

Natural England Commissioned Report NECR131

The economic impact of Natural England's National Nature Reserves

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Foreword

Natural England commission a range of reports from external contractors to provide evidence and advice to assist us in delivering our duties. The views in this report are those of the authors and do not necessarily represent those of Natural England.

Background

There are currently 224 National Nature Reserves (NNRs) in England covering a total area of more than 94,000 hectares, which is approximately 0.6% of the total land area in England. Natural England manages 143 of England's NNRs, while the others are managed by organisations approved by Natural England, including the National Trust, Forestry Commission, RSPB, Wildlife Trusts and local authorities.

Studies by the RSPB and others have demonstrated that nature reserves can deliver positive impacts for local economies, by providing employment, sustaining local

businesses and attracting visitors who spend money in local economies. However, there has been no overall assessment to date of the economic impacts of National Nature Reserves in England. This work was commissioned to undertake an initial assessment of these impacts.

The findings may be further refined as evidence and techniques develop and they will be used to help promote to stakeholders and partners the additional benefits currently provided by the NNRs and by further investments in these places.

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Further information

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The economic impact of Natural England's National Nature Reserves

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Contents

1	Introduction	3
1.1	This report	3
1.2	Methodology	3
2	Overall Economic Impact of National Nature Reserves	5
2.1	Economic Impacts of NNRs	5
2.2	Impacts of NNR operations	5
2.3	Other economic activity on the NNR	8
2.4	Visitor expenditures	8
2.5	Volunteering	10
2.6	Total NNR impacts	10
2.7	Impacts of the Six NNRs	10
2.8	Discussion	12
3	Wye Downs NNR	13
3.1	Employment and wages	13
3.2	NNR Expenditures	13
3.3	Other economic activity on the NNR	13
3.4	Visitors and visitor expenditures	14
3.5	Additional social impacts	14
3.6	Overall economic impact	14
4	Derbyshire Dales NNR	15
4.1	Introduction	15
4.2	Employment and wages	15
4.3	NNR Expenditures	15
4.4	Other economic activity on the NNR	15
4.5	Visitors and visitor expenditures	16
4.6	Additional social impacts	16
4.7	Overall economic impact	17
5	Stiperstones NNR	18
5.1	Employment and wages	18
5.2	NNR Expenditures	18
5.3	Other economic activity on the NNR	18
5.4	Visitors and visitor expenditures	19
5.5	Additional social impacts	19
5.6	Overall economic impact	20
6	Shapwick Heath NNR	21
6.1	Employment and wages	21
6.2	NNR Expenditures	21
6.3	Other economic activity on the NNR	21
6.4	Visitors and visitor expenditures	22
6.5	Additional social impacts	22
6.6	Overall economic impact	23
7	Saltfleetby Theddlethorpe Dunes NNR	24
7.1	Employment and wages	24
7.2	NNR Expenditures	24
7.3	Other economic activity on the NNR	24
7.4	Visitors and visitor expenditures	24
7.5	Additional social impacts	25
7.6	Overall economic impact	25
8	Moor House – Upper Teesdale NNR	26
8.1	Introduction	26

8.2	Employment and wages.....	26
8.3	NNR Expenditures	26
8.4	Other economic activity on the NNR.....	26
8.5	Visitors and visitor expenditures	27
8.6	Additional social impacts.....	27
8.7	Overall economic impact.....	27
Annex 1	Interviewees	29

1 Introduction

1.1 This report

There are currently 224 National Nature Reserves (NNRs) in England covering a total area of more than 94,000 hectares, which is approximately 0.6% of the total land area in England. Natural England manages 143 of England's NNRs, while the others are managed by organisations approved by Natural England, including the National Trust, Forestry Commission, RSPB, Wildlife Trusts and local authorities.

Studies by the RSPB and others have demonstrated that nature reserves can deliver positive impacts for local economies, by providing employment, sustaining local businesses and attracting visitors who spend money in local economies. However, there has been no overall assessment to date of the economic impacts of National Nature Reserves in England. This report seeks to provide a first assessment of these impacts.

The report provides summary estimates of the economic impacts of all NNRs managed by Natural England (Section 2), before providing a more detailed assessment of a sample of six NNRs, namely:

- Wye Downs NNR, which is part of the Kent Reserve Group in the South East area (Section 3);
- Derbyshire Dales NNR, which is part of the Derbyshire Dales Reserve Group in the Yorkshire and East Midlands area (Section 4);
- Stiperstones NNR, which is part of the Stiperstones Reserve Group in Shropshire, in the West area (Section 5);
- Shapwick Heath NNR, which is part of the Somerset Reserve Group in the South West area (Section 6);
- Saltfleetby Theddlethorpe Dunes NNR, which is part of the Lincolnshire Reserve Group in the Yorkshire and East Midlands area (Section 7); and
- Moor House – Upper Teesdale NNR, which is part of the Moor House Reserve Group in the North area (Section 8).

The report is one of three deliverables from a study by ICF GHK for Natural England concerning the costs, benefits and economic impacts of access to the countryside. The other two deliverables are a literature review on the benefits, costs and impacts of countryside access and recreation, and a guidance document designed to assist Natural England staff in assessing these benefits, costs and impacts.

1.2 Methodology

The assessment of the economic impact of NNRs was a desk-based exercise. It involved:

- collating data on expenditure, visitor numbers, employment and wages relating to all NNRs managed by Natural England;
- selecting a sample of six NNRs covering a range of sizes, habitats, locations and levels of usage;
- undertaking interviews with relevant staff at the six NNRs to discuss the economic impacts associated with each reserve;
- reviewing literature to identify suitable methodologies and metrics for impact estimation; and
- developing and applying a simple economic model to assess the economic impacts of all Natural England NNRs and the six individual NNRs.

The analysis is therefore based largely on existing data from Natural England's records, supplemented by case study evidence from the six sample NNRs. The estimates are based

on a particular point in time (most data relate to the 2011/12 financial year) and are therefore subject to change over time. There is also a degree of uncertainty about the extent to which activities and visits are dependent upon the land being managed as a NNR and can be attributed to the NNR. This is therefore intended as a first assessment, and could be refined through further research, particularly relating to visitor numbers and expenditures.

2 Overall Economic Impact of National Nature Reserves

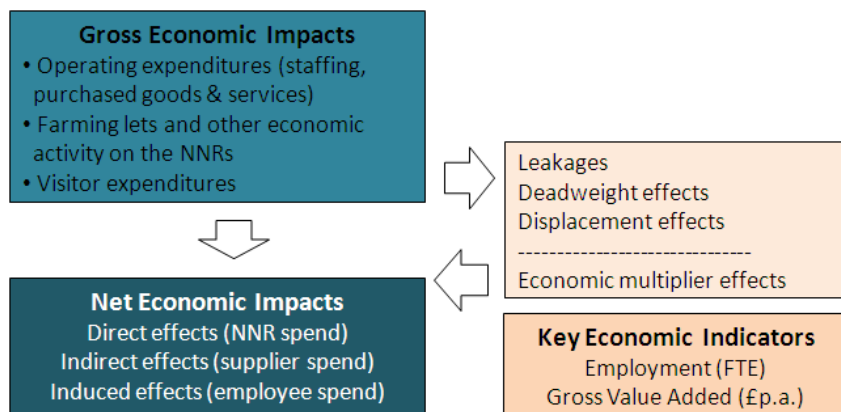
2.1 Economic Impacts of NNRs

NNRs and their associated expenditures generate impacts on local economies in a number of different ways. These effects arise from:

- Direct employment associated with the management of NNRs;
- Expenditures by NNRs on purchased goods and services, which support employment and revenues among local businesses, including contractors and suppliers;
- Economic activity and employment supported in other local businesses gaining a living from NNRs, such as tenant farmers and graziers;
- Expenditures by visitors, which provide further benefits for local businesses; and
- Multiplier effects associated with the above.

Figure 2.1 provides a simple illustration of the economic impacts resulting from the operation of the NNRs and associated expenditures on site and in the local economy.

Figure 2.1 Economic Impacts of NNRs



The overall impacts are measured in terms of employment (full time equivalent – FTE – jobs) and gross value added (GVA)¹, while the analysis defines the ‘local economy’ as that within 10 miles of the NNR. It should be recognised that variations in the characteristics of the local area will mean that the structure of the local economy will vary greatly between different sites – for some NNRs this 10 mile radius will include significant conurbations with sizeable local economies, while for others it will be much more rural. Therefore where standard multipliers are used to assess local economic impacts, the results need to be interpreted with caution.

Additional impacts such as those associated with volunteering and effects on the business environment have also been assessed more qualitatively, through interviews with the NNRs and are described below.

2.2 Impacts of NNR operations

The operation of NNRs generates impacts for the local economy in terms of:

- Employment and wages of staff involved in managing the NNRs; and

¹ GVA is a measure of the overall effect of the site on the value of goods and services produced in the economy, and is effectively the sum of wages, profits, interest and rent. GVA measures the contribution to the economy of individual producers, industries or sectors, and is equivalent to their gross output less their purchased inputs. Because GVA is net of purchased inputs, it can be aggregated across all firms and, unlike turnover or gross output, provides a measure of the overall output in the economy that is not affected by double counting

- Goods and services purchased by the NNRs, which support employment, wages and profits in supplier businesses.

There are also indirect and induced effects resulting from the expenditures of suppliers and employees, which support additional employment and GVA in the local economy. These effects have been assessed and the findings are presented below.

2.2.1 Direct employment

Natural England employed 148 full time equivalent (FTE) staff in 2011/12 to support the management of NNRs in England. This equated to just over one FTE job for each of the 143 NNRs managed by Natural England, although around 20 FTE jobs were employed in the central team working across all NNRs. There is also significant variance in the time inputs of individual NNRs. Many NNRs require very little management time, while other sites (most notably the Humberhead Peatlands, Castle Eden Dene and Derbyshire Dales) have larger employment allocations of between five and seven FTEs.

Interviews with the Senior Reserve Managers (SRMs) suggested that employees working at the six case study NNRs were highly skilled and the majority were educated to degree level. The salaries of Natural England employees working across the 143 NNRs totalled £5.1 million in 2011/12, including pensions and National Insurance contributions. This is an average of approximately £34,500 per FTE job. It compares with the UK median gross salary of £26,800 for full time workers in 2012 (excluding employer pension and NI contributions)².

2.2.2 NNR expenditures

Excluding payroll, the annual expenditures of the NNRs in 2011/12 totalled almost £6.4 million, which equates to an average annual expenditure of approximately £44,500 per NNR. These expenditures are disaggregated into different types of expenditure in Table 2.1 below. This shows that more than one third of expenditures (£2.2 million) relate to the use of contractors, while rents are the second largest expenditure, accounting for almost £1.4 million.

Table 2.1 Total expenditures of NNRs (2011/12)

	Expenditure (£)
Rents	1,375,000
Rates	261,000
Utilities	152,000
Contractors	2,186,000
Purchases of other services	603,000
Purchases of goods and equipment	375,000
Capital expenditure – vehicles	300,000
Capital expenditure – buildings	165,000
Land purchases	9,500
Land purchase grants	534,000
Other expenses	405,000
Total expenditures of NNR sites	6,365,500

Source: Natural England data, 2011/12

In order to assess the local economic impact of these expenditures, the analysis must consider the nature of the expenditure and the location of suppliers. Rent payments provide

² This figure excludes employer pension and NI contributions. ONS, Annual Survey of Hours and Earnings, 2012 data (accessed April 2013)

direct income for the land or property owner and should be treated separately to other expenditures. The £1.4 million of rent payments can therefore be considered as a direct contribution to local GVA. Similarly, land purchases should not be treated as a standard expenditure as they do not support business turnover in the same way as the other types of expenditures. The £0.5 million of land purchases have therefore been excluded from the analysis on the basis that these are exceptional items.

The remaining £4.45 million of expenditures relates to the purchases of various goods and services from businesses (or local authorities for rates). Unfortunately there is a lack of information in NE's central database relating to the location of suppliers, although this was explored during the interviews with the six case study NNRs to determine the extent to which goods and services are purchased from local suppliers. Using these findings, it has therefore been estimated that 55% of all goods and services purchased by NNRs (£2.45 million) were purchased from local suppliers (within an approximate ten mile radius of each NNR).

These 'local' expenditures provide equivalent levels of turnover to local businesses. The effects of operating expenditures on employment and GVA in supplier firms can be assessed using standard ratios linking gross output, employment and GVA. The Government's National Accounts (the Blue Book) provide data on gross output and GVA for key sectors. These data can be used to assess the economic impacts of particular expenditures. For example, across all industries, we would expect that each £1 of gross output involves gross value added of £0.49, while a £100,000 increase in turnover (gross output) would be required to support 1 FTE job³.

Based on these assumptions, it is estimated that the £2.45 million of local expenditures per annum supports £1.2 million of GVA and 25 FTE jobs across the local economies of each NNR. Including the rents paid to local landlords increases the estimate of GVA supported by NNR expenditures to £2.6 million in 2011/12.

2.2.3 Indirect and induced effects

The employment and expenditures associated with NNRs can be expected to have wider multiplier effects in the local economy. The multiplier effects resulting from supplier and employee expenditures are known as indirect and induced effects respectively.

The indirect and induced effects resulting from the associated expenditures of suppliers and employees are estimated using an overall 'local' multiplier of 0.2⁴. This assumes that for every FTE job supported directly by the site, an additional 0.2 FTE jobs will be supported through the subsequent expenditures of suppliers and employees, while for every £1 of GVA supported directly, a further £0.20 of GVA will be supported locally. It is estimated that an additional 37 FTE jobs and £1.4 million of GVA are supported in the local economy through indirect and induced effects (Table 2.2).

2.2.4 Total impacts of site operations

The total impacts of NNR site operations have been estimated by summing the above impacts. The results in Table 2.2 show that the operation of the 143 NNRs managed by Natural England are estimated to support 208 FTE jobs and £9.2 million of GVA in their local economies.

³ From the UK National Accounts, the Blue Book. Based on total UK gross output of £2.67 billion in 2010, GVA of £1.31 billion, 31.4 million jobs (and 26.7 million FTE jobs, based on 0.85 FTE jobs for each individual job)

⁴ In order to assess indirect and induced effects, this study has used a standard multiplier of 1.2 at the local level, based on the English Partnerships *Additionality Guide*. This implies that, for each additional £1 of output supported by NNR expenditures, an additional £0.20 of output in the local economy is supported by supplier and employee expenditures. Similarly, for each extra person employed, an additional 0.2 jobs are created at the local level

Table 2.2 Total local economic impacts of NNR site operations

	Employment (FTE)	GVA (£m)
NNR employment	148	£5.1m
NNR expenditures	25	£2.6m
Indirect and induced effects	35	£1.5m
Total impact of NNR site operations	208	£9.2m

Source: ICF GHK analysis of Natural England data, 2013

2.3 Other economic activity on the NNR

The NNRs also support other economic activities that take place on the land. These most commonly include graziers, while some sites also include other activities such as tenant farmers, forestry, shooting rights as well as visitor centres, cafés and shops. Unfortunately there is limited data held centrally relating to the scale of these activities. There is also a degree of uncertainty about which of these activities are dependent upon the land being managed as a NNR and can be attributed to the NNR. The discussions with the six case study NNRs suggest that the grazing lets are the most common.

The six case studies provide the best source of information on which to base estimates for all Natural England NNRs. The case studies cover a combined area of approximately 10,900 hectares (11.5% of all NNRs) and the other economic activities on the NNRs are estimated to support 31 FTE jobs and £660,000 of GVA. The large majority of these jobs and GVA (almost 70%) were supported amongst tenant farmers and graziers and 19% were supported by shooting activities. The remaining 10-15% was estimated to be supported within on-site shops and cafés. On average, 350 hectares of NNR are estimated to support 1 FTE job and £21,200 of GVA.

Applying these findings to the total terrestrial area of NNRs managed by Natural England provides an overall estimate of approximately 106 FTE jobs and GVA of £2.25 million per annum.⁵

There will also be indirect and induced effects associated with these activities, which are estimated to support a further 21 jobs and £0.45 million of GVA in the local economies around NNRs.

2.4 Visitor expenditures

The NNRs also generate additional impacts for their local economies by attracting visitors, many of whom purchase goods and services from local businesses while in the area. There is a general lack of recent visitor information available for the NNRs, although Natural England was able to provide visitor estimates for 211 NNRs in 2006/07. The data suggest that these NNRs attracted a total of 17.8 million visitors in 2006/07, averaging approximately 84,400 visitors per NNR. However, this figure is heavily biased by Richmond Park in London and Sutton Park in the West Midlands, which attract a combined total of 5.5 million visitors between them.

The data provide visitor estimates for 125 of the NNRs managed by Natural England and suggest that they attracted 4.3 million visitors and an average of 34,600 visitors per NNR in 2006/07. These figures have been used as a conservative estimate of visitor numbers across all 143 Natural England NNRs, assuming that the remainder for which no data are available have few visitors.

There is also a lack of data relating to the characteristics and expenditures of visitors to NNRs, and particularly the number of local visitors compared to non-local day-trippers and visitors staying overnight. The latest visitor research was undertaken in 2005⁶, which

⁵ Data provided by Natural England indicate that the terrestrial area of its NNRs covers 37,135 hectares

⁶ Harris Interactive (October 2005), NNR Visitor Satisfaction Survey - Stage2: Summer 2005

provides some information which can be used to make assumptions about visitors. The visitor survey suggests that 55% of annual visitors to NNRs travel ten miles or less⁷, and can be classed as local visitors. The remaining 45% are treated as non-local visitors for the purposes of this study.

However, interviews with Natural England and the six case study NNRs suggest that local visitors account for a much larger proportion of the total number of visits to NNRs. It has therefore been assumed that local visitors undertake an average of three visits per annum, while non-locals visit only once, which suggests that local visitors account for 79% of all visits to NNRs. Non-local visitors are therefore estimated to account for 21% of all visits to NNRs, although there is no information to determine how many of the visits are associated with day-trippers, how many visitors stay overnight or how much they might spend in the local economy.

A recent study by the RSPB⁸ provides comparable information, based on an analysis of visitors to ten RSPB reserves⁹. The study suggested that 38.5% of visitors to the RSPB reserves in 2009 stayed overnight, 38% were day-trippers and 22.5% lived locally. This suggests a lower incidence of local visitors compared to the NNR research and a fairly even number of non-local day-trippers and overnight visitors. It is not clear whether these figures take account of multiple visits by the same individuals. The interviews with Natural England and the six individual NNRs suggest that RSPB reserves are typically marketed more strongly than those managed by Natural England and tend to have higher awareness outside of the local area. This provides further evidence of the lower incidence of non-local visitors to Natural England NNRs, while the interviews also suggested that non-local visitors are more likely to be day-trippers than overnight visitors compared to the RSPB reserves. Based on this information, it is estimated that 79% of visits to the NNRs managed by Natural England are from the local area, 14% are by non-local day-trippers and 7% by people staying overnight¹⁰.

The RSPB study also provides data relating to visitor expenditures. It suggests that non-local day-trippers each spent £11.88 in 2009, £4.92 of which could be attributed to the reserve, while overnight visitors each spent £161.60 per trip, of which £55.96 could be attributed to the reserve. Updating these figures to 2012 prices suggests expenditures that could be attributed to the reserves of:

- £5.25 for non-local day-trippers; and
- £60.00 for visitors staying overnight.

Expenditures of local visitors are excluded from the analysis as these are not additional expenditures for the local economy. Applying these assumptions to the estimated number of visitors to Natural England NNRs, suggests that visitor expenditures of approximately £21.7 million can be attributed to non-local visits to the 143 NNRs managed by Natural England.

The economic impacts of these visitor expenditures have been estimated using local tourism multipliers, based on an analysis of previous studies of local tourism impacts¹¹. Table 2.3 estimates that the impacts of visitor expenditures in the local economies of NNRs managed by Natural England are significant and support a total of 344 FTE jobs and £10.8 million of GVA.

⁷ The NNR Visitor Satisfaction Survey suggests that 50% of visitors to NNRs in summer 2005 travelled ten miles or less compared to 60% of visitors in winter 2004. For the purposes of this study, an average figure of 55% has been used to represent the proportion of visits made by local residents

⁸ RSPB (2011), RSPB Reserves and Local Economies

⁹ The ten RSPB reserves covered by the research study comprise Arne, Bempton Cliffs, Frampton Marsh, Lakenheath Fen, Minsmere, Mull of Galloway, Rathlin Island, Saltholme, South Stack and Titchwell Marsh.

¹⁰ Based on an assumption that non-local visitors are twice as likely to be day-trippers than overnight visitors

¹¹ This is based on a review of impacts from recent local studies using the Cambridge and STEAM models, which is included in the Literature Review for this study. The analysis suggests expenditure of £63,000 is required to support 1 FTE at the local level and every £1 of visitor expenditure supports £0.50 of GVA in the local economy, after allowing for indirect and induced multiplier effects

Table 2.3 Impacts of visitor expenditures in the local economy, NNRs managed by Natural England

	Visitors (million)	Attributable spend per visitor (£)	Visitor expenditure in the local economy (£m)	Tourism Impacts	
				Employment (FTE)	GVA impacts (£m)
Local visitors	3.38	-	-	-	-
Non-local day-trippers	0.61	5.25	£3.2m	51	£1.6m
Overnight visitors	0.31	60.00	£18.4m	293	£9.2m
Total	4.30		£21.7m	344	£10.8m

Source: RSPB (2011), RSPB Reserves and Local Economies, and ICF GHK analysis of 2006/07 Natural England visitor data, 2013

These estimates should be regarded as illustrative, and could be greatly improved by collation of more up to date estimates of visitor numbers, as well as surveys of visitor origins and expenditures.

2.5 Volunteering

The evidence collected from the case study NNRs suggests that the large majority of volunteers are based locally and therefore any expenditures by these volunteers are likely to have a minimal impact on the local economy. Shapwick Heath had the largest number of volunteers travelling from outside the local area and even here, the associated impacts for the local economy were minimal.

2.6 Total NNR impacts

Total NNR impacts have been estimated by adding the impacts of visitor expenditures to the impacts of the NNR operations and expenditures. Overall, the 143 NNRs managed by Natural England are estimated to have supported 679 FTE jobs and £23 million of GVA in their respective local economies in 2011/12, after taking account of all direct, indirect and induced effects. The largest impacts are associated with the visitors to the NNRs, who spend money on-site and in the local economy, while the impacts associated with managing and maintaining the reserves are relatively small in comparison.

Table 2.4 Total impacts of NNRs managed by Natural England on their local economies

TOTAL IMPACT	Employment (FTE)	GVA (£m)
Direct employment	148	£5.1m
NNR expenditures in the local economy	25	£2.6m
Other economic activity supported on the NNR	106	£2.3m
Indirect & induced effects from above	56	£2.0m
Visitor expenditures in the local economy	344	£10.8m
Volunteer expenditures	Minimal	Minimal
TOTAL IMPACT	679	£22.8m

Source: ICF GHK analysis of Natural England data, 2013

2.7 Impacts of the Six NNRs

The economic impacts of the six individual NNRs are described in detail in the following sections and are summarised in Table 2.5 below. As with the overall NNR impacts, it is also important to note that there is a degree of uncertainty about the scale of impacts of individual NNRs because of uncertainty about the extent to which activities and visits are dependent upon the land being managed as a NNR and can be attributed to the NNR.

Moor House Upper Teesdale is estimated to have the largest impact on the local economy, supporting 39 FTE jobs and £960,000 of GVA. More than half of these jobs and GVA are supported amongst the tenant farmers, graziers and estate activities that use the NNR. This is significantly higher than all other NNRs.

Saltfleetby Theddlethorpe Dunes is estimated to have the second largest impact of the six NNRs, supporting 27 FTE jobs and £845,000 of GVA in the local economy. This coastal site is particularly popular with visitors and the majority of these impacts are the result of visitor expenditures in the local economy.

The Derbyshire Dales is estimated to have the next largest impact of the six NNRs, supporting 22 FTE jobs and £687,000 of GVA in the local economy. The majority of these impacts are the result of visitor expenditures, although the reserve also has a relatively large impact resulting from the management of the NNR.

The Stiperstones and Shapwick Heath NNRs generate a smaller impact for their respective local economies. Shapwick Heath also has a relatively high level of other economic activities supported on the NNR (a café, shop and farming activities), while on-site employment and visitor expenditures generate the largest impacts for the Stiperstones. The Wye Downs NNR is by far the smallest of the six NNRs, and is estimated to have the smallest economic impact, supporting 1.9 FTE jobs and £52,000 of GVA in the local economy.

Table 2.5 Estimated economic impact of six individual NNRs, 2011/12

Employment (FTE)	Wye Downs	Derbyshire Dales	Stiperstones	Shapwick Heath	Saltfleetby Theddlethorpe Dunes	Moor House Upper Teesdale
Direct employment	0.5	3.8	2.8	2.4	2.2	3.1
NNR expenditures in the local economy	0.1	0.8	0.4	0.6	0.2	0.5
Other economic activity supported on the NNR	0.5	2.0	1.4	4.7	0.5	22.0
Indirect & induced effects	0.2	1.3	0.9	1.5	0.6	5.1
Visitor expenditures in the local economy	0.6	14.4	4.8	6.0	23.2	8.0
Volunteer expenditures	Minimal	Minimal	Minimal	Minimal	Minimal	Minimal
TOTAL EMPLOYMENT IMPACT	1.9	22.3	10.3	15.2	26.7	38.7
GVA (£)	Wye Downs	Derbyshire Dales	Stiperstones	Shapwick Heath	Saltfleetby Theddlethorpe Dunes	Moor House Upper Teesdale
Direct employment	10,000	112,000	97,000	55,000	75,000	85,000
NNR expenditures in the local economy	7,000	39,000	17,000	29,000	10,000	25,000
Other economic activity supported on the NNR	11,000	44,000	30,000	85,000	11,000	480,000
Indirect & induced effects	6,000	39,000	29,000	34,000	16,000	118,000
Visitor expenditures in the local economy	18,000	453,000	151,000	189,000	730,000	252,000
Volunteer expenditures	Minimal	Minimal	Minimal	1,000	Minimal	Minimal
TOTAL GVA IMPACT	52,000	687,000	324,000	393,000	845,000	960,000

Source: ICF GHK analysis of Natural England data, 2013

2.8 Discussion

The estimates above provide an initial, first order assessment of the economic impacts of NNRs.

The assessment found that good data are available within NE databases of the employment and expenditure associated with the management of those NNRs managed by Natural England itself. However, the analysis was constrained by a number of data gaps and limitations:

- There is a general lack of collated information relating to other economic activities taking place on NNRs;
- Estimates of visitor numbers are available for 2006/07 only, and more up-to-date estimates would be beneficial;
- There is a shortage of evidence on visitor origins, visiting patterns and visitor expenditures, and there would be benefit in collecting more evidence through visitor surveys; and
- Data on the locations of suppliers would be helpful, to inform assessments of local expenditures.

The largest economic impacts are estimated to relate to visitor expenditures, where there are also the greatest data gaps and uncertainties. Enhanced data on visitor numbers, and evidence on visiting patterns and expenditures through visitor surveys, would therefore appear to be priorities for future research.

3 Wye Downs NNR

The Wye Downs NNR is the smallest of the six case study NNRs. It comprises 134 hectares of lowland grassland in Kent and is particularly notable for its chalk grasslands and the different species of orchid and butterfly that it supports and attracts. The reserve also comprises areas of scrub and woodland including a small section of hazel coppice. Visitors are provided with a number of facilities including nature trails, a shelter, benches, signage and leaflets.

3.1 Employment and wages

The Wye Downs NNR is part of the Kent Reserve group, which employs four people: a senior reserve manager, a reserve manager, a reserve warden and a public engagement adviser. These are all full-time roles but the time is distributed fairly evenly between the different NNRs in Kent, which also include Stodmarsh, Blean Woods and Ham Street Woods NNRs. The role of the public engagement adviser has also recently been extended to cover NNRs in Hampshire, East and West Sussex as well as Kent. Only a relatively small amount of staff time is spent managing the Wye Downs, which is estimated to be about 50% of the time of the reserve warden (0.5 FTE jobs).

Three of the four members of the Kent Reserve team have degrees in practical and/or land management subjects and all have a combined experience of reserve management over many years. The wages associated with the Wye Downs NNR are estimated to be around £10,000, based on around 50% of a typical reserve warden salary.

3.2 NNR Expenditures

Approximately £11,000 was spent on coppicing work undertaken by external contractors at Wye Downs in the last financial year. This work was undertaken by a local social enterprise, the Wye Community Farm, which aims to educate people in the natural environment and therefore shares common social objectives with the NNR. The Wye Community Farm provides volunteers alongside paid contractors to undertake the work, which involved 17 days of paid time (i.e. excluding the time of volunteers).

It is difficult to specify the other expenditures because of the relatively small scale of operations compared to the other NNRs in the Kent Reserve group. Total expenditures across the group totalled £170,000 in 2011/12. Given that 12.5% of staff time in the Kent Reserve group is attributed to the Wye Downs NNR, it has also been assumed that 12.5% of total group expenditures are associated with the Wye Downs. This suggests expenditures of £21,000 associated with the Wye Downs.

The NNR purchases goods and services locally whenever possible. The external contractors were locally based and it is estimated that 25% of the other purchases involve local suppliers. This suggests that around £13,500 of the NNR expenditures (64%) are spent in the local economy. Using the standard assumptions described above, these expenditures are estimated to support an additional 0.1 FTE jobs and £7,000 of GVA amongst local businesses.

3.3 Other economic activity on the NNR

The NNR is also used by three graziers. One is the Wye Community Farm, which grazes cattle on the NNR only, while the other two are more traditional farmers and graze livestock on the NNR as well as other land. The study of RSPB reserves found that every 263 hectares of grazed land supported 1 direct FTE job¹², while the UK National Accounts suggest that each FTE job in agriculture generates an average of £21,800 of GVA per

¹² RSPB (2011), RSPB Reserves and Local Economies

annum¹³. These assumptions suggest that the 134 hectares of the Wye Downs NNR is estimated to support 0.5 FTE jobs and £11,000 of GVA amongst these three graziers.

3.4 Visitors and visitor expenditures

The latest available visitor data suggests that the Wye Downs receive approximately 7,000 visitors per annum (based on 2006/07 data), which includes between 20 and 30 school visits. There are two small car parks as well as nature trails and some online materials for visitors including education packs, podcasts, an audio trail and leaflets. Toilet facilities are provided by a local café, the Devil's Kneading Trough.

The Wye Downs is a popular picnic destination and the majority of visitors are likely to be local people, although it does receive a lot of walkers, many of whom will catch a train to Wye and walk up to the NNR. As well as the on-site café there is also a range of food and drink and accommodation providers in the village of Wye. Applying the standard assumptions for visitor characteristics and expenditures, suggest that £35,000 of visitor expenditures can be attributed to the Wye Downs NNR. This expenditure is estimated to support 0.6 FTE jobs and £18,000 of GVA in the local economy.

3.5 Additional social impacts

The Wye Downs NNR is also supported by volunteer activity. The NNR has its own volunteers including six regular and six less regular volunteers, which provide a combined total of around 100 volunteer days at Wye Downs each year. The NNR also benefits from the volunteers working at the Wye Community Farm. These volunteers tend to be young offenders on probation, who are involved in the Community Payback Scheme. These volunteers support the Wye Community Farm in undertaking work for the NNR, such as coppicing. In the last financial year, this has amounted to a further 200 volunteer days. The Wye Downs therefore receives a total of 300 volunteer days per annum.

The majority of these volunteers are from the local area, so there will only be a minimal impact on the local economy through the expenditures of volunteers.

3.6 Overall economic impact

The economic impacts associated with the NNR are presented in Table 3.1, which shows that the Wye Downs NNR and associated expenditures are estimated to support a total of 1.9 FTE jobs and approximately £52,000 of GVA in the local economy per annum. It is important to note that there is a degree of uncertainty about the extent to which activities and visits are dependent upon the land being managed as a NNR and can be attributed to the NNR, which means that these estimates should be treated as indicative.

Table 3.1 Estimated economic impact of the Wye Downs NNR, 2011/12

TOTAL IMPACT	Employment (FTE)	GVA (£)
Direct employment	0.5	10,000
NNR expenditures in the local economy	0.1	7,000
Other economic activity supported on the NNR	0.5	11,000
Indirect & induced effects	0.2	6,000
Visitor expenditures in the local economy	0.6	18,000
Volunteer expenditures	Minimal	Minimal
TOTAL IMPACT	1.9	52,000

Source: ICF GHK analysis of Natural England data, 2013

¹³ UK National Accounts 2012 (2011 data inflated to 2012 prices)

4 Derbyshire Dales NNR

4.1 Introduction

The Derbyshire Dales NNR lies within the Peak District National Park and covers a total area of 385 hectares. It is made up of five valleys: Lathkill Dale, Cressbrook Dale; Monk's Dale; Long Dale and Hay Dale. The main habitats are limestone grassland, scrub and woodland, while there are also areas of hay meadow, scree, acid grassland, streams and dew ponds and small areas of limestone heath.

Each of the valleys has its own unique characteristics, although all are notable for their limestone scenery, diverse flora and the wide range of wildlife that this supports. 87% of the Derbyshire Dales NNR is classed as a Site of Special Scientific Interest (SSSI) for its wildlife and/or geology, while just over three-quarters is a Special Area for Conservation (SAC).

4.2 Employment and wages

Management of the Derbyshire Dales Reserve Group provides employment for six people including a senior reserve manager, a reserve manager, two reserve wardens, a support officer and a community outreach adviser. Some of these roles are part-time and it has been estimated that the reserve group employs 4 FTE staff in total. There are other, smaller NNRs managed by the Derbyshire Dales Reserve Group but it is estimated that the vast majority of this time (3.8 FTEs) is spent managing the Derbyshire Dales NNR.

The team are all educated to degree level, have considerable experience and a broad range of skills including site management, finance, IT and more practical skills. Wages for the Reserve Group total around £120,000 per annum, approximately £112,000 of which is estimated to relate to time spent managing the Derbyshire Dales.

4.3 NNR Expenditures

The Reserve Group spends approximately £150,000 per annum and around £135,000 relates specifically to the Derbyshire Dales NNR. The largest expenditures relate to the use of external contractors, who are used for some of the larger jobs that require more specialist skills and equipment. Recent examples of jobs include larger sections of dry-stone walling, scrub and woodland management, and the development of a new pond. Approximately £60,000 was spent on external contractors in the last financial year, all of which was spent with local contractors.

Other major purchases relate to the office, workshops and machinery, fuel and maintenance and general costs associated with the management of the NNR. The NNR purchases goods and services locally whenever possible and it is estimated that 25% of these other purchases are local expenditures. This suggests that around 58% of the NNR expenditures (£79,000) are spent in the local economy. Using the standard assumptions described above, these expenditures are estimated to support an additional 0.8 FTE jobs and £39,000 of GVA amongst local businesses.

4.4 Other economic activity on the NNR

The NNR is also used by graziers and shooting parties and these activities produce additional incomes from the NNR.

Fourteen people grazing sheep and cattle on the NNR. Natural England receives a small income from the graziers, of around £9,000 per annum, but also benefits as the grazing helps to keep the NNR in good condition. For some of the graziers, the NNR represents an integral part of their grazing land (up to around 80%), while for others the NNR provides only a very small proportion of the total land used for grazing the animals. On average it is estimated that the NNR provides 10-15% of the land used by the graziers.

Using the standard assumptions described above for the Wye Downs¹⁴ suggests that the 385 hectares of the Derbyshire Dales NNR is estimated to support 1.5 FTE jobs and £32,700 of GVA amongst the 14 graziers using the NNR.

Pheasant shooting also takes place on the NNR on Wednesdays from mid-November to the end of January. The sporting rights have been retained by Melbourne Estates and approximately ten shoots take place each year. Each shoot is likely to involve ten 'guns' and customers will each pay around £500 per shoot, resulting in a total expenditure of £50,000 per annum. NNR staff estimate that the customers are likely to be fairly evenly split between local and non-local people, and a large proportion of non-local people stay overnight, although it is assumed that these expenditures are included in the visitor expenditure section. However, each shoot also employs around 10-15 local beaters, which is estimated to equate to around 0.5 FTE jobs across the course of each year. Applying the same GVA per job assumption as the grazing suggests that the shooting activities support an additional £11,000 of GVA per annum.

In total the shooting and grazing activities are estimated to support an additional 2 FTE jobs and £44,000 of GVA in the local economy each year.

4.5 Visitors and visitor expenditures

The NNR attracts large numbers of visitors and previous estimates suggest that it receives approximately 180,000 visitors per annum. The NNR is located within the Peak District National Park and paths and trails in the NNR link with those across the wider Peak District.

The Peak District has a strong visitor focus and there are many local opportunities for visitors to purchase food and drink and accommodation. A relatively large proportion of visitors will travel from outside the local area and many will stay overnight, although little is known about the proportion of locals and non-locals, and day-trippers and those staying overnight. There is some seasonality to the flow of visitors and around 60-70% of visitors are estimated to visit the NNR between April and October, although it receives large numbers of visitors all year round.

There are some facilities for visitors including signage, while car parking and toilets are currently provided by the local authority. The site therefore provides sufficient facilities to qualify and meet the requirements of being labelled a 'destination NNR'. However, the recent budget cuts means there is uncertainty whether the local authority will be able to continue maintaining these facilities and they are in discussions with the Derbyshire Dales NNR team about the future maintenance of these facilities.

Applying the standard assumptions for visitor characteristics and expenditures, suggest that £906,000 of the expenditures of visitors to the Derbyshire Dales can be attributed to the NNR. This expenditure is estimated to support 14.4 FTE jobs and £453,000 of GVA in the local economy. These figures are likely to be conservative, since the NNR is likely to attract a relatively large number of non-local visitors compared to other NNRs.

4.6 Additional social impacts

A large number of volunteers also support the management of the NNR. A group of 'reserve ambassadors' was recently established to encourage volunteers to work with Natural England to keep an eye on the reserve and its wildlife, engage with visitors, deal with questions and report issues and feedback, and occasionally work as a group to undertake practical tasks or run events. There are currently around 30 ambassadors and a further 40 volunteers. Time inputs vary widely, although it is estimated that the average person volunteers for around 1 day per month.

The majority of these volunteers are from the local area, although around 10% of volunteers travel from Sheffield and Derby and travel from around 15 to 20 miles away and will have a

¹⁴ Every 263 hectares of grazed land supports 1 direct FTE job and £21,800 of GVA amongst the graziers

small impact on the local economy through their expenditures with local businesses while volunteering at the NNR.

4.7 Overall economic impact

The different economic impacts associated with the Derbyshire Dales NNR are presented in Table 4.1. It shows that the Derbyshire Dales NNR and associated expenditures are estimated to support a total of 22.3 jobs and approximately £687,000 of GVA in the local economy per annum, the majority of which is supported by the expenditures of visitors to the NNR. It is important to note that there is a degree of uncertainty about the extent to which activities and visits are dependent upon the land being managed as a NNR and can be attributed to the NNR, which means that these estimates should be treated as indicative.

Table 4.1 Estimated economic impact of the Derbyshire Dales NNR, 2011/12

TOTAL IMPACT	Employment (FTE)	GVA (£)
Direct employment	3.8	112,000
NNR expenditures in the local economy	0.8	39,000
Other economic activity supported on the NNR	2.0	44,000
Indirect & induced effects	1.3	39,000
Visitor expenditures in the local economy	14.4	453,000
Volunteer expenditures	Minimal	Minimal
TOTAL IMPACT	22.3	687,000

Source: ICF GHK analysis of Natural England data, 2013

5 Stiperstones NNR

The Stiperstones NNR covers an area of approximately 480 hectares of uplands in Shropshire, close to the Welsh border. It includes areas of SSSI and SAC land and is predominantly upland heathland but also includes areas of woodland, grassland and hay meadow. The NNR includes a number of bridleways and footpaths and is popular with walkers and cyclists.

A number of facilities are provided for visitors including car parking, nature trails and a programme of around 12 visitor events per annum including guided walks and community events. Two miner's cottages are located on the NNR and have been restored and are now open to visitors on one or two days per month from April to October. The NNR also makes a contribution to maintain the toilets at the car park (which are owned by the local authority) and contributes to the Stiperstones Shuttle Bus, which is managed by the National Trust and links the NNR with surrounding hills and villages. The NNR also has links to the nearby Bog Visitor Centre and Snailbeach Mine, which are adjacent to the site and run by volunteers. They celebrate the site's history of lead mining, which provides a good fit with the miner's cottages on the NNR.

5.1 Employment and wages

The Stiperstones NNR is part of the Stiperstones Reserve group, which employs four people: a senior reserve manager, a reserve manager, a reserve warden and a community engagement adviser. These are full-time roles except for the reserve warden who works two days per week. Total employment in the group is therefore 3.4 FTE jobs, although only 2.8 FTE jobs are associated with the Stiperstones NNE, as some staff time is shared with Downton Gorge NNR. This figure is likely to fall further in the future as the engagement adviser is expected to have a broader geographical focus.

The Stiperstones team have a wide range of skills and qualifications that match their job roles, covering practical skills such as tractor and chainsaw operation, habitat and conservation management and experience of working with the public. Information on wages was not available at the time of the interview but has been estimated using the Natural England average across all NNRs of £34,500 per FTE job. This suggests total wages associated with the Stiperstones NNR of £97,000 per annum.

5.2 NNR Expenditures

Expenditures associated with the Stiperstones NNR totalled £52,000 in the latest financial year, although this included a one-off payment of £10,000 to build a hay barn on the NNR. Approximately £25,000 was spent on contractors, who were used for fencing, bracken control, predator control, tree work and research projects. All except the research projects were undertaken by local contractors, suggesting that £22,000 was spent on local contractors. Most of the remaining £17,000 was spent on plant and equipment maintenance, track maintenance, tools, diesel, keeping animals, administrative supplies, cleaning and general office costs, and financial contributions to the toilets, the shuttle bus service (which employs a number of drivers) and the Bog Visitor Centre. The interviewee estimated that 75% of these other expenditures are also made in the local economy.

This suggests that around £35,000 of the NNR expenditures (67%) are spent in the local economy. Using the standard assumptions described above, these expenditures are estimated to support an additional 0.4 FTE jobs and £17,000 of GVA amongst local businesses.

5.3 Other economic activity on the NNR

The NNR is used by two graziers. One grazier pays rent to Natural England, while the other pays a nominal rent but also mows and cuts hedges on the NNR as an in-kind payment. It is

estimated that grazing on the NNR supports 1 FTE job and generates GVA of £22,000 based on the assumptions described above¹⁵.

The NNR also generates incomes for others including:

- Shooting activities – approximately eight days of pheasant shooting takes place on the hill. Based on the calculations for the Derbyshire Dales, this activity is estimated to support 0.4 FTE jobs and £8,000 of GVA in the local economy.
- Local walking festivals – the NNR is used for local walking festivals. The NNR team supports the festivals by providing walks and talks although the incomes supported by the NNR are assumed to be minimal.
- Cycling and endurance events pass through the NNR, using its bridleways, although the level of income received (and any proportion attributable to the NNR) is unknown.
- The Field Studies Council and other partners also use the NNR as a location for events and a destination for visiting groups, and charge a small fee per person.
- Local people picking bilberry on the NNR and then selling it, although the income received is likely to be minimal.

In total the shooting and grazing activities are estimated to support an additional 1.4 FTE jobs and £30,000 of GVA in the local economy each year.

5.4 Visitors and visitor expenditures

The number of visitors has previously been counted at the Stiperstones and estimated to total 30,000 visitors per annum. However, this only counted visitors using the main entrance and it is estimated that a similar number of visitors are likely to enter the NNR through the other entrances, making a total of 60,000 visitors. The Bog Visitor Centre provides refreshments for visitors, while there are also B&Bs, pubs, shops and a campsite within the local area.

There are no data about the origin of visitors or the length of stay, but the NNR team believes that the site receives a relatively large number of non-local visitors and particularly non-local day-trippers compared to the other NNRs. However, given the lack of evidence, the standard assumptions have been applied. This suggests that £302,000 of the expenditures of the 60,000 visitors can be attributed to the Stiperstones NNR and is estimated to support 4.8 FTE jobs and £151,000 of GVA in the local economy.

5.5 Additional social impacts

The Stiperstones NNR is also supported by volunteer activity. The NNR has a group of a dozen volunteers to help with practical tasks. There are typically around 24 tasks undertaken each year and an average of six volunteers per task, which suggests 144 volunteer days per annum. There are also other groups of volunteers that visit the NNR on an average of five days per year, involving around 15 people per group, which adds a further 75 volunteer days. The NNR also receives further support from work experience and long term volunteers, who are estimated to add an average of one volunteer day per week (52 volunteer days per annum). Additionally, the miner's cottages are usually open for around nine days per year and are manned by two volunteers each day, resulting in a further 18 days and 289 volunteer days in total. Most volunteers live locally and are therefore unlikely to generate significant impacts for the local economy.

There are close links between the Stiperstones NNR (including the miner's cottages), the Bog Visitor Centre and the Snailbeach Mine, through the shared focus on the lead mining heritage of the local area. All parties benefit from working together to attract visitors and sharing the costs associated with leaflets, marketing and running events. The contribution towards the local shuttle bus also helps to attract visitors, whilst also reducing the impacts of car traffic. The bus service is operated by the local AONB and provides a valuable service to

¹⁵ Every 263 hectares of grazed land supports 1 direct FTE job and £21,800 of GVA amongst the graziers

the local community. However, while the service charges fees to passengers it is not a sustainable activity without the contributions from the NNR and others.

In addition to the rent from graziers, the NNR also receives a small income from charging for some events, renting out a room at the NNR office, selling a few sheep, and selling booklets of local walks.

5.6 Overall economic impact

The economic impacts associated with the Stiperstones NNR are presented in Table 5.1, which shows that the NNR and associated expenditures are estimated to support a total of 10.3 FTE jobs and £324,000 of GVA in the local economy per annum, the majority of which are supported by on-site employment and visitor expenditures. It is important to note that there is a degree of uncertainty about the extent to which activities and visits are dependent upon the land being managed as a NNR and can be attributed to the NNR, which means that these estimates should be treated as indicative.

Table 5.1 Estimated economic impact of the Stiperstones NNR, 2011/12

TOTAL IMPACT	Employment (FTE)	GVA (£)
Direct employment	2.8	97,000
NNR expenditures in the local economy	0.4	17,000
Other economic activity supported on the NNR	1.4	30,000
Indirect & induced effects	0.9	29,000
Visitor expenditures in the local economy	4.8	151,000
Volunteer expenditures	Minimal	Minimal
TOTAL IMPACT	10.3	324,000

Source: ICF GHK analysis of Natural England data, 2013

6 Shapwick Heath NNR

The Shapwick Heath NNR is a wetland reserve covering more than 500 hectares of the Somerset Levels and Moors. Large parts of the site were previously used by the peat industry before being passed over to the nature conservation agencies. The site was first designated as Shapwick Heath NNR in 1961 and has since been restored to a nationally significant reedbed system. There are also several other NNRs and reserves located within two miles of Shapwick including: Ham Wall NNR, managed by RSPB; Westhay Moor NNR, Catcott Lows and Westhay Heath managed by Somerset Wildlife Trust; and Shapwick Moor, managed by the Hawk and Owl Trust. Approximately one third of the reserve is reed beds, another third is a mixture of farmland and hay meadow, and the final third is fen, mire, woodland and remnant bog.

Natural England owns office and workshop space at the Avalon Marshes Centre and shares workshop facilities with the RSPB and Wildlife Trust. There are a range of visitor facilities at the Avalon Marshes Centre including car parking, a shop, information centre and café, whilst on the reserve there are several viewing hides, eight trails, a small car park and an old railway track providing cycle and wheelchair access, which links to the Sustrans cycle route to Glastonbury.

6.1 Employment and wages

The Shapwick Heath NNR is part of the Somerset Reserve group, which employs five people in total. These include two full time, permanent staff (the senior reserve manager and reserve manager) and a full-time temporary contract to March 2014. The NNR also contributes to two projects which employ two other individuals (with the Hawk and Owl Trust and the Somerset Wildlife Trust). These individuals spend time working for the different organisations, which includes 1.5 days and 2 days per week working for the NNR. In total the Somerset Reserve group supports 3.7 FTE jobs.

The Reserve group spends time managing all six Somerset NNRs, although Shapwick Heath is the largest in terms of visitor numbers and staff input and accounts for 2.4 FTE jobs (65% of staff time). The total wages across the team are £86,500, £55,000 of which is associated with the Shapwick Heath NNR. The team is very experienced and also includes individuals with degree-level qualifications.

6.2 NNR Expenditures

Expenditures associated with the Shapwick Heath NNR are estimated to total approximately £100,000 per annum. The largest expenditures in the last financial year have involved the use of contractors to make and repair ditches, construct fencing, undertake scrub work, repair water structures, undertake building work and maintain the Avalon Marshes Visitor Centre. The NNR likes to use local contractors whenever possible but must tender contracts of more than £3,000 in value. It is estimated that 80% of contractors are based locally and 60% of overall expenditures (£60,000) are spent in the local economy. Using the standard assumptions regarding multipliers described above, these expenditures are estimated to support an additional 0.6 FTE jobs and £29,000 of GVA amongst local businesses.

6.3 Other economic activity on the NNR

There are two businesses located on the NNR:

- Somerset Crafts is a shop selling arts and crafts produced by local Somerset artists and also runs art courses and demonstration days. The shop is open every day from 10am to 5pm and is manned by one person (1.2 FTE jobs including the induced impact). Based on a standard assumption of £17,500 of GVA per worker in retail shops selling

cultural and recreation goods¹⁶, it is estimated to generate £21,000. The shop pays a peppercorn rent to Natural England as well as 20% commission on all sales.

- Eco-friendly Bites is a café and recently won a Fair Trade award. It is run by two full-time and four part-time staff, and is estimated to provide 3 FTE jobs in total. Based on a standard assumption of £17,500 of GVA per worker in food and beverage service activities¹⁷, it is estimated to support £53,000 of GVA in the local economy.

There is also a tenant farmer, who claims higher level stewardship, and has a grazing agreement on the NNR. It is estimated that the NNR supports 0.5 FTE jobs and £11,000 of GVA for the tenant farmer, based on the standard assumptions described above¹⁸.

In total, these activities are estimated to support 4.7 FTE jobs and £85,000 of GVA in the local economy.

In addition to the rent received from these businesses, the NNR also receives income from donations, money for filming on the reserve and renting out rooms for use by external groups.

6.4 Visitors and visitor expenditures

The latest visitor data, collected by on-site visitor counters, suggests that the Shapwick Heath NNR receives approximately 75,000 visitors per annum and is busy throughout the year. Visitors are attracted to a number of 'wildlife spectacles' across the year including starling roosts, hobby falcons, breeding bitterns and sightings of otters and water voles.

As well as the on-site facilities provided by the visitor centre, shops and café, there are also a number of local providers of accommodation and food and drink for visitors. Applying the standard assumptions for visitor characteristics and expenditures, suggest that £378,000 of visitor expenditures can be attributed to the Shapwick Heath NNR. This expenditure is estimated to support 6.0 FTE jobs and £189,000 of GVA in the local economy.

Natural England is also working on a project with Somerset Wildlife Trust, the Hawk and Owl Trust and RSPB to develop a new joint visitor centre for the different NNRs based around Shapwick Heath, and are due to submit a planning application shortly.

6.5 Additional social impacts

The Shapwick Heath NNR is supported by the largest number of volunteers and volunteer days of all six case study NNRs. It has a pool of 60 volunteers, who provide a range of tasks including nature conservation management, basic building and repair work, wildlife monitoring and supporting educational visits and other events. Shapwick Heath receives approximately 13,000 volunteer hours per annum, which equates to more than 1,800 volunteer days.

It is estimated that 80% of volunteers are based locally but 20% travel more than 20 miles from Yeovil, Tiverton and Wellington. If it is assumed that the 20% of volunteer days involving non-local volunteers (360) spend the same as a non-local day-trip visitor (£5.25), it is estimated that these volunteers spend an additional £1,900 per annum in the local economy, supporting 0.02 FTE jobs and £1,000 of GVA.

The NNR team also believe there is considerable potential to increase the economic contribution of the NNR by selling compost and firewood, charging fees for guided walks and potentially selling cut reed for use in manufacturing bio-fuels.

¹⁶ Annual Business Survey, 2011 data, inflated to 2012 prices

¹⁷ Annual Business Survey, 2011 data, inflated to 2012 prices

¹⁸ 1 direct FTE job is estimated to produce £21,800 of GVA for the tenant farmer per annum

6.6 Overall economic impact

The economic impacts associated with the NNR are presented in Table 6.1, which shows that the Shapwick Heath NNR and associated expenditures are estimated to support a total of 15.2 FTE jobs and approximately £393,000 of GVA in the local economy per annum. It is important to note that there is a degree of uncertainty about the extent to which activities and visits are dependent upon the land being managed as a NNR and can be attributed to the NNR, which means that these estimates should be treated as indicative.

Table 6.1 Estimated economic impact of the Shapwick Heath NNR, 2011/12

TOTAL IMPACT	Employment (FTE)	GVA (£)
Direct employment	2.4	55,000
NNR expenditures in the local economy	0.6	29,000
Other economic activity supported on the NNR	4.7	85,000
Indirect & induced effects	1.5	34,000
Visitor expenditures in the local economy	6.0	189,000
Volunteer expenditures	Minimal	1,000
TOTAL IMPACT	15.2	393,000

Source: ICF GHK analysis of Natural England data, 2013

7 Saltfleetby Theddlethorpe Dunes NNR

The Saltfleetby Theddlethorpe Dunes NNR is a coastal habitat located on the north-east coast of Lincolnshire, comprising sand dunes and saltmarsh. It is a relatively large NNR covering approximately 8km of coastline and 600 hectares. The coastal location means that visitor trends have a relatively strong seasonal influence.

Visitor facilities include a number of car parks and a series of easy access trails and pathways. Natural England also organises many free events at the NNR including guided walks and education visits.

7.1 Employment and wages

The Saltfleetby Theddlethorpe Dunes NNR is one of a number of reserves found along the Lincolnshire coast. It employs three people: a senior reserve manager, a reserve manager and a reserve warden. The senior reserve manager and reserve manager work for three days per week but the reserve warden works full-time. Total employment in the group is therefore 2.2 FTE jobs, as only 1% of staff time is associated with The Wash and Muston Meadows NNRs.

The Reserve team has considerable experience of nature conservation and working on nature reserves and has a range of complementary skills, including management of nature reserves, practical skills and communication and public engagement skills. Information on wages was not available at the time of the interview but has been estimated using the Natural England average across all NNRs of £34,500 per FTE job. This suggests total wages associated with the Saltfleetby Theddlethorpe Dunes NNR of £75,000 per annum.

7.2 NNR Expenditures

The Saltfleetby Theddlethorpe Dunes NNR has its own independent budget of approximately £33,000 per annum, of which around £12,000 is spent on external contractors. Contractors are typically used for major construction projects, path repairs, scrub clearance and research surveys. The large majority of contractors used by the NNR are based locally, with the exception of the research and survey contractors. It is therefore estimated that around £9,000 (75%) is spent on local contractors each year.

The remaining £21,000 of the NNR budget is used to purchase other goods and services including machinery, maintenance, signage, and standard office costs. The NNR suggests that goods and services are purchased locally whenever possible. It is therefore estimated that 50% of these other purchases involve local suppliers. This suggests that around £19,500 of the NNR expenditures (59%) are spent in the local economy. Using the standard assumptions described above, these expenditures are estimated to support an additional 0.2 FTE jobs and £10,000 of GVA amongst local businesses.

7.3 Other economic activity on the NNR

The NNR is used by two graziers, who pay £150 per year to graze animals on the NNR between September and December, unless the ground is too wet. Since the farmers only graze animals on the site for three months of the year, the NNR is estimated to support a maximum of 0.5 FTE jobs and £11,000 of GVA amongst these graziers based on the standard assumptions described above¹⁹.

7.4 Visitors and visitor expenditures

The Saltfleetby Theddlethorpe Dunes NNR is a popular visitor destination and is estimated to receive 290,000 visitors per annum, which is by far the largest number of visitors of the six case study sites. People visit the NNR throughout the year, although there is some

¹⁹ 1 direct FTE job is estimated to produce £21,800 of GVA amongst the graziers per annum

seasonality in visitor trends with two-thirds of visits thought to occur during the summer months and the NNR can suffer from visitor pressure in the peak holiday season.

The NNR receives many holiday-makers and is a popular destination for people in the East Midlands but also attracts many naturalists. It is also a popular destination for local people to walk their dogs. There are also many local opportunities for visitors to find B&B or campsite accommodation and spend money on food, drink and other goods.

However, the NNR is not perceived by the NNR team to be a major reason for most holiday-makers to visit the local area. Instead, the NNR is more likely to provide a nice trip out for those already in the area. This provides further evidence, as described above, that the majority of visitors are likely to be local. The standard assumptions have therefore been applied for visitor characteristics and expenditures, which suggest that £1.46 million of visitor expenditures can be attributed to the Saltfleetby Theddlethorpe Dunes NNR. This expenditure is estimated to support 23.2 FTE jobs and £730,000 of GVA in the local economy. These estimates may be conservative, given the relatively large number of non-local visitors thought to use the NNR.

7.5 Additional social impacts

The Saltfleetby Theddlethorpe Dunes NNR is estimated to benefit from approximately 200 volunteer days per annum. The NNR has two or three lead volunteers, who organise volunteer groups, while some also help the reserve warden with practical management aspects. The majority of these volunteers are from the local area, so there will only be a minimal impact on the local economy through the expenditures of volunteers.

The NNR also has a close working relationship with the Lincolnshire Wildlife Trust and the two organisations benefit from being able to share resources.

7.6 Overall economic impact

The economic impacts associated with the NNR are presented in Table 7.1, which shows that the Saltfleetby Theddlethorpe Dunes NNR and associated expenditures are estimated to support a total of 26.7 FTE jobs and approximately £845,000 of GVA in the local economy per annum, the majority of which are supported by visitor expenditures. It is important to note that there is a degree of uncertainty about the extent to which activities and visits are dependent upon the land being managed as a NNR and can be attributed to the NNR, which means that these estimates should be treated as indicative.

Table 7.1 Estimated economic impact of the Saltfleetby Theddlethorpe Dunes NNR, 2011/12

TOTAL IMPACT	Employment (FTE)	GVA (£)
Direct employment	2.2	75,000
NNR expenditures in the local economy	0.2	10,000
Other economic activity supported on the NNR	0.5	11,000
Indirect & induced effects	0.6	19,000
Visitor expenditures in the local economy	23.2	730,000
Volunteer expenditures	Minimal	Minimal
TOTAL IMPACT	26.7	845,000

Source: ICF GHK analysis of Natural England data, 2013

8 Moor House – Upper Teesdale NNR

8.1 Introduction

The Moor House – Upper Teesdale NNR is a particularly large site covering approximately 8,800 hectares of the Pennine moors and is by far the largest of the six case study NNRs. The reserve is located in the heart of the North Pennines AONB and is in two parts on either side of Cow Green Reservoir. It is an upland habitat of predominantly open moorland but also includes areas of blanket bog, northern hay meadows and limestone grassland.

The NNR is traversed by the Pennine Way and is popular with walkers. Visitor facilities include car parking at the reservoir, High Force and at Bowlees and the site is served by buses, which provide links to Middleton-in-Teesdale and surrounding villages.

8.2 Employment and wages

The Moor House Upper Teesdale Reserve Group employs four people including a senior reserve manager, two reserve managers and a community outreach adviser. The outreach adviser works four days per week but the others work full-time, so the reserve group employs a total of 3.8 FTE staff. However, some of the time of the Reserve Group is spent managing Muckle Moss, Derwent Gorge and Muggleswick Woods so it is estimated that 3.1 FTE jobs are associated with the management of the Moor House Upper Teesdale NNR.

The team are all well qualified and are either studying for a degree or are already educated to degree level. The team also share a range of practical skills certificates in health and safety, first aid, use of pesticides, tractor and chainsaw operation. Wages for the Reserve Group total approximately £106,000 per annum, £85,000 of which is estimated to relate to time spent managing the Moor House Upper Teesdale NNR.

8.3 NNR Expenditures

The Reserve Group spends a total of £140,000 per annum, approximately 90% (£126,000) of which is estimated to relate specifically to the Moor House Upper Teesdale NNR. The NNR team estimate that only around 40% of these expenditures (£50,000) involve purchases from local suppliers. Using the standard assumptions described above, these expenditures are estimated to support an additional 0.5 FTE jobs and £25,000 of GVA in the local economy.

The largest expenditures relate to the use of external contractors, who have recently been used to provide fencing, peatland restoration, road repairs, catering contracts and bio-surveys. Local businesses were used for the fencing, peatland restoration and catering. Other expenditures include rents paid for the NNR office premises and some of the reserve, which is rented from Northumbrian Water.

8.4 Other economic activity on the NNR

The NNR is also used by a number of different parties including graziers, tenant farmers, estate activities including shooting parties, and the water industry. These activities produce additional incomes from the NNR.

The NNR encompasses six separate farm holdings, each of which is estimated to support employment for a couple, therefore totalling 12 people. There are also five individuals grazing livestock on the NNR. In total, the farming and grazing activities are estimated to support 17 FTE jobs and £371,000 of GVA based on the assumptions described above²⁰.

The two local estates have agreements to shoot on land that includes the NNR and employ three full-time gamekeepers. The NNR represents 75% of the Strathmore Estate and 10%

²⁰ 1 direct FTE job is estimated to produce £21,800 of GVA amongst the graziers per annum

of the Raby Estate. It is therefore estimated that the gamekeeper activities associated with the NNR account for 1 FTE job.

The Strathmore and Raby Estates undertake shooting on two days per week over a ten week period from August to October (20 days each). An average shooting party will have eight shooters, who will each pay approximately £1,000 for a day shooting grouse. The income generated is therefore estimated to total £320,000. Since the NNR represents 75% of the land used by the Strathmore Estate and 10% for the Raby Estate, it is estimated that £136,000 of the income is associated with the NNR.

Furthermore, in addition to the gamekeepers, each shooting party will include an average of around 60 support staff comprising beaters, loaders, pickers-up and caterers. This suggests a total of 2,400 days of work are associated with the shooting activities, 1,020 of which are associated with shooting on the NNR. Assuming 252 working days per year, the shooting activities on the NNR support 4 FTE jobs for support staff. The estate activities associated with the NNR therefore support a total of 5 FTE jobs. Applying the same GVA per job assumption as the grazing suggests that the shooting activities support an additional £109,000 of GVA per annum.

In total the shooting and grazing activities are estimated to support an additional 22 FTE jobs and £480,000 of GVA in the local economy each year.

Cow Green Reservoir is also located on the NNR, which generates an income for Northumbrian Water, although it is not possible to estimate a value that can be attributed to the NNR.

The grazing, farming and shooting activities do not provide any income for the NNR. The only source of income for the NNR is reported to be a contribution towards research, provided by Northumbrian Water, which varies from £2,000 to £10,000 per annum.

8.5 Visitors and visitor expenditures

It is difficult to estimate visitor numbers for the NNR because it is a network of sites with multiple access points. The NNR team estimates visitors to total 100,000 per annum and suggests that a large number of visitors are non-local day visitors from the north east of England. Visitor numbers are strong all year round although there is some seasonality, particularly for family visits.

Applying the standard assumptions for visitor characteristics and expenditures, suggest that £504,000 of visitor expenditures can be attributed to the Moor House – Upper Teesdale NNR. This expenditure is estimated to support 8.0 FTE jobs and £252,000 of GVA in the local economy.

The local area is particularly rural but there are opportunities for visitors to spend money in the local economy, and many of these are focused in Middleton-in-Teesdale. There is also a main visitor centre in Bowlees, which has recently been taken over by the North Pennines AONB, who undertake joint events with the NNR. The NNR is also working on a project with the Strathmore Estate landowners to potentially convert farm buildings into a visitor centre for the NNR to focus on the local agricultural history.

8.6 Additional social impacts

The NNR also benefits from 275 volunteer days per annum, provided by 35 volunteers. The large majority of these volunteers are based locally although a few travel from up to 30 miles away and will have a small impact on the local economy through their expenditures in the local economy while volunteering at the NNR.

8.7 Overall economic impact

The economic impacts associated with the NNR are presented in Table 8.1. It shows that the Moor House Upper Teesdale NNR and associated expenditures are estimated to support a total of 39 jobs and approximately £960,000 of GVA in the local economy per annum, the

majority of which is supported by the other economic activities that take place on the NNR. It is important to note that there is a degree of uncertainty about the extent to which activities and visits are dependent upon the land being managed as a NNR and can be attributed to the NNR, which means that these estimates should be treated as indicative.

Table 8.1 Estimated economic impact of the Moor House – Upper Teesdale NNR, 2011/12

TOTAL IMPACT	Employment (FTE)	GVA (£)
Direct employment	3.1	85,000
NNR expenditures in the local economy	0.5	25,000
Other economic activity supported on the NNR	22.0	480,000
Indirect & induced effects	5.1	118,000
Visitor expenditures in the local economy	8.0	252,000
Volunteer expenditures	Minimal	Minimal
TOTAL IMPACT	38.7	960,000

Source: ICF GHK analysis of Natural England data, 2013

Annex 1 Interviewees

ICF GHK would like to thank the Natural England employees who were interviewed during the course of this project and/or provided additional data, including:

- Joanna Carter, Community Outreach Advisor, Wye Downs NNR
- Becky Plunkett, Senior Reserve Manager, Wye Downs NNR
- Kevin Bull, Senior Reserve Manager, Derbyshire Dales NNR
- Simon Cooter, Senior Reserve Manager, Stiperstones NNR
- Simon Clarke, Senior Reserve Manager, Shapwick Heath NNR
- Peter Roworth, Senior Reserve Manager, Saltfleetby Theddlethorpe Dunes NNR
- Chris McCarty, Senior Reserve Manager, Moor House – Upper Teesdale NNR