Valuing Forest Recreation Activities

Introduction

This study was undertaken for the Forestry Commission by a team of environmental economists and social researchers, lead by Dr Mike Christie at Aberystwyth University. Data was collected from individual surveys conducted in seven forests across the UK - Glentress, Dyfnant, Cwn Cam, Thetford, New Forest, Whinlatter and Rothiemurchus. These forests were selected as representative by type, location and usage. A total of 1,568 interviews were undertaken.

The study looks specifically at recreational users of forests, with the first stage focusing on the local economic impacts of visitors. It also aimed to analyse the value that different groups of users attach to their visits, be it for cycling, horse riding, nature watching or a general visit. Further analysis was undertaken to see what preferences these groups had for services at forest sites.

Whilst the survey results are linked to specific forests, they are indicative and provide useful information which could be used in assessing the provision of facilities across a range of forest sites. It is not realistic to attempt to gross these results up to country totals.

Information on Forests surveyed

Forest	Estimated number of visitors (per annum)	Accessibility	Facilities
Glentress, Scottish Borders	**190,000** of which 2/3s are cyclists	Nearest town Peebles. 80% day visitors.	Range of facilities including mountain biking, hill walking, horse riding, wildlife activities and orienteering.
Dyfnant, North Wales	**10,000** 45% general visitors 28% horse riders 22% nature watchers	Nearest town – Welshpool. 45% day visitors.	Walking, fishing and facilities for general activities. Extensive horse riding trails.
Cwn Cam, Wales	**95,000** 96% cyclists	20 miles from Cardiff. 85% day visitors	Range of activities from cycling, walking, camping etc.
Thetford, England	**1.5 million** 75% general visitors 21% cyclists	30 miles from Cambridge. 90% day visitors.	Wide range of facilities including mountain bikes, walking, horse riding, wildlife activities and orienteering.
New Forest, England	**7.15 million** 89% general visitors 7% cyclists 1% horse riding 3% nature watching	11 miles from Southampton. 85% day visitors.	Wide range of facilities including camping, cycling, horse riding, walking, orienteering.
Whinlatter, NW England	**209,436** 43% - nature watching. 15%- cyclists. 5% - horse riders.	Keswick, Cumbria. 75% day visitors.	Wide range of facilities including walking, cycling, horse riding, and orienteering.
Rothiemurchus, Highlands	**250,000** 2/3rds general visitors 20% nature walkers 14% cycling	Aviemore. 80% holiday visitors.	Walking, cycling and general facilities.

Economic Impact of Forest Users

In assessing the economic impact of forest users the study looked at 3 elements – the expenditure by visitors in the forest region, the subsequent employment and income generated there. This analysis was undertaken for each of the forest regions.

Information on expenditure by visitors was collated by simply asking through the survey questionnaire 'How much do you expect to spend today in relation to your trip to the forest?' The average figure across visitors surveyed was then applied to the total number of visitors to give total expenditure at that forest site. Figures are also provided by type of forest user, and by trip type – if they are a day visitor or a holiday visitor. This provided insight into some interesting variations. Horse-riders spend the most per trip to a forest, on average £118, compared to cyclists at £13 and nature watchers at £20. However, the horse-riders figures should be used with caution, as the sample of horse riders from the New Forest spend £220 per day, skewing the average figures across this group. Some of these results are presented below.

Income generated differs from expenditure in that not all expenditure by visitors is necessarily made in the local area. The study used a Local Multiplier Survey that asked local businesses to break down the proportion of their income spent in local regions and outside of it. The proportion of which was spent in the local area was then applied to visitor expenditure. Again figures are available by the type of forest users and also by trip type.

Details of the Local Multiplier Survey can be found at: (insert weblink).

To calculate the employment created, an assumption (from previous studies) of a FTE post being created for each £34,000 spend in the local economy was used. This resulted in fairly generous estimates for employment figures.

Table 1: Mean spend per user group

	Mean spend per trip
Cycling	£ 23
Horse-riding	£ 136
Nature-watching	£ 28
General visitors	£ 32
All visitors	*£ 37*

Table 2: Local economic impacts generated in the case study forests.

Forest	**Annual local expenditure (£m)**	**Annual local income generated (£m)**	**Annual number of FTE jobs created (FTE jobs)**
Glentress	£ 2.0	£ 3.3	59.4
Dyfnant	£ 0.18	£ 0.3	5.3
Cam Carn	£ 0.98	£ 1.6	29
Thetford	£ 10.3	£ 17.1	305
New Forest	£ 61.3	£101.1	1,802
Rothiemurchus	£ 7.0	£ 11.5	204.8
Whinlatter	£ 4.8	£ 7.9	140.9

How much are forest trips valued?

As access to Forestry Commission sites is free, it is often difficult to gauge what monetary value visitors would attach to the trip. A proxy for this value can be obtained through the use of a technique called 'travel cost'. This method uses the expenditure on travelling to the site as an indication of the value attached to the visit. Other factors will also have a role to play and will be accounted for in the statistical model, for example income levels and alternative sites nearby. Using this technique the study found that across sites cyclists, horse riders and general forest users valued their trip at £15 and nature walkers valued their trip at £7. These results could be useful in the ongoing consideration of site facilities.

A technical description and more details of the travel cost method can be found at: (insert weblink).

How much are improved services valued?

Further economic assessments were used to estimate the impact of changing facilities on visitor behaviour. A 'contingent behaviour' tool was used to assess how changing facilities would impact the frequency of visits to a forest site, and a 'choice experiment' technique was used to assess how much individuals value any additional facilities.

A technical explanation and more details of contingent bahaviour modelling can be found at: (insert website).

i) Changes to frequency of visits

The surveys conducted at the sites also included a section designed for 'contingent behaviour' valuation. This technique is a useful tool in gauging how individuals would behave in a variety of hypothetical situations. Combined with observed behaviour, this gives an indication of the change. In this study the individuals were asked how many more or less trips they would take to a forest if facilities were different. Scenarios were different by user groups, for example cyclists were asked how much they would value new trail obstacles whilst forest visitors were asked about play facilities. This was compared to the actual number of visits under current forest facilities to give a predicted percentage change in visits under each scenario.

A statistical model was used to assess the value placed by individuals on each hypothetical facility. From this analysis it can be seen that the improvement valued the most across groups is the family play areas, whilst there is little value attached to shower and changing facilities by cyclists.

The technique and resultant modelling is explained in more detail at: (insert weblink).

Table 3: Key findings from the contingent behaviour analysis

Improvement scenario	Predicted % change in trips over base	Economic benefits of improvements per visitor per year (£)
Cyclists: New optional trail obstacles built alongside existing bike trails.	+5	3.46
Cyclists: New shower and changing facilities provided at the forest.	+0.3	0.66
Nature Watchers: several new hides built in forest	+4.5	7.89
Nature Watchers – new wildlife centre built	+2	3.30
General Visitors: New art / sculpture trails.	+4.5	2.79
General Visitors: New family play areas provided at the forest.	+10.2	8.75

ii) **Values of Facilities**

The survey also included a section designed for a technique called 'choice experiment'. In this section, individuals were presented with a range of options and asked to state their preference between two hypothetical forests. These varied across 8 attributes, including facilities and distance to the forest. From this data it was possible to rank facilities by user type and also elicit the value of each of those to the user. The key findings are below:

- Hypothetically cyclists would pay £10 for the creation of downhill courses, £8.50 technical single-track trails, £6 for cross-country trails and £7.50 for optional obstacles such as jumps and drop-offs. Hypothetically, cyclists would pay £4 for bike wash facilities.
- Surprisingly, horse riders did not appear to value the provision of horse-specific facilities such as dedicated horse-riding trails, optional obstacles (jumps and ditches), horse-friendly parking or horse corrals and tie-up points. It was thought that this was largely due to the large amount of effort involved in travelling with horses.
- Hypothetically nature watchers valued the provision of wildlife hides at £7, wildlife-viewing centres at £5.50, 'off-the-beaten-track' nature trails at £6.50 and enhancements to the forest surrounds for viewing wildlife at £3.50. However, there was very little demand for easy access nature trails, or nature trails with information.
- General forest visitors valued the provision of technical single-track mountain bike trails at £4.50, wildlife hides at £1.50, and art and sculpture trails at £3. General visitors tended to have significant and negative values for the provision of horse-riding trails.

More detail of the choice experiment can be found at (insert weblink).

Implications and use

What this study shows is that different users value attributes differently and view their importance in the light of their own activity. The main conclusion from this research was that different groups of forest user value different types of facilities. Overall cyclists had the highest values for improvements while non-specialists had lower values. A further breakdown of recommendations by user types is available. These results will be useful when considering improving and creating facilities across forest sites.

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