
Up to 15 minutes	1	0.3
Over 15 minutes - 30 minutes	7	2.3
Over 30 minutes - 1 hour	23	7.6
Over 1 hour - 2 hours	43	14.2
Over 2 hours - 3 hours	91	30.0
Over 3 hours - 5 hours	89	29.4
More than 5 hours	43	14.2
Don't know/ Not stated	6	2.0
Total	303	100.0

Clearly relatively few visitors are undertaking a short stop at the reserve.

The following table shows the reasons people quoted for visiting St Abb's Head NNR. A number of respondents ticked more than one reason (i.e. they are not exclusive choivces). It should be noted that a subset of only 117 of the 303 respondents were asked these questions.

Table 48 Reasons for Visiting St Abb's Head NNR

Reason for Visit	Frequency	Percent
Walk/ exercise/ fresh air/ good weather	29	24.8%
To see the wildlife/ seals/ birds/ geese/ bird watching	31	26.5%
Walk the dog	4	3.4%
Been before/ come here regularly/ nice place/ like it here	31	26.5%
Views/ scenery	7	6.0%
Just passing/ saw sign	6	5.1%
Staying in the area/ near to home	1	0.9%
Recommended by friends/ at accommodation	6	5.1%
Never been before/ wanted to see it	11	9.4%
Quiet/ peaceful	3	2.6%
Saw it in guide book/ magazines/ leaflet	7	6.0%
Sea views/ coast/ sand dunes/ collect shells/ beach	16	13.7%
To participate in a sport e.g. hillwalking/ cycling/ paragliding/ shooting	4	3.4%
See plants/ vegetation/ wild flowers	1	0.9%
Wanted to see visitors centre	0	0.0%
Brought friend/ relative to see	1	0.9%
Family day out/ brought the children	3	2.6%
Other	6	5.1%
TOTAL RESPONSES	167	
TOTAL RESPONDENTS	117	

Multiple responses were investigated further and it appears that those coming to walk do not come to watch wildlife and vice versa. Both appreciate the views but few came for the views alone.

In order to calculate lower bound impact of the protected status of St Abb's Head NNR, further analysis shows visitors divided into three groupings: walkers, wildlife watchers and others. This is shown in the following table, which compares these three groups for differences in type and compare the outcomes for the full survey set.

Table 49 Purpose of Trip by Type of Trip

	Walk	Wildlife	Other	Total	Total (303)
On a short trip (of less than 3 hours) from home	37.9%	38.7%	29.8%	34.2%	24.2%
On a day out (for more than 3 hours) from home	20.7%	29.0%	24.6%	24.8%	25.2%
On holiday away from home in the area	34.5%	25.8%	36.8%	33.3%	37.4%
Visiting friends and relatives on holiday in the area	3.4%	0.0%	3.5%	2.6%	3.3%
Passing through the area to/ from my holiday destination	3.4%	6.5%	3.5%	4.3%	4.0%
Others	0.0%	0.0%	1.8%	0.9%	6.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

One wholly welcome result is the confirmation that the subset is very similar to the full sample.

One other noticeable feature is that wildlife watchers are predominantly day trippers (nearly 70%) and, conversely, holidaymakers tend to use the NNR for walking.

The following table provides an equivalent analysis for journey distance

Table 50 Purpose of Trip by Distance Travelled

Distance Travelled	Walk	Wildlife	Other	Total	Total (303)
Less than 3 miles	10.3%	6.5%	7.0%	7.7%	6.0%
3 - 5 miles	10.3%	0.0%	0.0%	2.6%	5.3%
6 - 9 miles	10.3%	9.7%	14.0%	12.0%	12.6%
10 - 14 miles	3.4%	9.7%	5.3%	6.0%	7.6%
15 - 19 miles	17.2%	6.5%	10.5%	11.1%	8.6%
20 - 29 miles	6.9%	6.5%	19.3%	12.8%	13.3%
30+ miles	41.4%	61.3%	43.9%	47.9%	46.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

The interesting feature of this analysis is that over 60% of wildlife watchers have come more that 30km to the NNR.

As might be expected walkers are more local, whether on holiday or residing. The uniqueness of this special area clearly has an attraction.

Length of time spent in the reserve by activity is presented below.

Table 51 Time Spent in Reserve by Reason for Visit

Time Spent	Walk	Wildlife	Other	Total	Total (303)
<2hrs	27.6%	29.0%	31.6%	29.9%	31.6%
>2hrs	72.4%	71.0%	68.4%	70.1%	68.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Surprisingly there is no difference between the two groups

One implication of this analysis is that St Abb's Head NNR has two groups of customers;

- Wildlife watchers who are long distance day trippers; and
- Holiday makers staying locally who walk in the reserve and along the coastline.

This hypothesis is tested below.

Table 52 Type of Holiday by Distance travelled to NNR

	<5miles	>5mi	Total
Day Trip	6	143	149
Holiday	27	123	150
Total	33	266	299

The chi-squared test suggests that holiday makers are significantly (at the 99% level) over represented in the under 5 mile category i.e. within our study boundaries.

As discussed earlier only a subset of 117 answered all questions. Amongst the questions answered were a number relating to group composition. In fact the 117 represented 288 individuals, the average group size being 2.46 (including children). Table 53 gives the age structure for the individual visitors split by gender.

Table 53 Age and Gender of Individual Visitors to St Abb's Head NNR

	Male	Female	Total
15 or less	12.0%	13.0%	12.5%
16-44	31.7%	28.8%	30.2%
45 plus	56.3%	58.2%	57.3%
Total	100.0%	100.0%	100.0%

Whilst there is no difference between genders it is clear that the more mature citizen is over-represented at the reserve.

To make the analysis easier the mean age of each group was calculated (using group mid-points and the sample if 117 groups then split into families (with children), adults groups under 50 and adult groups over 50. These were then used to investigate the relationship between age and holiday type, and age and reason for visit this is shown in Tables 54 and 55.

Table 54 Type of Visit by Age Group

	Under 50	Over 50	Family	Total
Day Trip	44.9%	31.9%	23.2%	100.0%
Holiday	34.0%	51.1%	14.9%	100.0%
Total	40.5%	39.7%	19.8%	100.0%

Table 55 Purpose of Visit by Age Group

	Under 50	Over 50	Family	Total
Walk	41.4%	41.4%	17.2%	100.0%
Wildlife	58.1%	29.0%	12.9%	100.0%
Total	50.0%	35.0%	15.0%	100.0%

These two tables confirm that the under 50 adult group are more orientated towards viewing wildlife on a day trip, families to walking on a day trip and the over 50s to walking on a holiday trip.

In conclusion it appears that at St Abb's Head NNR the archetypal wildlife watcher is under 50 travelling some distance on a day trip, whilst the archetypal walker is over 50 and staying relatively close by. Family groups tend to be day trippers, also travelling some distance but interested in both walking and wildlife watching.

4.5.2 Economic Impact of the Visitors

The following analysis presents the mean expenditure incurred during the visit by group to the local area by category split between tourists (overnighters) and day trippers.

Table 56 Analysis of Visitor Expenditure by Type of Visitor (2010 Prices)

	Tourists	**Day Trippers**	**All**
Accommodation	£41.62	£0.00	£21.16
Food and drink	£15.42	£7.32	£11.43
Admission fees	£2.89	£4.40	£3.63
Shopping	£3.86	£2.32	£3.10
Transport	£12.09	£10.58	£11.35
Equipment (e.g. hire of boat, horse-riding)	£1.03	£2.42	£1.71
Other	£2.07	£2.09	£2.08
Total	£76.52	£29.20	£53.24

Day trippers and visitors on short trips identified the lowest average spend, as could be expected whereas those visitors on holiday (or on their way to their holiday destination) identified the highest average spends.

Table 57 Average Spend per Visitor by Type of Trip (2010 Prices)

Type of Trip	Average Spend
On a short trip (of less than 3 hours) from home	£10.87
On a day out (for more than 3 hours) from home	£14.30
On holiday away from home in the area	£33.73
Visiting friends and relatives on holiday in the area	£33.38
Passing through the area to/ from my holiday destination	£32.97
Others	£48.40
Don't know/ Not stated	£16.10
Total	£24.15

The economic impact analysis is given in Table 58. This shows that the contribution to the local economy totals just over £190,000 and results in 2.1 extra jobs.
The Impact, as measured by the contribution of wildlife watchers only (i.e. lower bound estimates) results in only 0.2 of an FTE generated locally thanks to the protected status, injecting £14,000 in the local economy. This is because the largest group in terms of expenditure, those on holiday away from home, has a very small percentage that are active naturalists.
If we take the upper bound estimates then the impact is higher, with one extra local job, and £97,000 generated towards the local economy.

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Table 58 *Economic Impact of Visitors to St Abb's Head NNR*

								Contribution		Impact				
										Lower Estimate			Upper Estimate	
Trip Type	**Spend/ Head**	**%**	**Visitors**	**Total Spend**	**Direct**	**Type 2**	**Day**	**Output**	**Jobs**	**Wild**	**Output**	**Jobs**	**Output**	**Jobs**
	(£)	(%)	(n)	(£)	(£)	(£)	(%)	(£)	(n)	(%)	(£)	(n)	(£)	(n)
On a short trip	10.87	24.1	12,046	130,947	49,891	71,942	12.4	8,904	0.1	3.4	2,460	0.0	4,452	0.0
On a day out	14.30	25.1	12,541	179,370	68,340	98,546	18.6	18,376	0.2	5.1	5,054	0.1	9,188	0.1
On holiday	33.73	37.3	18,647	628,874	477,316	666,333	23.8	158,886	1.7	0.9	5,695	0.1	79,443	0.9
Visiting friends	33.38	3.3	1,650	55,091	41,814	58,372	1.7	1,011	0.0	0.0	0	0.0	506	0.0
Passing through	32.97	4.0	1,980	65,277	49,546	69,166	1.9	1,313	0.0	0.9	591	0.0	656	0.0
Others	48.40	5.9	2,970	143,750	109,106	152,312	3.5	5,278	0.1	0.0	0	0.0	2,639	0.0
Don't know	16.10	0.3	165	2,657	2,017	2,816	0.2	5	0.0	10.3	289	0.0	2	0.0
Total	**24.15**	**100.0**	**50,000**	**1,207,592**	**798,029**	**1,119,487**	**62.1**	**193,773**	**2.1**	**20.5**	**14,088**	**0.2**	**96,886**	**1.1**

4.6 Findings from the Businesses' Short Surveys

4.6.1 Population and Response Rate

As explained in Section 2.3.2, some 175 businesses within the study boundaries were contacted by telephone to ascertain whether they were impacted in any way by St Abb's Head NNR.

In total, 125 businesses accepted to participate in this first interview (71.4%).

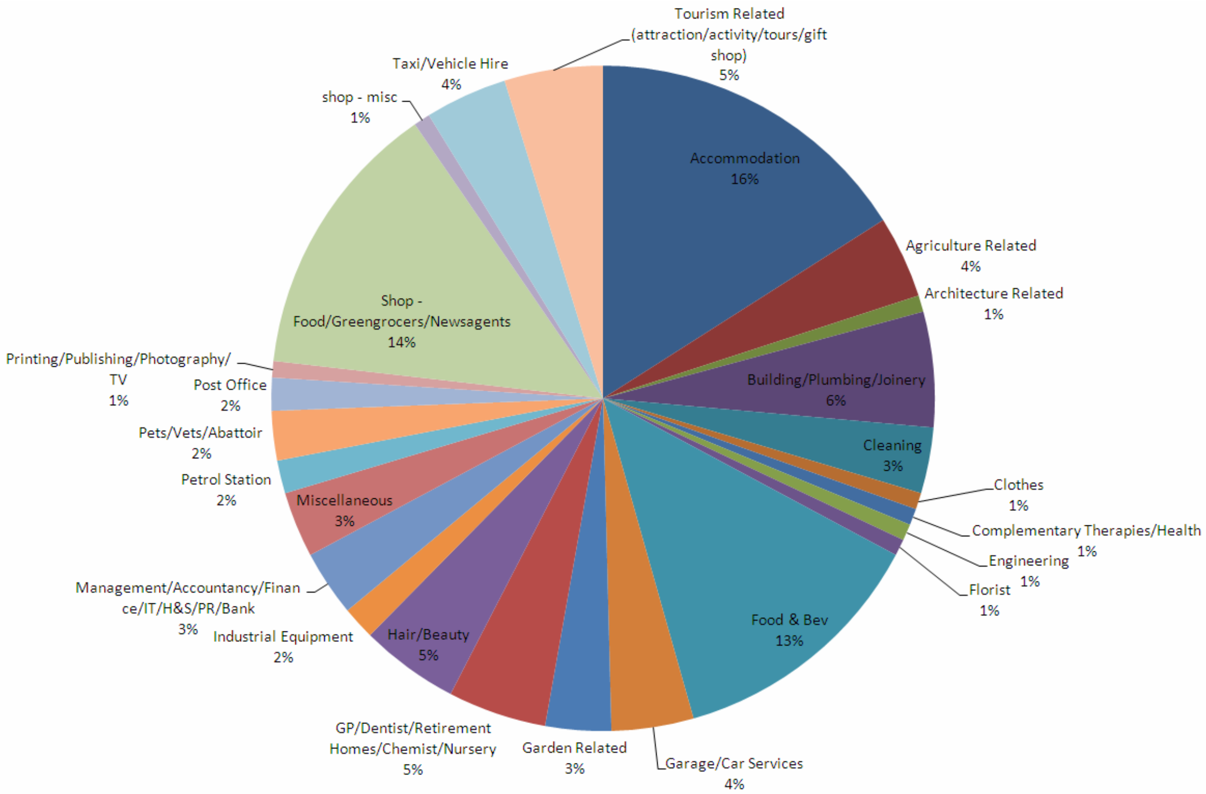
Table 59 Businesses' Short Survey: Response Rate

Short Interview Status	Frequency	Percent
All Businesses Contacted	175	
Short Interview Completed	125	71.4%
Did not want to participate	29	16.6%
Closed for winter season	1	0.6%
Non responses	20	11.4%

4.6.2 Businesses and their Business Relationship with St Abb's Head NNR

Overall, some 88.8% of businesses indicated they did not use the NNR, be it to carry out business activities in the reserve or supply businesses that work in the reserve.

Figure 15 Profile of Businesses Completing the Short Survey by Trade



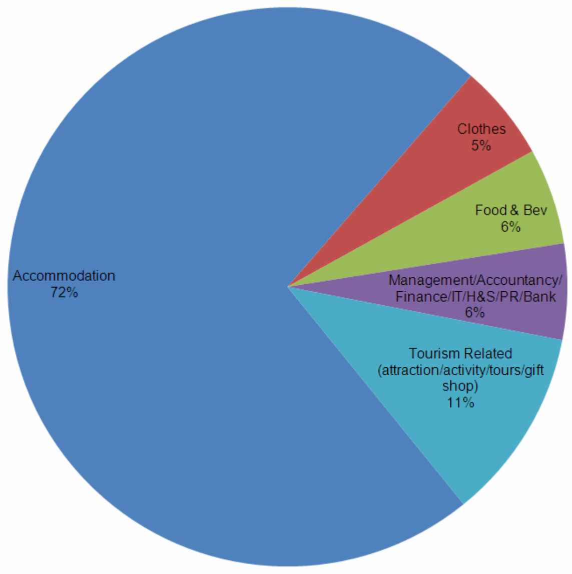
The following paragraphs show businesses' involvement with the reserve.

In total, only 4.8% of responding businesses they carried out business activities in the NNR itself.

Some 6.4% of businesses indicated they supplied services to businesses that operate in St Abb's Head NNR.

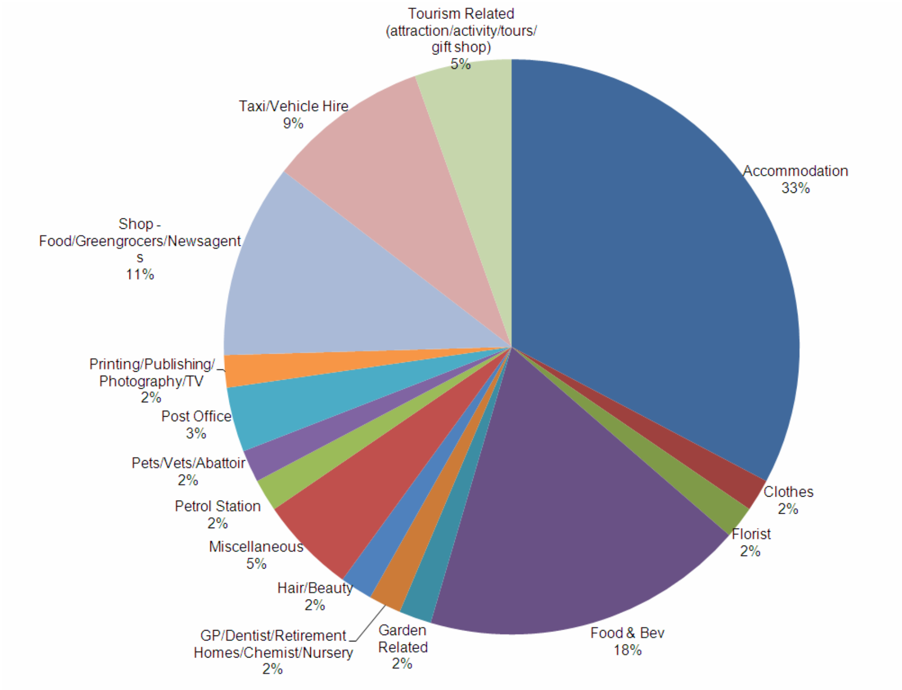
Some 15.2% of businesses interviewed said they used promotional materials related to the NNR, the majority of which are accommodation providers, as shown in Figure 16.

Figure 16 Businesses that use Promotional Materials



In addition, some 44% of businesses interviewed indicated they provided services to visitors who come to the area because of the natural environment. However, they could not clearly tell whether visitors came specifically to the NNR.

Figure 17 Businesses that Provide Services to Visitors who come to the area because of the Natural Environment



4.6.3 Awareness of Protection Designation

Astonishingly, some 88.9% of respondents indicated they were aware that St Abb's Head NNR also boasted SPA, SAC, and SSSIs, VMR along the coastline and in the sea.

4.6.4 Negative Experiences due to Protected Area Status

Overall, some 96% of business respondents indicated that protected status had had no negative impact on their business.

Only 2.4% of business respondents indicated that these designations had hindered the development of their business activities, as shown in the following table.

Table 60 Protected Area Status stopped the development of some business activities (that would take place in the reserve)

	Frequency	Percent
True	3	2.4
False	95	76.0
Not Applicable	27	21.6
Total	125	100.0

Comments concerned mostly restrictions on fishing (which is not an NNR effect). This appears odd given that the marine reserve is a voluntary measure.

Table 61 Protected Area Status stopped the development of some business activities (that would take place in the reserve) – Qualitative comments

Trade Category	Comment
Shop - Food/Greengrocers/Newsagents	*"Boats are not allowed there anymore; fishing is not allowed now, people are losing their livelihood."*
Shop - Food/Greengrocers/Newsagents	*"No longer allowed to fish there."*
Shop - Food/Greengrocers/Newsagents	*"Forced boats out, not allow to fish now."*

Table 62 Protected Area Status stopped the development of some of my customers' business activities (that would take place in the reserve) – Qualitative comments

Trade Category	Comment
Agriculture Related	*"Hindrance- not allowed to plough in protected areas. Farmers are there to produce food and maintain the area."*
Shop - Food/Greengrocers/Newsagents	*"The status will cause issues for us when we are getting our supply from these fishermen because there is limitations for them because of it."*

Only 2.4 % of respondents indicated protection designations had restrained the development of their, or their customers', activities that would take place on the reserve. However, these mostly related to the VMR, although one may be relevant to land-based designations related to the NNR.

Table 63 Other Negative Impacts Related to St Abb's Head NNR

Trade Category	Comment
Agriculture Related	*"SNH should go out and get proper jobs, the farmers would be a lot happier if the area lost its protection!!"*
Shop - Food/Greengrocers/ Newsagents	*"Going to ban squid fishing and other boats from the St. Abb's head which is going to have a detrimental effect on the livelihood of the fishermen."*
Shop - Food/Greengrocers/ Newsagents	*"We are aware that fishers will be greatly affected if they are unable to fish there anymore but does not affect us directly"*

Only 2.4% of respondents highlighted protection designations had other negative impacts on their business. These mostly relate to the VMR, although one may be relevant to land-based designations related to the NNR.

4.6.5 Importance of the NNR for Establishing the Business

Three businesses (2.4% of respondents) indicated they had established their business because of the presence of the NNR. All are tourism-related.

Two businesses also indicated the NNR had been a factor in their employees' decision to live and work in the area.

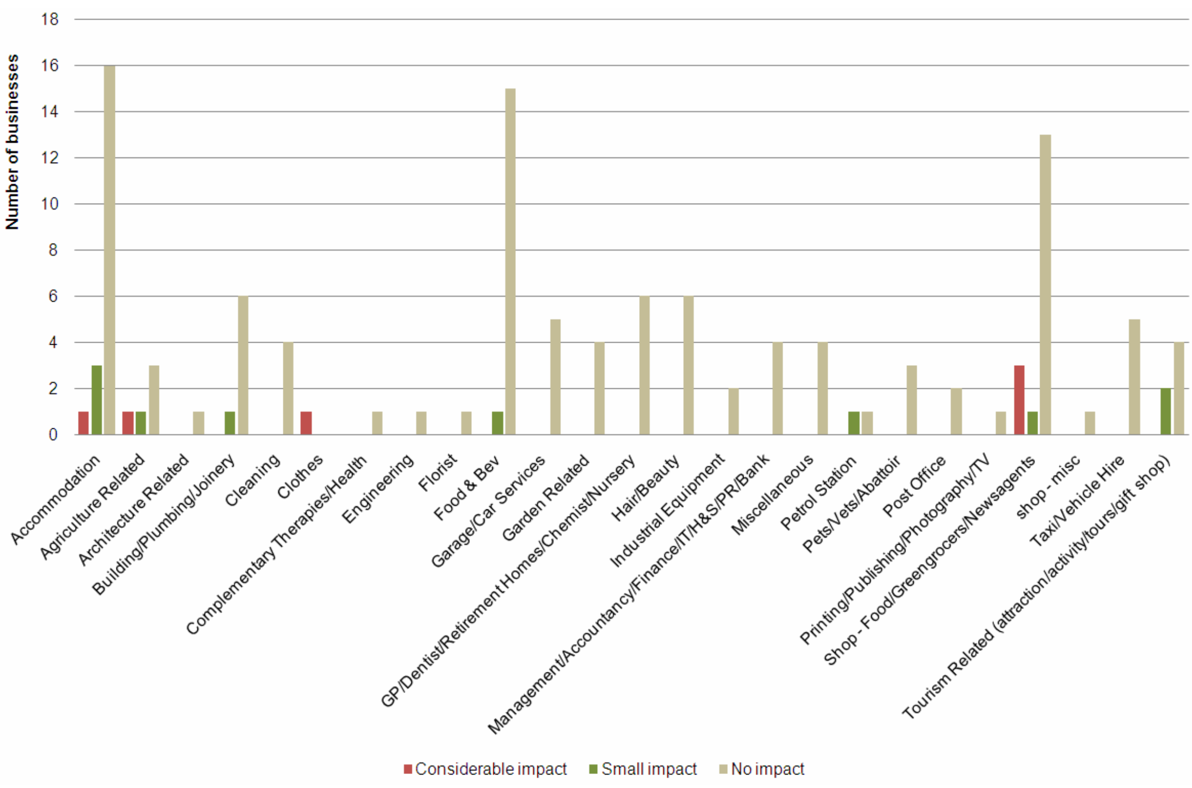
4.6.6 Impact of the Loss of Protection on Businesses

In total, 16 businesses (or 12.8% of respondents) indicated that the loss of protection designations and NNR status within the reserve area would have some impact (small or considerable) on their business.

Table 64 Impact of the Loss of Protection on Businesses

	Frequency	Percent
No impact	109	87.2
Small impact	10	8.0
Considerable impact	6	4.8
Total	125	100.0

Figure 18 Impact of the Loss of Protection on Businesses by Trade Category



4.6.7 Conclusions and Next Step

Of the 125 interviews carried out with businesses located in the St Abb's Head NNR case study area, 84% of businesses overall were not impacted by its presence. As this project is interested in impacts of NNR status and the associated protection designations on businesses, we asked the 16% of businesses who did have some business relationship with the NNR if they were willing to participate in the second stage of the research. Some 13 businesses out of the 20 indicated they were.

Table 65 Eligibility for Second Part of Research

Eligibility for Second Part of Research	**Frequency**	**Percent**
Not Eligible	**105**	**84.0%**
Eligible	**20**	**16.0%**
Did not want to participate in second phase	5	25.0%
Accepted to complete online questionnaire	5	25.0%
Accepted to complete paper questionnaire	10	50.0%
Total	125	100.0%

4.7 Findings from the Businesses' Second Questionnaire

4.7.1 Population and Response Rate

In total, some 15 questionnaires were sent to businesses located in the St Abb's Head NNR case study area.

Six completed questionnaires were received, as illustrated below.

This is a low number of respondents (in spite of efforts to obtain completed questionnaires from the businesses targeted), **thus the following data should be treated with caution.**

Table 66 Response Rate Businesses' Second Questionnaire

		Received?	
Trade Category	**Total Sent** (Frequency)	**No** (Percent)	**Yes** (Percent)
Accommodation	5	0.0	100.0
Agriculture Related	1	100.0	0.0
Building/Plumbing/Joinery	1	100.0	0.0
Clothes	1	100.0	0.0
Food & Bev	1	100.0	0.0
Post Office	1	100.0	0.0
Shop - Food/Greengrocers/Newsagents	3	66.7	33.3
Tourism Related (attraction/activity/tours/gift shop)	2	100.0	0.0
Total	15	60.0	40.0

4.7.2 Profile of Responding Businesses

The majority of businesses were micro-businesses, employing less than 10 employees, with an average turnover of £525,000, and were directly involved in tourism activities.

Figure 19 Employees

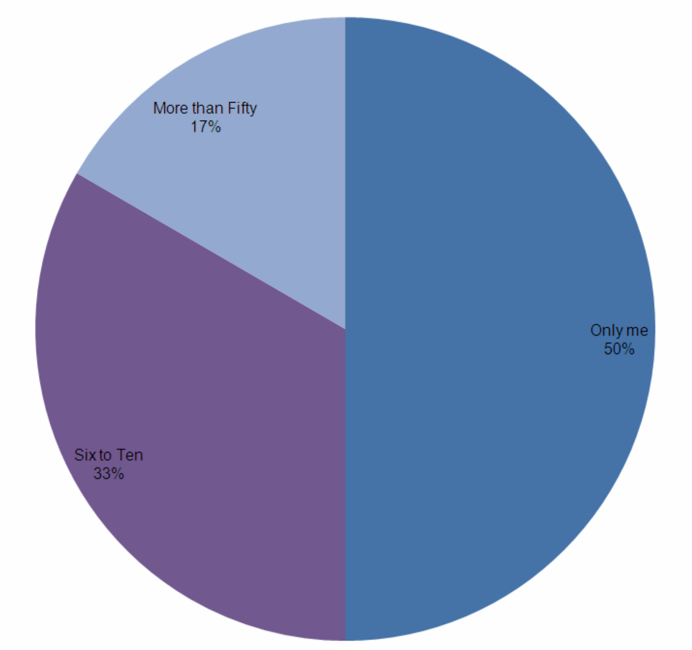
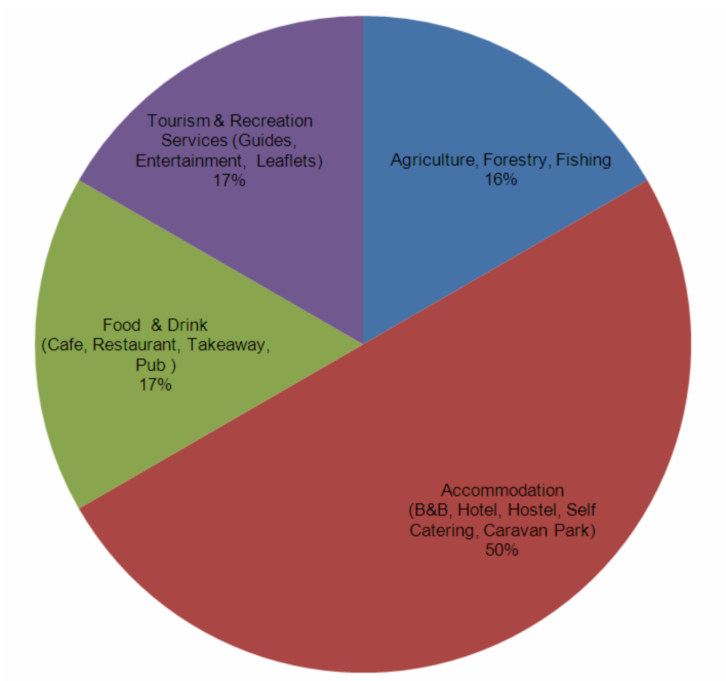


Table 67 Turnover

	Mean	Respondents	Std. Deviation
Turnover	£525,000	6	£755,480

Figure 20 Business Sector of Respondents



Over two thirds are directly involved in tourism activities.

The following table shows the positive relationship between businesses and the NNR. Respondents could select more than one option

Table 68 Businesses' Use of the NNR

	Frequency	Percent (Responses)	Percent (Respondents)
We work in the local reserve	0	0.0	0.0
We provide services to those who work in the local Reserve	0	0.0	0.0
We provide services to those who visit the Reserve	3	7.9	60.0
We provide services to those who come because of the quality of the local natural environment	5	13.2	100.0
We use the quality of the local environment to market the business	5	13.2	100.0
The Reserve does not affect my business positively	1	2.6	20.0
Total Responses	14	100.0	280.0
Total Respondents	5		

Clearly, the natural environment plays an important role for responding businesses, all providing services to visitors who come because of the quality of the environment, and using the environment for promotional purposes. Some operators also actively promote the reserve to their clients, as evidenced by comments provided when asked if the reserve impacted positively in any other way on their business. It provides added value.

"Local environment is very important to our selling of the area"
"We are one of the closest accommodation providers to the reserve and advertise it to bird watchers, walkers etc"
"We offer to take walkers to St Abb's so they can walk back here (Eyemouth)"

4.7.3 Impacts of the NNR on businesses

Businesses were further asked which of the following aspects of St Abb's Head NNR were important to their business.

Table 69 Importance of Various Aspects of the NNR to Businesses

	Total Respondents Frequency	Very Important Percent	Important Percent	Neither Percent	Unimportant Percent	Not Available Percent
Good views and landscape	5	60.0	20.0	0.0	20.0	0.0
Good walks	6	50.0	16.7	16.7	16.7	0.0
Wildlife	6	66.7	16.7	0.0	16.7	0.0
Flora	6	33.3	16.7	33.3	16.7	0.0
Toilets	6	0.0	50.0	33.3	16.7	0.0
Cafe/Shop	6	0.0	33.3	50.0	16.7	0.0
Visitor Centre	6	0.0	33.3	50.0	16.7	0.0

The above table clearly shows that the quality of the wildlife, the natural environment and walks are "Very important" aspects for the businesses themselves.

Table 70 Importance of Various Aspects of the NNR that Businesses thought Important for Visitors

	Total Respondents Frequency	Very Important Percent	Important Percent	Neither Percent	Unimportant Percent	Not Available Percent
Good views and landscape	6	66.7	33.3	0.0	0.0	0.0
Good walks	6	66.7	33.3	0.0	0.0	0.0
Seeing Wildlife	6	50.0	50.0	0.0	0.0	0.0
Seeing Trees and/or Flowers	6	33.3	50.0	16.7	0.0	0.0
Toilets Available	6	16.7	83.3	0.0	0.0	0.0
Cafe and Shop Available	6	0.0	100.0	0.0	0.0	0.0
Information on Area Available	6	0.0	83.3	16.7	0.0	0.0

Views and landscape, walks and wildlife were also the three elements businesses reckoned were very important for visitors. Visitor amenities were also considered important for visitors, whilst not so much for the businesses.

When asked about negative impacts of the NNR on their business,

Table 71 Negative Impacts of the NNR on Businesses

Negative impacts	Frequency
I cannot carry out operations/activities as efficiently as could	1
I cannot get answers quickly because of the bureaucracy	1
I cannot undertake the construction work would like	0
It (the NNR) does not affect my business in a negative manner	4

Overall, responding businesses were not impacted negatively by the NNR.

4.7.4 Establishing the Proportion of Turnover Responding Businesses Attribute to St Abb’s Head NNR which Remains in the Local Area

Businesses were asked what proportion of their turnover they believed was due to work related to the NNR.

Table 72 Proportion of Turnover Related to NNR

% Turnover related to NNR	Frequency	Percent
80-99%	0	0.0
50-79%	1	16.7
25-49%	0	0.0
10-25%	2	33.3
5-10%	1	16.7
Less than 5%	2	33.3
Total	6	100.0

Some 80% of respondents indicated that less than one quarter of their turnover was related to the NNR. Only one business (constituting 17% of respondents) indicated that over 50% of his/her turnover was related to St Abb’s Head NNR.

Five of the six responding businesses indicated how much they estimated their business would contract should the NNR be unavailable for the public to use.

Table 73 Estimated Turnover Contraction should the Access to the NNR be Forbidden

% Turnover Contraction	Frequency	Percent
100%	0	0.0
80-99%	1	20.0
50-79%	1	20.0
25-49%	1	20.0
10-25%	0	0.0
5-10%	2	40.0
Less than 5%	0	0.0
None whatsoever	0	0.0
Total	5	100.0

Businesses were also asked what impact removal of the protected area status would have on their business.

Table 74 Impact on Business of Removal of Protected Area Status

Impact on Business	Frequency	Percent
Grow by more than 100%	0	0.0
Grow by between 50 and 100%	0	0.0
Grow by between 1 and 50%	0	0.0
No Impact	2	50.0
Contract by between 1 and 50%	2	50.0
Contract by between 50 and 100%	0	0.0
Close Business	0	0.0
Total	4	0.0

This table shows that on average, businesses believe that this would have a negative effect on their business, with an average contraction of -12.5%. Therefore, the reserve has a positive impact on those businesses.

4.7.5 Identifying Multiplier Effects

In order to establish the economic value of upstream relationships, businesses were asked what proportion of their turnover was paid to their suppliers.

Table 75 Proportion of Turnover Paid to Suppliers

% Turnover Paid to Suppliers	Frequency	Percent
More than 80%	1	6.3
60%-80%	1	6.3
40%-59%	1	6.3
20%-39%	1	6.3
Less than 20%	1	6.3
Total	5	100.0

They were further asked what proportion of these costs was paid to suppliers in the immediate locality.

Table 76 Proportion of Costs Paid to Local Suppliers

% Costs Paid to Local Suppliers	Frequency	Percent
More than 80%	1	6.3
60%-80%	1	6.3
40%-59%	0	0.0
20%-39%	0	0.0
Less than 20%	3	18.8
Total	5	100.0

This table illustrates the level of leakage of economic activity from the local area.

For each business the value of the downstream activity that was associated with the proportion of the turnover attributable to the NNR was calculated. This gives a first estimate of the additional spend in the local economy. [5]

4.7.6 Estimating of the Impact of the NNR from the Business Survey

As discussed in Section 2.6 the business survey can be used to establish upper and lower bound of the impact of the NNR as a result of both direct spend and visitor spend. The lower bound is based upon the actual returns from the businesses and the upper bound uses the median values as proxies for the central point of all the businesses.

We have established from our telephone interviews that 20 businesses out of 105 successfully interviewed (i.e. 16.0%) were impacted by St Abb's Head NNR and therefore were eligible for the second survey. The total number of businesses in the St Abb's Head NNR study area was 175. Therefore, assuming that the profile of non-respondents is similar to those we interviewed, some 28 businesses in total would be impacted by the NNR.

The results are shown in the following table.

Table 77 Estimating the Impact of St Abb's Head NNR from the Business Survey

	Lower Bound Estimates			**Upper Bound Estimates**		
	Mean	**N**	**Total**	**Median**	**N**	**Total**
Turnover	£525,000	6	£3,150,000	£62,500	28	£4,525,000
Local Spend	£18,438	6	£110,625	£14,688	28	£433,750
Additional Local Spend	£5,401	6	£32,406	£1,597	28	£67,538
Contribution	£23,839	6	£143,031	£16,284	28	£501,288
Jobs			**2.6**			**9.0**

As expected the median figures are significantly lower than the mean figures. In particular there are two very large businesses, commercial fishing and non-serviced accommodation, that have a very high turnover but are relatively independent of the NNR. When the non-respondents are added in we get a substantial additional £360,000 contribution and 6.4 jobs.

The results suggest that between £143,000 and £500,000 of local output could be attributed to the NNR with an associated range of jobs between 2.8 and 9.0.

Table 74 shows how businesses think they would cope in the event that the NNR lost its protected status. The mean of Table 74 is 12.5%, indicative that the impact of the NNR is substantially smaller than the contribution. Using this figure we obtain an impact range of £18,000-£63,000 and 0.4-1.2 jobs. Of course, to this must be added the loss of output and jobs actually generated in the NNR.

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[5] The percentage of turnover supplied and the percentage purchased locally were combined to give a figure for the percentage of turnover supplied locally. For St Abb's Head NNR, this is 26.07%.

4.8 Findings from the Manager Survey: Cost of Running the Reserve

As mentioned previously, the NNR is owned and managed by the National Trust for Scotland (NTS). SNH funding is negotiated in a national agreement (concordat) between NTS and SNH, which in recent years has been a 3 year agreement. Each full time ranger post receives a "ranger grant" of circa £10,000 pa, plus there is full or part funding for identified discrete projects (e.g. visitor centre or car park). NTS employs one full time property manager / senior ranger and one seasonal ranger to manage the NNR, and the property budget receives circa £15,000 pa towards staff costs from the SNH concordat.

As the NNR and the VMR are closely interlinked, NTS takes a very active role in the management of the VMR. There is a full time ranger for the VMR, the post is hosted by NTS and line managed by the NNR property manager / senior ranger, and the VMR ranger is based at the NNR Rangers' Office. Because the VMR is a charity in its own right the majority of the funding to support the VMR ranger comes from external sources, and the post is fixed-term and depends on sufficient funds being raised. The operating costs for the VMR are circa £33,000 pa, one third of which comes from the "ranger grant" from the SNH concordat with the Trust. Other funders include The Crown Estate and the Esmee Fairbairn Foundation.

In this section budgets and costs are presented separately and the impact analysed for each.

The following table provides the main budget headings and economic implications for St Abb's Head NNR and the VMR.

4.8.1 Income

The following table shows the income associated with both the NNR and the VMR. Unlike the other NNRs in this study St Abb's Head has a significant income from farming rents and visitor charges (car parking).

Table 78 St Abb's Head NNR and VMR: Income

	NNR	**VMR**
INCOME	**£**	**£**
Farming (Rents)	£7,000	£0
Forestry	£0	£0
Hospitality (Café etc)	£0	£0
Rents (Craft Shops etc)	£0	£0
Entry Fees	£7,300	£0
Visitor Contributions (events, donations etc)	£1,300	£2,300
SNH Grants	£15,000	£6,900
Other Grants (from NP, NTS etc)	£0	£24,100
Other	£0	£0
TOTAL	**£30,600**	**£33,300**

4.8.2 Expenditure

The SNH payment for both the nature and marine reserves is only £21,900 out of a total expenditure of £83,500. It should be noted that this requires a significant investment of £20,400 from the resources of NTS.

Table 79 St Abb's Head NNR and VMR: Expenditure

EXPENDITURE	NNR £	VMR £	Local %	Local Impact
Management Agreements	**£0.00**		**0.0%**	**£0**
Staff (Professional)[6]	**£37,700**[7]	**£25,100**[8]	**100.0%**	**£62,800**
For Visitors (% or £)	£15,080	£12,550		
For Farming (% or £)	£0	£0		
For Conservation (% or £)	£22,620	£12,550		
Fabric (Paths, Buildings): External Contracts	**£0**		**0.0%**	**£0**
For Visitors (% or £)	£0			
For Farming (% or £)	£0			
For Conservation (% or £)	£0			
Maintenance Materials (e.g. Timber, Cement)	**£0**		**0.0%**	**£0**
For Visitors (% or £)	£0			
For Farming (% or £)	£0			
For Conservation (% or £)	£0			
Information, Education & Research: External	**£0**	**£3,600**	**20.0%**	**£720**
For Visitors (% or £)	£0	£0		
For Farming (% or £)	£0	£-		
For Conservation (% or £)	£0	£3,600		
Other Physical Items (Vehicles, Stationary etc)	**£13,300**	**£3,800**	**50.0%**	**£8,550**
For Visitors (% or £)	£5,320	£1,900		
For Farming (% or £)	£0	£00		
For Conservation (% or £)	£7,980	£1,900		
TOTAL	**£51,000**	**£32,500**	**86.3%**	**£72,070**
For Visitors (% or £)	£20,400	£14,450		
For Farming (% or £)	£0	£0		
For Conservation (% or £)	£30,600	£18,050		
Variance covered by NTS or VMR	-£20,400	£800		

Another important characteristic of St Abb's Head is the very limited spending this year on non staff items. This inevitably significantly limits the economic impact as shown in the next section.

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[6] Includes 'Other Staff as is minimal

[7] Divided 40% visitors:60% conservation

[8] Divided 50% visitors:50% conservation

4.8.3 Economic Impact

Table 80 Economic Impact of St Abb's Head NNR's Expenditure

				Notes
Local Wage	£62,800	**Induced**	£6,280	*10% of local wages*
Other Local Spend	£9,270	Indirect 1	£7,648	*(Local spend -local wage)*0.825*
		Indirect 2	£1994	*% Turnover supplied locally (26.07%)* Indirect 1*
		Indirect 3	£520	*% Turnover supplied locally (26.07%)* Indirect 2*
		Total	£10,162	*Indirect 1 + Indirect 2 + Indirect 3*
		Aggregate	£16,442	*Sum of Induced + Indirect*
		Jobs	0.32	*19.667*16,442/1,000,000*
Incremental Output	£34,235			*Total Expenditure (83,500)*0.41 (Multiplier =1.41)*
Incremental Jobs	1.04			*% Turnover to Local Suppliers (0.2607)*4 (Employment Multiplier *4)*

The multiplier and round by round figures suggest an impact of the order of £34,200 and 1.04 of an FTE. More surprisingly is the "lower bound" figure which is somewhat larger than the other estimates.

This is thought to have arisen for two reasons:

a. Respondents will inevitably assume the café and shop attached to the visitor centre is part of the NNR. In fact this is a separate business on farming land adjacent but outside the Reserve and much of the output change is associated with this business.
b. In previous years the reserve has had major construction projects which have had a ripple effect in the local economy and this is still reflected in responses.

A key question, therefore, is whether the café/shop would survive if the protected area status was lost. If considering that only serious wildlife enthusiasts have an impact (lower bound estimates), it seems likely that, whilst business would inevitably contract, the café/shop would still survive.

The conclusion, therefore, is that the lower figures are better estimates of the impact of expenditure by the NNR.

4.9 Summary

St Abb’s Head NNR is estimated to welcome approximately 50,000 visits each year, excluding divers in the VMR.

The three sources of information we have analysed enable to draw the following profile of visitors, local businesses, and businesses that are impacted by the NNR.

- **Visitor’ Profile**: Half of visitors to the reserve are on a day trip outing. Some 44% of visitors spend the whole day in the NNR. Wildlife watchers, who constitute over one quarter of visitors, are predominantly day trippers whereas walkers tend to be holiday makers (the opposite of visitors to Loch Lomond NNR). For the majority of visitors, however, St Abb’s Head NNR is a nice destination for a day in the outdoors, by the beach.
- **Local Businesses’ Profile**: 88.8% of businesses contacted do not carry out business activities in the reserve itself, nor do they supply businesses who work in the reserve. Only 15% of businesses hold promotional materials related to St Abb’s Head NNR, whilst just under half of businesses provide services to visitors who come to the area because of the natural environment. This is an area that could be explored and exploited better. A small number of businesses noted negative experiences, particularly related to fishing restrictions in the VMR, which affected local fishermen directly, and fishmongers and other related businesses. Just under 15% of businesses identified that the hypothetical loss of protected area status of the NNR would affect their business to some degree – in particular those that work in tourism. Overall, around 10% of businesses interviewed were impacted by the NNR directly and/or indirectly.
- **Local Businesses impacted by the NNR**: The majority were micro-businesses with an average turnover of c. £525,000, with over two thirds directly involved in tourism activities. It is estimated that 26% of the turnover of local businesses results from the NNR.
- **Impact of NNR Expenditure and Income**: Overall expenditure for the VMR and the NNR is c. £83,500, three quarters of which are staff costs for conservation and visitor related professional jobs. All staff are residing locally, hence 86% of expenditure is estimated to have a local impact.

The total contribution and impact of St Abb’s Head NNR to the local business community can be estimated in two ways:

1. Total 1 uses the information provided by visitors as we have estimated what they spend in the NNR and the local businesses and that provided by the NNR with direct expenditure representing jobs in the NNR and expenditure, as well as the induced and indirect impact which represents the value injected in the local economy.
2. Total 2 uses the information provided by the NNR in terms of direct expenditure and the information provided by businesses who rely in part on the NNR, as some of their turnover is apportioned either directly to the NNR if they supply services to the NNR, or to visitors who visit the NNR.

The figures obtained provide us with what we believe is a reasonable range to estimate the contribution of the NNR to the local business community and the impact of protected status.

Table 81 Summary of the Economic Role of St Abb's Head NNR

	Contribution				Impact			
	Lower Estimate		Upper Estimate		Lower Estimate		Upper Estimate	
	Output (£)	Jobs (N)	Output (£)	Jobs (N)	Output (£)	Jobs (N)	Output (£)	Jobs (N)
Information from the Visitor Survey								
Visitor expenditure	193,773	2.1	193,773	2.1	14,088	0.2	96,886	1.1
Information from the NNR Manager Survey								
NNR Direct	83,500	2.0	83,500	2.0	83,500	2.0	83,500	2.0
NNR Indirect + Induced	16,442	0.3	16,442	0.3	16,442	0.3	16,442	0.3
Information from the Business Survey								
Business survey	143,031	2.6	501,288	9.0	17,879[9]	0.3[9]	62,661[9]	1.1[9]
Total 1 = Visitor Expenditure + NNR Direct + NNR Indirect + Induced								
Total 1	**293,715**	**4.4**	**293,715**	**4.4**	**114,030**	**2.5**	**196,828**	**3.4**
Total 2 = Business Survey + NNR Direct								
Total 2	**226,531**	**4.6**	**584,788**	**11.0**	**101,379**	**2.3**	**146,161**	**3.1**

In conclusion, the total contribution to the local economy is estimated to be between £226,500 and £585,000 (4.4 and 11.0 jobs).

The corresponding impact lies between £101,000 and £197,000 (2.3 and 3.4 jobs). Given that two of these jobs are actually devoted to running the NNR it can be seen that the economic importance of the NNR is small.

[9] Table 74 identifies that, should St Abb's Head NNR lose its protected area status, businesses would see a decrease in their turnover of -12.5%. This percentage has been applied to the contribution output and jobs to estimate the impact of protected area status.

5 RESULTS: CASE STUDY THREE: BEINN EIGHE NNR

5.1 Background to the NNR

Beinn Eighe NNR was established in 1951 and is Britain's oldest national nature reserve. It is located near the village of Kinlochewe, and covers nearly 4,800 hectares (ha), bounded by Loch Maree to the north-east and Glen Torridon to the south. To the west, the reserve rises to the high tops of the Beinn Eighe ridge and the outlying mountain, Meall a'Ghiubhais.

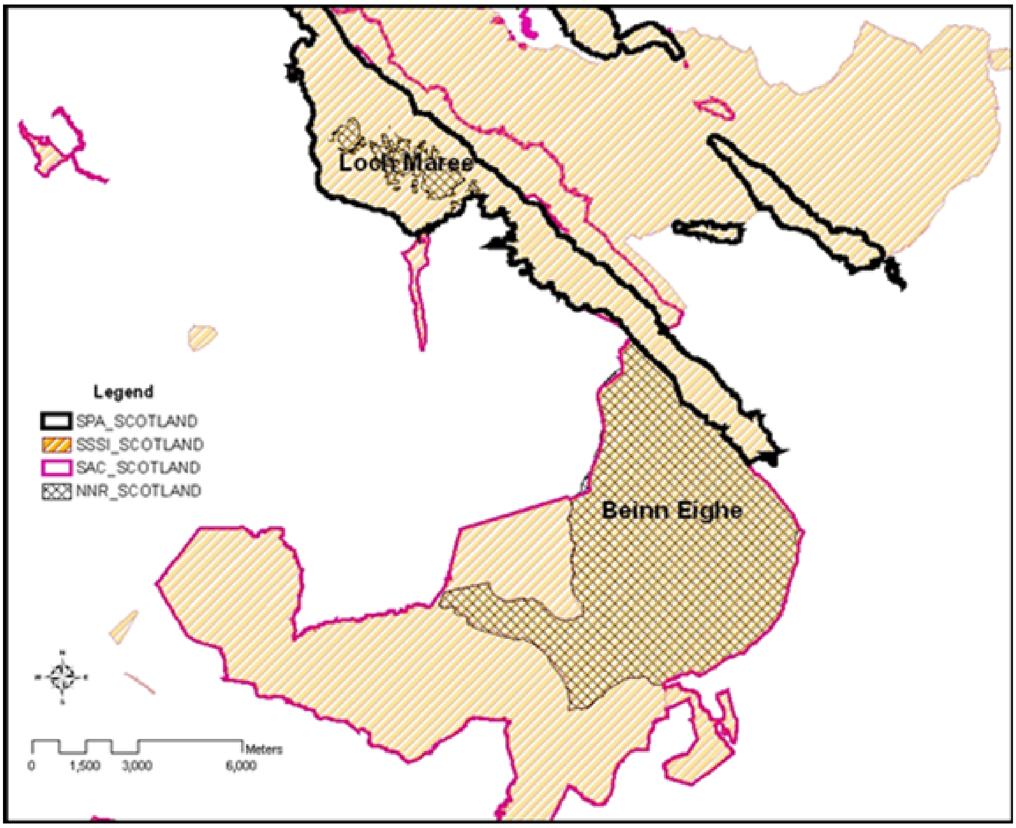
It was set up in 1951 primarily to protect the ancient pinewood west of Kinlochewe, as it is home to the largest remnant of ancient Caledonian forest in Wester Ross. Some of the Scots pine trees are nearly 400 years old. Since its designation, Beinn Eighe's landscapes, wildlife and geology have also been recognised as important.

Over 680 different species of plants have been found at Beinn Eighe NNR. These are grouped into at least 78 different types of vegetation across the Reserve.

In addition to the NNR status, Beinn Eighe NNR is associated with a number of other protected areas, which are illustrated in the Figure below:

- The sites of special scientific interest (SSSI) that cover the massif and Loch Maree.
- The NNR forms part of the Loch Maree Complex Special Area of Conservation (SAC), with the Caledonian pinewood, the rich mosaic of upland habitats and the otter population all forming part of the qualifying interests of the SAC designation.
- The reserve is immediately adjacent to the Loch Maree Special Protection Area (SPA), which hosts the single most important breeding population of black-throated diver in Britain.
- It was designated as a Biosphere Reserve in 1976 as part of the UNESCO "Man and the Biosphere" Programme, the reserve has also held a Council of Europe Diploma since 1983.
- The reserve lies within the Wester Ross National Scenic Area (NSA)
- It contains two Geological Conservation Review (GCR) sites.

Figure 21   Beinn Eighe NNR: Protected Areas



Right from its inception, Beinn Eighe NNR was established as a centre for research, and was considered an ‘outdoor laboratory’. The field station was set up at the old dairy farm at Anancaun and has become an important centre for scientists studying the north-west highlands. The field station is used as an educational and biological studies base for long-term volunteers and visiting groups, as well as housing the reserve and SNH Area office. It also hosts a hostel which enables students and scientists to stay for longer periods of time to carry to their studies.

During the past two decades, involvement with students’ research projects has also increased, as findings help us understand the flora and fauna on the reserve better, leading to better informed management decisions.

A weather station was also set up soon after the reserve was established, which has been operated continuously since.

Monitoring of various species also takes place, helping to understand impacts of climate change on animals and insects for example, contributing to understanding the planet.

5.2 Visitor infrastructure

A hands-on visitor centre was established in the old croft house at Aultroy just outside Kinlochewe so that visitors of all ages could experience the Beinn Eighe story. This is open from Easter to October.

There is a very small shop within the Visitor Centre, which sells a range of SNH publications, wildlife guides, cards and locally made crafts.

The Visitor Centre is the start of the circular Picnic Trail and the Rhyming trail – from which Ridge Trail can be accessed. These are tall-ability trails and are open all year to the public.

In addition, there are two self-guiding trails, both starting at the Lochside Carpark off the A832:

- the Woodland Trail, which runs for 1.5km and winds up and back through the pinewood;
- the Mountain Trail, which takes walkers and hillwalkers through circular route 6.5km long, departing from Loch Maree and peaking at 550m. This is a trail aimed at more serious hillwalkers, and takes three or four hours to complete.

There are three car parks at Beinn Eighe NNR, as well as two other principal access points (on foot only).

- The main car park is on the A832 at Aultroy, just outside Kinlochewe, and serves the Visitor Centre and its adjoining trails. It was recently extended to provide ample parking and includes bus and caravan areas.
- The Trails car park on the edge of Loch Maree, where there are picnic areas, information panels, leaflet dispensers. This is where the Mountain and the Woodland Trails start.
- The NTS car park, from which a path can be explored into Coire Dubh Mòr.

A number of other paths can also be accessed in various parts of the Reserve, such as the one into Coire an Laoigh and the one that follows the wooded gorge of the Allt a'Chuirn. The summit can also be accessed via the Pony Path, from the Visitor Centre.

There are also picnic areas as well as seating areas for visitors' enjoyment.

The Rangers organise occasional guided walks such as the popular photographic deer-stalking expeditions and hold annual Open Day events to showcase the Reserve's work.

The Reserve also carries out a lot of educational work with Primary and secondary school groups

5.3 Tourism Information

In 2008, VisitScotland estimates that UK residents took 1.96 million tourist trips to the Highlands of Scotland region, stayed for 8.81 million bed nights and spent £477 million in the area (VisitScotland, 2009c).

Overseas visitors took 0.54 million trips to the region, stayed 2.78 million nights and spent an estimated £162 million.

On average, UK tourists spent 4.5 nights in the area whilst overseas tourists spent longer, at 5.1 nights.

These figures do not take into account day trippers.

With regards to other visitor attractions located in the postcode areas IV14 9, IV21 2, IV22 2, IV23 2, IV26 2, IV40 8 and IV54 8, the Visitor Attraction Monitor identifies 13 attractions (including Beinn Eighe NNR Visitor Centre). These postcode areas are wider ranging than the case study boundaries. However, they are indicative of visitor facilities in the vicinity.

The following table shows visits as shown in the Table below.

Table 82 Visitor Attractions in Postcode Areas IV14 9, IV21 2, IV22 2, IV23 2, IV26 2, IV40 8 and IV54 8

Name	**Visits 2008**	**Visits 2007**	**% 08/07**
Eilean Donan Castle and Visitor Centre	270,822	283,751	-4.5
Inverewe Garden	73,307	76,953	-4.7
Gairloch Heritage Museum	5,000	6,400	-21.8
Beinn Eighe NNR Visitor Centre (SNH)	11,591	12,194	-4.9
Knockan Crag Visitor Centre	10,000	11,028	-9.3
Attadale Gardens	4,130	5,200	-20.5
Torridon Countryside Centre	6,866	7,705	-10.8

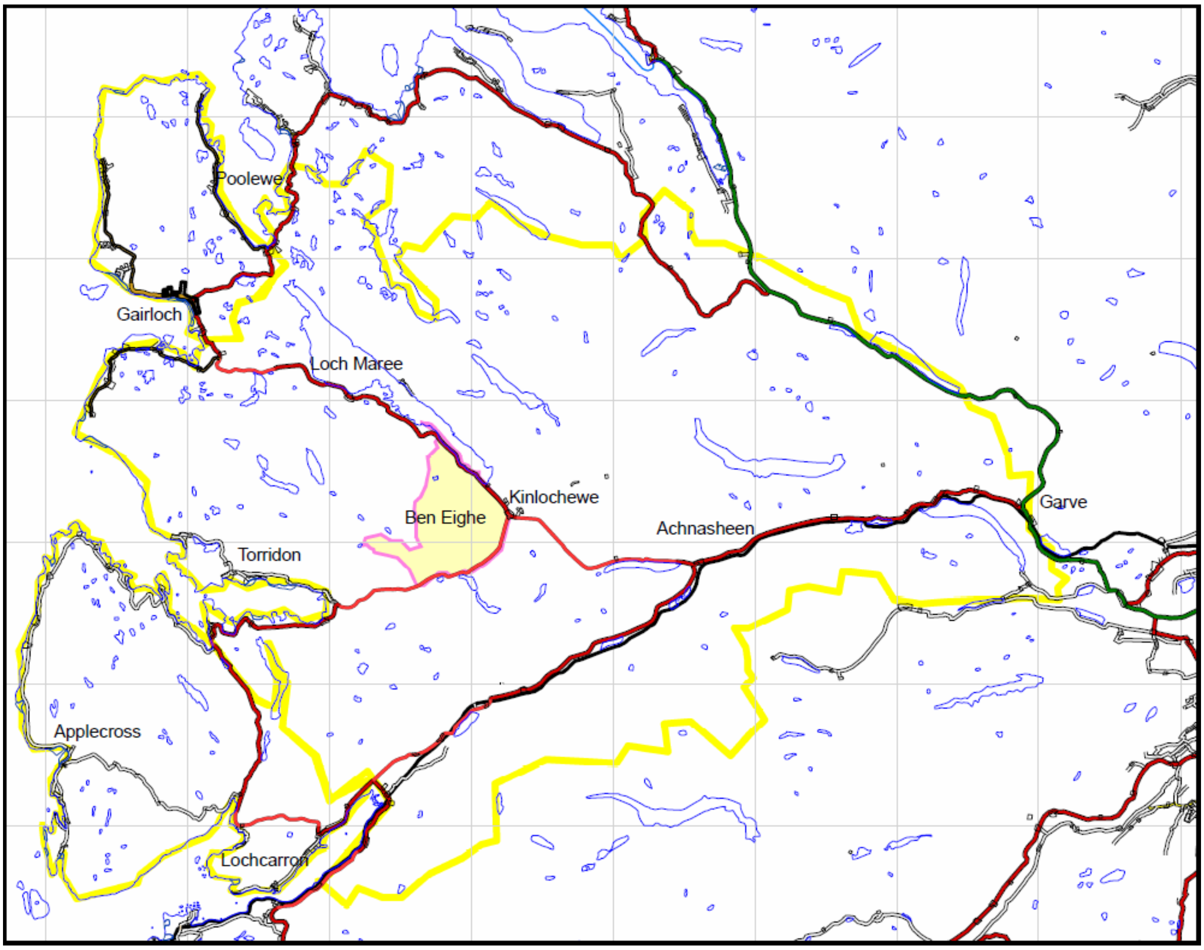
(Source: Moffat Centre/VisitScotland, 2009)

Whereas it is estimated that Beinn Eighe Visitor Centre received some 11-12,000 visitors yearly, the wider Reserve may welcome as many as 50,000 people who stop at the lochside car parks or go for both short and long walks. A high proportion come from outside Scotland, and a high proportion of which are on holidays in the area (as opposed to day trips). (Scottish Natural Heritage, 2008b).

5.4 Study Area

The boundary for this case study was set at 2.5 km, using GIS census areas and a common sense approach to ensure inclusion of appropriate villages and towns.

Figure 22 Beinn Eighe NNR Case Study Area (with 2.5km boundary)



This area includes the local towns and villages of Gairloch, Kinlochewe, Lochcarron, Torridon, Poolewe and Garve amongst others, as illustrated above.

The area includes a population of 2,538.

The postcodes list used to identify businesses located within this area can be found in Appendix 5.

5.5 Findings from the NNR Baseline Visitor Survey 2002/2003: Raw data analysis

5.5.1 *Profile of visitors*

The number of visitor days in 2003 was around 13,000.

In summary around 40% are groups of day trippers and just over half are overnight visitors, as shown in the table below which shows the distribution by "type" of visitor from the survey and the corresponding numbers.

Table 83 Visitors to Beinn Eighe NNR by Type

Type of Trip	Frequency	Percent	Visitors
On a short trip (of less than 3 hours) from home	80	22.2	2,881
On a day out (for more than 3 hours) from home	66	18.3	2,377
On holiday away from home in the area	173	47.9	6,230
Visiting friends and relatives on holiday in the area	11	3.0	396
Passing through the area to/ from my holiday destination	9	2.5	324
Others	22	6.1	792
Total	361	100.0	13,000

There are a significant number of day trippers who travel over 30 miles to visit the reserve, as shown below.

Table 84 Visitors to Beinn Eighe NNR by Distance Travelled and Type of Trip

	N	Less than 3 miles	3 - 5 miles	6 - 9 miles	10 - 14 miles	15 - 19 miles	20 - 29 miles	30+ miles	Don't know/ not stated	Total
	N	%	%	%	%	%	%	%	%	%
On a short trip (of less than 3 hours) from home	80	2.5	8.8	15.0	18.8	5.0	21.3	28.8	0.0	100.0
On a day out (for more than 3 hours) from home	66	0.0	3.0	0.0	7.6	3.0	6.1	78.8	1.5	100.0
On holiday away from home in the area	173	9.2	6.4	9.8	13.9	8.1	12.7	39.3	0.6	100.0
Visiting friends and relatives on holiday in the area	11	9.1	0.0	9.1	9.1	27.3	18.2	27.3	0.0	100.0
Passing through the area to/ from my holiday destination	9	11.1	0.0	0.0	11.1	0.0	0.0	77.8	0.0	100.0
Others	22	0.0	13.6	4.5	9.1	13.6	13.6	45.5	0.0	100.0
Total	361	5.5	6.4	8.6	13.3	7.2	13.3	45.2	0.6	100.0

Transport used is, unsurprisingly, completely dominated by the motor car.

Table 85 Visitors to Beinn Eighe NNR by Transport Type

Transport Type	Frequency	Percent
Bicycle	4	1.1
Car or van	329	91.1
Motorcycle	2	0.6
Private coach or mini-bus	2	0.6
Public transport	8	2.2
Walked all the way	2	0.6
Boat/ ferry	9	2.5
Motorhome/ camper van	4	1.1
Others	1	0.3
Total	361	100.0

The following table shows the reasons people quoted for visiting Beinn Eighe NNR. A number of respondents ticked more than one reason. It should be noted that a subset of only 124 of the 361 respondents were asked these questions.

Table 86 Reasons for Visiting Beinn Eighe NNR

Reason for Visit	Frequency	Percent
Walk/ exercise/ fresh air/ good weather	29	23.4%
To see the wildlife/ seals/ birds/ geese/ bird watching	18	14.5%
Walk the dog	7	5.6%
Been before/ come here regularly/ nice place/ like it here	22	17.7%
Views/ scenery	9	7.3%
Just passing/ saw sign	16	12.9%
Staying in the area/ near to home	5	4.0%
Recommended by friends/ at accommodation	8	6.5%
Never been before/ wanted to see it	4	3.2%
Quiet/ peaceful	2	1.6%
Saw it in guide book/ magazines/ leaflet	11	8.9%
Sea views	1	0.8%
To participate in a sport e.g. hillwalking/ cycling/ paragliding/ shooting	15	12.1%
See plants/ vegetation/ wild flowers	1	0.8%
Wanted to see visitors centre	3	2.4%
Brought friend/ relative to see	2	1.6%
Family day out/ brought the children	2	1.6%
Other	11	8.9%
TOTAL RESPONSES	166	133.9%
TOTAL RESPONDENTS	124	

Relative to other NNRs, visitors to Beinn Eighe are less interested in wildlife. Instead the commitment to walking as a recreation has developed into walking as a sport. Over 12% used the NNR as a base for climbing the mountains of the area.

The following analysis separates wildlife enthusiasts, walkers and people who went to Beinn Eighe NNR for other reasons, enabling us to estimate lower bound impact of the protected area status of Beinn Eighe NNR, as well as presenting variations in the profiles of visitors according to their reason for visiting the reserve.

Table 87 compares these three groups for differences in type.

The following Table compares the reason for the visit with the type of trip.

Table 87 Purpose of Trip by Type of Trip

	Walk	Wildlife	Total
On a short trip (of less than 3 hours) from home	23.6%	22.2%	23.4%
On a day out (for more than 3 hours) from home	15.1%	11.1%	14.5%
On holiday away from home in the area	56.6%	55.6%	56.5%
Visiting friends and relatives on holiday in the area	1.9%	5.6%	2.4%
Passing through the area to/ from my holiday destination	0.0%	5.6%	0.8%
Others	2.8%	0.0%	2.4%
Total	100.0%	100.0%	100.0%

The type of trip by wildlife watchers is almost identical to walkers. Again, as might be expected for a remote area, far more visitors are on holiday than is the norm for an NNR.

Table 88 provides an equivalent analysis for journey distance

Table 88 Purpose of Trip by Distance Travelled

Distance Travelled	Walk etc.	Wildlife	Total
Less than 3 miles	7.5%	16.7%	8.9%
3 - 5 miles	6.6%	0.0%	5.6%
6 - 9 miles	4.7%	11.1%	5.6%
10 - 14 miles	12.3%	11.1%	12.1%
15 - 19 miles	5.7%	16.7%	7.3%
20 - 29 miles	15.1%	11.1%	14.5%
30+ miles	48.1%	33.3%	46.0%
Total	100.0%	100.0%	100.0%

The interesting feature of this analysis is the difference between the wildlife watchers and the walkers. Wildlife watchers tend to have come shorter distances, indeed a number are local (in an area with an extremely limited local population). This probably reflects that, whilst the wildlife is of interest, it is the mountain scenery of Torridon that is internationally famous and provides the cover story in numerous outdoor magazines.

Table 89 looks at the length of time spent in the reserve by activity. Clearly, for the vast majority the visit is of some importance.

Table 89 Time Spent by Visitors at Beinn Eighe NNR by Reason of Visit

	Walk etc	Wildlife	Total
Up to 15 minutes	4.7%	22.2%	7.3%
Over 15 minutes - 30 minutes	17.0%	27.8%	18.5%
Over 30 minutes - 1 hour	19.8%	16.7%	19.4%
Over 1 hour - 2 hours	15.1%	22.2%	16.1%
Over 2 hours - 3 hours	18.9%	5.6%	16.9%
Over 3 hours - 5 hours	23.6%	5.6%	21.0%
More than 5 hours	0.9%	0.0%	0.8%
Total	100.0%	100.0%	100.0%

The previous two findings are clearly shown in the length of time spent in the NNR. The hill walkers spend a lot of time whilst many wildlife watchers appear to be local and spend the odd quarter or half an hour on observation.

5.5.2 *Economic Impact of the Visitors*

Our next analysis presents the mean expenditure per head incurred during the visit by group to the local area by type of trip.

Table 90 Average Spend per Visitor by Type of Trip (2010 Prices)

Type of Trip	Average Spend
On a short trip (of less than 3 hours) from home	£5.84
On a day out (for more than 3 hours) from home	£15.87
On holiday away from home in the area	£35.71
Visiting friends and relatives on holiday in the area	£13.27
Passing through the area to/ from my holiday destination	£36.85
Others	£12.39
Total	£27.42

The Economic Impact Analysis completes this section and is shown in the next table: Many observers will be surprised that total visitor expenditure of £356,455 reduces to a total contribution of 1.9 jobs and an impact of only 0.1 of a job (lower bound) to 0.9 of a job (upper bound). This is explained in Chapter 2 but to repeat:

a) We have assumed that daily expenditure by visitors who might “park in the lay-by and have a short walk” cannot be attributed to the NNR. Only those who stop for over one hour are counted at all. For those spending 1-2 hours, a quarter of their spend was taken into account. For those spending 2-3 hours, half of their spend was included. For those spending over 3 hours, all their spend was included.
b) Two estimates are provided for the impact. Lower bound impact estimates were generated using only wildlife enthusiasts’ figures. These represent a fraction of all visitors. The upper bound impact estimates take into account half of visitor days’ expenditure, which takes into account a far greater number of people, and their related spend.
c) Only a fraction of the expenditure remains in the local economy and the multiplier is very small. Therefore, only a fraction of the above fractions will be lost if the protection offered by the conservation status disappears.

Unfortunately some studies in the past have not made these adjustments and have, as a consequence, published greatly inflated figures. This has led to a general belief by some that their economic impact will be far higher than it actually will be.

The economic impact analysis shows this quite dramatically. The total contribution has been assessed as the NNR contributing £117,057 and 1.9 jobs being supported by the NNR.
However, should protected status be lost, the impact would result in:

- **Lower bound estimates: £5,787 being injected in the local economy, with 0.1 jobs created locally;**
- **Upper bound estimates: £58,528 generated in the local economy with 0.9 local jobs.**

The NNR does however provide an excellent facility for those touring the area particularly as a short break stop. Indeed it also provides excellent facilities for hill walkers who spend considerable time in the area. Undoubtedly without this sort of facility provided by SNH, NTS, RSPB, John Muir Trust and the Forestry Commission it could be argued that there would be no significant rural tourism economy in the local area. However, whilst the whole may well be greater than the parts, it is important that the contribution attributed to each does reflect the actual level of use and does not exaggerate economic importance.

Table 91 Economic Impact of Visitors to Beinn Eighe NNR

								Contribution		Impact				
										Lower Estimate			Upper Estimate	
Trip Type	**Spend/ Head**	**%**	**Visitors**	**Total Spend**	**Direct**	**Type 2**	**Day**	**Output**	**Jobs**	**Wild**	**Output**	**Jobs**	**Output**	**Jobs**
	(£)	(%)	(n)	(£)	(£)	(£)	(%)	(£)	(n)	(%)	(£)	(n)	(£)	(n)
On a short trip	5.84	23.4	3,040	17,764	6,768	9,760	25.0	2,440	0.0	0.0	0	0.0	1,220	0.0
On a day out	15.87	14.5	1,887	29,940	22,724	32,768	73.6	24,121	0.3	5.6	1,820	0.0	12,061	0.1
On holiday	35.71	56.5	7,339	262,043	198,891	277,652	30.7	85,279	1.6	1.4	3,966	0.1	42,639	0.8
Visiting friends	13.27	2.4	315	4,174	3,168	4,423	25.0	1,106	0.0	0.0	0	0.0	553	0.0
Passing through	36.85	0.8	105	3,864	2,933	4,094	50.0	2,047	0.0	0.0	0	0.0	1,023	0.0
Others	12.39	2.4	315	3,896	2,957	4,128	50.0	2,064	0.0	0.0	0	0.0	1,032	0.0
Total	**27.42**	**100.0**	**13,000**	**356,455**	**237,441**	**332,825**	**36.1**	**117,057**	**1.9**	**1.6**	**5,787**	**0.1**	**58,528**	**0.9**

5.6 Findings from the Businesses' Short Surveys

5.6.1 Population and Response Rate

149 of the 215 businesses (69.3%) identified in the area participated in the first interview.

A final round of phone calls was undertaken during the second week of February 2010. Each Non Respondent was called at least twice (including in the evening), without success.

In particular, we had problems contacting accommodation providers which we suspect many were shut for the winter season, although we could not confirm this.

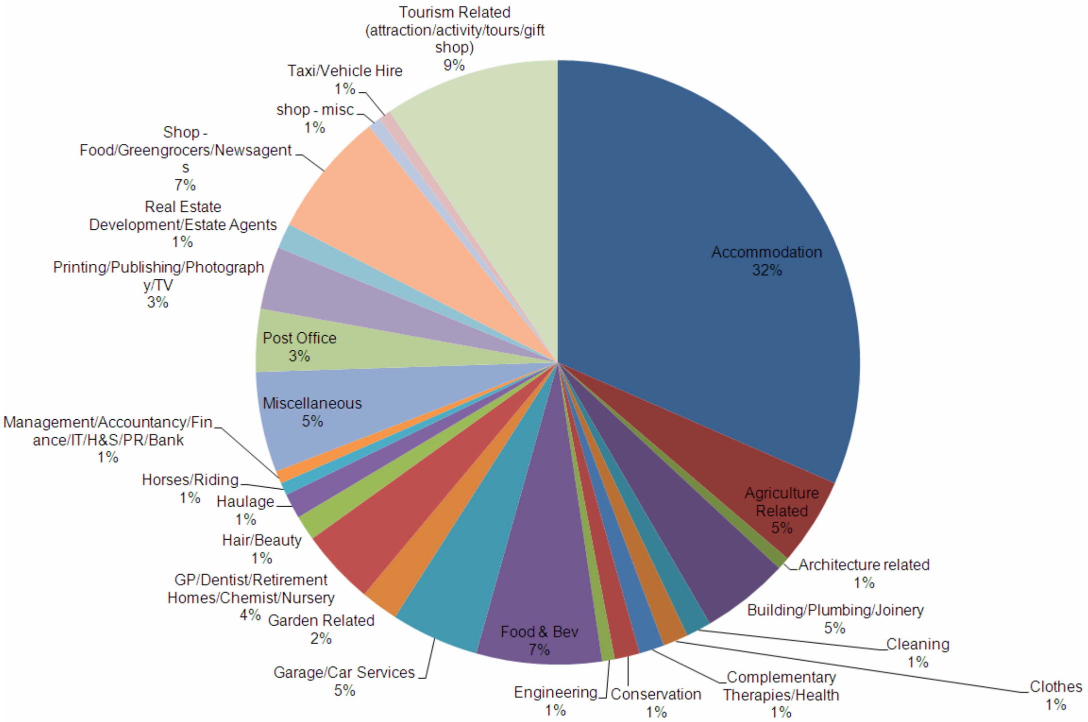
Table 92 Businesses' Short Survey: Response Rate

Short Interview Status	Frequency	Percent
All Businesses Contacted	215	
Short Interview Completed	149	69.3%
Did not want to participate	35	16.3%
Closed for winter season	6	2.8%
Non responses	25	11.6%

5.6.2 Businesses and their business relationship with Beinn Eighe NNR

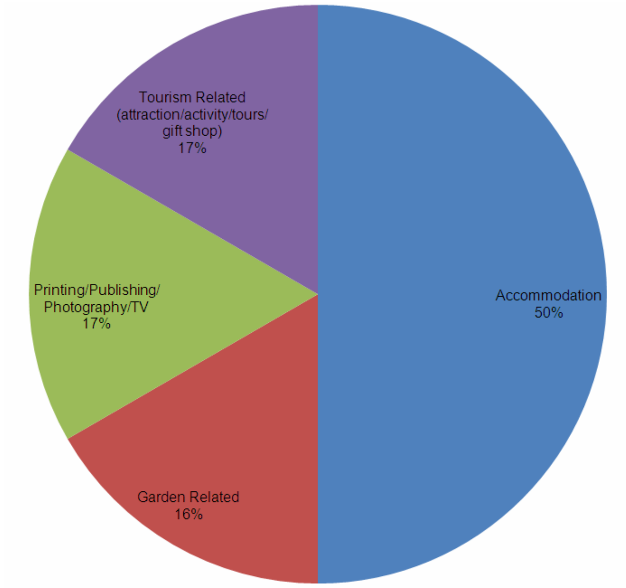
Overall, 89.9 % of businesses indicated they did not carry out business activities in the reserve nor supplied businesses that work in the reserve.

Figure 23 Profile of Businesses Completing the Short Survey by Trade



In total, 96% of businesses interviewed indicated they did not carry out business activities in the Beinn Eighe NNR itself. Those that did tend to be tourism related, as shown in the following figure.

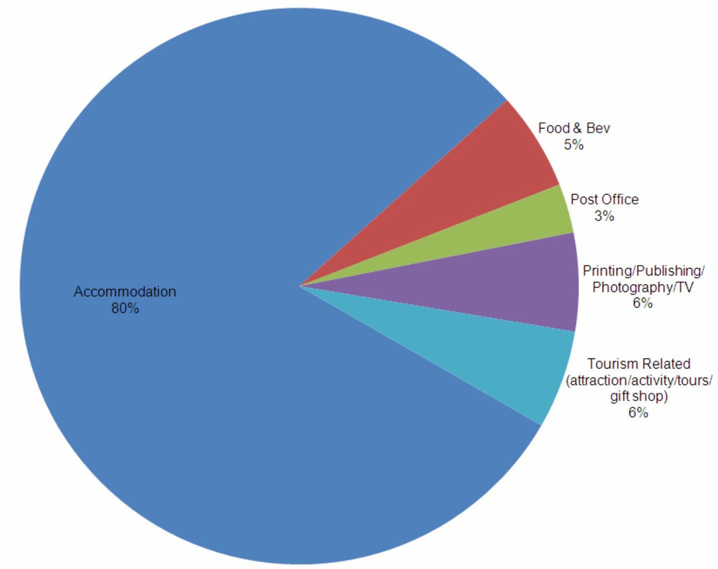
Figure 24 Businesses that carry out Business Activities in Beinn Eighe NNR



A similar proportion of businesses indicated they did not provide services to businesses that operate in the NNR.

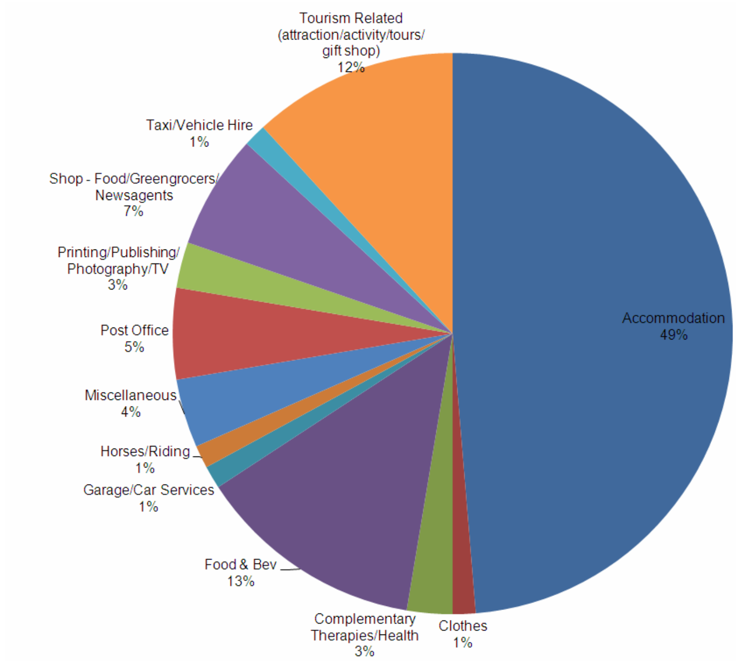
Some 23.5 % of businesses indicated that they had promotional materials on the reserve and may mention the area and NNR on their own promotional materials. The majority of those businesses are accommodation providers, as shown in the following illustration.

Figure 25 Businesses that Promote the NNR



Finally, just over half of businesses interviewed (51.0%) indicated they provided services to visitors who come to the area because of the natural environment. However, they could not tell whether visitors came because of the NNR itself, or because of the wider area.

Figure 26 Businesses that Provide Services to Visitors who come to the area because of the Natural Environment



5.6.3 Awareness of Protection Designation

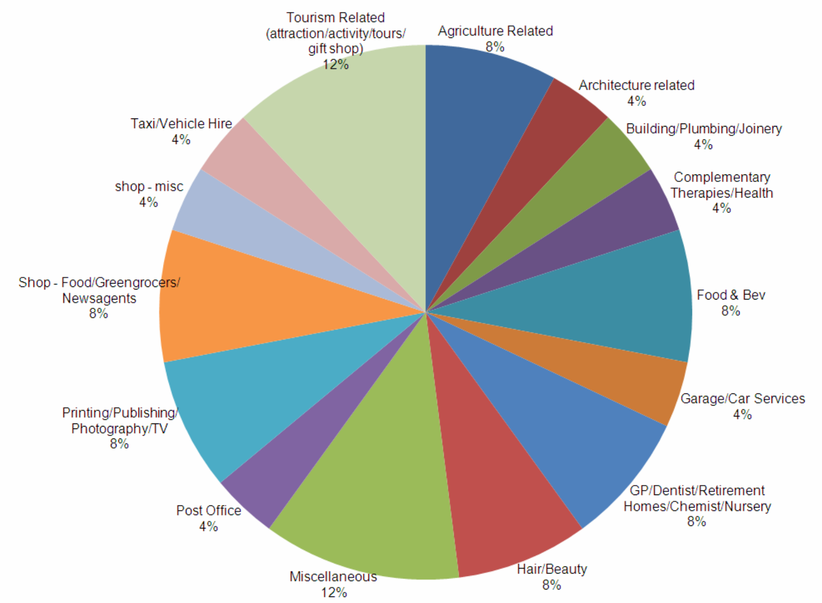
Some 90.6% of respondents indicated they were aware that Beinn Eighe NNR also boasted SPA, SAC, and SSSIs. This high positive response, as with the other case study areas, may be in part due to the question format, i.e. a list of designations rather than being open-ended.

5.6.4 Negative Experiences due to Protected Area Status

Some 16.8% of business respondents indicated that protected area status had had a negative impact on their business.

These are illustrated according to their trade category below.

Figure 27 Businesses that experienced Negative Impact(s) due to Protected Area Status by Type of Business



Similarly, when asked if they knew whether protected area status had restrained the development of their customers' activities that would take place on the reserve, 16.1% indicated so. However, some of the comments seem to relate to the wider role of SNH in the planning process, rather than in relation to the NNR.

Table 93 Comments on Negative Impacts Related to Beinn Eighe NNR (and SNH)

Type of Business	**Caused Negative Impact?**	**Comment**
Accommodation	Yes	*"Difficult to get planning development."*
Agriculture Related	Yes	*"Wind farms getting the go ahead"*
Accommodation	Yes	*SNH has caused nothing but problems and is hated in the local community! The organization has done nothing but mess with planning and people's livelihood.*

5.6.5 Importance of the NNR for Establishing the Business

Some 5 businesses (3.4% of respondents) indicated they had established their business because of the NNR, all tourism related. Only one business knew that its employees had decided to settle and work in the study area because of Beinn Eighe NNR.

5.6.6 Impact of the Loss of Protection on Businesses

Interviewees were asked if the area lost this protection, what impact this would have on their business.

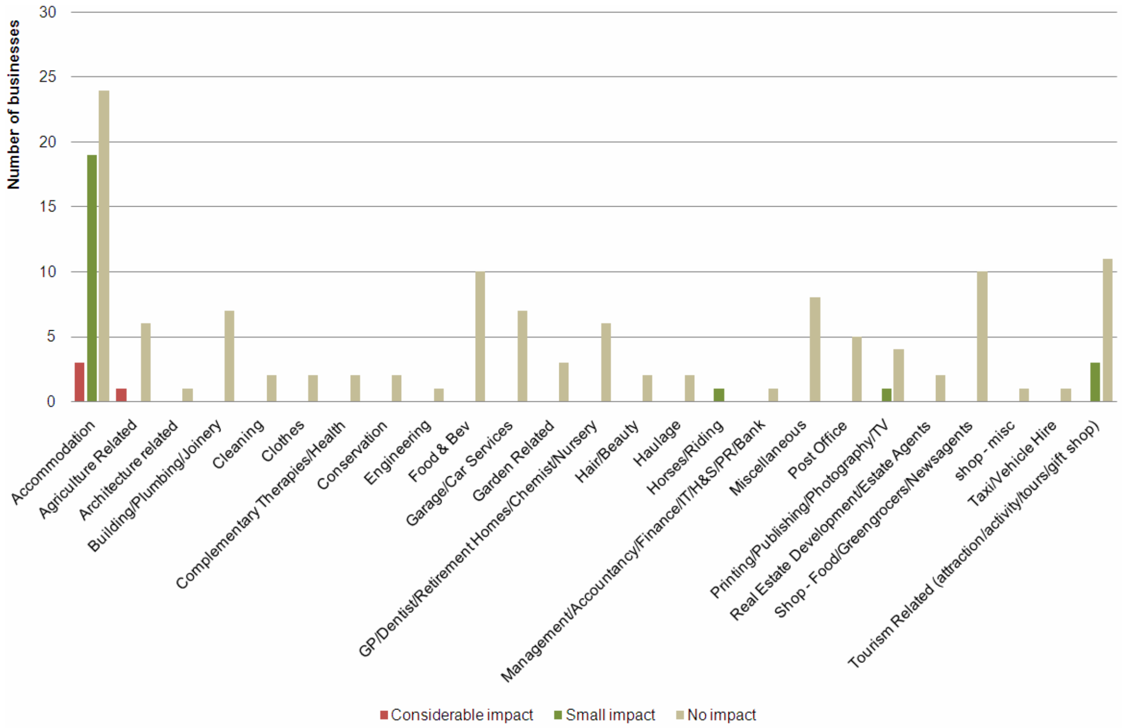
Just over four fifths of respondents indicated this would have no impact on their business.

Table 94 Impact of the Loss of Protection on Businesses

	Frequency	Percent
No impact	120	80.5
Small impact	24	16.1
Considerable impact	4	2.7
Total	119	99.3

As illustrated below, all those indicating it would have some impact are tourism related.

Figure 28 Impact of the Loss of Protection on Businesses by Trade Category



5.6.7 *Conclusions and Next Step*

Of the 149 interviews carried out with businesses located in the Beinn Eighe NNR case study area, 22.8% indicated they had some sort of relationship with the NNR and/or were impacted by it.

As this project is interested in impacts on businesses, we asked those 22.8% if they were willing to participate in the second stage of the research, to help us identify impacts in more details.

Table 95 Eligibility for Second Part of Research

Eligibility for Second Part of Research	Frequency	Percent
Not Eligible	**115**	**77.2%**
Eligible	**34**	**22.8%**
Did not want to participate in second phase	3	8.8%
Accepted to complete online questionnaire	19	55.9%
Accepted to complete paper questionnaire	12	35.3%
Total	149	100.0%

5.7 Findings from the Businesses' Second Questionnaire

5.7.1 Population and Response Rate

In total, some 31 questionnaires were sent to businesses located in the Beinn Eighe NNR case study area.

20 questionnaires were received completed. As noted in Section 2.4.2, a chase-up email or letter was sent to businesses from whom we had not received a completed second questionnaire.

The following table details responses received by trade category.

Table 96 Response Rate Businesses' Second Questionnaire

		Received?	
Trade Category	**Total Sent**	**No**	**Yes**
	(Frequency)	(Percent)	(Percent)
Accommodation	21	28.6	71.4
Agriculture Related	1	0.0	100.0
Garden Related	1	100.0	0.0
Horses/Riding	1	0.0	100.0
Post Office	1	0.0	100.0
Printing/Publishing/Photography/TV	2	50.0	50.0
shop - misc	1	100.0	0.0
Tourism Related (attraction/activity/tours/gift shop)	3	66.7	33.3
Total	31	35.5	64.5

5.7.2 Profile of Responding Businesses

The majority of businesses were micro-businesses, employing less than 10 employees, with an average turnover of £28,074, and were for the most part directly involved in tourism activities.

Figure 29 Employees

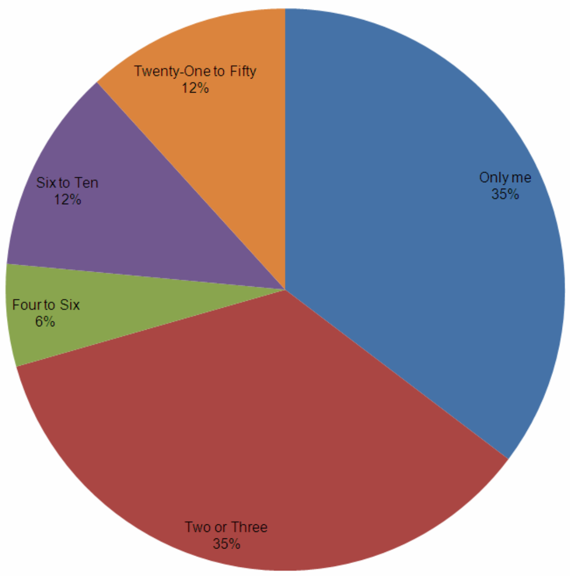
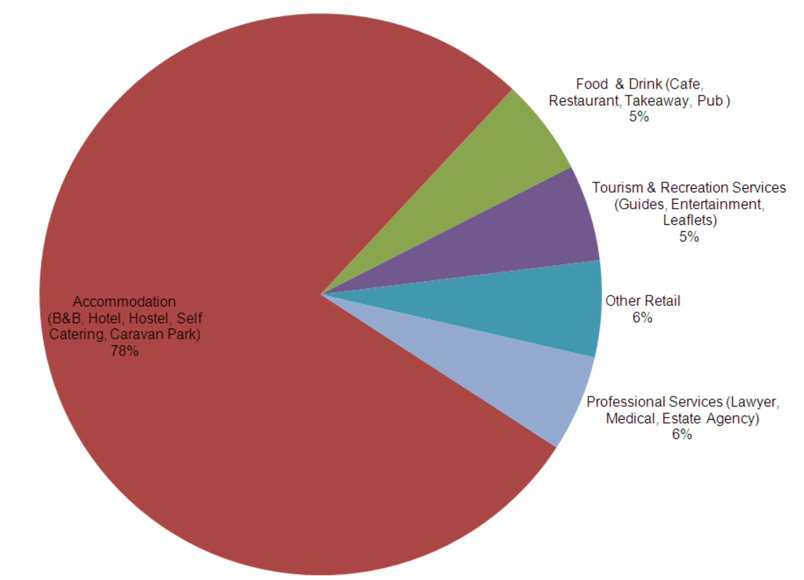


Table 97 Turnover

	Mean	Respondents	Std. Deviation
Turnover	£155,556	18	£242,468

Figure 30 Business Sector of Respondents



The following table shows the positive relationship between businesses and the NNR. Respondents could select more than one option

Table 98 Businesses' Use of the NNR

	Frequency	Percent (Responses)	Percent (Respondents)
We work in the local reserve	1	2.5	5.3
We provide services to those who work in the local Reserve	2	5.0	10.5
We provide services to those who visit the Reserve	11	27.5	57.9
We provide services to those who come because of the quality of the local natural environment	15	37.5	78.9
We use the quality of the local environment to market the business	11	27.5	57.9
The Reserve does not affect my business positively	0	0.0	0.0
Total Responses	40	100.0	
Total Respondents	19		

Clearly businesses rely on the quality of the natural environment for their business.

Businesses recognised that the amenities and activities provided at Beinn Eighe NNR encourage people to visit, in the same way that they actively refer visitors to the reserve, as shown by the comments provided by respondents when asked if the reserve impacted in any other positive way on their business:

"Along with the general habitats and geology of the area I believe it acts as a focus and does encourage people to get away from the roadside and explore more of the natural environment."

"Beinn Eighe NNR have over recent years provided an excellent all abilities footpath network around the village, this will hopefully be extended. The reserve should be more proactive in fostering good relations with the local community."

"The provision of footpaths within the reserve."

"The quality of the work done on the reserve attracts guests who use the facilities provided."

"The reserve is fantastic and provides a great habitat for wildlife. Also the visitors that come to the cottage that we have in the reserve are very impressed with the magnificent scenery, walks and wildlife. The Beinn Eighe nature reserve is second to none"

"It brings more visitors to the area."

"We run wild wildlife watching walks and self guided walking holidays - we walk in the reserve and send visitors regularly to the visitor centre."

"Beinn Eighe forms an important gateway through this NSA and some visitors to Inverewe will also visit the reserve."

"People need somewhere to stay while visiting the area - the more people who come to the reserve, the greater number will stay with us."

"We are an accommodation and food & beverage services provider. Our clients originate mainly

from mainland UK and Continental Europe. Our visitors are predominantly over 30 and interested in sightseeing, nature and leisure walking."

5.7.3 Impacts of the NNR on businesses

Businesses were further asked which following aspects of the Beinn Eighe NNR were important to their business.

Table 99 Importance of Various Aspects of the NNR to Businesses

	Total Respondents Frequency	Very Important Percent	Important Percent	Neither Percent	Unimportant Percent	Not Available Percent
Good views and landscape	19	68.4	26.3	5.3	0.0	0.0
Good walks	18	66.7	27.8	5.6	0.0	0.0
Wildlife	18	66.7	27.8	5.6	0.0	0.0
Flora	18	55.6	38.9	5.6	0.0	0.0
Toilets	16	18.8	50.0	18.8	12.5	0.0
Cafe/Shop	16	12.5	37.5	37.5	12.5	0.0
Visitor Centre	18	44.4	44.4	11.1	0.0	0.0

The above table clearly shows that the quality of the natural environment, walks and wildlife are "Very Important" to businesses' operations.

Table 100 Importance of Various Aspects of the NNR Businesses are Important for Visitors

	Total Respondents Frequency	Very Important Percent	Important Percent	Neither Percent	Unimportant Percent	Not Available Percent
Good views and landscape	19	100.0	0.0	0.0	0.0	0.0
Good walks	19	89.5	10.5	0.0	0.0	0.0
Seeing Wildlife	19	89.5	10.5	0.0	0.0	0.0
Seeing Trees and/or Flowers	19	57.9	42.1	0.0	0.0	0.0
Toilets Available	18	33.3	50.0	5.6	11.1	0.0
Cafe and Shop Available	19	31.6	42.1	15.8	10.5	0.0
Information on Area Available	19	57.9	42.1	0.0	0.0	0.0

This mirrors the aspects businesses deem very important to their business, only heightened.

When asked about negative impacts of the NNR on their business,

Table 101 Negative Impacts of the NNR on Businesses

Negative impacts	Frequency
I cannot carry out operations/activities as efficiently as could	0
I cannot get answers quickly because of the bureaucracy	1
I cannot undertake the construction work would like	0
It (the NNR) does not affect my business in a negative manner	16

5.7.4 Establishing the Proportion of Turnover Responding Businesses Attribute to Beinn Eighe NNR which Remains in the Local Area

Businesses were asked what proportion of their turnover they believed was due to work related to the NNR.

Table 102 Proportion of Turnover Related to NNR

% Turnover related to NNR	Frequency	Percent
80-99%	0	0.0
50-79%	0	0.0
25-49%	4	21.1
10-25%	1	5.3
5-10%	4	21.1
Less than 5%	10	52.6
Total	19	100.0

Half of businesses indicated that less than 5% of their turnover was related to the NNR.

The following table presents the estimated turnover contraction businesses would suffer should the NNR be unavailable for visitors to use.

Table 103 Estimated Turnover Contraction should the Access to the NNR be Forbidden

% Turnover Contraction	Frequency	Percent
100%	0	0.0
80-99%	1	5.6
50-79%	1	5.6
25-49%	5	27.8
10-25%	1	5.6
5-10%	3	16.7
Less than 5%	3	16.7
None whatsoever	4	22.2
Total	18	100.0

When asked to describe significant short term impacts on their businesses, respondents acknowledged the loss of a destination asset for their visitors mostly, impacting on visitors and tourism in particular.

"It would damage tourism and other visitor numbers."

"Tourists come to this area because of its outstanding natural beauty. Anything that impacts on this is dangerous to tourism for the whole area."

"Somewhere to recommend to visitors - particularly the trails and visitor centre. Long distance walk route for Self Guided Holiday walks through the reserve... the reserve provides an example of pristine environment."

"Most of my guests come here to enjoy access to the outdoors."

"One less local asset to promote when marketing our region. The biodiversity of our region is

critical to visitor appeal and hence reducing this aspect would reduce the regional competitive advantage."

Businesses were also asked what impact removal of the protected area status would have on their business.

Table 104 Impact on Business of Removal of Protected Area Status

Impact on Business	Frequency	Percent
Grow by more than 100%	0	0.0
Grow by between 50 and 100%	0	0.0
Grow by between 1 and 50%	1	5.3
No Impact	8	42.1
Contract by between 1 and 50%	7	36.8
Contract by between 50 and 100%	2	10.5
Close Business	1	5.3
Total	19	100.0

Clearly, the removal of protected area status was believed by the majority of businesses to have a negative impact or no impact. Overall, businesses would suffer a downturn in business of -21.1%, highlighting the importance of the NNR to the success of their business.

This is confirmed by responses obtained when asked which aspects of their business this would affect (positively and/or negatively) in the long term, with mostly negative responses highlighting the loss of wildlife and associated visitors.

"It would be a tragic loss of an important wildlife habitat that once gone could never be reproduced. There is a historical value as the reserve was the first in the UK of its kind."

"Negative impacts - Influx of seasonal holiday homes; Positive impacts - Increase in population would be beneficial to the local village shops but limited due to the ease of access into Inverness."

"We could utilise the exposed bit of the reserve adjacent to us to put up a domestic wind turbine, thus reducing carbon emissions and our utility bills in line with SNH renewables policy."

"People visit here because of the tremendous environment. This is not confined to the reserve as the whole area is one of outstanding natural beauty."

"Loss of business from guests coming to use the reserve and workers / volunteers on the reserve."

"The fact that the reserve is protected against development is great for wildlife and great for people. If the reserve was developed it would not be as special."

"I provide a service to visitors in the area. Some may also visit the reserve."

"If protection is removed, the future for tourism in this area could be disastrous. What else do we have to entice visitors to Wester Ross apart from its magnificent natural beauty?"

"As an example of good practice the reserve is a beacon for good management of wild land. Protection is vital to continue giving this example so good practice can be seen. My own business would suffer greatly if we did not have wild land."

"Visitor numbers might suffer a small reduction."

"Visitors come here to explore the highland scenery. SNH reserve is a magical piece of mountain - no windfarms please - SNH must guard the natural heritage."

“Too many houses would take away the very reason why guests visit the area.”
“If development was allowed in the reserve it would have a negative impact on the habitat for wildlife and create visual pollution. Can't see any positive aspects to my business as we are not in the building industry.”

5.7.5 Identifying Multiplier Effects

In order to establish the economic value of upstream relationships, businesses were asked which proportion of their turnover was paid to their suppliers.

Table 105 Proportion of Turnover Paid to Suppliers

% Turnover Paid to Suppliers	Frequency	Percent
More than 80%	1	5.9
60%-80%	1	5.9
40%-59%	5	29.4
20%-39%	5	29.4
Less than 20%	5	29.4
Total	17	100.0

Businesses were further asked which proportion of these costs was paid to suppliers in the immediate locality.

Table 106 Proportion of Costs Paid to Local Suppliers

% Costs Paid to Local Suppliers	Frequency	Percent
More than 80%	2	11.1
60%-80%	2	11.1
40%-59%	1	5.6
20%-39%	8	44.4
Less than 20%	5	27.8
Total	18	100.0

This table illustrates the level of leakage of economic activity from the local area.

For each business, the value of the downstream activity that was associated with the proportion of the turnover attributable to the NNR was calculated. [10]

5.7.6 Estimating the Impact of the NNR from the Business Survey

As discussed in section 2.6 the business survey can be used to establish upper and lower bound of the impact of the NNR as a result of both direct spend and visitor spend. The lower bound is based upon the actual returns from the businesses and the upper bounds uses the median values as proxies for the central point of all the businesses.

[10] The percentage of turnover supplied and the percentage purchased locally were combined to give a figure for the percentage of turnover supplied locally. For Beinn Eighe NNR, this is 18.60%.

We have established from our telephone interviews that 34 businesses out of 149 successfully interviewed (i.e. 22.8%) were impacted Beinn Eighe NNR and therefore were eligible for the second survey. Total businesses in the Beinn Eighe NNR study area were 215. Therefore, assuming that the profile of non-respondents is similar to those we interviewed, 49 businesses in total would be impacted by the NNR.

The results are shown in the following table.

Table 107 Estimating the Impact of Beinn Eighe NNR from the Business Survey

	Lower Bound Estimates			Upper Bound Estimates		
	Mean	**N**	**Total**	**Median**	**N**	**Total**
Turnover	£155,556	18	£2,800,000	£53,571	49	£4,460,714
Local Spend	£16,667	18	£300,000	£3,750	49	£416,250
Additional Local Spend	£3,100	18	£55,807	£375	49	£67,432
Contribution	£19,767	18	£355,807	£4,125	49	£483,682
Jobs			**6.4**			**8.6**

As expected the median figures are significantly lower than the mean figures.

The results suggest that between £355,000 and £484,000 of local output could be attributed to the NNR with an associated range of jobs between 6.4 and 8.6.

Table 104 shows how businesses think they would cope in the event that the NNR lost its protected area status. This is different from the previous question where NNR closure is envisaged, which would affect all visitor activities. The mean of Table 104 is 21.1%, indicative that the impact of the NNR is substantially smaller than the contribution. Using this figure we obtain an impact range of £75,000-£102,000 and 1.4-1.8 jobs. Of course to this must be added the loss of output and jobs actually generated in the NNR.

5.8 Findings from the Manager Survey: Cost of Running the Reserve

5.8.1 Income

The following table provides an outline of the expenditure by category at the Beinn Eighe NNR.

Beinn Eighe is a large hill estate with substantial woodland. Hence, unlike the other cases, it has commercial activity in the form of forestry and the sale of deer culled by NNR staff.

Table 108 Beinn Eighe NNR: Income

INCOME	**£**
Farming (Rents) DEER	£3,500
Forestry	£4,000
Other Grants (from NP, NTS etc):Forestry	£8,000
TOTAL	£15,500

5.8.2 Expenditure

Beinn Eighe is also different in its remoteness and the subsequent large study area. Within that area are found most of the services required such as plumbers or builders; to go to alternatives requires even longer distances

Table 109 Beinn Eighe NNR: Expenditure

EXPENDITURE	**£**	**Local %**	**Local Impact**
Management Agreements	**£0**	**0.0%**	**£0**
Staff (Professional)	**£88,000**	**100.0%**	**£88,000**
For Visitors (% or £)	£30,000		
For Farming (% or £)	£5,200		
For Conservation (% or £)	£52,800		
Other Staff (Cleaners, Cooks, Drivers)	**£30,000**	**100.0%**	**£30,000**
For Visitors (% or £)	£30,000		
For Farming (% or £)	£0		
For Conservation (% or £)	£0		
Reserve Management	**£20,300**	**20.0%**	**£4,060**
For Visitors (% or £)	£8,120		
For Farming (% or £)			
For Conservation (% or £)	£12,180		
Admin Budget (Heating Oil, Wheelie Bins, Repairs)	**£28,600**	**10.0%**	**£2,860**
For Visitors (% or £)	£17,160		
For Farming (% or £)			
For Conservation (% or £)	£11,440		
Promotions and Signs	**£38,348**	**10.0%**	**£3,835**
For Visitors (% or £)	£38,348		
For Farming (% or £)			
For Conservation (% or £)			
Building Projects (8 yr average)	**£75,000**	**80.0%**	**£60,000**
For Visitors (% or £)	£64,000		
For Farming (% or £)			
For Conservation (% or £)	£16,000		
TOTAL	**£280,248**	**67.4%**	**£188,755**
For Visitors (% or £)	**£187,628**		
For Farming (% or £)	**£5,200**		
For Conservation (% or £)	**£92,420**		

5.9 Economic Impact

The round by round economic impact calculations are shown below.

Table 110 Economic Impact of Beinn Eighe NNR

				Notes
Local Wage	£118,000	**Induced**	£11,800	*10% of Local Wages*
Other Local Spend	£70,755	Indirect 1	£58,373	*(Local Spend -Local Wage)*0.825*
		Indirect 2	£10,857	*% Turnover supplied locally (18.60%)* Indirect 1*
		Indirect 3	£2,019	*% Turnover supplied locally (18.60%)* Indirect 2*
		Total	£71,249	*Indirect 1 + Indirect 2 + Indirect 3*
		Aggregate	£83,049	*Sum of Induced + Indirect*
		Jobs	1.6	*19.667*83,049/1,000,000*
Incremental Output	£114,902			*Total Expenditure (280,248)*0.41 (Multiplier =1.41)*
Incremental Jobs	0.74			*% Turnover to Local Suppliers (0.1860)*4 (Employment Multiplier *4)*

Expenditure from Beinn Eighe NNR is estimated to have an induced and indirect impact of £83,000, and 1.6 jobs, which compares with the incremental output calculated directly from the expenditure using the multiplier of £114,902 in the local economy and 0.17 jobs.

5.10 Summary

It is estimated that Beinn Eighe Visitor Centre received some 11-12,000 visitors yearly, whilst the wider reserve may welcome as many as 50,000 people who stop at the lochside car parks or go for both short and long walks.

We have analysed information collated from three sources:

- Visitors;
- NNRs; and
- Local businesses.

This has enabled us to draw a profile of visitors, local businesses, and identify businesses that are impacted by the NNR.

- **Visitor' Profile**: Some 40% of visitors to Beinn Eighe NNR are groups of day trippers and just under half are on holiday in the area. One third of visitors go for a walk or more serious hillwalking. Only 15% of visitors to the Reserve go to see the wildlife and flora specifically. Just over one fifth of visitors spend the whole day in the NNR, the majority of whom are hill walkers. Wildlife watchers appear to be local and spend 30 minutes and under in the Reserve.
- **Local Businesses' Profile**: Just under 90% of businesses contacted do not carry out business activities in the Reserve itself, nor do they supply businesses who work in the Reserve. Just under one quarter of businesses hold promotional materials related to Beinn Eighe NNR, whilst just over half provide services to visitors who come to the area because of the natural environment. Again, promotion of the NNR to local businesses could be increased. A small number of businesses noted negative experiences, particularly related to planning and wind farms. Just under 19% of businesses identified that the hypothetical loss of protection status of the NNR would affect their business to some degree – in particular those that work in tourism. Overall, 23% of businesses interviewed were impacted by the NNR directly and/or indirectly.
- **Local Businesses impacted by the NNR**: The majority were micro-businesses with an average turnover of c. £155,556, with 90% directly involved in tourism activities. It is estimated that 18.60% of the turnover of local businesses results from the NNR.
- **Impact of NNR Expenditure and Income**: Overall NNR expenditure is c. £178,000, three quarters of which are staff costs for conservation and visitor related professional jobs. Predominantly because of the home location of the staff just over one quarter of the expenditure is estimated to have a local impact.

The total contribution and impact of Beinn Eighe NNR to the local business community can be estimated in two ways:

3. Total 1 - We can use the information provided by visitors as we have estimated what they spend in the NNR and the local businesses and the information provided by the NNR, with direct expenditure representing jobs in the NNR, and expenditure, as well as the induced and indirect impact, representing the value injected in the local economy.

4. Total 2 - We can use the information provided by the NNR in terms of direct expenditure and the information provided by businesses who rely in part on the NNR, as some of their turnover is apportioned either directly to the NNR if they supply services to the NNR, or to visitors who visit the NNR.

The figures obtained provide us with what we believe is a reasonable range to estimate the contribution of the NNR to the local business community and the impact of protected status.

Table 111 Summary of the Economic Role of Beinn Eighe NNR

	Contribution				Impact			
	Lower Estimate		Upper Estimate		Lower Estimate		Upper Estimate	
	Output (£)	Jobs (N)	Output (£)	Jobs (N)	Output (£)	Jobs (N)	Output (£)	Jobs (N)
Information from the Visitor Survey								
Visitor Expenditure	117,057	1.9	117,057	1.9	5,787	0.1	58,528	0.9
Information from the NNR Manager Survey								
NNR Direct	280,248	4.0	280,248	4.0	280,248	4.0	280,248	4.0
NNR Indirect + Induced	83,049	1.6	83,049	1.6	83,049	1.6	83,049	1.6
Information from the Business Survey								
Business Survey	355,804	6.4	483,682	8.6	75,075[11]	1.4[11]	102,057[11]	1.8[11]
Total 1 = Visitor Expenditure + NNR Direct + NNR Indirect + Induced								
	480,354	**7.5**	**480,354**	**7.5**	**369,084**	**5.7**	**421,825**	**6.5**
Total 2 = Business Survey + NNR Direct								
	636,052	**10.4**	**763,930**	**12.6**	**355,323**	**5.4**	**382,305**	**5.8**

In conclusion, the total contribution to the local economy is estimated to be between £488,400 and £764,000 (7.5 and 12.6 jobs).

The corresponding impact lies between £355,300 and £421,800 (5.4 and 6.5 jobs).

[11] Businesses identified in Table 103 that, should Beinn Eighe NNR lose its protected area status, they would see a decrease in their turnover of -21.1%. This means that the impact of protected area status is positive.

6 RESULTS: CASE STUDY FOUR: FORVIE NNR

6.1 Background to the NNR

Forvie National Nature Reserve lies twelve miles north of Aberdeen, six miles east of Ellon. The reserve covers almost 1,000 hectares (ha) of sand dunes and dune heath and the Ythan Estuary on the North Sea coast between Collieston and Newburgh.

Forvie NNR is particularly renowned for its birds, including the largest breeding colony of eiders in Britain, four species of breeding terns and the wealth of wildfowl and waders on the estuary. It hosts four very varied ecosystems which support specialised flora and fauna, namely:

- The Ythan estuary;
- Saltmarsh;
- Dunes; and
- Sea cliffs.

Forvie became an NNR in 1959, and has since gained further national and international recognition thanks to the importance of some species present in the reserve and its dune habitats. It is also:

- An SAC (protecting the dune habitats)
- SPA (presence of terns; regularly supports in excess of 20,000 waterfowl; supports significant populations of lapwings, redshanks, pink-footed geese and elder ducks)
- Wetland of international importance under the RAMSAR convention (over 20,000 waterfowl regularly assemble at Forvie NNR; presence of sandwich tern and pink-footed geese)
- SSSI (coastal geomorphology; sand dunes; presence of terns; presence of pink footed-geese, eider ducks, greylag geese, whooper swans and assemblage of breeding birds).

SNH owns approximately two thirds of the reserve and leases a further 273ha of the intertidal mud flats from the Crown Estate Commissioners.

The bird hide at Logie Buchan is owned by Aberdeenshire Council and maintained by their ranger service. Aberdeenshire Council also owns the car park at Waterside and the two lay-bys close to Waterside Bridge. The Ythan District Salmon Fishery Board owns a small piece of land and the salmon bothy at Rockend.

Wildfowling continues on the foreshore in the reserve where it is a legal right between 1st September and 20th February. Angling in the River Ythan is popular, both from the shore and boats. The Ythan and District Salmon Fishery Board and Udny and Dudwick Estate manage angling.

Forvie NNR has developed strong links with Aberdeen University and students regularly use the reserve for study programmes and field visits, contributing to the understanding of Forvie NNR and its knowledge base. The reserve also has links with other universities and academic institutions throughout the UK, many of whom use Forvie for field studies, particularly in the study of coastal and estuarine processes.

6.2 Cost Benefit Analysis of the Site (2005)

The site is interesting from an economic perspective because it lies within the commuting zone of Aberdeen and 3 settlements about the site; the villages of Collieston and Newburgh and the small town of Ellon. Development pressures are thought to be quite significant. South of Forvie is the dune area known as Balmedie which, despite its protected status has received planning permission for development of a golf course and holiday resort, and a housing scheme of 500 residential properties.

In 2005 the site plus some small cliff areas to the north was part of a full economic appraisal for the Scottish Executive by Jacobs Ltd in association with NFO WorldGroup (market research company), Prof. Hervey Gibson (CogentSI), Prof. Nick Hanley (Environmental Economics Research Group, University of Glasgow), Prof Robert Wright (University of Stirling), Dr. Nonie Coulthard (Logical Cobwebs) and Dr David Oglethorpe (Scottish Agricultural College). The Cost-Benefit Analysis of the site is discussed in Section 6.11, towards the end of this case study.

6.3 Visitor Infrastructure

A visitor centre, the Stevenson Forvie Centre, is open to the public from April to October. It houses a display area, a classroom, toilets, an office and garage, and there is a pond and wildlife garden outside.

The main car park is at the visitor centre, which also has cycle racks, and a story trail to follow. There is another car park at Waterside.

There are several footpaths and way marked trails from two to four miles on the reserve to guide visitors through their visit, allowing them to enjoy the Reserve without harming the wildlife. A short easy-access trail with wheelchair accessible picnic tables leads onto the Reserve from the Forvie Centre.

Several interpretation boards are located throughout the Reserve. There is also a bird hide at Waulkmill.

Forvie actively supports educational trips, and welcomes over 20 primary and secondary schools groups each year.

6.4 Tourism Information

In 2008, VisitScotland estimates that UK residents took 1.30 million tourist trips to Aberdeen and Grampian, stayed for 4.66 million bed nights and spent £242 million in the area (VisitScotland, 2009d).

Overseas visitors took 0.25 million trips to the region, stayed 1.8 million nights and spent an estimated £90 million.

On average, UK tourists spent 3.6 nights in the area whilst overseas tourists spent longer, at 7.2 nights.

However, these figures do not take into account day trippers, which form a large part of visitors to the area.

The Visitor Attraction Monitor records Forvie NNR as the only attraction based in the postcode areas AB41 0, AB41 6, AB41 8 and AB41 9.

Visits figures provided for the Visitor Attraction Monitor 2008 are shown below.

Table 112 Forvie NNR Visits 2008/2007

Name	Visits 2008	Visits 2007	% 08/07
Sands of Forvie National Nature Reserve	26,500	20,000	+32.5

Source: Moffat Centre/VisitScotland, 2009

The NNR Baseline Visitor Survey estimated the number of visitor days in 2002/3 at around 17,500.

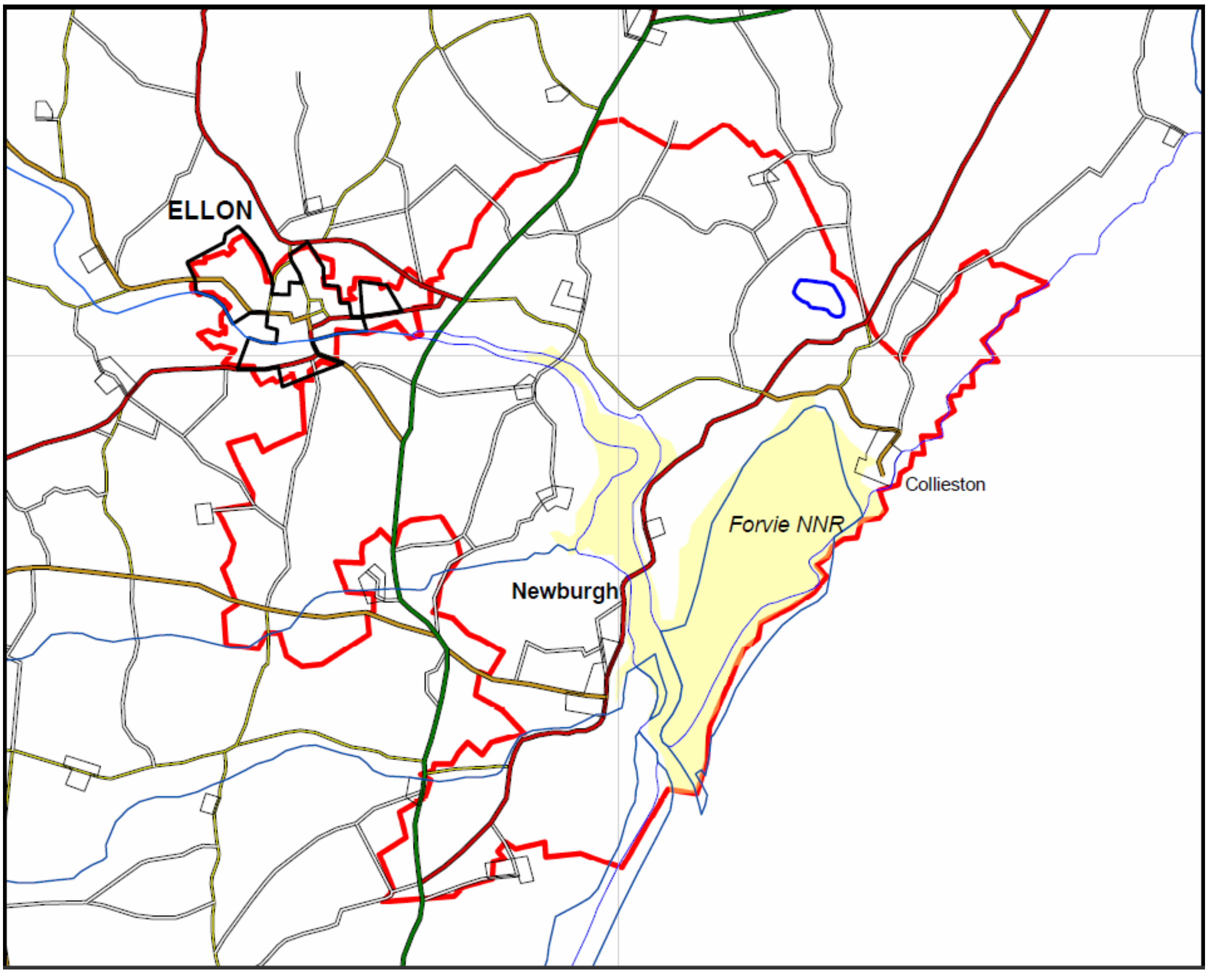
6.5 Study Area

The boundary for this case study was initially set at 5 km, which, because Collieston and Newburgh were adjacent, provided the initial population target (2025).

However it was agreed that Ellon, a town of 8861 just over 5 km from the nearest point on the boundary should also be included.

The final population within the boundary was 10,886.

Figure 31 Forvie NNR Case Study Area (with 5km boundary)



6.6 Findings from the NNR Baseline Visitor Survey 2002/2003: Raw data analysis

6.6.1 Profile of visitors

The number of visitor days in 2002/2003 was estimated at 17,500.

In summary just under 60% of visitors to Forvie NNR are groups of day trippers and 33% overnight tourists, as shown in the Table below.

Table 113 Visitors to Forvie NNR by Type

Type of Trip	Frequency	Percent	Visitors
On a short trip (of less than 3 hours) from home	79	36.4	6371
On a day out (for more than 3 hours) from home	48	22.1	3871
On holiday away from home in the area	60	27.6	4838
Visiting friends and relatives on holiday in the area	8	3.7	645
Passing through the area to/ from my holiday destination	5	2.3	403
Others	17	7.8	1371
Total	217	100.0	17500

The distance travelled by the respondents is shown in the following table.

Table 114 Visitors to Forvie NNR by Distance Travelled

Distance Travelled	Frequency	Percent
Less than 3 miles	17	7.8
3 - 5 miles	22	10.1
6 - 9 miles	23	10.6
10 - 14 miles	25	11.5
15 - 19 miles	22	10.1
20 - 29 miles	29	13.4
30+ miles	78	35.9
Don't know/ Not stated	1	0.5
Total	217	100.0

The importance of this table is that there are a significant number of day trippers who travel over 30 miles to visit Forvie NNR (although almost two-thirds of visitors travel less than 30 miles).

Transport used, as normal with tourist studies in rural Scotland, is completely dominated by the motor car. However it is also clear that there are groups, possibly from local schools, that arrive in organised parties by minibus.

Table 115 Visitors to Forvie NNR by Transport Type

Transport Type	Frequency	Percent
Bicycle	3	1.4
Car or van	179	82.5
Motorcycle	1	0.5
Private coach or mini-bus	20	9.2
Public transport	5	2.3
Walked all the way	5	2.3
Boat/ ferry	1	0.5
Motorhome/ camper van	2	0.9
Others	1	0.5
Total	217	100.0

The following table looks at the reasons given for the visit. It should be noted that a subset of only 64 of the 217 respondents were asked these questions.

Table 116 Reasons for Visiting Forvie NNR

Reason for Visit	Frequency	Percent
Walk/ exercise/ fresh air/ good weather	23	35.94%
To see the wildlife/ seals/ birds/ geese/ bird watching	12	18.75%
Walk the dog	4	6.25%
Been before/ come here regularly/ nice place/ like it here	20	31.25%
Views/ scenery	2	3.13%
Just passing/ saw sign	3	4.69%
Staying in the area/ near to home	2	3.13%
Recommended by friends/ at accommodation	4	6.25%
Never been before/ wanted to see it	4	6.25%
Quiet/ peaceful	0	0.00%
Saw it in guide book/ magazines/ leaflet	4	6.25%
Sea views/ coast/ sand dunes/ collect shells/ beach	4	6.25%
To participate in a sport e.g. hillwalking/ cycling/ paragliding/ shooting	2	3.13%
See plants/ vegetation/ wild flowers	1	1.56%
Wanted to see visitors centre	2	3.13%
Brought friend/ relative to see	2	3.13%
Family day out/ brought the children	2	3.13%
Other	9	14.06%
TOTAL RESPONSES	100	156.25
TOTAL RESPONDENTS	64	

Multiple responses were investigated further and it appears that those coming to walk do not come to watch wildlife and vice versa. Both appreciate the views but few came for the views alone.

Consequently it was decided in further analysis to operate with two groupings, those interested in the flora and fauna, and those whose interests were not dependent upon the conservation efforts of SNH, which also enables estimates of lower bound impacts should protected status be removed; as well as present profile differences which may be of interest to reserve managers.

Table 117 compares these three groups for differences in type and compare the outcomes for the full survey set.

Table 117 Type of Trip by Purpose of Trip

	Walk, etc.	Wildlife	Total
On a short trip (of less than 3 hours) from home	38.5%	25.0%	35.9%
On a day out (for more than 3 hours) from home	23.1%	25.0%	23.4%
On holiday away from home in the area	28.8%	41.7%	31.3%
Visiting friends and relatives on holiday in the area	1.9%	8.3%	3.1%
Passing through the area to/ from my holiday destination	5.8%	0.0%	4.7%
Others	1.9%	0.0%	1.6%
Total	100.0%	100.0%	100.0%

One noticeable feature is that, unlike visitors to St Abb's Head NNR, wildlife watchers here are often holiday makers (over 40%) and, conversely, day trippers tend to use the NNR for walking. The overall effect is to increase the impact of the NNR.

Table 118 provides an equivalent analysis for purpose of trip by journey distance.

Table 118 Purpose of Trip by Distance Travelled

Distance Travelled	**Walk etc**	**Wildlife**	**Total**
Less than 3 miles	11.5%	8.3%	10.9%
3 - 5 miles	11.5%	8.3%	10.9%
6 - 9 miles	9.6%	0.0%	7.8%
10 - 14 miles	7.7%	33.3%	12.5%
15 - 19 miles	9.6%	25.0%	12.5%
20 - 29 miles	17.3%	8.3%	15.6%
30+ miles	32.7%	16.7%	29.7%
Total	100.0%	100.0%	100.0%

The interesting feature of this analysis is that a number of wildlife watchers who are on holiday appear to have travelled only a limited distance. The conjecture is that this might represent holiday homes.

As might be expected, walkers tend to be more local, whether on holiday or resident. The uniqueness of this special area clearly has an attraction.

For the vast majority the visit is of some importance when considering time spent on the Reserve, as shown below.

Table 119 Length of Time Spent in the Reserve by Activity

	Walk etc	**Wildlife**	**Total**
Up to 15 minutes	3.8%	0.0%	3.1%
Over 15 minutes - 30 minutes	5.8%	0.0%	4.7%
Over 30 minutes - 1 hour	5.8%	0.0%	4.7%
Over 1 hour - 2 hours	32.7%	33.3%	32.8%
Over 2 hours - 3 hours	25.0%	33.3%	26.6%
Over 3 hours - 5 hours	19.2%	25.0%	20.3%
More than 5 hours	7.7%	8.3%	7.8%
Total	100.0%	100.0%	100.0%

Surprisingly there is relatively no difference between the two groups. However, for less than 50%, the visit counts as a day activity (over 3hours).

6.6.2 Economic Impact of the Visitors

The analysis presented below shows the mean expenditure per head incurred during the visit by group to the local area by type of trip.

Table 120 Average Spend per Visitor by Type of Trip (2010 Prices)

Type of Trip	Average Spend
On a short trip (of less than 3 hours) from home	£6.72
On a day out (for more than 3 hours) from home	£17.95
On holiday away from home in the area	£36.74
Visiting friends and relatives on holiday in the area	£2.11
Passing through the area to/ from my holiday destination	£69.70
Others	£9.18
Total	£19.02

The result of this analysis is that, whilst visitors to the reserve can be said to contribute 2.2 jobs locally and £128,500, the protected area status has far less impact, whether considering lower or upper bound estimates. Lower bound estimates result in 0.2 jobs created from the expenditure of visitors who visit the reserve for a significant part of the day to watch wildlife, injecting £14,065 only in the local economy. Upper bound estimates provide figures of £64,210 in the local economy and 1.1 jobs.

It is clear from this analysis that visitors to the Forvie Reserve have a minimal impact on the local economy and that the benefits of the NNR are to be found elsewhere, as shown in the following table.

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Table 121 Economic Impact of Visitors to Forvie NNR

								Contribution		Impact				
										Lower Estimate			Upper Estimate	
Trip Type	**Spend/ Head**	**%**	**Visitors**	**Total Spend**	**Direct**	**Type 2**	**Day**	**Output**	**Jobs**	**Wild**	**Output**	**Jobs**	**Output**	**Jobs**
	(£)	(%)	(n)	(£)	(£)	(£)	(%)	(£)	(n)	(%)	(£)	(n)	(£)	(n)
On a short trip	6.72	36.6	6,400	43,014	16,388	23,632	36.6	8,643	0.1	3.7	875	0.0	4,322	0.0
On a day out	17.95	22.2	3,889	69,798	26,593	38,347	47.6	18,261	0.2	4.8	1,826	0.0	9,130	0.1
On holiday	36.74	27.8	4,861	178,614	135,568	195,489	44.3	86,679	1.6	5.7	11,065	0.1	43,339	0.8
Visiting friends	2.11	3.7	648	1,365	1,036	1,494	40.0	598	0.0	20.0	299	0.0	299	0.0
Passing through	69.70	2.3	405	28,236	21,431	30,903	25.0	7,726	0.1	0.0	0	0.0	3,863	0.1
Others	9.18	7.4	1,296	11,903	9,034	13,027	50.0	6,514	0.1	0.0	0	0.0	3,257	0.1
Total	**19.02**	**100.0**	**17,500**	**332,929**	**210,050**	**302,892**	**41.9**	**128,420**	**2.2**		**14,065**	**0.2**	**64,210**	**1.1**

6.7 Findings from the Businesses' Short Surveys

6.7.1 Population and Response Rate

As explained in Section 2.3.2, we identified some 374 businesses in total that were located within the study area boundaries, of which 200 were selected for the first stage of the research.

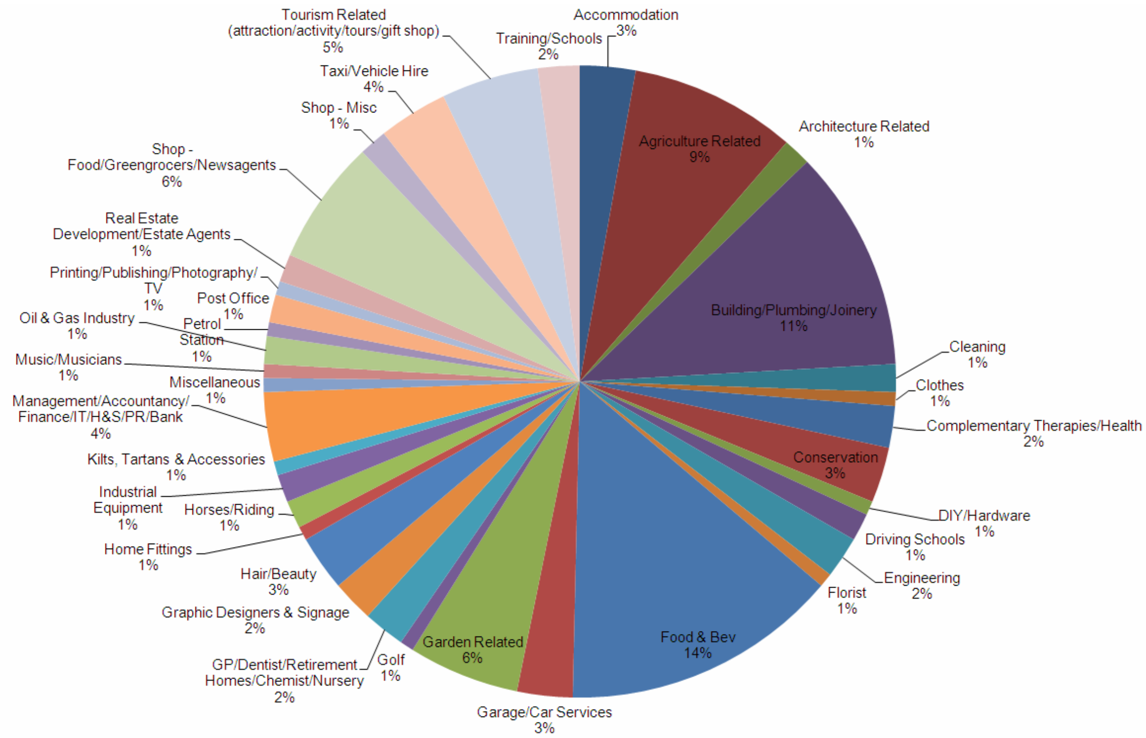
In total, 141 businesses accepted to participate in this first interview (70.5%) from all sectors of industry, as shown in Figure 32.

A final round of phone calls was undertaken in the second week of February 2010. Each non respondent was called at least twice (including in the evening), without success.

Table 122 Businesses' Short Survey: Response Rate

Short Interview Status	Frequency	Percent
All Businesses Contacted	200	
Short Interview Completed	141	70.5%
Did not want to participate	44	22.0%
Closed for winter season	1	0.5%
Non responses	14	7.0%

Figure 32 Profile of Businesses Completing the Short Survey by Trade

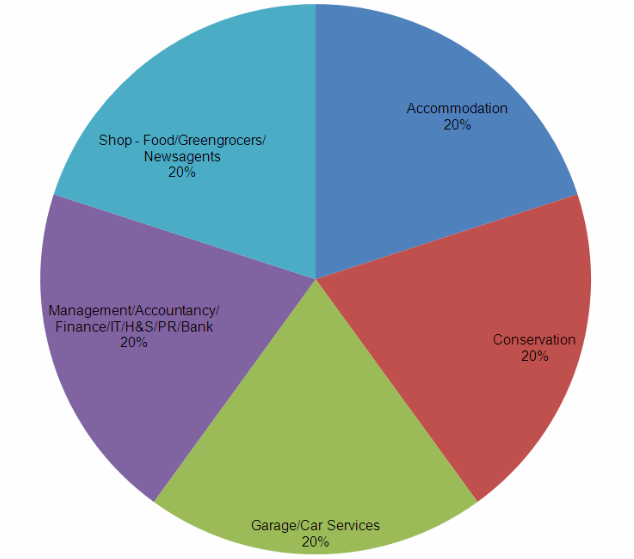


6.7.2 Businesses and their business relationship with Forvie NNR

Overall, over 99% of businesses indicated they did not use the NNR whether it be to carry out business activities in the Reserve or supply businesses that work in the Reserve.

Only 5 businesses (0.7% of responding businesses) indicated they did carry out business activities as outlined above which are fairly varied.

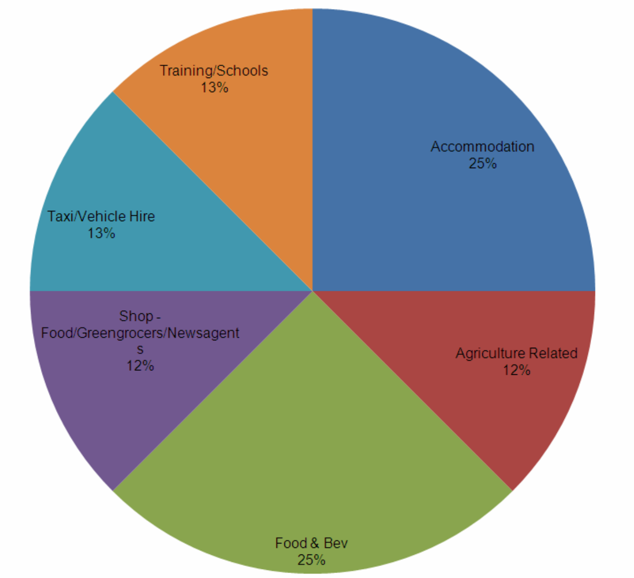
Figure 33 Businesses that carry out Business Activities in Forvie NNR



Only one business indicated it carried out business activities on the reserve itself and five businesses indicated they provided services to businesses that operate in the NNR.

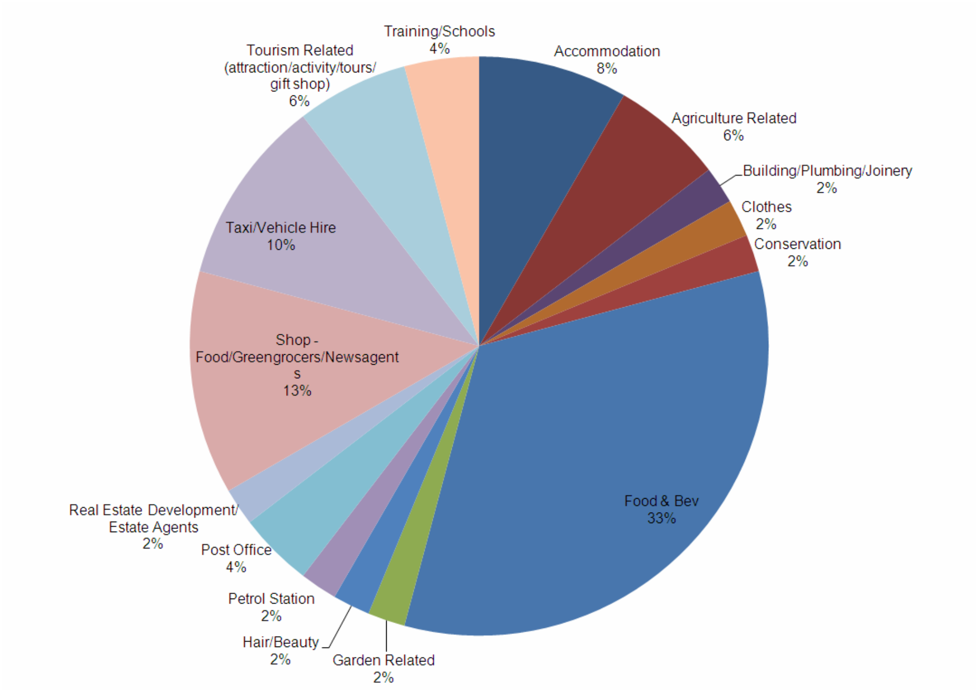
Only 8 businesses (5.7 %) of businesses indicated that they had promotional materials on the reserve and may mention the area and NNR on their own promotional materials.

Figure 34 Businesses that Promote the NNR



Finally, just over one third of businesses interviewed (34.0%) indicated they provided services to visitors who come to the area because of the natural environment. However, they were not in a position to say whether visitors came because of the NNR itself, or because of the wider area.

Figure 35 Businesses that Provide Services to Visitors who come to the area because of the Natural Environment



6.7.3 *Awareness of Protection Designation*

81.6% of respondents indicated they were aware that Forvie NNR also boasted SPA, SAC, and SSSIs (though this figure may be artificially high, as noted in the previous case study).

6.7.4 *Negative Experiences due to Protected Area Status*

Only one business indicated that protected area status had had a negative impact on their business, because of the restricted use of vehicles.

Table 123 Protected Area Status stopped the development of some business activities (that would take place in the reserve)

	Frequency	Percent
True	1	0.7
False	104	73.8
Not Applicable	36	25.5
Total	141	100.0

No businesses indicated protected area status had had a negative impact on some of their customers' activities.

Table 124 Protected Area Status stopped the development of customers' activities (that would take place in the reserve)

	Frequency	Percent
True	0	0.0
False	107	75.9
Not Applicable	34	24.1
Total	141	100.0

Only one business highlighted another negative impact related to planning issues.

In total, only two businesses highlighted the Protected Status of the NNR had had a negative impact.

6.7.5 Importance of the NNR for Establishing the Business

Only one business indicated he/she had established their business because of the NNR.

Business respondents were also asked whether they knew if Forvie NNR is or was a factor in their employees' decision to live and work in the area.

Table 125 Do you know if Forvie NNR is or was a factor in your employees' decision to live and work in the area?

	Frequency	Percent
Yes	2	1.4
No	129	91.5
Don't know	10	7.1
Total	141	100.0

6.7.6 Impact of the Loss of Protection on Businesses

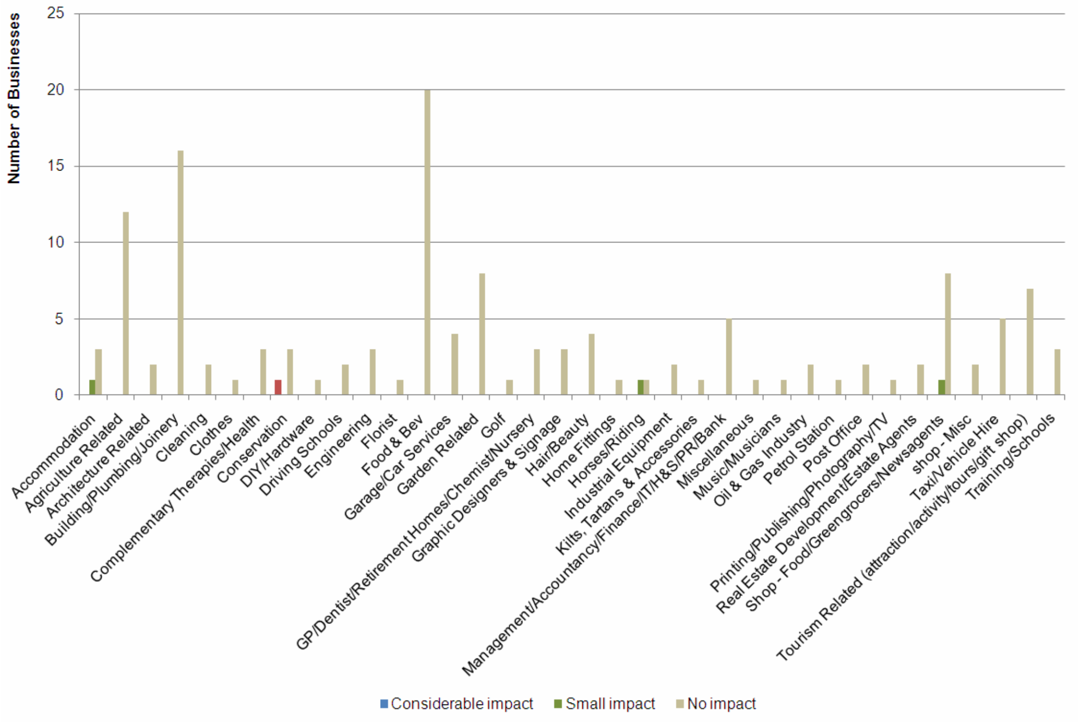
Interviewees were asked if the area lost this protection, what impact this would have on their business.

Clearly, of all the NNRs, Forvie NNR has little impact on local businesses.

Table 126 Impact of the Loss of Protection on Businesses

	Frequency	Percent
No impact	137	97.2
Small impact	3	2.1
Considerable impact	1	0.7
Total	141	100.0

Figure 36 Impact of the Loss of Protection on Businesses by Trade Category



6.7.7 Conclusions and Next Step

Of the 141 interviews carried out with businesses located in the Forvie NNR case study area, only seven businesses (4.7% of respondents) indicated they had some sort of relationship with the NNR and/or were impacted by its existence.

As this project is interested in impacts of NNR Protection on businesses, we asked them if they were willing to participate in the second stage of the research, to help us identify impacts in more details.

Table 127 Eligibility for Second Part of Research

Eligibility for Second Part of Research	Frequency	Percent
Not Eligible	**134**	**95.04%**
Eligible	**7**	**4.96%**
Did not want to participate in second phase	2	28.6%
Accepted to complete online questionnaire	5	71.4%
Accepted to complete paper questionnaire	0	0.0%
Total	141	100.0%

6.8 Findings from the Businesses' Second Questionnaire

6.8.1 Population and Response Rate

In total, 5 questionnaires were sent to targeted businesses located in the Forvie NNR case study area. Only 2 questionnaires were received completed. This is a very small sample. To add to the problem, the two respondents could not present a more different profile. Therefore, information should be treated with caution as means are biased towards larger ranges of data.

The following table details responses received by Trade Category.

Table 128 Response Rate Businesses' Second Questionnaire

Trade Category	**Total Sent** (Frequency)	**Received?** **No** (Percent)	**Yes** (Percent)
Accommodation	1	0.0	0.0
Conservation	1	0.0	100.0
Horses/Riding	1	0.0	100.0
Management/Accountancy/Finance/IT/H&S/PR/Bank	1	100.0	0.0
Shop - Food/Greengrocers/Newsagents	1	100.0	0.0
Total	5	60.0	40.0

6.8.2 Profile of Responding Businesses

One of the businesses employed two or three employees, whereas the other employed between 21 and 50 staff.

One had a turnover under £50,000 and the other reported a turnover of over £1million.

Table 129 Turnover

	Mean	**Respondents**	**Std. Deviation**
Turnover	£762,500	2	£1,042,983

The following table shows the positive relationship between businesses and the NNR. Respondents could select more than one option.

Table 130 Businesses' Use of the NNR

	Frequency	**Percent (Responses)**	**Percent (Respondents)**
We work in the local reserve	1	33.3	50.0
We provide services to those who work in the local Reserve	0	0.0	0.0
We provide services to those who visit the Reserve	0	0.0	0.0
We provide services to those who come because of the quality of the local natural environment	0	0.0	0.0
We use the quality of the local environment to market the business	2	66.7	100.0
The Reserve does not affect my business positively	0	0.0	0.0
Total Responses	3	100.0	
Total Respondents	2		

Clearly, the natural environment is paramount to both responding businesses.

6.8.3 *Impacts of the NNR on businesses*

Businesses were further asked which following aspects of the Forvie NNR were important to their business.

Table 131 Importance of Various Aspects of the NNR to Businesses

	Total Respondents Frequency	Very Important Percent	Important Percent	Neither Percent	Unimportant Percent	Not Available Percent
Good views and landscape	2	50.0	0.0	0.0	50.0	0.0
Good walks	2	50.0	0.0	0.0	50.0	0.0
Wildlife	2	100.0	0.0	0.0	0.0	0.0
Flora	1	100.0	0.0	0.0	0.0	0.0
Toilets	1	0.0	0.0	0.0	100.0	0.0
Visitor Centre	1	0.0	0.0	0.0	100.0	0.0

The above table clearly shows that the wildlife is the most important aspect of Forvie Reserve for both businesses.

Table 132 Importance of Various Aspects of the NNR that Businesses think are Important for Visitors

	Total Respondents Frequency	Very Important Percent	Important Percent	Neither Percent	Unimportant Percent
Good views and landscape	2	100.0	0.0	0.0	0.0
Good walks	2	100.0	0.0	0.0	0.0
Seeing Wildlife	2	100.0	0.0	0.0	0.0
Seeing Trees and/or Flowers	2	0.0	100.0	0.0	0.0
Toilets Available	2	0.0	0.0	50.0	50.0
Information on Area Available	2	0.0	0.0	50.0	50.0

However, both businesses seem to believe that visitors have more appreciation for the landscape and the existence of walks. When asked about negative impacts of the NNR on their business, none of the businesses answered that the NNR affected their business negatively.

6.8.4 Establishing the Proportion of Turnover Responding Businesses Attribute to Forvie NNR which Remains in the Local Area

Businesses were asked what proportion of their turnover they believed was due to work related to the NNR. Again, the two businesses presented a very different profile.

Table 133 Proportion of Turnover Related to NNR

% Turnover related to NNR	Frequency	Percent
80-99%	0	0.0
50-79%	1	50.0
25-49%	0	0.0
10-25%	1	50.0
5-10%	0	0.0
Less than 5%	0	0.0
Total	2	100.0

When asked to estimate the percentage contraction their turnover would suffer should the NNR be unavailable, one business believed this would have a significant impact, whilst the other would be unaffected.

Table 134 Estimated Turnover Contraction should the Access to the NNR be Forbidden

% Turnover Contraction	Frequency	Percent
100%	0	0.0
80-99%	0	0.0
50-79%	1	50.0
25-49%	0	0.0
10-25%	0	0.0
5-10%	0	0.0
Less than 5%	0	0.0
None whatsoever	1	50.0
Total	2	100.0

Businesses were also asked what impact removal of the protected area status would have on their business.

Table 135 Impact on Business of Removal of Protected Area Status

Impact on Business	Frequency	Percent
Grow by more than 100%	0	0.0
Grow by between 50 and 100%	0	0.0
Grow by between 1 and 50%	0	0.0
No Impact	0	0.0
Contract by between 1 and 50%	2	100.0
Contract by between 50 and 100%	0	0.0
Close Business	0	0.0
Total		100.0

Both businesses identified that, should protected area status be removed, this would have a negative impact on their business, with a loss of approximately 25% of business on average (using the mid-point). This shows that the NNR has a positive impact on those two businesses.

6.8.5 Identifying Multiplier Effects

In order to establish the economic value of upstream relationships, businesses were asked which proportion of their turnover was paid to their suppliers.

Table 136 Proportion of Turnover Paid to Suppliers

% Turnover Paid to Suppliers	Frequency	Percent
More than 80%	0	0.0
60%-80%	1	50.0
40%-59%	0	0.0
20%-39%	0	0.0
Less than 20%	1	50.0
Total	2	100.0

And they were further asked which proportion of these costs was paid to suppliers in the immediate locality.

Table 137 Proportion of Costs Paid to Local Suppliers

% Costs Paid to Local Suppliers	Frequency	Percent
More than 80%	0	0.0
60%-80%	0	0.0
40%-59%	0	0.0
20%-39%	1	50.0
Less than 20%	1	50.0
Total	2	100.0

This table illustrates the level of leakage of economic activity from the local area.

The value of downstream activity associated with the proportion of the turnover attributable to the NNR was calculated for both businesses to provide a first estimate of the additional spend in the local economy. [12]

[12] Translated into a percentage, this gives a figure of 20.91% for Forvie NNR.

6.8.6 Estimating the Impact of the NNR from the Business Survey

As discussed previously the business survey can be used to establish upper and lower bound of the impact of the NNR as a result of both direct spend and visitor spend. The lower bound is based upon the actual returns from the businesses and the upper bound uses the median values as proxies for the central point of all the businesses. However in this case there were only two extremely different businesses that replied from the seven pursued. The first had a turnover of over £1m and 25 employees with 65% of its work in the NNR, extremely atypical. On the other hand the second was extremely small with a single employee that had only a small interest in the NNR.

We have established from our telephone interviews that seven businesses out of 134 successfully interviewed (i.e. 5%) were impacted by Forvie NNR and therefore were eligible for the second survey. Total businesses in the Forvie NNR study area were 374. Therefore, assuming that the profile of non-respondents is similar to those we interviewed, some 19 businesses in total would be impacted by the NNR.

Since we only obtained information from two businesses, we need to estimate the contribution and impact for the additional 17 businesses. In the absence of any local data we used an average of the medians from the other sites as a proxy for these non-respondents. It is believed that this “Upper bound” is very generous.

The results that are shown in Tables 138 and 139, which include and exclude the one atypical firm respectively, provide very different estimates.

Table 138 Estimating the Impact of Forvie NNR from the Business Survey Including Atypical Business

	Lower Bound Estimates			Upper Bound Estimates		
	Mean	**N**	**Total**	**Median**	**N**	**Total**
Turnover	£762,500	2	£1,525,000	£52,579	19	£2,418,849
Local Spend	£489,688	2	£979,375	£7,188	19	£1,101,563
Additional Local Spend	£102,397	2	£204,794	£793	19	£218,270
Contribution	£592,084	2	£1,184,169	£7,981	19	£1,319,833
Jobs			**21.2**			**23.6**

Table 139 Estimating the Impact of Forvie NNR from the Business Survey Excluding Atypical Business

	Lower Bound Estimates			Upper Bound Estimates		
	Mean	**N**	**Total**	**Median**	**N**	**Total**
Turnover	£25,000	1	£25,000	£52,579	18	£918,849
Local Spend	£4,380	1	£4,380	£7,188	18	£126,568
Additional Local Spend	£43	1	£43	£793	18	£13,519
Contribution	£4,423	1	£4,423	£7,981	18	£140,087
Jobs			**0.1**			**2.5**

Table 135 shows how businesses think they would cope in the event that the NNR lost its protected area status. Both firms estimate a drop in economic activity of between 1 and 50%. Using the midpoint 25%, we obtain an impact range of £296,000-£330,000 and 5.3-5.9 jobs.

Of course to this must be added the loss of output and jobs actually generated in the NNR. If we exclude the large firm we are looking at a contribution to the local economy of 2.5 jobs and an impact of 0.6 jobs.

Findings from the Manager Survey: Cost of Running the Reserve

The following sections provide the main budget headings and economic implications for Forvie NNR.

6.8.7 Income

There is a small local income of £220 from a local business and the public to maintain visitor facilities.

6.8.8 Expenditure

Table 140 provides an outline of the expenditure by category at the Forvie NNR. Forvie NNR is peculiar in that it spends considerable sums on items such as fencing, rabbit control and disease control, primarily for the benefit of the adjacent agricultural community.

It is also the NNR that has the closest economic connections with the local area; over 75% of the expenditure is to local suppliers of goods and services.

Table 140 Forvie NNR: Expenditure

EXPENDITURE	£	Local Impact
Management Agreements	**£0**	**£0**
Staff (Professional)[13]	**£57,000**	**£33,500**
For Visitors (% or £)	£34,000	£27,000
For Farming (% or £)	£0	
For Conservation (% or £)	£23,000	£6,500
Other Staff (Cleaners, Cooks, Drivers)	**£7,500**	**£7,500**
For Visitors[14] (% or £)	£7,500	
For Farming (% or £)	£0	
For Conservation (% or £)	£0	
Fabric (Paths, Buildings): External Contracts	**£5,500**	**£5,500**
For Visitors (% or £)	£5,000	
For Farming[15] (% or £)	£500	
For Conservation (% or £)	£0	
Maintenance Materials (e.g. Timber, Cement)	**£4,850**	**£4,850**
For Visitors (% or £)	£150	
For Farming[16] (% or £)	£4,000	
For Conservation (% or £)	£700	

[13] Includes: 2 FT 1 PT 1 Summer Weekend

[14] Includes: office and visitor centre cleaner

[15] Drains on nature reserve were cleared to accept water from neighbouring farm

[16] Rabbit proofing the boundary fence of the nature reserve

EXPENDITURE	£	Local Impact
Information, Education & Research: External	**£15,850**	**£15,850**
For Visitors[17] (% or £)	£4,850	
For Farming (% or £)	£0	
For Conservation (% or £)	£11,000	
Other Physical Items (Vehicles, Stationary etc)	**£1,515**	**£1,136**
For Visitors[18] (% or £)	£15	
For Farming (% or £)	£0	
For Conservation (% or £)	£1,500	
Protective Work (for Neighbours)[19]	**£10,495**	**£10,495**
For Visitors[20] (% or £)	£0	
For Farming (% or £)	£0	
For Conservation[21] (% or £)	£10,495	
TOTAL	**£102,710**	**£78,831**
For Visitors (% or £)	£51,515	
For Farming (% or £)	£4,500	
For Conservation (% or £)	£46,695	

6.9 Economic Impact

The average Type 2 output multiplier in the Kyle study is 1.410 (see Appendix 1) and employment multiplier is 1.190. Thus as a result of NNR expenditure the multiplier based estimate is an additional local output of £42,111 and an additional 0.51 FTE jobs.

Using the round by round approach, the induced element is assumed to be some 5% of the local. The local expenditure is reduced by the VAT.

From the business survey it is estimated that 20.91% of the supply to the local businesses is sourced locally. This proportion is applied to give the round 2 and round 3 indirect elements.

Finally the jobs per million effective spend figures from the Kyle study are used to calculate the impact on jobs.

The calculations are summarised in the following table.

There is a remarkable consistency between the two methods; both give additional output of just over £41,000. The difference is the average cost of jobs is lower using method 2 suggesting slightly more of an FTE would be employed.

[17] Weekend attendant at visitor centre, teaching assistants, information leaflets

[18] letters, postage

[19] rabbit control for benefit of neighbouring farmers

[20] ragwort control for benefit of neighbouring farmers and horse owners

[21] predator control for conservation

Table 141 Economic Impact of Forvie NNR

				Notes
Local Wage	£41,000	**Induced**	£4,100	*10% of Local wages*
Other Local Spend	£37,831	Indirect 1	£31,211	*(Local spend -Local wage)*0.825*
		Indirect 2	£6,526	*% Turnover supplied locally (20.91%)* Indirect 1*
		Indirect 3	£1,364	*% Turnover supplied locally (20.91%)* Indirect 2*
		Total	£39,101	*Indirect 1 + Indirect 2 + Indirect 3*
		Aggregate	£43,201	*Sum of Induced + Indirect*
		Jobs	0.8	*19.667*43,201/1,000,000*
Incremental Output	£42,111			*Total Expenditure (102,710)*0.41 (Multiplier =1.41)*
Incremental Jobs	0.83			*% Turnover to local suppliers (20.91)*4 (Employment Multiplier *4)*

These can be compared with estimates of indirect & induced output of £43,201 and 0.8 jobs from the multiplier analysis.

6.10 The Cost Benefit Appraisal

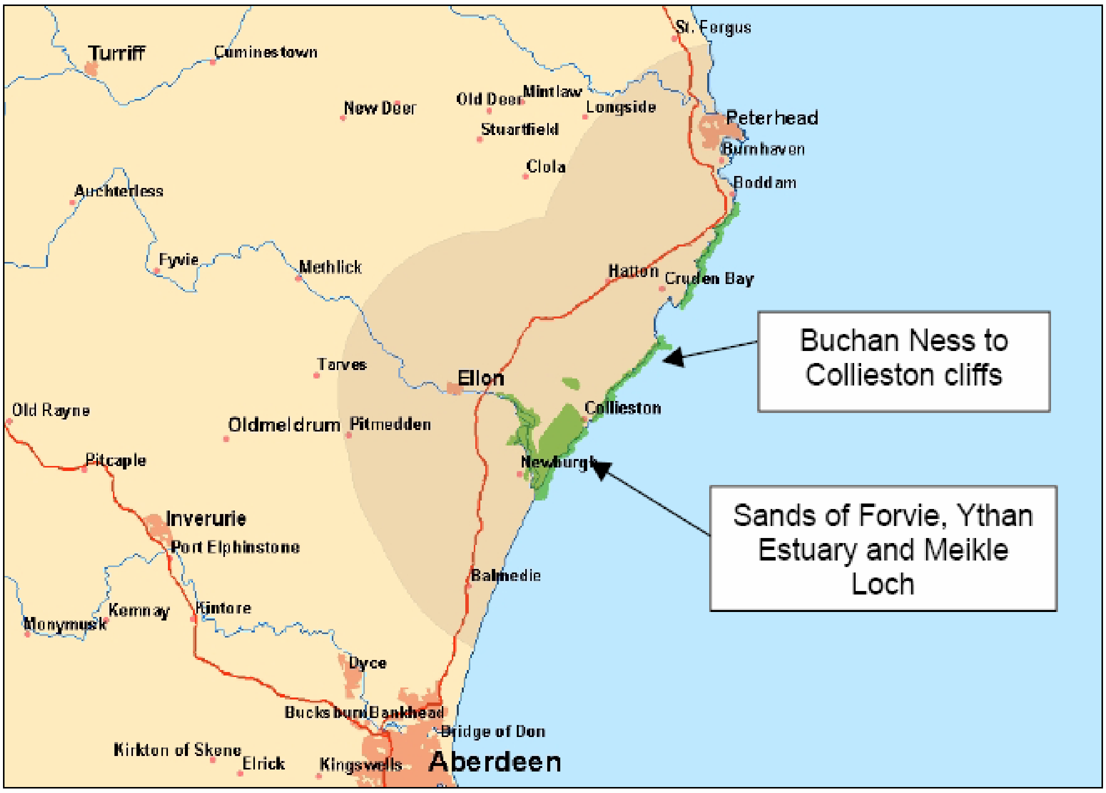
6.10.1 Study Area

The Forvie case study area (see Figure 37 below), on the east coast Scotland, includes: the Ythan Estuary, Meikle Loch, Sands of Forvie and Buchan Ness to Collieston (Jacobs et al, 2004).

<u>The Ythan Estuary, Meikle Loch and the Sands of Forvie</u> are collectively designated as a single SPA because they contain habitats of European importance for breeding and over-wintering sea birds. The Sands of Forvie is also identified as an SAC because of the international importance of its sand dune systems. The estuary and dune systems are generally underpinned by SSSI and NNR designations. It is thought to be because of this NNR designation that the majority of the funding for management activities is raised. Land uses include agriculture, livestock grazing, gravel extraction, fishing and bait digging. The estuary and dunes in particular also attract large numbers of walkers and bird watchers. SNH owns the majority of the NNR and is responsible for its management.

<u>Buchan Ness to Collieston</u> is a series of sea cliffs identified both as an SAC and SPA because of their important coastal habitats and breeding seabird colonies. Apart from some recreational activity (walking and bird watching), the site is not used for any notable human uses due to its inaccessibility. Ownership of the sea cliffs is mostly private and there are no management agreements in place.

Figure 37 Forvie NNR case study area



Note: *Sites in case study area shown in green.* ***10 km distance zone is shown by light shading.***

6.10.2 The Policy-off Scenario

Under the policy-off scenario, land-use changes could take place in some areas including, for instance: property development and gravel extraction along the estuary, and shooting, muirburn and grazing on Forvie moor (adjoining the Sands of Forvie).

These changes could lead to loss of geo-morphologically important features and ecologically important habitats. Over time, this would lead to the loss of breeding birds of national/international importance in the area. In addition, uncontrolled site access for visitors may lead to a greater level of disturbance to bird life and loss of habitat through trampling. Policy-off consequences at the sea cliffs are likely to be limited due to its inaccessibility.

6.10.3 The Cost Benefit Analysis

The appraisal summary tables at the end of this section highlight that the overall policy-on benefits outweigh policy-on costs by around 6.5 times, and that Natura specific benefits also outweigh Natura specific costs by 2.2 times, both based on a 25 year time horizon. However, when non-use values are excluded, the Benefit Cost Ratios (BCRs) are only around 0.1. More simply **only 10% of the costs of the NNR are covered by the benefits of those who actually come to the NNR.**

There were considerable one-off site designation /land purchase costs of £300,000 borne by SNH at this site. Annual site costs of around £346,000 are likely to be incurred. Around £116,000 per year of this relates to SNH annual management costs with the additional £230,000 being attributable to potential opportunity costs, in particular potential residential and commercial property development.

Over 99% of the annual benefits (around 2.4 million) relate to non-use values, the vast majority of which is derived by Scottish people outside the region and non-Scottish visitors to Scotland.

Around £19,000 per year (1%) is likely to relate to general visitors values. The Table below provides additional details of how the annual welfare benefits are made up.

Table 142   Use-Value Benefits

Benefit Category	Beneficiaries	Relevant population	Unit	Ave WTP value £	Unit of value	Full Designation Benefits £/yr
	Visitors - < 10km	18,000	adults/yr	0.10	£/adults/yr	1,800
	Visitors – 10-20km	8,000	adults/yr	0.35	£/adults/yr	2,800
Visitor Use Value	Visitors – other regional	8,000	adults/yr	0.75	£/adults/yr	6,000
	Visitors - national	4,000	adults/yr	1.20	£/adults/yr	4,800
	Visitors – non-Scottish	2,000	adults/yr	1.65	£/adults/yr	3,300
	Subtotal (A)					**18,700**
	Specialist - < 10km	48	adults/yr	2.25	£/adults/yr	108
	Specialist – 10-20km	24	adults/yr	2.25	£/adults/yr	54
Specialist Use Value	Specialist – other regional	24	adults/yr	2.25	£/adults/yr	54
	Specialist - national	9	adults/yr	2.25	£/adults/yr	20
	Specialist – non-Scottish	195	adults/yr	2.25	£/adults/yr	439
	Subtotal (B)					**675**
	Residents - < 10km	18,358	adults/yr	1.30	£/adults/yr	23,865
	Residents – 10-20km	70,701	adults/yr	0.25	£/adults/yr	17,675
Non-use value	Other regional	154,157	adults/yr	0.35	£/adults/yr	53,955
	General Scottish public	2,122,817	adults/yr	0.75	£/adults/yr	1,592,113
	Non-Scottish visitors	17,000,000	adults/yr	0.04	£/adults/yr	697,000
	Subtotal (C)					**2,384,608**
Grand Total (A+B+C)						**2,403,983**

The table above is of critical importance. It confirms that benefits to visitors aka users are extremely small and that the main benefit arises to the community at large who express a willingness to pay for the conservation of the flora and fauna of the area.

Table 143 Summary Tables of Welfare Indicators, Costs and Benefits

Economic Welfare Indicators

	Policy On		N2K related	
	Over 25 years	Over 50 years	Over 25 years	Over 50 years
BCR with non-use	6.6	7.0	2.2	2.3
NPV with non-use	33,606,642	53,039,965	2,166,808	3,296,042
BCR without non-use	0.1	0.1	0.02	0.02
NPV without non-use	-5,698,277.9	-8,308,372.4	-1,763,384	-2,551,351

Economic Welfare Costs

	Organisation	One-off costs (£)	Annual costs (£)	PVC over 25 years (£)	PVC over 50 years (£)	% of 50 year total
Management costs	SNH	300,838	115,640	2,206,759	3,136,493	36.0%
Opportunity costs	Quarrying		-			
	Windfarm		281	4,635	6,897	0.1%
	Wildfowl activities		4,500	74,167	110,346	1.3%
	Grazing activities		270	4450	6,621	0.1%
	Resid/Commerc Devel		225,000	3,708,338	5,517,315	63.0%
	Watersports		750	12,361	18,391	0.2%
Total		300,838	346,441	6,010,709	8,796,062	100.0%

Economic Welfare Benefits

	Annual benefits accruing to the population (£)								
	< 10km	10-20km	Other Regional	Other Scotland	Non-Scottish Visitors	Total annual benefit (£)	PVB over 25 years (£)	PVB over 50 years (£)	% of 50 year total
General visitors use value	1,800	2,800	6,000	4,800	3,300	18,700	308,204	481,091	0.8%
Specialist visitor use value	108	54	54	20	20	257	4228	6,599	0.0%
Non-use value	23,865	17,675	53,955	1,592,113	697,000	2,384,608	39,301,920	61,348,338	99.2%
Total annual value	25,773	20,529	60,009	1,596,933	700,320	2,403,565	39,614,351	61,836,028	
% Total	1.1%	0.9%	2.5%	66.0%	29.1%				

Average % Relating to N2K

	Over 25 years	Over 50 Years
Of PV Policy On Benefits	10%	10%
Of PV Policy On Costs	30%	30%

Other Welfare Benefits

	Beneficiaries	Relative magnitude
Social	Local community	H
Cultural	Local community	M
Education	Local/Reg community	H
Research	Scientific community	H
Environmental Research	Local/Reg community	H
Health	Local/Reg community	H

6.11 The NNR as an Economic Driver

The Table below provides a summary of the economic role of Forvie NNR.

Table 144 Summary of the Economic Role of Forvie NNR

	Output (£)	Jobs (FTE)
Visitors Contribution	106,392	2.2
Visitor Impact	13,762	0.3
NNR Direct Expenditure	102,710	2.8
Indirect and Induced	41,364	0.8
Total Contribution	250,466	5.8
Total Impact	157,836	3.9

If protected status was not present we could expect a loss of the 2.8 SNH employees and 1.1 from the loss of "committed" visitors and external business suppliers.

6.11.1 Ecosystems Analysis

The Natura report together with this project allows us to present an ecosystems account, which is shown in the Table below. One obvious conclusion is that the costs expended on improving the visitor experience are substantially in excess of the benefits gained according to the 2005 survey. It might be difficult, therefore to justify further expenditure in this area on this basis.

Table 145 Summary of the Economic Role of Forvie NNR

Services	**Cost £**	**Benefit £**	**Balance £**
Provisioning (support for farming)	£4,500	?[22]	-£4,500
Cultural (tourism/recreation)	£51,515	£19,375	-£32,140
Regulating/Supporting (protection)	£46,695[23]	£2,384,608[23]	£2,337,913
TOTAL	£102,710	£2,403,983	£2,301,273

To counter this it might be argued that visitors to the area generate jobs and economic activity. Our analysis suggests that the resulting employment from visitors is very small. More importantly, because the local economy is strong the producer surplus will be zero; in less opaque terms there is no benefit in creating jobs where there is full employment.

A more compelling argument is that the Natura report identified other welfare benefits arising from the public being able to access and use the facilities on the NNR. These might include health gains for those using the paths, and educational opportunities for local schools. These were not quantified but could well make up some of the shortfall. It should also be noted that some of the non-use value (Protection benefit) could be an 'option' value, i.e. people knowing that the site is available to visit at some point in the future. In which case, these people would want facilities to be available to access the NNR.

[22] This value has not been calculated, but would include elements such as protection against storm surge, carbon sequestration, etc. Such data is currently unknown.

[23] This should also include research carried out by British universities on the dune and estuary systems (the cost of which may not be borne by SNH as this is likely to be funded by Scottish, British and/or European Research Grants amongst others), but contributes towards world knowledge and conservation. Alternatively, this might be classified as a cultural service.

6.11.2 Conclusion

The Natura report makes it clear that that there are substantial benefits from Forvie NNR to Scottish citizens but that there is only very limited tourism/recreation benefit. This report makes it clear that any benefits to the local community in terms of increased economic activity and employment are also small. The justification for the reserve is mainly found in the value of nature conservation to the Scottish population (although not all ecosystem service values such as storm protection, carbon sequestration, and water quality have been quantified, and these may be significant). In addition, the social benefits to the local community should also be recognised.

6.11 Summary

It is estimated that Forvie NNR received some 26,500 visits in 2008.

Information collated from three sources enables us to draw a profile of visitors, local businesses, and identify businesses that are impacted by the NNR.

- **Visitor' Profile**: Just under 60% of visitors to Forvie NNR are day trippers, a significant number of which will have travelled over 30 miles to reach the reserve. Just over one quarter of visitors come to see the wildlife and flora specifically. These visitors tend to be holiday makers, whilst those going go for a walk (over a third of visitors) tend to be day trippers. It appears that those coming to walk do not come to watch wildlife, and vice versa. Two thirds of visitors spend between 2 and 3 hours on site – regardless of the reason for their visit.
- **Local Businesses' Profile**: Over 90% of businesses contacted do not carry out business activities in the reserve itself, nor do they supply businesses who work in the reserve. Only eight businesses (6% of respondents) hold promotional materials related to Forvie NNR when just over a third provide services to visitors who come to the area because of the natural environment. Only one business noted negative experiences, particularly related to restrictions on vehicle use. Some 3% of businesses identified that the hypothetical loss of protection status of the NNR would affect their business to some degree. Overall, only 5% of businesses (seven in total) interviewed were impacted by the NNR directly and/or indirectly.
- **Local Businesses impacted by the NNR**: Only two businesses (of the seven concerned) returned a completed questionnaire. It is estimated that 20.91% of the turnover of local businesses results from the NNR. Other assumptions and estimates were built using data from the three other case study areas.
- **Impact of NNR Expenditure and Income**: Overall expenditure for Forvie NNR is c. £102,700. Approximately 60% of this consists of staff costs for visitor related jobs and conservation. Three quarters of this expenditure is estimated to have a local impact.
- **Economic Welfare Benefits of Forvie NNR**: The Natura report clearly identifies that the use value of Forvie NNR to general visitors is relatively small at £18,700, and even smaller with regards to specialist visitors at £675. However, it is the non-use value of the reserve which must be considered. The overall net benefit exceeds £2.3 million a year.

The total contribution and impact of Forvie NNR to the local business community can be estimated in two ways:

5. Total 1: We can use the information provided by visitors, as we have estimated what they spend in the NNR, and the local businesses and the information provided by the NNR (with direct expenditure representing jobs in the NNR and expenditure, as well as the induced and indirect impact which represents the value injected in the local economy).
6. Total 2: We can use the information provided by the NNR in terms of direct expenditure and the information provided by businesses who rely in part on the NNR, as some of their turnover is apportioned either directly to the NNR if they supply services to the NNR, or to visitors who visit the NNR.

The figures obtained provide us with what we believe is a reasonable range to estimate the contribution of the NNR to the local business community and the impact of protected status.

Table 146 Summary of the Economic Role of Forvie NNR

	Contribution				**Impact**			
	Lower Estimate		**Upper Estimate**		**Lower**		**Upper**	
	Output (£)	**Job** (N)	**Output** (£)	**Job** (N)	**Output** (£)	**Job** (N)	**Output** (£)	**Job** (N)
Information from the Visitor Survey								
Visitor Expenditure	128,420	2.2	128,420	2.2	14,065	0.2	64,210	1.1
Information from the NNR Manager Survey								
NNR Direct	102,710	2.8	102,710	2.8	102,710	2.8	102,710	2.8
NNR Indirect + Induced	43,201	0.8	43,201	0.8	43,201	0.8	43,201	0.8
Information from the Business Survey (including Atypical Business)								
Business Survey	1,184,169	21.2	1,319,833	23.6	296,042	5.3	329,958	5.9
Total 1 = Visitor Expenditure + NNR Direct + NNR Indirect + Induced								
Total 1	**274,331**	**5.8**	**274,331**	**5.8**	**159,976**	**3.8**	**210,121**	**4.7**
Total 2 = Business Survey + NNR Direct								
Total 2	**1,286,879**	**24.0**	**1,422,543**	**26.4**	**398,752**	**9.3**	**432,668**	**8.7**

In conclusion, the total contribution to the local economy is estimated to be between £274,300 and £1.4m (5.8 and 26.4 jobs). It should be noted that we believe the upper bound contribution estimate in Total 2 is very high because of the atypical business.

The corresponding impact lies between £160,000 and £432,700 (3.8 and 9.3 jobs).

7 CONCLUSIONS

7.1 Background

Over the past decade Scottish Natural Heritage (SNH) has increasingly recognised the importance of promoting the role of the natural heritage in enriching the quality of life of Scotland's people. This piece of research concerns itself with the impact protected areas have on the local business community, investigating economic contribution and impact as well as exploring perceptions of the natural heritage (and, to some degree, SNH).

Four case study areas were chosen for investigation. Findings from three different sources were triangulated to present an overall picture of the reserves' relationships with local businesses and visitors:

- The NNR Visitor Research 2002/2003: data was analysed at an NNR level to provide ultimately visitor contribution and impact as well as a profile of visitors to the four case study areas.
- Managers were asked to provide breakdown of expenditure and income and to identify the level that remained in the local economy. This enabled the calculation of Induced and Indirect impacts as well as Incremental Output.
- Businesses in the local area. All businesses identified in the case study areas were contacted in the first instance to gauge their relationship with the NNRs and whether they were impacted in any way by the NNR. Those that were, were then sent a questionnaire to further probe the nature of the relationship. This enabled the calculation of Incremental Jobs and Output change.

7.2 Analytic Methods

Indisputably the presence of an organisation employing four or five people in a remote rural area is an important element in a local economy. When that organisation employs local businesses or brings in groups for educational purposes into a community numbering only a couple of hundred then that has a major significance. At its most extreme the economy of Rum is totally dependent upon the NNR. On the other hand it is difficult to make the case that the Endrick Mouth Reserve with two part-time staff located and living outside the region has more than minimal direct influence on the local economy.

If the NNR has an importance other than as an employer it is through tourism. It appears self evident that 50,000 tourists, visiting a location, leave an economic footprint in the local economy. That fact is indisputable. The size of that footprint is ascertainable using the normal techniques of economic impact analysis i.e. calculate gross and net expenditure in the region and then use multiplier analysis to get the total output and associated employment and income. The problem the project faced is deciding how much of this expenditure resulted from the presence of the NNR. At a base level we decided that there is a group of customers who utilise the NNR as a parking stop/toilet break. This group may go for a short walk and a picnic but the facilities provided are of high value. Whilst the "lay by" is part of the holiday experience our view is that to attribute a whole day's expenditure would be gross exaggeration, so we decided to exclude all those who spent less than 1 hour at the reserve and only partially attribute the day's expenditure to those at the site between 1 and 3 hours. This is counterbalanced by the allocation of all expenditure for those who spent more than 3 hours at the Reserve and will, in practice, often undertake other activities. Half the expenditure of those who spend half a day (2-3 hours) and one quarter of expenditure of those spending 1-2 hours was allocated to the Reserve.

The allocation of visitor expenditure provides an estimate of the *contribution* of the reserve to the local economy. The estimation of the impact, however, requires some estimate of the change in visitor numbers if protected status and active reserve management ceased. Our assumption here is that in every case planning protection in the form of location in a national park, national scenic area or area of great landscape value would persist and that walking, picnicking and enjoying the scenery and landscape would continue at least in part in the locality. We hypothesise that those who currently come to the area specifically to see the flora and fauna would be far less likely to make the trip either because the wildlife was less abundant and/or because the supporting information (mention in guide books, guides, information boards etc) would be unavailable. The calculation that all those “naturalists” who stay for over three hours would go elsewhere provides the first lower estimate of *impact*.

The provision of facilities such as good marked paths and easy parking undoubtedly encourages people to an area. NNR status has provided an impetus for such developments and they are undoubtedly popular. It is likely that, whilst walking, picnicking and viewing the landscape in the area would continue for many people without the facilities, some tourists would go elsewhere. Confining impact assessment to naturalists was therefore considered to be too narrow. Unfortunately we have no information on the numbers who would not come to the area if the NNR ceased. In the absence of any real information we have simply assumed that half of the visitors’ expenditure would not come to the area and, on this basis, forecast a second higher estimate of impact.

7.3 Main findings

The different NNRs have different relationships with local businesses. Indeed, our research identified that only 5% of businesses located within the Forvie NNR case study area were impacted by the NNR. This compares with 16% of businesses within the St Abb’s Head case study area; 22.8% in Beinn Eighe case study and 39.5% in the Loch Lomond case study. The Loch Lomond case, however, may well be inflated because of the confusion that undoubtedly exists between the NNR and the NP. The Forvie case is also difficult as the two businesses that provided turnover information are polar opposites, with one employing many staff and a turnover of over £1 million, and the other a micro-business with a small turnover.

Interestingly, a larger proportion of businesses mention they provide services to visitors to the area who come because of the quality of the natural environment. This highlights a gap the NNRs could fill, arming local businesses with better local knowledge so that they become ambassadors of the NNRs towards the local community as well as visitors.

Few businesses highlighted negative impacts throughout the case study areas. The majority were related to planning, fishing and farming restrictions due to protected status (some of whom may have been confusing national park status).

Overall, we have identified that NNRs contribute a limited amount in monetary terms towards the local economy, as shown in the following table.

Table 147 Summary Table: Economic Contribution and Impact of Protected Area Status of Case Study NNRs

	Contribution				Impact			
	Lower Estimate		Upper Estimate		Lower		Upper	
	Output	Job	Output	Job	Output	Job	Output	Job
	(£)	(N)	(£)	(N)	(£)	(N)	(£)	(N)
Information from the Visitor Survey								
Loch Lomond NNR	246,159	4.5	246,159	4.5	12,427	0.2	123,079	2.3
St Abb's Head NNR	193,773	2.1	193,773	2.1	14,088	0.2	96,886	1.1
Beinn Eighe NNR	117,057	1.9	117,057	1.9	5,787	0.1	58,528	0.9
Forvie NNR	128,420	2.2	128,420	2.2	14,065	0.2	64,210	1.1
Information from the NNR Manager Survey								
Loch Lomond NNR								
NNR Direct	178,006	4.0	178,006	4.0	178,006	4.0	178,006	4.0
NNR Indirect + Induced	36,795	0.7	36,795	0.7	36,795	0.7	36,795	0.7
St Abb's Head NNR								
NNR Direct	83,500	2.0	83,500	2.0	83,500	2.0	83,500	2.0
NNR Indirect + Induced	16,442	0.3	16,442	0.3	16,442	0.3	16,442	0.3
Beinn Eighe NNR								
NNR Direct	280,248	4.0	280,248	4.0	280,248	4.0	280,248	4.0
NNR Indirect + Induced	83,049	1.6	83,049	1.6	83,049	1.6	83,049	1.6
Forvie NNR								
NNR Direct	102,710	2.8	102,710	2.8	102,710	2.8	102,710	2.8
NNR Indirect + Induced	43,201	0.8	43,201	0.8	43,201	0.8	43,201	0.8
Information from the Business Survey								
Loch Lomond NNR	249,676	4.5	574,551	10.3	-28,089	-0.5	-64,637	-1.2
St Abb's Head NNR	143,031	2.6	501,288	9.0	17,879	0.3	62,661	1.1
Beinn Eighe NNR	355,804	6.4	483,682	8.6	75,075	1.4	102,057	1.8
Forvie NNR	1,184,169	21.2	1,319,833	23.6	296,042	5.3	329,958	5.9
Total 1 = Visitor Expenditure + NNR Direct + NNR Indirect + Induced								
Loch Lomond NNR	460,960	9.2	460,960	9.2	227,228	4.9	337,880	7.0
St Abb's Head NNR	293,715	4.4	293,715	4.4	114,030	2.5	196,828	3.4
Beinn Eighe NNR	480,354	7.5	480,354	7.5	369,084	5.7	421,825	6.5
Forvie NNR	274,331	5.8	274,331	5.8	159,976	3.8	210,121	4.7
Total 2 = Business Survey + NNR Direct								
Loch Lomond NNR	427,682	8.5	752,557	14.3	149,917	3.5	113,369	2.8
St Abb's Head NNR	226,531	4.6	584,788	11.0	101,379	2.3	146,161	3.1
Beinn Eighe NNR	636,052	10.4	763,930	12.6	355,323	5.4	382,305	5.8
Forvie NNR	1,286,879	24.0	1,422,543	26.4	398,752	9.3	432,668	8.7

This table clearly shows that although there are variances between the four case studies, with the overall economic contribution of NNRs remain relatively limited both in terms of income generated at a local level, and jobs, except for Forvie NNR – Total 2 calculations, where we believe this is an over-estimate due to few returns of information.

This is reflected in the estimates for the impact of protected status which vary little from one NNR to the other, from £101,379 (St Abb's Head NNR) to £432,668 (Forvie NNR).

Therefore, overall, NNRs currently contribute fairly small amounts towards their local business community's wealth (this may not be true at an individual business level as reliance upon the NNR varies greatly from business to business). However, this is not to say that there is no room for developing better relationships with businesses through improved product knowledge, marketing, activities and events in particular.

This report was concerned with local impact of NNRs. Clearly, the contribution and impact at regional and national levels would be more consequent as some staff for example may live outwith the locality, but within the region; or suppliers may come from elsewhere in Scotland. However, as we did not ask businesses nor NNR managers to identify regional or national turnover information and expenditure respectively, this cannot be more precisely estimated.

7.4 Conclusions

SNH currently has five strategic priorities:

1. Caring for nature
2. Responding to climate change
3. Delivering health and well-being
4. Supporting the Scottish economy through providing places where visitors can enjoy and engage with Scotland's nature
5. Delivering a high quality public service

Clearly, the NNRs are not run as private concerns, maximising revenue generating opportunities such as catering, retail and events, all of which could have more effects on the local business community. To put it more strongly, if economic impact was seen as a priority SNH might want to consider jet skis on Loch Maree and quad bike safaris on Beinn Eighe. However, this would be incompatible with their conservation status.

Visitors have noted the importance of a good quality environment as a key element of their visit. Similarly, a significant proportion of businesses interviewed in each case study area indicated they provided services to visitors who come to the area because of the natural environment. This ranged from just over one third of local businesses in Forvie NNR case study area to over half of local businesses located within the Loch Lomond NNR case study area.

In all Reserves except Forvie, day trippers are in equal proportion to holiday makers in the area. In Forvie, day trippers make the majority of visitors.

Table 148 Visitors to NNRs by Type of Trip

Type of Trip	Loch Lomond NNR	St Abb's Head NNRVMR	Beinn Eighe NNR	Forvie NNR
Sample	875	303	361	217
On a short trip (of less than 3 hours) from home	24.7	24.1	22.2	36.4
On a day out (for more than 3 hours) from home	21.3	25.1	18.3	22.1
On holiday away from home in the area	42.4	37.3	47.9	27.6
Visiting friends and relatives on holiday in the	3.5	3.3	3.0	3.7
Passing through the area to/ from my holiday	2.7	4.0	2.5	2.3
Others	5.1	5.9	6.1	7.8
Don't know/ Not stated	0.2	0.3		
Total	100.0	100.0	100.0	100.0

Visitors are also willing to travel some distance to visit the reserves, with a large proportion travelling over 30 miles.

Table 149 Visitors to NNRs by Distance Travelled

Distance Travelled	Loch Lomond NNR	St Abb's Head NNR	Beinn Eighe NNR	Forvie NNR
Total sample	875	303	361	217
	(%)	(%)	(%)	(%)
Less than 10 miles	26.2	23.7	20.1	28.5
10-19 miles	19.8	16.2	19.4	21.6
20-29 miles	11.3	13.2	14.5	13.4
30 miles +	40.9	46.2	46.0	35.9
Don't know/not stated	1.8	0.7	0.0	0.5
Total	100	100	100.0	100.0

However, this is not to say that visitors are particularly interested in the specific flora and fauna available in each reserve.

Table 150 Reasons for Visiting the NNRs

Reason for Visit	Loch Lomond NNR	St Abb's Head NNR	Beinn Eighe NNR	Forvie NNR
	%	%	%	%
Walk/ exercise/ fresh air/ good weather	24.6	24.8	23.4	35.9%
To see the wildlife/ seals/ birds/ geese/ bird watching	15.7	26.5	14.5	18.7%
Walk the dog	4.8	3.4	5.6	6.2%
Been before/ come here regularly/ nice place/ like it here	24.2	26.5	17.7	31.2%
Views/ scenery	9.3	6.0	7.3	3.1%
Just passing/ saw sign	5.6	5.1	12.9	4.7%
Staying in the area/ near to home	3.6	0.9	4.0	3.1%
Recommended by friends/ at accommodation	6.5	5.1	6.5	6.2%
Never been before/ wanted to see it	5.2	9.4	3.2	6.2%
Quiet/ peaceful	2.8	2.6	1.6	0.0%
Saw it in guide book/ magazines/ leaflet	4.0	6.0	8.9	6.2%
Sea views/ coast/ sand dunes/ collect shells/ beach	5.6	13.7	0.8	6.2%
To participate in a sport e.g. hillwalking/ cycling/ paragliding/ shooting	11.3	3.4	12.1	3.1%
See plants/ vegetation/ wild flowers	0.8	0.9	0.8	1.6%
Wanted to see visitors centre	0.4	0.0	2.4	3.1%
Brought friend/ relative to see	0.8	0.9	1.6	3.1%
Family day out/ brought the children	3.2	2.6	1.6	3.1%
Other	5.2	5.1	8.9	14.2%

Indeed, the proportion of visitors that come specifically to see the wildlife or flora varies from 15.3% in Beinn Eighe NNR to 27.4% in St Abb's Head NNR. The majority of visitors indicate that they visit to take a walk, some fresh air, and generally enjoy the landscape and scenery.

Interestingly, the businesses that have a relationship with the NNRs seem to think that wildlife is rather more important to their visitors than it would seem.

Thus, providing a positive environment for the visitors' experience and enjoyment must remain a priority for SNH, as this is the main motivation for visitation. In addition, given the remit of SNH, expanding usage is a priority. As the result of our discussions with local businesses we believe that growth in visitor numbers could be relatively easily and cheaply achieved by more information to local businesses e.g. shop posters and leaflets advertising the NNR. However it must be emphasised that the justification is not and cannot be commercial. The local economy will not see a financial return if an individual is induced from a public house to a cliff top walk; indeed the opposite might well be the case. The case for NNRs is public benefit not economic impact.

The Natura study clearly shows that benefits of Natura sites (which include NNRs) to visitors aka users are extremely small and that the main benefit arises to the Scottish population at large who express a willingness to pay for the conservation of the flora and fauna of the area. Indeed, it states that "*around 99% of this benefit (£211 million per year) relates to non-use values. Around £109 million (51%) accrues as non-use value to the Scottish general public and £102 million (48%) accrues as non-use value to visitors to Scotland*."

This is of critical importance. We have demonstrated through these case studies that the economic importance of protected areas to the local economy is small in absolute terms, albeit in some of the remotest locations extremely important and large in relative terms. Moreover, absolute terms do not take into account the socio-cultural benefits these areas provide to the local community, nor the wider non-use value to the Scottish general public or visitors to Scotland.

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9 APPENDIX 1: TYPE 2 OUTPUT AND EMPLOYMENT MULTIPLIERS FOR KYLE OF SUTHERLAND

As discussed in Section 2.7 multipliers are unique to location and expenditure pattern.

The following table provides the figures for fishing expenditure in the Kyle of Sutherland for three groups of users;

- visitors outwith Scotland,
- Scottish Visitors;
- and Locals.

These are further shown by salmon fishermen, who tend to be affluent, and trout fishermen.

As can be seen the results are very similar and for the NNR analysis the average figures are used.

For the visitor analysis two multipliers are used. The first is the average of the 4 visitor multipliers and the second the average of the 2 day multipliers.

Table 151 Kyle of Sutherland Multipliers

	Output	**Employment**	**Jobs/£m**
Salmon Visit	1.396	1.188	23.7
Salmon Scot	1.423	1.212	22.7
Salmon Local	1.442	1.197	13.6
Trout Visit	1.412	1.202	19.4
Trout Scot	1.408	1.193	20.3
Trout Local	1.380	1.146	15.9
Average	1.410	1.190	19.667

Source: ***An Economic Survey of Angling in the Kyle of Sutherland Region***
Prepared for the Kyle of Sutherland Fisheries Trust by Glasgow Caledonian University and CogentSI February 2007

10 APPENDIX 2: FIRST QUESTIONNAIRE: TELEPHONE INTERVIEW

Good Morning
My name is _____________ from Glasgow Caledonian University and I have been employed by Scottish Natural Heritage to identify how businesses use XXX[24] Nature Reserve, and how Scottish Natural Heritage could help support future businesses' growth in the local area.
I wonder if you would be willing to answer a couple of questions.

Firstly...

1. We are interested in businesses that benefit from the natural heritage of the area.

Q.1: Ask all questions in order, then go to Q2.	*Tick one answer per question*
a) Do you carry out business activities in the XXX Reserve itself? *(for example: build walls, cut trees, operate the café, operate a minibus service, provide guiding service)*	**Yes ☐ No ☐**
b) Do you provide services to businesses that operate in XXX Reserve? *(for example: provide cakes to visitor centre, print brochures to tour guide)*	**Yes ☐ No ☐**
c) Do you use XXX in any promotional materials? *(for example: using photos of kittiwakes, fulmars etc on brochures, business named after the Reserve)***?**	**Yes ☐ No ☐**
d) Do you provide services to visitors who come to the area because of XXX NNR's natural environment? *(for example: Guest House, Shop, Bus)*	**Yes ☐ No ☐**
e) You don't use XXX Reserve in any way, nor carry any of the business activities outlined above	**True ☐ False ☐**

2. Are you aware that XXX is a National Nature Reserve and that there are Special Protection Areas, Special Areas of Conservations and Sites of Special Scientific Interest within the Reserve, *along the coastline and in the sea*[25]?
Yes ☐ No ☐

3. Have you had any of the following negative experiences due to the protected area status?

Q.3: Ask all questions in order, then go to Q4.	*Tick one answer per question*
a) Protected status stopped the development of some of my business activities (that would take place in the Reserve):	**True ☐ False ☐ Not Applicable ☐**
If Yes, probe for details	
Can you tell me a little more?	
b) Protected status has stopped the development of my customers' activities (that would take place in the Reserve):	**True ☐ False ☐ Not Applicable ☐**
If Yes, probe for details	
Can you tell me a little more?	

[24] The name of the Reserve changed in the database according to the businesses' location.

[25] This last part of the question showed in italics only appeared for businesses located in Forvie and St Abb's Head NNRs study areas.

c) Has the protected status had any other negative impacts on you and/or your business?	**Yes ☐ No ☐**
If Yes, probe for details	
Can you tell me a little more?	
d) It has had no negative effect on my business:	**True ☐ False ☐**

4. Was XXX Reserve one of the reasons you established your business in the area?
(because of the landscape & scenery, wildlife, for personal enjoyment reasons)
Yes ☐ No ☐

5. Do you know if XXX Reserve is or was a factor in your employees' decision to live and work in the area?
(because of the landscape & scenery, wildlife, lifestyle)
Yes ☐ No ☐ Don't Know ☐

Finally

6. If the area lost this protection what would best describe the impact on your business?
Considerable impact ☐ Small impact☐ No impact ☐

If answers highlighted in red, i.e.
:
- Q.1.e = True
- Q.3.d = True
- Q.4 = No
- Q.5 = No or Don't Know
- Q.6 = No impact

Thank the Respondent, and hang up.

Else, ask the respondent if they would be willing to help your research...

Would you be willing to help us further with our research project by identifying in a bit more detail how the XXX Reserve impacts on your business and how Scottish Natural Heritage could maximise opportunities for local businesses?

All you would have to do is complete a questionnaire. You can fill this in online, we can send you a paper copy, or we could do it over the phone now if it is convenient, or we can arrange another time that suits you better.

Take details on their preferred method

11 APPENDIX 3: SECOND QUESTIONNAIRE: INTERNET/MAIL SURVEY

The Impact of NNR Protection on Business

[«ID»]

Scottish Natural Heritage
All of nature for all of Scotland

«Contact_Title» «Contact_Firstname» «Contact_Surname», «Contact_Position»
«Company_Name»
«Address1»
«Address2»
«Address3»
«Town» «Postcode»
«Region»

MOFFAT CENTRE MC
FOR TRAVEL & TOURISM BUSINESS DEVELOPMENT

Thank you for agreeing to complete this questionnaire. The object of the study is two-fold:

- **First we want to establish the impacts (both negative and positive) on local businesses of <u>«NNR» National Nature Reserve</u>;**
- **Second we seek your views on the actions or activities that Scottish Natural Heritage can take to better engage with local businesses in order to maximise opportunities for business growth.**

<u>Confidentiality & Data Protection</u>:
All responses will be confidential and limited to the study team. Information will be used in aggregated calculations. No individual businesses will be identified. Information will be processed in accordance with the Market Research Society Code of Conduct and the Data Protection Act 1998.

Q1 What sector best describes your business? *(Tick one only)*

- ☐ Agriculture, Forestry, Fishing
- ☐ Accommodation *(B&B, Hotel, Hostel, Self Catering, Caravan Park)*
- ☐ Food & Drink *(Cafe, Restaurant, Takeaway, Pub)*
- ☐ Tourism & Recreation Services *(Guides, Entertainment, Leaflets)*
- ☐ Retail for Visitors *(Crafts, Local Produce, Outdoor Clothing and Equipment)*
- ☐ Other Retail
- ☐ Technical & Maintenance Services *(Plumbing, Electrical, Decorating, Garage)*
- ☐ Professional Services *(Lawyer, Medical, Estate Agency)*
- ☐ New Building and Construction *(incl. New Fencing and Landscaping)*
- ☐ Other *(Please specify:...)*

Q2 Which of the following best describes the way the local reserve affects your business in a positive manner *(Tick any applicable)*?

- ☐ We work in the local reserve
- ☐ We provide services to those who work in the local reserve
- ☐ We provide services to those who visit the local reserve
- ☐ We provide services to visitors who come because of the quality of the local natural environment
- ☐ We use the quality of the local environment to market the business
- ☐ The reserve does not affect my business positively
- ☐ Other positive impacts not specified above *(please specify: ....)*

Q3 If the reserve has an important positive impact on your business, we would be grateful if you could add a more detailed description of your work and the way the reserve has that <u>positive impact</u>:

____

____

Q4 How important are the following aspects of the local Nature Reserve to your business?

	Very Important	*Important*	*Neither*	*Unimportant*	*Not Available at Reserve*
Good views and landscape	☐	☐	☐	☐	☐
Good walks	☐	☐	☐	☐	☐
Wildlife	☐	☐	☐	☐	☐
Flora	☐	☐	☐	☐	☐
Toilets	☐	☐	☐	☐	☐
Cafe/shop	☐	☐	☐	☐	☐
Visitor centre	☐	☐	☐	☐	☐

Q5 Which of the following best describes the way the local reserve affects your business in a negative manner (Tick any applicable)?

- ☐ I cannot carry out operations/activities as efficiently as I could
- ☐ I cannot undertake the construction work I would like
- ☐ I cannot get answers quickly because of the bureaucracy
- ☐ It does not affect my business in a negative manner
- ☐ Other negative impacts not specified above *(Please Specify:________________________________)*

Q6 If the reserve has an important negative effect on your business, we would be grateful if you could add a more detailed description of your work and the way the reserve impacts <u>negatively</u>:

____

____

Q7 **Approximate Total Turnover of your business (please estimate the turnover if the local unit is part of a group)?**

- ☐ £0-£50,000
- ☐ £50,001-£100,000
- ☐ £100,001-£250,000
- ☐ £250,001-£500,000
- ☐ £500,001-£1,000,000
- ☐ More than £1 million

Q8 **How many paid individuals work locally in your business?**

- ☐ Only me
- ☐ Two or Three
- ☐ Four to Six
- ☐ Six to Ten
- ☐ Ten to Twenty
- ☐ Twenty to Fifty
- ☐ More than fifty

Q9 **What percentage of your current turnover do you believe is due to work related to the reserve?**

- ☐ 100%
- ☐ 80-99%
- ☐ 50-79%
- ☐ 25-49%
- ☐ 10-25%
- ☐ 5-10%
- ☐ Less than 5%

Q10 **If, for some reason, access to the local area was completely forbidden what percentage contraction would you expect in your business in the short term?**

- ☐ 100%
- ☐ 80-99%
- ☐ 50-79%
- ☐ 25-49%
- ☐ 10-25%
- ☐ 5-10%
- ☐ Less than 5%
- ☐ None whatsoever

Q11 **If you think closure would have a significant short term impact on your business, we would be grateful if you could detail which aspects would be affected in the short term:**

____

____

Q12 **If protection against development in the area was removed what impact on your business might you expect in the long term?**

- ☐ Grow by more than 100%
- ☐ Grow by between 50 and 100%
- ☐ Grow by between 1 and 50%
- ☐ No Impact
- ☐ Contract by between 1 and 50%
- ☐ Contract by between 50 and 100%
- ☐ Close Business

Q13 **We would be grateful if you could describe which aspects of your business would be affected (both positively and negatively) in the long term:**

____

____

Q14 **We are trying to establish the economic value of upstream relationships. What percentage of your turnover do you estimate is paid to your suppliers?**

- ☐ More than 80%
- ☐ 60%-80%
- ☐ 40%-59%
- ☐ 20%-39%
- ☐ Less than 20%

Q15 **We are particularly interested in the local impact of your business. What percentage of these costs are payments to suppliers in the immediate locality?**

- ☐ More than 80%
- ☐ 60%-80%
- ☐ 40%-59%
- ☐ 20%-39%
- ☐ Less than 20%

Q16 **Visitors from outside the local area come for a set of reasons, some of which will be extremely important to them and some quite incidental. We should be grateful for your views on the importance of these to an average visitor:**

	Very Important	*Important*	*Neither*	*Unimportant*	*Totally irrelevant*
Good views and landscape	☐	☐	☐	☐	☐
Good walks	☐	☐	☐	☐	☐
Seeing wildlife	☐	☐	☐	☐	☐
Seeing trees and/or flowers	☐	☐	☐	☐	☐
Toilets available	☐	☐	☐	☐	☐
Cafe and shop available	☐	☐	☐	☐	☐
Information on area available	☐	☐	☐	☐	☐

Q17 **We are interested in how Scottish Natural Heritage might help to develop your business e.g. provide more facilities at the Reserve, provide more Guides and Rangers, advertise the Reserve and Reserve Events better or impose fewer restrictions. Please could you use this area to suggest what should be done, prioritising where applicable?**

____

____

____

Q18 **If you would be willing to discuss further your answers and the development of the reserve, please could you add here your name and telephone number?**

____

Thank you for your assistance. For further information please email cbe@gcal.ac.uk or phone 0141-331-8407
Please return your completed questionnaire in the Freepost envelope provided. You don't need a stamp.

12 APPENDIX 4: QUESTIONNAIRE TO NNR MANAGERS

Income and Expenditure in a National Nature Reserve

Name of Reserve:

			Comments
INCOME	**£0**		
Farming (Rents)	**£0**		
Forestry	**£0**		
Hospitality (Café etc)	**£0**		
Rents (Craft Shops etc)	**£0**		
Entry Fees	**£0**		
Visitor Contributions	**£0**		
SNH Grants	**£0**		
Other Grants (from NP, NTS etc)			
Other			
TOTAL	£0		

EXPENDITURE	**£**	**Local %**
Management Agreements	£0	
Staff (Professional)		
For Visitors (% or £)	£0	0.0%
For Farming (% or £)	£0	0.0%
For Conservation (% or £)	£0	0.0%
Other Staff (Cleaners, Cooks, Drivers)		
For Visitors (% or £)	£0	0.0%
For Farming (% or £)	£0	0.0%
For Conservation (% or £)	£0	0.0%
Fabric (Paths, Buildings): External Contracts		
For Visitors (% or £)	£0	0.0%
For Farming (% or £)	£0	0.0%
For Conservation (% or £)	£0	0.0%
Maintenance Materials (e.g. Timber, Cement)		
For Visitors (% or £)	£0	0.0%
For Farming (% or £)	£0	0.0%
For Conservation (% or £)	£0	0.0%
Information, Education & Research: External		
For Visitors (% or £)	£0	0.0%
For Farming (% or £)	£0	0.0%
For Conservation (% or £)	£0	0.0%
Other Physical Items (Vehicles, Stationary etc)		
For Visitors (% or £)	£0	0.0%
For Farming (% or £)	£0	0.0%
For Conservation (% or £)	£0	0.0%
TOTAL		

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Great Glen House, Leachkin Road, Inverness, IV3 8NW
T: 01463 725000

You can download a copy of this publication from the SNH website.

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