

**BFRS**  
**The Countryside Management Industry in the Scottish Borders; Sustainability**  
**and the Pursuit of New Jobs and Revenues**  
**PART 2: INVENTORY**  
**February 2002**

**Prepared by Scott Wilson Resource Consultants and Scottish Agricultural College**

**CHAPTER 5**

**INVENTORY OF LOWLAND GAME SHOOTING**  
**ACTIVITIES IN THE SCOTTISH BORDERS**

**The Borders Foundation for Rural Sustainability**  
**Peelham, Foulden, Berwickshire TD15 1UG Tel/Fax 01890-781328**  
**Web address [www.bfrs.org](http://www.bfrs.org) email: [info@bfrs.org](mailto:info@bfrs.org)**  
**Director: Denise Walton MSc MIEEM**  
*A Scottish Company Limited by Guarantee and without a Share Capital No SC196842*  
*Registered Office: J&H Mitchell WS, 51 Atholl Rd, Pitlochry PH16 5BU*

## TABLE OF CONTENTS

# INVENTORY OF LOWLAND GAME SHOOTING ACTIVITIES IN THE SCOTTISH BORDERS

	Page No.
Summary of Main Survey Findings	i
Introduction	1
Methodology	1
Shooting Providers	1
Shooting Participants	3
Survey Response Rates	4
Lowland Game Shooting Providers	4
Lowland Game Shooting Participants	5
Survey Results	5
Lowland Game Shooting Providers - Main Characteristics	5
Gross Annual Expenditure by Lowland Game Shooting Providers	7
Revenues Received by Lowland Game Shooting Providers	9
Net Annual Expenditure by Lowland Game Shooting Providers	9
Annual Levels of Lowland Game Shooting Participation	10
Annual Expenditure by Lowland Game Shooting Participants	10
Direct Employment Generated by Lowland Game Shooting Providers	12
‘Grossing-Up’ of the Providers’ Survey Results	14
Estimated Aggregated Expenditures & Revenues Generated	14
Estimated Aggregated Employment Generated	15
‘Grossing-Up’ of the Participants’ Survey Results	17
Estimated Aggregated Expenditures by Lowland Shooting Participants	17

<b>Total Grossed-Up Estimates – Providers &amp; Participants</b>	<b>20</b>
<b>Estimated Total ‘Grossed-Up’ Expenditure Incurred</b>	<b>20</b>
<b>Estimated Secondary Expenditure and Employment Impacts</b>	<b>20</b>
<b>Concluding Comment</b>	<b>21</b>
<b>ACKNOWLEDGEMENTS</b>	<b>22</b>

---

## 5. INVENTORY OF LOWLAND GAME SHOOTING ACTIVITIES IN THE SCOTTISH BORDERS

### Summary of Main Survey Findings

#### Survey Sources

**This inventory was compiled with the assistance of a small Working Party of local experts, comprising representatives of the Game Conservancy Trust (GCT), the British Association for Shooting and Conservation (Scotland), a main Trade Supplier/Shooting Manager, the Scottish Gamekeepers' Association and BFRS.**

A list of all the **main Providers (135 no.)** of lowland game shooting facilities in the Scottish Borders Region was compiled. This distinguished between **formal, commercial shoots (38 no.); formal, kept private shoots (76 no.)** and **informal rough shoots** involving more than 4 days shooting per year (21 no.). A **postal survey** of this population was conducted based on a carefully designed questionnaire. A **parallel** survey of a sample of the total population of formal and rough shooting participants (**between 2,100 and 2,500 no.**) was conducted. This was based on the membership lists of the GC Trust, BASC and the Scottish Agricultural Colleges.

The **overall survey response rates** for Providers and Participants were respectively **42% and approximately 31%**.

**The aggregated estimates for 1998/99, covering the provision of and participation in shooting activities in the Region were as presented below.**

#### Physical Dimensions

- The **total land area** over which **formal** commercial and **formal, kept private** shooting took place was between **103,000 and 141,000 hectares**
- A similar, but **probably larger, area** was used for **rough/informal shooting**

#### The Scale of Recreational Activities

- The **total number of shooting days provided** by the **114 formal shooting Providers** was estimated to have been between **1,420 and 2,050**
- The **total number of gun days** on which **Participants** were involved in **formal** lowland game shooting was between **9,200 and 13,400**
- The corresponding estimates for the levels of **informal shooting activities** by **Participants**, involved in this form of shooting on three or more days per year, amounted to between a **further 4,500 and 7,600 gun days.**

---

### **The Levels of Direct Expenditure**

- ❑ The **total direct expenditure incurred by Providers** was estimated to have been between **£4.1million and £5.6million**. Net of the revenues derived from shooting leases, day charges and game bag values, the **direct costs** were estimated to have been between **£2.3million and £3.1**
- ❑ The corresponding estimated **outlay by Participants** in 1998/99 was between **£3.9million and £6.9 million**
- ❑ **Together Providers and Participants expended between £8.0million and £12.5million**
- ❑ For **Providers the gross cost involved per shooting day provided** was between **£2,000 and £3,900**. Net of shooting leases, rents and the value of the game bag, the cost was reduced to between **£1,100 and £2,000**
- ❑ The **cost per gun day incurred by Participants** varied between **£420 and £515** for **formal** shooting. For **informal/rough shooting** the corresponding estimates were between **£54 and £80 per gun day**

### **The Employment Impacts**

- ❑ The total employment supported by **formal** shooting Providers was estimated to have been between **2,250 and 2,700** keeping and related **jobs**. This represented between **470 and 550 FTEs**

### **Environmental Contributions**

- ❑ Shooting Providers were identified as having undertaken **many improvements to shooting and wildlife habitats** over the past 5 years. In particular these involved:
  - Bracken control
  - Establishing Wild Bird Cover (Set-Aside)
  - Replanting/Maintaining Coverts
  - Managing Woodlands
  - Planting New Coverts
  - Constructing Flight Ponds
  - Planting/Restoring Hedgerows
- ❑ The **direct expenditure on undertaking environmental conservation and improvement** tasks amounted to between **£279,000 and £383,000** in 1998/99

### **The Economic Impacts**

- The **employment**, generated by the goods and services purchased by shooting Providers and Participants through **local trade and professional organisations**, was estimated to have been between **325 and 510 jobs**. These represented between **65 and 102 additional FTEs**
- The **indirect expenditure** generated by the direct spend of shooting Providers and Participants in 1998/99 was estimated at between **£1.1million and £1.2million**
- This indirect expenditure was estimated to have generated between an **additional 16 to 17 FTEs**
- The **levels of economic leakage** resulting from purchases, made from trade organisations located outside the Region, were relatively modest: **approximately 13% and 18%** respectively in the case of Providers and Participants

### **Overview & Verification**

- Of all of the traditional countryside sports, **formal lowland game shooting appeared to have the greatest impact on the rural economy**. The same applied in the case of both **the conservation and enhancement of wildlife habitats and visual landscapes**
- The **involvement of a Working Party of local experts**, representing the official sporting organisations, ensured that ‘bona fide’ estimates were both sought and derived from the surveys. To ensure credibility the estimates were subjected to **thorough scrutiny** by members of the Working Party and the Consultants’ Statistical Adviser.

---

## **5. INVENTORY OF LOWLAND GAME SHOOTING ACTIVITIES IN THE SCOTTISH BORDERS**

### **Introduction**

- 5.1** Undertaking a survey of lowland game shooting activities, with the aim of identifying the extent of provision and participation, the expenditures incurred and the levels of employment generated, has been a challenging task. This stemmed from the diversity of the activities themselves and from the involvement of large numbers of people – not all of whom are engaged in just one type of shooting.
- 5.2** From the outset it was recognised that the survey would need to be preceded by careful determination of the main types of shooting provision and participation. This was far from simple. No single published register of either lowland shooting providers or participants in the Borders Region existed. This was hardly surprising bearing in mind that not all of the providers and participants were actually resident in Scotland, let alone the Borders. Many, particularly in the case of shooting participants lived in England and Wales, as well as elsewhere in Europe or the world.
- 5.3** As a result it was quickly appreciated that accurate identification of the composition of the total shooting population would be an elusive exercise. This meant that, even if reliable information could be obtained from what might be considered to be a representative sample of shooting participants, there would be no credible basis for estimating the characteristics for the total population. In short, it was concluded that aggregation or ‘grossing-up’ by this normal method would not be feasible and that an alternative approach would be required.

### **Methodology**

#### **Shooting Providers**

- 5.4** With the help of BFRS Trustees, a small Working Party was established, in order to assist the consultants in determining the nature and size of the populations, which should be surveyed. In addition to BFRS members and its consultants, the Working Party consisted of representatives of the following key local organisations concerned with landowning, conservation, game management and shooting activities:
- ❑ the Game Conservancy Trust;
  - ❑ the British Association for Shooting and Conservation (Scotland);
  - ❑ a main Supplier/Shooting Manager for Providers; and
  - ❑ the Scottish Gamekeepers’ Association.

**5.5** Through two meetings, the Working Party agreed that it would be feasible to compile a list of all of the main providers of lowland game shooting facilities in the Borders Region. Unanimous agreement about the nature of the population of shooting providers resulted from the discussions. Three distinct, main types of shooting provider were identified, namely:

- **Formal Commercial Shoots.** These shoots were provided to generate revenue for the Providers, in the interests of covering the costs entailed. Their management was undertaken by the Provider through the employment of one or more Keepers and in some cases a Shoot Manager. In some cases the shooting provision was organised by a syndicate of members as distinct from an individual Proprietor;
- **Formal Private Shoots.** The shooting was provided for the personal pleasure of the Provider and members of his/her family, as well as friends. The management of such shoots was undertaken by the Provider through the employment of at least one Keeper. The generation of revenue was not the primary aim;
- **Informal, Rough Shoots.** These entailed 'low-key' keeping by the Provider and/or participants. No formal employment of Keepers was involved. Again, the main motive was personal pleasure. Only the population of more active rough shoots was surveyed. These related to those people involved in providing rough shooting on 3 or more days per year. It was estimated that the total population of such Providers and/or participants amounted to approximately 360 in the Region as a whole.

**5.6** Collectively the Working Party members both mapped the extents of these different types of shooting provision (ref **Map 5.1**) and drew up lists of the names and addresses of all of the main shooting providers in the Borders Region. These lists were compiled jointly, based upon detailed local knowledge. In total 135 shooting providers were identified. The breakdown between the three main shooting types was as follows:

<b>A.</b>	Formal, Kepered Commercial Shoots	:	38
<b>B.</b>	Formal, Kepered Private Shoots	:	76
<b>C.</b>	Informal, Rough Shoots (3 or more days per year)		21

**5.7** It was decided that a postal survey of this defined population should be conducted. Assuming that a reasonably high response was obtained, it was considered that reliable estimates could be obtained at least for the total number of gun days of formal shooting (a) provided and (b) therefore undertaken in the Region for the particular shooting season concerned (1998/1999). The total number of gun days on which participants were involved in lowland game shooting in that season was assumed to be identical to the aggregate number of gun days which providers were reported/estimated to have provided.

- 
- 5.8** Both preceding and during the preparation of the provider shoot lists, a great deal of care was taken – again in consultation with members of the Working Party – in designing comprehensive questionnaires for (i) lowland shooting providers and (ii) lowland shooting participants. In this respect the questionnaire surveys previously undertaken by the consultants in 1981 and subsequent years, on behalf of the Standing Conference for Countryside Sports in Great Britain provided a useful starting point.
- 5.9** The shooting provider questionnaire focused on the number of days of formal and rough shooting provided; the areas of land involved; the average number of guns present on a shooting day; the commercial/social manner in which the shoots were managed; the nature and levels of employment provided; the annual running and capital costs incurred by the providers; the type and costs of shooting habitats in the past 5 years; the revenues received including those derived from overseas’ visitors; and the name/locations of the main organisations from which shooting goods and services were purchased.
- 5.10** A copy of the 7 page questionnaire and the accompanying aide-memoir is presented in **Appendix 5.1**. This is to be presented under separate cover at a later date.

### **Shooting Participants**

- 5.11** Broadly similar topics were covered in the 4 page questionnaire, designed for despatch to formal and rough shooting participants, notably: both the types and numbers of gun days; the nature of shooting syndicate and club memberships; the levels of main shooting expenditure items in the Borders; and the principal trade/service organisations involved.
- 5.12** A copy of the Participants’ Survey questionnaire is presented in **Appendix 5.2**.
- 5.13** The Project’s Statistical Adviser advised on both the sampling procedures and the subsequent analyses of the results of the Participants’ survey. The sampling was undertaken as follows:

‘Systematic samples were drawn from the address lists of the Game Conservancy Trust, BASC and Scottish Agricultural College, using randomised starting points for each sample’. These membership lists were used in the interests of obtaining a representative random sample of shooting participants. It was agreed by the Working Party that members of these three organisations covered the majority, if not all, of the locally based shooting participants. For reasons of confidentiality, the sampling was undertaken internally by each of the respective membership organisations. The process was guided through the provision of a set of sampling instructions, prepared by the Statistical Adviser.

**5.14** The sample sizes were as follows:

- 140 from a total population of 833 members on the Game Conservancy list;
- 100 from the 796 members on the BASC list; and
- 120 from the total of 1,100 names on the SAC list.

**5.15** The Statistical Adviser realised that some individuals might receive a questionnaire via more than one list, so respondents were asked to return only one of these. For reasons of anonymity, it was not possible from the returned questionnaires to identify the list from which the individual had been selected’.

**5.16** Because of the problems associated with identifying the total population of participants, it was decided from the outset that ‘grossing-up’ of the participants’ survey results would be undertaken based on a combination of:

- the total numbers respectively of formal gun days (identified through the Shooting Providers’ survey); and
- the average cost per gun day respectively of formal and informal gun days (identified through the Shooting Participants’ survey).

**5.17** It was clear from the survey results that a number of those involved in providing formal shooting facilities also provided rough shooting. In order that the grossing-up of expenditures would not be distorted, it was decided to distinguish between the numbers of formal and rough shooting days. The results are presented later in the Chapter.

## Survey Response Rates

### Lowland Game Shooting Providers

**5.18** The response rates for the Lowland Game Shooting Providers’ survey are presented in **Box 5.1**:

Shoot Type	Questionnaires Despatched No.	Questionnaires Responses Received No.	Response Rates (Rounded) %
<b>A. Formal Commercial</b>	38	17	45
<b>B. Formal Private</b>	76	35	46
<b>C. Informal Rough</b>	21	5	24
<b>Total</b>	<b>135</b>	<b>57</b>	<b>42</b>

---

### Lowland Game Shooting Participants

**5.19** The corresponding response figures for the Participants' survey were not clear-cut: 109 responses (approximately 4% of the total population) were received, but many of them were incomplete. In total 80 completed questionnaires were received in response to the 360 despatched. This represented a survey response of approximately 22%. However, when adjustments were made for the overlaps between the three organisations, it was estimated that the overall survey response was nearer to 31%.

**5.20** Estimation of the total population of lowland game shooting Participants was not straight forward, as will be appreciated from the following summary of the analyses undertaken by the Statistical Adviser:

- In total, 80 complete questionnaires (approx 3%) were received in relation to what was initially estimated to be the total population, namely 2,729 participants. However, the latter estimate made no allowance for the overlaps referred to above. Adjustment for the estimated overlap between the lists suggested that the estimated total population of shooting Participants amounted to about 2,008 separate individuals. It was also estimated that the lists of the 3 organisations covered only about 94% of the total number of individuals involved in lowland game shooting. 'Grossing-up' the estimate of 2,008 individuals yielded an estimated total population of 2,128 Participants;
- Analysis of the responses to Question 1, concerning the types of shooting participation undertaken and the numbers of days involved, suggested that the total numbers of participants involved in formal pheasant/partridge shooting and rough shooting were respectively 1,890 and 1,523.

This range of estimates served to emphasise the uncertainty surrounding the size of the total population of Participants. Nonetheless the analysis proved useful in that it suggested that the size of the total population in the 1998/1999 season was between 2,100 and 2,500.

### Survey Results (Grossed-up results presented on 5-16 et seq)

#### Lowland Game Shooting Providers - Main Characteristics

**5.21** The main distinguishing characteristics of the Lowland Game Shooting Providers were the areas of land over which shooting was provided, the numbers of days on which the three different types of shooting were provided and the types/levels of shooting habitat improvements undertaken during the previous 5 years. The survey results, in terms of these main characteristics, are presented in **Boxes 5.2, 5.3 and 5.4**.

<b>BOX 5.2: AREAS OF LAND OVER WHICH SHOOTING PROVIDED (1998/99)</b>				
Item	Units	Type of Shoot		
		A Formal Kepered	B Formal Private	C Informal (3 or more days / yr)
Land Owned over which shooting provided	Ha	36,267	14,119	1,599
Additional Land Leased over which shooting provided	Ha	4,108	9,597	Not Applicable
<b>Total Land Area of Land provided for shooting</b>	<b>Ha</b>	<b>40,375</b>	<b>23,716</b>	<b>1,599</b>

5.22 The estimates presented in **Boxes 5.2 and 5.3** were those yielded by the surveys. Whilst the result obtained for the Informal Rough Shoots [C] was unexpectedly very low, this did not cause the Working Party undue concern, because of the relatively low costs involved per Gun Day Provided.

<b>BOX 5.3: SURVEY RESULTS - ANNUAL LEVELS OF LOWLAND GAME SHOOTING PROVISION (1998/99)</b>			
Item	Type of Shoot		
	A Formal Kepered	B Formal Private	C Informal (3 or more days / yr)
Total Number of Shooting Days Provided Per Year	478.5	424	29
Average Number of Guns Per Day	7.79	8.19	8.2
<b>Total Number of Gun Days Provided Per Year</b>	<b>3,828</b>	<b>3,474</b>	<b>238</b>
Total Number of Formal Shooting Days Provided Per Year	321	243.5	4
<b>Total Number of Formal Shooting Gun Days Provided Per Year</b>	<b>2,501</b>	<b>1,994</b>	<b>33</b>
Total Number of Rough Shooting Days Provided Per Year	157.5	198.5	25
<b>Total Number of Rough Shooting Gun Days Provided Per Year</b>	<b>1,227</b>	<b>1,626</b>	<b>205</b>

**BOX 5.4: SURVEY RESULTS - THE PHYSICAL NATURE & EXTENT OF MEASURES TAKEN TO IMPROVE THE SHOOTING & RELATED WILDLIFE HABITATS IN THE PAST 5 YEARS**

Improvement Item	Units	Type of Shoot			Total (rounded)	Average Annual Improvement
		A	B	C		Total (rounded)
Planting New Coverts	Ha	47	136	9	192	38
Replanting/Maintaining Coverts	Ha	743	59	4	812	162
Managing Woodlands	Ha	221	469	0	690	138
Flight Pond Construction	No.	4	19	3	26	5
Bracken Control	Ha	1,275	384	0	1,659	332
Reduction in Livestock Stocking Rates	No. Properties	2	2	0	4	<1
Wild Bird Cover (Set Aside)	Ha	1,224	41	1	1,266	253
Planting/Restoring Hedgerows	Km	2.8	23.5	0.5	27	>5

**Gross Annual Expenditure by Lowland Game Shooting Providers**

**5.23** The questionnaires sought information about 12 items of annual running/overhead costs, as well as the value of 5 principal capital assets involved in the provision of shooting facilities. The latter information enabled annual depreciation and interest charges to be estimated.

**5.24** The responses received are presented in **Box 5.5**.

**BOX 5.5: SURVEY RESULTS - GROSS ANNUAL RUNNING & OVERHEAD COSTS INCURRED- £ (1998/99)**

Expenditure Item	Type of Shoot		
	A Formal Kepered	B Formal Private	C Informal (3 or more days / yr)
Annual Running & Overhead Costs	£	£	£
Employment Costs	316,525	167,170	280
Keeper's/Staff Perks	39,031	12,237	0
Rent for Extra Land	14,100	13,030	0
Vehicle Costs	78,765	33,000	350
Ammunition Costs	14,821	6,497	445
Gamebird Re-stocking	229,493	66,920	1,600
Wild Game Management Costs	17,300	14,125	870
Other Management Costs *	28,349	4,629	200
Habitat Management Costs**	21,620	10,360	500
Entertaining & Catering Costs	20,640	16,475	900
Overheads	6,600	13,858	0
Other ***	309,100	1,350	0
<b>Sub-Total</b>	<b>1,096,344</b>	<b>359,651</b>	<b>5,145</b>
Annual Depreciation/Interest Charges on Fixed Assets	£	£	£
Game Etc Rearing Equipment (25% pa)	26,100	16,165	150

Vehicles (20% pa)	39,700	24,960	80
General Equipment (25% pa)	12,175	3,719	113
Buildings & Structures (10% pa)	11,875	4,200	0
Accommodation (10% pa)	139,000	20,300	0
<b>Sub-Total</b>	<b>228,850</b>	<b>69,344</b>	<b>343</b>
<b>Total</b>	<b>1,325,194</b>	<b>428,995</b>	<b>5,488</b>
Footnote			
* This item covers clothing, annual game crops sown specifically for shooting, pest control, dog purchase and maintenance, licences, entertaining and catering.			
** This covers the costs involved in managing wildlife habitats from which game birds benefited			
*** This is the total of the unspecified expenditure indicated by the respondents. The question asked that the costs be specified, but respondents did not do so.			

**5.25** To these Total Annual Gross Costs it was necessary to add the average annual sums, spent on improving shooting and related wildlife habitats on the shooting property (estate/farm) over the last five years. The total improvement expenditures reported as taking place over the past 5 years are summarised in **Box 5.6**. (These costs were additional to the annual maintenance costs incurred on Wild Game, Habitat and Other Management costs presented in **Box 5.5**)

**BOX 6.6: SURVEY RESULTS - TOTAL 5 YEAR EXPENDITURE INCURRED BY PROVIDERS ON MEASURES TO IMPROVE SHOOTING HABITATS - £ (1998/99)**

Expenditure Item	Type of Shoot			Total	Average Annual Expenditure
	A Formal Keeped	B Formal Private	C Informal (3 or more days / yr)		Total
	£	£	£	£	£
Planting New Coverts	58,500	123,005	3,500	185,005	<b>37,001</b>
Replanting/Maintaining Coverts	12,250	46,746	250	59,246	<b>11,849</b>
Managing Woodlands	6,087	24,318	0	30,405	<b>6,081</b>
Flight Pond Construction	1,533	14,592	1,500	17,625	<b>3,525</b>
Bracken Control	110,000	164,952	0	274,952	<b>54,990</b>
Reduction in Livestock Stocking Rates	Not Available	Not Available	Not Available	Not Available	<b>Not Available</b>
Wild Bird Cover (Set Aside)	46,500	6,415	605	53,520	<b>10,704</b>
Planting/Restoring Hedgerows	9,038	89,461	1,720	100,219	<b>20,044</b>
<b>Total</b>	<b>243,908</b>	<b>469,489</b>	<b>7,575</b>	<b>720,972</b>	<b>144,194</b>

**5.26** The Total Gross Annual Expenditure on all aspects of shooting provision was thus as shown below in **Box 5.7**.

**BOX 5.7: Survey Results – Total Gross Annual Expenditure by Shooting Providers - £ (1998/99)**

Expenditure Item	Type of Shoot		
	A	B	C
	Formal Kept	Formal Private	Informal (3 or more days / yr)
	£	£	£
Running & Overhead Costs	1,325,194	428,995	5,488
Shooting Habitat Improvements	48,781	93,898	1,515
<b>Total</b>	<b>1,373,975</b>	<b>522,893</b>	<b>7,003</b>

### Revenues Received by Lowland Game Shooting Providers

**5.27** The Shooting Providers reported that their gross annual expenditure was to some extent offset by the receipts from 5 sources of annual revenue summarised in **Box 5.8**.

**BOX 5.8: SURVEY RESULTS – ANNUAL REVENUES RECEIVED BY SHOOTING PROVIDERS - £ (1998/99)**

Revenue Item	Type of Shoot		
	A	B	C
	Formal Kept	Formal Private	Informal (3 or more days / yr)
Game Bag Sales	64,051	14,562	310
Shooting Rents from Land Shot over by self	335,347	15,700	175
Shooting Rents from Land Shot over by others	15,000	1,050	0
Charges for Gun Days	405,328	164,008	0
Accommodation/Food Etc Charges to Overseas Visitors	52,880	6,190	0
Other (unclassified)	72,000	0	0
<b>Total</b>	<b>944,606</b>	<b>201,510</b>	<b>485</b>

### Net Annual Expenditure by Lowland Game Shooting Providers

**5.28** Subtraction of these Revenues from the Gross Expenditure figures, presented above, resulted in the Net Expenditures displayed in **Box 5.9**.

<b>BOX 5.9: SURVEY RESULTS - NET ANNUAL RUNNING &amp; OVERHEAD COSTS INCURRED BY PROVIDERS - £ (1998/99)</b>			
Item	Type of Shoot		
	A Formal Keeped	B Formal Private	C Informal (3 or more days / yr)
	£	£	£
Total Gross Costs	1,373,975	522,893	7,003
Total Annual Revenue	872,606	201,510	485
<b>Total Net Costs</b>	<b>501,369</b>	<b>321,383</b>	<b>6,518</b>

### Annual Levels of Lowland Game Shooting Participation

**5.29** The levels of participation reported by the respondents to the Participants' survey are summarised in **Box 5.10**.

<b>BOX 5.10 SURVEY RESULTS – ANNUAL LEVELS OF LOWLAND GAME SHOOTING PARTICIPATION (1998/99)</b>		
Item	Type of Participants	
	72 Participants of both Categories A + B Shoots	8 Participants of exclusively Category C Shoots
	No. Gun Days	No. Gun Days
Total Formal & Informal Shooting	1,176	184
Formal Shooting	825.5	0
Informal/Rough Shooting	350.5	184

### Annual Expenditure by Lowland Game Shooting Participants

**5.30** Information concerning 25 individual annual cost items was obtained from the 80 respondents who returned completed questionnaires for the Participants survey. The results, with the main components highlighted (syndicate fees, purchase of gun days, ammunition, low-key keeping, petrol and other vehicle costs, food and drinks, gifts and gratuities, clothing, guns and gun cabinets, plus vehicles for shooting) are summarised in **Box 5.11**.

**BOX 5.11 SURVEY RESULTS – TOTAL GROSS ANNUAL EXPENDITURE BY SHOOTING PARTICIPANTS- £ (1998/99)**

Expenditure Item	Type of Shoot			
	Primarily Formal Shooting but with some Informal [A & B]	Primarily Formal Shooting but with some Informal [A & B]	Exclusively Informal Shooting [C]	Exclusively Informal Shooting [C]
	Total 72 Respondents 1,176 Gun Days	Average Cost Per Gun Day	Total 8 Respondents 184 Gun Days	Average Cost Per Gun Day
	£	£	£	£
<b>Syndicate Fees</b>	<b>59,343</b>	<b>50.46</b>	0	0
Clay Pigeon Shooting Club Fees	298	0.25	50	0.27
Day Permits	2,000	1.70	0	0
<b>Gun Days Purchase</b>	<b>46,655</b>	<b>39.67</b>	0	0
Shooting School Charges	1,035	0.88	0	0
<b>Ammunition</b>	<b>15,863</b>	<b>13.49</b>	<b>1,175</b>	<b>6.39</b>
Gun Repairs & Maintenance	4,774	4.06	130	0.71
Dog's Feed	<b>10,125</b>	<b>8.61</b>	500	2.71
Dogs' Vet Care & Medication	5,438	4.62	385	2.09
Dogs' Training	880	0.75	0	0
Dogs' Purchase	3,540	3.01	350	1.90
Dog Kennels	3,050	2.59	0	0
<b>Low Key Keeping</b>	<b>66,557</b>	<b>56.60</b>	0	0
Insurance & Security	5,429	4.62	75	0.41
Travel Fares	1,910	1.62	0	0
<b>Petrol &amp; Other Vehicle Costs</b>	<b>29,100</b>	<b>24.74</b>	<b>1,570</b>	<b>8.53</b>
<b>Food &amp; Drinks</b>	<b>12,229</b>	<b>10.40</b>	250	1.36
Accommodation	3,420	2.91	0	0
<b>Gifts &amp; Gratuities</b>	<b>11,123</b>	<b>9.46</b>	0	0
<b>Clothing</b>	<b>7,918</b>	<b>6.73</b>	<b>1,100</b>	<b>5.98</b>
Shooting Journals	1,465	1.25	65	0.35
<b>Guns &amp; Gun Cabinet</b>	<b>13,474</b>	<b>11.45</b>	<b>1,900</b>	<b>10.33</b>
<b>Vehicles for Shooting</b>	<b>134,075</b>	<b>114.01</b>	<b>1,900</b>	<b>10.33</b>
Other	1,840	1.56	250	1.36
Licenses	2,395	2.03	296	1.61
<b>TOTAL</b>	<b>443,936</b>	<b>377.50</b>	<b>9,996</b>	<b>54.33</b>

**5.31** The need to use the survey results for estimating the average costs per gun day respectively for formal and informal shooting was appreciated. The basis on which the estimates were made is summarised below:

- 72 respondents recorded/reported that in 1998/99 they collectively participated in 1,176 gun days of formal and informal/rough shooting. Of these, 825.5 gun days (i.e. 70%) involved formal shooting.



**BOX 5.12: SURVEY RESULTS – DIRECT EMPLOYMENT GENERATED BY PROVIDERS – NUMBERS OF JOBS (1998/99)**

Type of Employment	Type of Shoot			Total
	A	B	C	
	Formal Kepered	Formal Private	Informal (3 or more days / yr)	
	No.s	No.s	No.s	No.s
<b>Full-Time/Permanent Staff</b>				
Shoot Manager	3	0	0	3
Head Keeper	23	6	0	29
Assistant Keeper	18	4	0	22
Other	2	0	0	2
<b>Sub-Total</b>	<b>46</b>	<b>10</b>	<b>0</b>	<b>56</b>
<b>Part-Time</b>				
Keepers	9	21	0	30
Other	8	0	2	10
<b>Sub-Total</b>	<b>17</b>	<b>21</b>	<b>2</b>	<b>40</b>
<b>Casual</b>				
Beaters	177	277	0	454
Pickers-Up	44	41	2	87
Loaders	0	10	0	10
Game-Cart Operators	6	6	0	12
Other	30	1	0	31
<b>Sub-Total</b>	<b>256.5</b>	<b>335</b>	<b>2</b>	<b>594</b>
<b>Other (unclassified)</b>	<b>40-70</b>	<b>0</b>	<b>0</b>	<b>40-70</b>
<b>TOTAL (rounded)</b>	<b>360-390</b>	<b>366</b>	<b>4</b>	<b>730-760</b>

**BOX 5.13: SURVEY RESULTS – DIRECT EMPLOYMENT GENERATED BY PROVIDERS – FULL-TIME EQUIVALENTS (NUMBERS OF FTES ROUNDED) (1998/99)**

Type of Employment	Type of Shoot			Total
	A	B	C	
	Formal Kepered	Formal Private	Informal (3 or more days / yr)	
	FTEs	FTEs	FTEs	FTEs
<b>Full-Time Sub-Total</b>	<b>46</b>	<b>10</b>	<b>0</b>	<b>56</b>
<b>Part-Time Sub-Total</b>	<b>10</b>	<b>16.5</b>	<b>1</b>	<b>27.5</b>
<b>Casual Sub-Total</b>	<b>23</b>	<b>26.8</b>	<b>0</b>	<b>49.8</b>
<b>Other (unclassified)</b>	<b>FTE</b>	<b>20-35</b>	<b>0</b>	<b>20-35</b>
<b>TOTAL (rounded)</b>	<b>FTE</b>	<b>99-114</b>	<b>53</b>	<b>153-168</b>

## ‘Grossing-Up’ of the Providers’ Survey Results

### Estimated Aggregated Expenditures & Revenues Generated by Lowland Shooting Providers

**5.35** In order to obtain aggregated estimates for the total population of Providers, it was decided that ‘Grossing-Up’ should be based on two assumptions, namely that:

- (i) at the maximum, the average responses for the non-respondents would be identical to those provided by the respondents. This entails the use of the following grossing-up factors: (A:  $38/17 = 2.2$ ; B:  $76/35 = 2.17$ ; C:  $21/5 = 4.2$ ) to provide upper end of the range estimates;
- (ii) the shooting activities, expenditure and employment generation of non-respondents would, at the minimum, be 50 percent of the average levels reported by the survey respondents. The basis for these ‘grossing-up’ calculations were as follows:
  - Category A = 38 less 17 i.e.  $21 \times 0.5 \times$  Average Value for the Respondents + the Total Value for the Respondents;
  - Category B = 76 less 35 i.e.  $41 \times 0.5 \times$  Average Value for the Respondents + the Total Value for the Respondents;
  - Category C = 21 less 5 i.e.  $16 \times 0.5 \times$  Average Value for the Respondents + the Total Value for the Respondents.

**5.36** The estimates derived from applying these ‘multipliers’ are summarised in **Boxes 5.14 and 5.15**. It will be observed that, in addition to ‘grossing-up’ on the basis of the two assumptions described above, allowance has been made for partial responses obtained from some key Category A providers.

**BOX 5.14: UPPER ESTIMATES OF ‘GROSSED-UP’ TOTAL GROSS ANNUAL EXPENDITURES INCURRED BY PROVIDERS - £ (1998/99)**

Expenditure Item	Type of Shoot			Total
	A Formal Kepered	B Formal Private	C Informal (3 or more days / yr)	
	£	£	£	£
Running & Overhead Costs	2,962,198	931,532	23,050	3,916,780
Shooting Habitat Improvements	109,040	203,893	6,363	319,296
Running & Overhead Costs + Shooting Habitat Improvement Costs	1,343,250	N/a	N/a	1,343,250
<b>Total</b>	<b>4,414,488</b>	<b>1,135,425</b>	<b>29,413</b>	<b>5,579,326</b>

**BOX 5.15: LOWER ESTIMATES OF ‘GROSSED-UP’ TOTAL GROSS EXPENDITURES INCURRED BY PROVIDERS - £ (1998/99)**

Expenditure Item	Type of Shoot			Total
	A	B	C	
	Formal Keeped	Formal Private	Informal (3 or more days / yr)	
	£	£	£	
Running & Overhead Costs	2,143,696	680,264	14,269	2,838,229
Shooting Habitat Improvements	78,910	148,895	3,939	231,744
Running & Overhead Costs + Shooting Habitat Improvement Costs	1,074,600	N/a	N/a	1,074,600
<b>Total</b>	<b>3,297,206</b>	<b>829,159</b>	<b>18,208</b>	<b>4,144,573</b>

**5.37** The corresponding Upper and Lower estimates of the ‘Grossed-Up’ Total Net Annual Expenditures incurred by Providers are shown in **Box 5.16**.

**BOX 5.16: SURVEY RESULTS – UPPER AND LOWER ESTIMATES OF ‘GROSSED-UP’ TOTAL NET ANNUAL EXPENDITURES INCURRED BY SHOOTING PROVIDERS - £ (1998/99)**

Items	Type of Shoot			Total
	A	B	C	
	Formal Keeped	Formal Private	Informal (3 or more days / yr)	
	£	£	£	£
<b>Upper Estimates</b>				
Total ‘Grossed-Up’ Gross Costs	4,414,485	1,135,425	29,413	5,579,326
<b>Less</b>				
Total ‘Grossed-Up’ Revenues	2,022,531	437,565	2,037	2,462,133
<b>Total ‘Grossed-Up’ Net Costs</b>	<b>2,391,957</b>	<b>697,860</b>	<b>27,376</b>	<b>3,117,193</b>
<b>Lower Estimates</b>				
Total ‘Grossed-Up’ Gross Costs	3,297,206	829,159	18,208	4,144,573
<b>Less</b>				
Total ‘Grossed-Up’ Revenues	1,471,569	319,538	1,261	1,792,368
<b>Total ‘Grossed-Up’ Net Costs</b>	<b>1,825,637</b>	<b>509,621</b>	<b>16,947</b>	<b>2,352,205</b>

**Estimated Aggregated Employment Generated by Lowland Shooting Providers**

**5.38** In the terms of direct employment generation, the Upper and Lower Estimates for both jobs and FTEs are presented in **Boxes 5.17 to 5.20** inclusive.

**BOX 5.17: UPPER ESTIMATES OF GROSSED-UP DIRECT EMPLOYMENT GENERATED BY PROVIDERS – NUMBERS OF JOBS (1998/99)**

Type of Employment	Type of Shoot			Total
	A Formal Keeped	B Formal Private	C Informal (3 or more days / yr)	
	No.s	No.s	No.s	No.s
Full-Time/Permanent Staff	85.5	21.5	0	107
Part-Time Workers	38	45.5	8	91.5
Casual Workers	573	727	8	1308
Other (unclassified)	40-70	0	0	40-70
<b>TOTAL (rounded)</b>	<b>736.5</b>	<b>794</b>	<b>16</b>	<b>1546.5-1576.5</b>

**BOX 5.18: LOWER ESTIMATES OF GROSSED-UP DIRECT EMPLOYMENT GENERATED BY PROVIDERS – NUMBERS OF JOBS (1998/99)**

Type of Employment	Type of Shot			Total
	A Formal Keeped	B Formal Private	C Informal (3 or more days / yr)	
	No.s	No.s	No.s	No.s
Full-Time/Permanent Staff	66	15.5	0	81.5
Part-Time Workers	27.5	33	5	65.5
Casual Workers	415	531	5	951
Other (unclassified)	40-70	0	0	40-70
<b>TOTAL (rounded)</b>	<b>548.5-578.5</b>	<b>579.5</b>	<b>10</b>	<b>1138-1168</b>

**BOX 5.19: Upper Estimates of Grossed-Up Direct Employment Generated by Providers – Numbers of FTEs (1998/99)**

Type of Employment	Type of Shoot			Total
	A Formal Keeped	B Formal Private	C Informal (3 or more days / yr)	
	No.s	No.s	No.s	No.s
Full-Time/Permanent Staff	85.5	21.5	0	107
Part-Time Workers	22.5	36	4	62.5
Casual Workers	51.5	58	0	109.5
Other (unclassified)	20-35	0	0	20-35
<b>TOTAL (rounded)</b>	<b>179.5-194.5</b>	<b>115.5</b>	<b>4</b>	<b>299-314</b>

<b>BOX 5.20: LOWER ESTIMATES OF GROSSED-UP DIRECT EMPLOYMENT GENERATED BY PROVIDERS – NUMBERS OF FTES (1998/99)</b>				
Type of Employment	Type of Shoot			Total
	A Formal Keeped No.s	B Formal Private No.s	C Informal (3 or more days / yr) No.s	
Full-Time/Permanent Staff	66	15.5	0	81.5
Part-Time Workers	16	26	2.5	44.5
Casual Workers	37	42.5	0	79.5
Other (unclassified)	20-35	0	0	20-35
<b>TOTAL (rounded)</b>	<b>139-154</b>	<b>84</b>	<b>2.5</b>	<b>225.5-240.5</b>

**5.39** The magnitudes of the estimates presented in **Boxes 6.19** and **6.20** indicate why lowland game shooting has been regarded by some people as an important source of rural employment, especially at a time when the rural economy has been under acute stress.

### **‘Grossing-Up’ of the Participants’ Survey Results**

#### **Estimated Aggregated Expenditures by Lowland Shooting Participants**

**5.40** The starting points for this aggregation exercise were:

- the numbers of shooting days provided (ref **Box 5.3**);
- the average numbers of guns present per shooting day (ref **Box 5.3**);
- the ‘grossing-up’ factors (the size of the total survey population divided by the number of survey responses received), namely 53/17 for the Commercial Shoots and 76/35 for the Formal Private Shoots.

**5.41** The estimates of the upper and lower numbers of total gun days, with which participants were involved on Type A and B shoots are displayed in **Box 5.21**. For these two types of shoot, the estimates were derived directly from the survey results.

**5.42** However, in the case of the Type C shoots, as reported in **paragraph 5.20**, an estimate had been made of the total number of rough shooting participants, namely 1,520 (rounded). Based on discussions with the Working Party, it was assumed that annually the average number of gun days per Type C participant was between 3 and 5. Accordingly, the upper and lower estimates for the total number of gun days for Informal/Rough Shooting Participants were 4,560 and 7,600 respectively. These estimates are also presented in **Box 5.21**.

**BOX 5.21: THE LEVELS OF TOTAL PARTICIPATION IN FORMAL AND INFORMAL/ROUGH SHOOTING**

Item	Type of Shoot			
	A Formal Keeped	B Formal Private	A + B Formal	C Informal (3 or more days / yr)
	No.s	No.s	No.s	No.s
<b>UPPER ESTIMATES</b>				
Total Grossed-Up Gun Days	8,996	4,330	13,326	7,600
<b>LOWER ESTIMATES</b>				
Total: Grossed-Up Gun Days	6,109	3,163	9,272	4,560

5.43 Based on the Grossed-up survey results, the Upper estimates for the Total Expenditure by Participants on Formal Shooting were as displayed in **Box 5.22**.

**BOX 5.22: UPPER ESTIMATES OF GROSSED UP TOTAL ANNUAL EXPENDITURES BY SHOOTING PARTICIPANTS - £**

Expenditure Item	Type of Shoot			
	A + B Formal	A + B Formal	C Informal (3 or more days / yr)	C Informal (3 or more days / yr)
	Average £ Per Gun Day	Total £ for 12,126 Gun Days	Average £ Per Gun Day	Total £ for 7,600 Gun Days
	£	£	£	£
<b>Syndicate Fees</b>	<b>71.89</b>	<b>871,738</b>	0	0
Clay Pigeon Shooting Club Fees	0.25	3,032	0.27	2,050
Day Permits	2.42	29,345	0	0
<b>Gun Days Purchase</b>	<b>56.52</b>	<b>685,362</b>	0	0
Shooting School Charges	1.25	15,158	0	0
<b>Ammunition</b>	<b>16.50</b>	<b>200,079</b>	<b>6.39</b>	<b>48,563</b>
Gun Repairs & Maintenance	5.48	66,450	0.71	5,396
Dog's Feed	<b>11.11</b>	<b>134,720</b>	2.71	20,596
Dogs' Vet Care & Medication	5.70	69,118	2.09	15,884
Dogs' Training	1.07	12,975	0	0
Dogs' Purchase	3.48	42,198	1.90	14,440
Dog Kennels	3.69	44,745	0	0
<b>Keeping</b>	<b>80.63</b>	<b>977,719</b>	0	0
Insurance & Security	6.40	77,606	0.41	3,116
Travel Fares	2.31	28,011	0	0
<b>Petrol &amp; Other Vehicle Costs</b>	<b>31.63</b>	<b>383,545</b>	<b>8.53</b>	<b>64,827</b>
<b>Food &amp; Drinks</b>	<b>14.24</b>	<b>172,674</b>	1.36	10,335
Accommodation	4.14	50,202	0	0

<b>Gifts &amp; Gratuities</b>	<b>13.47</b>	<b>163,337</b>	<b>0</b>	<b>0</b>
<b>Clothing</b>	<b>7.05</b>	<b>85,488</b>	<b>5.98</b>	<b>45,447</b>
Shooting Journals	1.63	19,765	0.35	2,660
<b>Guns &amp; Gun Cabinet</b>	<b>11.94</b>	<b>144,784</b>	<b>10.33</b>	<b>78,506</b>
<b>Vehicles for Shooting</b>	<b>158.03</b>	<b>1,916,272</b>	<b>10.33</b>	<b>78,506</b>
Other	1.65	20,008	1.36	10,335
Licenses	2.22	26,920	1.61	12,235
<b>Sub-Total</b>	<b>514.70</b>	<b>6,241,251</b>	<b>54.33</b>	<b>412,896</b>
Other (1,200 Formal Gun Days)	514.70	618,000	N/A	N/A
<b>TOTAL</b>	<b>514.70</b>	<b>6,859,251</b>	<b>54.33</b>	<b>412,896</b>

**5.44** The Grand Total expenditure for all Participants was estimated to be £7,272,147. Careful scrutiny of the survey results by the Working Party suggested that the average cost incurred by Participants per rough shooting day might have been understated. This related especially to the annual costs known to be involved both in travel and in keeping a gun dog. An average total cost of £80 per day was thought to be more appropriate than the £55 per day. Such an adjustment would increase the Upper estimate by £195,477 to £7,467,624.

**5.45** Based on the procedure for ‘grossing-up’ the survey results for Providers, described in **paragraph 5.35** the Lower estimates for total expenditure by Participants are displayed in **Box 5.23**.

Item	Units	Type of Shoot		
		A + B Formal	C Informal (3 or more days / yr)	
Lower Estimate based on Gun Days (ref Box 5.21)	No.	9,272	4,569	13,841
Plus				
Other (960 Formal Gun Days)	No.	960	Not Applicable	960
Total Gun Days	No.	10,232	4,569	14,801
<b>Lower Estimate Total Expenditure</b>	<b>£</b>	<b>3,898,794</b>	<b>211,860</b>	<b>4,110,654</b>

## Total Grossed-Up Estimates – Providers & Participants

### Estimated Total ‘Grossed-Up’ Expenditure Incurred

5.46 In summary, the results of the aggregation calculations are displayed in **Box 5.24**. The range of estimates (£6.46 million to £10.4 million) was wide. However, this was to be expected given the variations in individual provider and participant responses for the three categories of shoot.

<b>BOX 5.24: GRAND TOTAL ‘GROSSED-UP’ EXPENDITURE - £ (1998/99)</b>				
Ref	Item	Type of Shoot		Total
		A + B Formal	C Informal (3 or more days / yr)	
		£	£	
	<b>Upper Estimate</b>			
<b>Box 5.16</b>	Providers’ Total Net Expenditure	3,089,817	27,376	3,117,193
<b>Box 5.22</b>	Participants’ Total Gross Expenditure	6,859,251	412,896	7,272,147
	<b>TOTAL</b>	<b>9,949,068</b>	<b>440,272</b>	<b>10,389,340</b>
	<b>Lower Estimate</b>			
<b>Box 5.16</b>	Providers’ Total Net Expenditure	2,335,258	16,947	2,352,205
<b>Box 5.23</b>	Participants’ Total Gross Expenditure	3,898,794	211,860	4,110,654
	<b>TOTAL</b>	<b>6,234,052</b>	<b>228,807</b>	<b>6,462,859</b>

### Secondary Expenditure & Employment

5.47 As in the case of the other countryside-based sports and leisure activities, covered by this Study and in the interests of completeness, the secondary economic impacts were assessed.

5.48 It was estimated that:

- the total expenditure by Providers on intermediate goods and services in 1998/99 amounted to £1,119,000; and
- the total “Off-Site” spend by Participants was, in round terms, £3,588,000 in the same year.

5.49 Thus the total direct expenditure by Providers and Participants in the local economy was of the order of £4,707,000. Applying the appropriate rural sector multipliers of 1.31 to 1.34 (ref the Scottish Tourism Multiplier Study, 1992) indicated total secondary expenditure of between £1,112,000 and £1,220,000 in 1998/99.

5.50 Application of the average output of £72,000 per FTE (ref the Scottish Input-Output Tables, 1996, published in the Scottish Economic Bulletin, 1999) indicated that the secondary spend supported the equivalent of between 15.5

---

and 17 additional FTEs. Addition of the latter to the estimates, presented earlier in **Boxes 5.19** and **5.20**, suggested that the total direct and secondary employment generated by lowland game shooting in 1998/99 amounted to between 241 and 331 FTE jobs.

### **Concluding Comment**

- 5.51** It was evident that, in terms of both economic activity and employment generation, lowland game shooting had made substantial contributions. Indeed, of all of the traditional countryside sports in (1999 / 2000), this form of shooting had the greatest impact on rural livelihoods in the Borders' Region. The same applied with respect to the conservation and enhancement of both wildlife habitats and visual landscapes.
- 5.52** For these reasons, lowland game shooting needs to be recognised as an important component of the rural economy. This is especially germane at a time when strategic planning of rural resources and land uses is a priority issue. Traditionally, it has been common practice on the part of statutory agencies throughout the UK to overlook the contributions made by both the Providers and Participants of countryside sports. There has never been a more appropriate time for rectifying this omission.

## **ACKNOWLEDGEMENTS**

Scott Wilson is very grateful to the following organisations and people who have assisted during the research process. They have provided valuable inputs both to the compilation of the inventory of countryside-based recreation and sports activities and to the assessment of their tourism contributions in the Scottish Borders.

### **Members of the Working Party**

Mr D. Ainslie	Trustee of Borders Foundation for Rural Sustainability, Head Moorland Keeper, Roxburghe Estates
Mr B. Cowe OBE	Chairman of the Borders Foundation for Rural Sustainability
Mr M. Edgar	Managing Director, Game & Country Enterprises
Mr H. Straker	The Game Conservancy Ltd
Denise Walton	Co-ordinator, Borders Foundation for Rural Sustainability
Mr S. Waugh	BASC, Scotland

### **Consultees**

Dr C.B. Shedden	Director, BASC Scotland
-----------------	-------------------------