

BFRS
The Countryside Management Industry in the Scottish Borders; Sustainability
and the Pursuit of New Jobs and Revenues
PART 2: INVENTORY
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CHAPTER 6

INVENTORY OF GROUSE SHOOTING ACTIVITIES
IN THE SCOTTISH BORDERS

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CONTENTS

INVENTORY OF GROUSE SHOOTING ACTIVITIES IN THE SCOTTISH BORDERS

	Page No.
Summary of Main Survey Findings	i
Introduction	6-1
Methodology	6-2
Survey Response Rates	6-3
Grouse Shooting Providers	6-3
Grouse Shooting Participants	6-3
Provider Survey Results and Their Aggregation	6-3
Physical Dimensions of Grouse Shooting Provision	6-4
The Size, Value & Sale of the Game Bag	6-5
Profile of Annual Gross Recurrent Expenditure Incurred by Providers	6-6
Grouse Shooting Improvements – Last 5 Years	6-8
Total Annual Gross & Net Costs Incurred by Providers	6-10
Levels of Gross & Net Expenditure Per Gun Day and Per Hectare	6-10
Impacts on Local Trades & Service Organisations	6-12
Direct Employment Generated	6-13
Changes in Employment Provision	6-15
Participant Survey Results and Their Aggregation	6-16
The Origins of Shooting Participants	6-16
Levels of Recurrent Expenditure Incurred by Participants	6-16
Total Direct & Indirect Expenditure & Employment Impacts	6-17

Concluding Comment & Comparisons with Other Survey Results 6-19

ACKNOWLEDGEMENTS

6. INVENTORY OF GROUSE SHOOTING ACTIVITIES IN THE SCOTTISH BORDERS

Summary of Main Survey Findings

Survey Sources

The inventory was based on **two independent grouse shooting surveys**. This first-time primary research was undertaken during 1999/2000. The surveys respectively covered **the Lammermuirs and the Central Southern Uplands**.

The surveys distinguished between the **two main types** of grouse shooting provided, namely: **commercial and non-commercial**.

The highlights of the inventory were as presented below.

Physical Dimensions

- The surveys covered **27 estates**, the owners of which were known to provide grouse shooting.
- The **total grouse shooting area was over 52,000 hectares of moorland**. **19 of these estates (70%)** were based in the Central Southern Uplands, the balance being located in those sections of the Lammermuirs, existing within the Scottish Borders.

Scale of Recreational Activities

- **In total approximately 100 grouse shooting days were provided in 1999**
- **Overall, commercial shooting accounted for approximately 45% of the total number of grouse shooting days provided in 1999**. The incidence of commercial shooting was higher in the Lammermuirs (56%) compared with the Southern Uplands (42%)

The Levels of Direct Expenditure

- The surveys revealed that, as a rural land use, grouse shooting generated notable levels of expenditure in 1999. However, **the performance in 1999 was 'below par'**, due to the usual combination of factors influencing grouse populations. It was estimated that **in a normal year, the main economic contributions made by grouse shooting** amounted to the following:
 - **Total gross expenditure by Providers between approx £0.8 and £1.1 million**

-
- **Total gross expenditure by Participants between approx £1.5 and £2.6 million**
 - **Grand Total gross expenditure between approx £2.3 and £3.7 million**

 - ❑ **The costs incurred by providers per gun day provided varied between £676 and £713 on commercial shoots. They were approx 3 times higher on non-commercial estates (£1,930 to £2,230). The cost per shooting day (involving average of approximately 8 guns) provided ranged between £6,400 and £10,400**

 - ❑ **The expenditure incurred per gun day by participants in 1999 ranged between £1,900 and £2,250**

 - ❑ **In relation to the moorland used for grouse shooting, the net costs incurred varied between £ 4.30 and £6.00 per hectare on commercial estates. The corresponding figures for non-commercial estates were over 4 times greater, namely between £18.90 and £26.00 per hectare**

The Employment Impacts

- ❑ **Employment in 1999 amounted to 68 full-time equivalent jobs. These were represented by almost 750 jobs (mostly seasonal and part-time)**

- ❑ **Importantly, the surveys revealed that overall employment levels have been sustained during the past ten years. This has been in spite of the economic and ecological difficulties encountered by many estate and grouse moor owners**

Environmental Contributions

- ❑ **The survey findings highlighted the important role played by grouse shooting in maintaining 52,000 hectares of moorland. This is a **unique habitat and a landscape much admired by visitors**, whose numbers reflected the various official landscape designations that have been assigned to the areas.**

- ❑ **The annual total habitat management costs were estimated to have been between £65,000 and £99,000, i.e. £1.25 and 1.93 per hectare. They represented approximately 8.5% of the annual recurrent expenditure incurred by the providers**

The Economic Impacts

- ❑ **In general high expenditure leakages were experienced: 67% of the total expenditure by participants was spent outside the area. Even in the case of providers, the leakages were quite high: 39% overall, varying between 21% on commercial estates and 46% on the non-commercial counterparts**

- **A well recognised feature of grouse shooting has been the wide variations experienced by grouse moor owners and participants in relation to ‘best’, ‘normal’ and ‘below par’ performances. The Scottish Borders proved to be no exception. The surveys revealed that in 1999 - compared with the ‘best’ year - the performances, as reflected by the numbers of days shooting provided, were respectively between 4 and 5 times and 8 times lower on commercial and non-commercial shooting estates. In the ‘best’ years positive net revenues were reported by providers of commercial grouse shooting in the Lammermuirs’, namely: averages of £143 per gun day and £7.70 per hectare.**
- **Overall grouse shooting was valued for both its socio-economic and conservation contributions.** The latter covered both important biodiversity and visual values.

Verification

These summary results were based upon **overall response rates of 59% and 63% for the surveys**, respectively covering all providers and the Lammermuirs’ participants (there were no corresponding results for Central Southern Uplands’ participants).

The inventory results were confirmed at least in part by two other studies, respectively covering the Upper Findhorn Valley (Mackenzie, 2000) and all Scottish Grouse Moors (Fraser of Allander Research Institute, 2001). The comparative estimates are summarised below:

Item	Scottish Borders Region	All Scotland	Upper Findhorn Valley
	BFRS/SWRC Study	Fraser of Allander Institute Study	Mackenzie Study
Average Employment per Estate: FTEs			
1989	Dna	1.20	dna
1994	Dna	2.01	dna
1999	2.52	dna	dna
2000	dna	2.05	dna
Average Annual Recurrent Expenditure: £/ha	14.99 to 19.97	dna	22.0

Footnote: Data Not Available = dna

6. INVENTORY OF GROUSE SHOOTING ACTIVITIES IN THE SCOTTISH BORDERS

Introduction

- 6.1 The preparation of this inventory involved primary research, based on the collection of data through two postal questionnaire surveys. Hitherto data on the use of grouse moors for shooting located within the Scottish Borders had not been available. The locations of the grouse moors covered by the two surveys are presented in Chapter 5 (ref Map 1).
- 6.2 The first survey was conducted by the consultants in June 2000. This related specifically to grouse shooting in the Central Southern Uplands Grouse Moors.
- 6.3 The second more detailed survey was conducted over the same time scale by BFRS for the Lammermuir Moorland Owners Forum. It was assisted by the consultants in relation both to the design of questionnaires and analysis of the survey results. A survey report was presented by BFRS in June, 2001 to the members of the Lammermuir Moorland Owners Forum. That survey extended beyond the Borders to include grouse moors located either totally or partly in East Lothian. In total, 11 Estates are involved in the provision of grouse shooting on the Lammermuirs. Of these, 8 are either totally or partly located in the Borders. The remainder are in East Lothian. 6 of the Estates are totally located totally within the Scottish Borders. 2 of the Estates have moors that lie partly in both East Lothian and in the Borders.
- 6.4 The BFRS survey, covering the whole of the Lammermuirs, collected data for both grouse shooting ‘providers’ and ‘participants’. In the case of the Southern Uplands, however, the survey only yielded data for ‘providers’.
- 6.5 For the purposes of these surveys, the following terms were adopted:
- ‘**providers**’ refer to landowners and/or tenants within the Borders, who provide facilities for grouse shooting on their land. A distinction was made between those ‘providers’ involved in managing a commercial/semi-commercial shoot and other shoots that catered exclusively for family members and friends. The latter were referred to as ‘non-commercial’ shoots;
 - ‘**participants**’ was used collectively to describe all of those people involved in actually shooting grouse on the Lammermuirs and Southern Uplands in the 1999 season.
- 6.6 Both in undertaking the surveys and in analysing the results, the consultants were assisted by members of BFRS. Two members, in particular provided invaluable assistance, namely: Mr Drew Ainslie and the BFRS Co-ordinator, Denise Walton.

Methodology

- 6.7** The surveys were conducted by means of postal questionnaires and pre-paid return envelopes. In designing the questionnaires, the consultants were assisted by the Game Conservancy Trust Ltd, the Scottish Landowners Federation and members of BFRS.
- 6.8** In the case of the 'Providers', no sampling was necessary. Following their identification, all grouse moor owners and shooting tenants located within the Scottish Borders, received a questionnaire by post, together with an explanatory letter. A copy of the questionnaire and accompanying briefing notes are presented in **Appendix 6.1**.
- 6.9** Postal questionnaires were also designed for the separate survey of Participants. A copy is presented in **Appendix 6.2**. Each Provider was sent 10 copies of the questionnaire and asked to distribute them to 10 randomly selected members of their family, friends or paying clients. In the case of the Southern Uplands, none of the grouse shooting Participants returned the questionnaires. However, a good response, covering both the Borders and East Lothians sections, was forthcoming from those who shot in the Lammermuirs during the 1999 season.
- 6.10** In the case of the Lammermuirs Survey, responses were specifically requested to questions about shooting activities in both 1999 and the Best of the last 10 years. This stemmed from the fact that grouse shooting is cyclical by nature and 1999 was known to have been a relatively 'poor' year.
- 6.11** Because the survey response rate, in the case of the Central Southern Uplands (CSUP) Providers was less than 100%, it was necessary to 'gross-up' the survey results, in order to obtain estimates for the total population. The 'grossing-up' procedure adopted was identical to that adopted for other countryside sports surveys and is described in the paragraphs which follow.
- 6.12** It is usual statistical practice to assume that the respondents to a survey are representative of the population. Whilst it is valid to adopt this as a basis upon which to aggregate ('gross-up') the survey results, it was recognised that the estimates of expenditure might have been biased upwards, because of greater interest on the part of those deeply involved in grouse shooting to reply to the questionnaires. Thus, to obtain estimates for the total population, which reflected these two possibilities, the following approach was adopted based upon two assumptions, namely:
- the responses received should be regarded as representative and should thus be extrapolated to obtain 'grossed-up' estimates for the total population of Central Southern Uplands Providers, i.e. the non-respondents were assumed, on average, to have been identical to the respondents. The resulting estimates are the upper end of the ranges presented later in the Boxes;

- the non-respondents were assumed to spend only half as much as the respondents. The 'grossed-up' estimates calculated on this basis are the lower end of the ranges presented in the Boxes.

6.13 It was considered that the adoption of these two assumptions would generate credible 'grossed-up' estimates. Because of the uncertainties involved in undertaking surveys of this type, it was considered that decision-makers and -takers would find it more helpful to be provided with guideline estimates rather than finite numbers.

Survey Response Rates

Grouse Shooting Providers

6.14 In total 27 Providers were identified. Responses were received from all (100%) of the Providers in the Lammermuirs and 8 of the 19 Providers (42%) of those located in the Central Southern Uplands. Thus, for the Borders as a whole, the response rate for the combined surveys was 59%. The results presented in this Chapter are based upon summation of the survey responses for the Borders sections of the Lammermuirs plus 'grossed-up' the estimates for the Central Southern Uplands (CSUP). The latter were based on 'grossing-up' the survey results obtained from the 8 CSUP respondents.

Grouse Shooting Participants

6.15 In the case of the Lammermuirs, 69 responses were obtained from the 110 questionnaires despatched to Participants via the Providers. 47 of these related to shooting on the 3 of the 8 Estates with grouse moors located within the Borders. The total expenditures reported by these respondents were adjusted in the case of 2 of the Estates to reflect the proportions of their moors actually located within the Borders.

6.16 The sizes of the total populations of Participants, involved in grouse shooting in both the Scottish Borders and the whole of the Southern Uplands were not known. Consequently analysis of the Participant dimensions of the study was based upon the total number of Gun Days that Providers collectively reported that they had made available in the season.

Provider Survey Results & Their Aggregation

6.17 The results presented in this section are a combination of those obtained from the owners of the Lammermuirs Estates plus the 'grossed-up' estimates for the Central Southern Uplands. The latter were based on extrapolation of the combined survey responses.

Physical Dimensions of Grouse Shooting Provision

6.18 In 1999 the numbers of moorland owners who provided grouse shooting facilities in the Borders, together with the land areas involved, were as summarised in **Box 6.1**.

BOX 6.1: GROUSE SHOOTING PROVISION & ACTIVITY IN THE SCOTTISH BORDERS: 'VITAL STATISTICS'

ITEM	LOCATION				TOTAL BORDERS
	UNITS	The Lammermuirs	The Central Southern Uplands		
		Best Year	1999	1999	1999
Numbers of Providers	No.	8	8	19	27
Area of Land Owned	Ha	14,900	14,900	66,410	81,310
Area of Land Shot Over	Ha	13,155	13,155	38,405	51,560
Shooting Provided:					
Commercial	Days	47	14	28 to 34	42 to 48
Non-Commercial	Days	47	11	39 to 48	50 to 59
Total	Days	94	25	67 to 82	92 to 107

6.19 Within the Borders as whole, grouse shooting was provided on just over 51,500 hectares of moorland. This represented approximately 63% of the total area of the 27 Estates. In the case of the Lammermuirs, driven grouse shooting was provided on all of the area shot over. The corresponding figure for the Southern Uplands' moorland was 90%. Whereas no walked-up grouse shooting was reported for the Lammermuirs, this type of shooting involved approximately 51% of the Southern Uplands. The majority of this type of shooting was undertaken on Estates involved in providing grouse shooting for commercial/semi-commercial reasons. These Estates accounted for 86% of the area used for walked-up shooting. No dogging shooting was reported in the case of either of the component areas.

6.20 **Box 6.1** indicates that, in the case of the Lammermuirs, the provision of commercial shooting days either equalled or slightly exceeded the number of non-commercial days provided. In contrast, some 58% of the Central Southern Uplands provision related to non-commercial shooting.

6.21 A notable finding of the surveys was the very large difference between the Best Years and 1999 in the Lammermuirs, in terms of the numbers of both shooting days and gun days made available by the Providers. The overall difference in the case of the Lammermuirs was approximately between 3.8 and

over 5 times greater. In the case of the numbers of Recreational Gun Days provided, the difference was even larger: nearly 8 times greater. These differences emphasise the uncertainties and thus the difficulties associated with managing this particular type of sporting enterprise.

6.22 **Box 6.2** presents the combined survey findings, in terms of the numbers of Gun Days made available by Providers, respectively in the Best Years and in 1999. The distinction between commercial and recreational activities is also shown.

BOX 6.2: GROUSE SHOOTING PARTICIPATION & ACTIVITY DAYS IN THE SCOTTISH BORDERS					
ITEM	LOCATION				
	UNITS	The Lammermuirs		The Central Southern Uplands	TOTAL BORDERS
		Best Year	1999	1999	1999
Shooting Provided	Days	94	25	67 to 82	92 to 107
Average Number of Guns (Participants) Per Shooting Day	No.	7.4	5.4	7.3	6.8
Total Shooting Provision Made Available to Participants	Gun Days	692	135	489 to 599	624 to 734
Of which:					
Commercial/ Semi-Commercial	Gun Days	373	95	205 to 252	281 to 328
Non-Commercial	Gun Days	319	40	284 to 347	343 to 406

6.23 In the case of the Lammermuirs, the low average number of guns reported in 1999, as being present on any one day, is noticeable. In 'normal' years, the figures were said to be higher. Thus, when using these figures for aggregation purposes (ref Para 6.46), an upward adjustment was made to reflect what was considered to be the number of Gun Days made available in a more typical year. In the case of the Lamermuirs, that was considered to amount to a 30% increase in the total number of Gun Days provided, i.e. 175 rather than the 135 Gun Days provided in 1999.

The Size, Value and Sale of the Game Bag

6.24 **Box 6.3** summarises the game bag survey results for the Lammermuirs, together with the grossed-up responses for the Central Southern Uplands. Again, of special note are the large differences respectively in the sizes and values of game bags between 1999 and the Best Year, in the case of the Lammermuirs. Likewise, in the Best Year, significantly higher proportions were sold both in general and through game dealers

6.25 In general higher proportions of the game bags were sold in the case of the Southern Uplands' Estates than the Lammermuirs. Five out eight of the

respondents in the Southern Uplands made all of their grouse sales through game dealers in 1999.

BOX 6.3: SIZE, VALUE & SALE OF GAME BAG

ITEM	LOCATION								
	The Lammermuirs				The Central Southern Uplands		Sub-Total		Grand Total
	Commercial Clients		Family & Friends		Commercial Clients	Family & Friends	Commercial Clients	Family & Friends	Total All Guns
	Best Year	1999	Best Year	1999	1999	1999	1999	1999	1999
Size of Bag: Brace	3,457	581	3,528	497.5	281	451	862	948.5	1,810.5
Proportion of Bag Sold	80 to 95%	0 to 85%	70 to 95%	0 to 90%	0 to 90%	0 to 70%	0 to 90%	0 to 90%	0 to 90%
Proportion Sold Through Game Dealers	80 to 100%	0 to 100%	70 to 100%	0 to 100%	0 to 100%	0 to 100%	0 to 100%	0 to 100%	0 to 100%
Value of Bag: £	10,902	2,237	2,750	525	433 to 547	2,048 to 3,296	2,670 to 2,784	2,573 to 3,821	5,243 to 6,605
Footnote*: Total Revenue Received by Providers: £	170,180	70,007	24,772	23,838	46,197 to 58,425	2,048 to 3,296	116,204 to 128,432	25,886 to 27,134	142,090 to 155,566

Footnote *: The estimates shown here are the sum of the Value of the Bag plus Rents received

6.26 As was to be expected, the total revenues received on ‘Commercial’ Grouse Shooting Estates was significantly greater than in the case of the ‘Non-Commercial’ Estates. The results of the two surveys were broadly similar in this respect.

Profile of Annual Gross Recurrent Expenditure Incurred by Providers

6.27 Box 6.4 summarises the ‘grossed-up’ expenditure results of the two surveys.

BOX 6.4 ANNUAL GROSS RECURRENT EXPENDITURE BY GROUSE SHOOTING PROVIDERS LOCATED WITHIN BORDERS REGION

ITEM (£)	LOCATION								
	The Lammermuirs				The Central Southern Uplands		Sub-Total		Grand Total
	Commercial Clients		Family & Friends		Commercial Clients	Commercial	Clients	Family & Friends	Family & Friends
	Best Year	1999	Best Year	1999	1999	1999	1999	1999	1999
Keepers Salary & Perks & Labour Costs	65,498	62,945	55,192	122,706	67,760 to 97,020	195,072 to 313,944	130,705 to 159,965	317,778 to 436,650	448,483 to 596,615
Rent for extra shooting land	2,500	2,500	1,278	2,823	0	1,152 to 1,854	2,500	3,975 to 4,677	6,475 to 7,177
Annual Vehicle Costs	8,617	10,109	29,423	54,813	9,680 to 13,860	53,120 to 85,490	19,789 to 23,969	107,933 to 140,303	127,722 to 164,272
Ammunition	691	754	3,647	2,110	4,576 to 6,552	7,808 to 12,566	5,330 to 7,306	9,918 to 14,676	15,248 to 21,982
Wild Game Management & Other Management Costs	19,670	7,096	12,157	23,839	10,560 to 15,120	11,776 to 18,952	17,656 to 22,216	35,615 to 42,791	53,271 to 65,007
Habitat Management Costs	3,770	3,770	3,100	3,100	2,640 to 3,780	55,040 to 88,580	6,410 to 7,550	58,140 to 91,680	64,550 to 99,230
Entertaining & Catering Costs	1,690	1,308	2,784	5,135	176 to 252	15,360 to 24,720	1,484 to 1,560	20,495 to 29,855	21,979 to 31,415
Overhead Costs	6,931	5,158	7,684	13,967	1,760 to 2,520	14,089 to 22,677	6,918 to 7,678	28,056 to 36,644	34,974 to 44,322
TOTAL ANNUAL GROSS RECURRENT COSTS	109,367	93,640	115,265	228,493	97,152 to 139,104	353,417 to 568,411	190,792 to 232,744	581,910 to 796,904	772,702 to 1,029,648

6.28 As expected the biggest single item was the annual expenditure on salary/labour costs. This accounted for between 67% and 70% on the 'Commercial' Estates in 1999 compared with between 54% and 55% on 'Non-Commercial' Estates. The other notable items were:

- the 15%-24% expenditure on vehicles in the case the 'Non-Commercial' Estates, which was higher than on their Commercial counterparts (10%-11%);

- the 7%-10% expenditure on wild game management and other management costs;
- the approximately 16% of expenditure on habitat management items incurred by 'Non-Commercial' Shooting Estates in the Central Southern Uplands; compared with under 2% on the similar category of Estates in the Lammermuirs;
- the much higher actual amounts and proportions of total expenditure allocated to entertaining and catering items on the Non-Commercial' Estates. This applied particularly in the case of the Central Southern Uplands.

Grouse Shooting Improvements – Last 5 Years

- 6.29** The responses summarised in **Box 6.5** confirms the important role that grouse shooting has played and continues to fulfil, in terms of maintaining and sustaining the moorland landscapes of the Borders. In addition to the rotational burning of heather to maintain a mosaic of differing ages and heights of heather, the costs of which were included in **Box 6.4** (labour costs), the Providers undertook extensive bracken control. This applied particularly in the case of those Estates responsible for providing 'Non-Commercial' Shooting in the Southern Uplands. This, together with the reduction of sheep stocking levels, contributed importantly to sustaining the heather in good condition.
- 6.30** On average, the control of bracken involved expenditure of between approximately £165,000 and £260,000 over the 5 years. This represented annual average expenditure of between £0.65 and £1.00 per hectare shot over. The total expended on all improvements was much higher - by a factor of between 5 and 7 – in the case of 'Non-Commercial' Grouse Shooting Providers in the Southern Uplands. The average annual cost of grouse shooting improvements for the total area shot over in the Borders amounted to between £1.05 per hectare and £1.58 per hectare.

BOX 6.5: NATURE & SCALE OF GROUSE SHOOTING IMPROVEMENTS UNDERTAKEN BY PROVIDERS IN THE LAST 5 YEARS IN THE SCOTTISH BORDERS

ITEM	LOCATION						GRAND TOTAL
	The Lammermuirs		The Central Southern Uplands		Sub-Total		
	Commercial Clients	Family & Friends	Commercial Clients	Family & Friends	Commercial Clients	Family & Friends	
Bracken Control: Ha	523	201	27.5 to 35	986 to 1,586	550.5 to 558	1,187 to 1,787	1,737.5 to 2,345
Cost of Bracken Control: £	5,230 to 12,552	5,025	15,640 to 19,780	138,660 to 222,570	20,870 to 32,332	143,685 to 227,595	164,555 to 259,927
Ewe Number Reduction	654	434	816 to 1,032	4,608 to 7,416	1,470 to 1,686	5,042 to 7,850	6,512 to 9536
Cost of Ewe Reduction: £	22,890	6,510	8,160 to 10,320	61,440 to 98,880	31,050 to 33,310	67,950 to 105,390	99,000 to 138,700
Butt Provision & Repairs/Other: £	6,000	0	1,360 to 1,720	0	7,360 to 7,720	0	7,360 to 7,720
TOTAL IMPROVEMENT COSTS INCURRED: £	34,120 to 41,442	11,535	25,160 to 31,820	200,100 to 321,450	59,280 to 73,362	211,635 to 332,985	270,915 to 406347
AVERAGE GROSS ANNUAL IMPROVEMENT COSTS £	6,8246 to 8,288	2,307	5,032 to 6,364	40,020 to 64,290	11,856 to 14,672	42,327 to 66,597	54,183 to 81,269

6.31 The combined totals presented in **Boxes 6.4** and **6.5** are summarised in **Box 6.6** to provide estimates of the aggregated average Total Annual Expenditures incurred by Providers. These costs, net of the annual revenues received by Providers, are also displayed in **Box 6.6** along with the levels of cost recovery achieved. As was expected, the latter were much higher on the ‘Commercial’ Shooting Estates.

BOX 6.6 TOTAL AVERAGE ANNUAL GROSS & NET COSTS INCURRED BY GROUSE SHOOTING PROVIDERS IN THE SCOTTISH BORDERS

ITEM £	LOCATION								
	The Lammermuirs				The Central Southern Uplands		Sub-Total		GRAND TOTAL
	Commercial Clients		Family & Friends		Commercial Clients	Family & Friends	Commercial Clients	Family & Friends	
	Best Year	1999	Best Year	1999	1999	1999	1999	1999	
Total Annual Gross Recurrent Costs (ref Box 6.4)	109,367	93,640	115,265	228,493	97,152 to 139,104	353,417 to 568,411	190,972 to 232,744	581,910 to 796,904	772,882 to 1,029,648
Average Annual Gross Improvement Costs, incl' Sheep Stock Reduction (ref Box 6.5)	6,824 to 8,288	6,824 to 8,288	2,307	2,307	5,032 to 6,364	40,020 to 64,290	11,856 to 14,672	42,327 to 66,597	54,183 to 81,269
[A] TOTAL AVERAGE ANNUAL GROSS COSTS	116,191 to 117,655	100,464 to 101,928	117,572	230,800	102,184 to 145,468	393,437 to 632,701	202,828 to 247,416	624,237 to 863,501	827,065 to 1,110,917
LESS:									
[B] Total Revenue Received by Providers (ref Box 6.3)	170,180	70,007	24,772	23,838	46,197 to 58,425	2,048 to 3,296	116,204 to 128,432	25,886 to 27,134	142,090 to 155,566
[C] TOTAL AVERAGE ANNUAL NET COSTS	-52,525 to -53,989	30,457 to 31,921	92,800	206,962	55,987 to 87,043	391,389 to 629,405	86,624 to 118,984	598,351 to 836,367	684,975 to 955,351
COST RECOVERY: Revenues as % of Total Av Annual Gross Costs	146	69	22	10	40 to 45	0.5	52 to 57	3.1 to 4.0	14 to 17

Levels of Gross and Net Expenditure Per Gun Day and Per Hectare

6.32 Box 6.7 highlights the wide differences between the Best Year and 1999 in terms of the Gross and Net Costs per Gun Day incurred by the Lammermuirs' Providers. Again as expected, for the Borders as a whole, the costs per Gun Day were significantly – between 2.85 and 3.12 times - higher on the

‘Recreational’ Shooting Estates. The same applied, in the case of the Gross Costs per hectare of moorland shot over. The Providers of ‘Recreational’ Grouse Shooting incurred Gross Costs per hectare that were approximately double those of their ‘Commercial’ counterparts.

BOX 6.7: COSTS INCURRED BY PROVIDERS PER GUN DAY PROVIDED AND PER HECTARE OF MOORLAND USED IN THE SCOTTISH BORDERS

ITEM £	LOCATION								
	The Lammermuirs				The Central Southern Uplands		Sub-Total		GRAND TOTAL
	Commercial Clients		Family & Friends		Commercial Clients	Family & Friends	Commercial Clients	Family & Friends	
	Best	1999	Best	1999	1999	1999	1999	1999	1999
a) Average Total Annual Gross Costs per Gun Day Provided (rounded)	314	1,065	369	5,770	499 to 578	1,385 to 1,823	676 to 713	1,927 to 2,231	1,325 to 1,514
b) Average Total Annual Net Costs Per Gun Day Provided (rounded)	-143	328	291	5,174	273 to 345	1,378 to 1,814	289 to 343	1,847 to 2,091	1,098 to 1,302
c) Average Total Annual Gross Costs per Hectare of Moorland Used	16.95	14.67	18.79	36.89	7.82 to 11.13	15.53 to 25.00	10.16 to 12.39	19.76 to 27.33	16.0 to 21.5
d) Average Total Annual Net Costs per Hectare of Moorland Used	-7.70	4.50	14.80	33.00	4.28 to 6.65	15.45 to 24.85	4.34 to 5.96	18.94 to 25.62	13.3 to 18.5

6.33 Of particular note, in the case of the Lammermuirs' Providers was the positive performance of the 'Commercial' Shooting Estates in the Best Year, namely an average return of:

- £143 per Gun Day; and
- £7.70 per Hectare of Moorland Shot Over.

The fact that such performances are possible, even on an occasional basis, needs to be recognised when future policies for the Countryside Management Industry are periodically prepared and reviewed.

6.34 In the Borders as a whole, the Net Costs incurred were higher on the 'Non-Commercial' Estates by factors of over 6 and 4 respectively per Gun Day and per Hectare of Moorland Shot Over. In the case of the Lammermuirs' 'Non-Commercial' Shooting Providers the differences between the 1999 and Best Year performances were even larger:

- nearly 16 times higher per Gun Day in 1999; and
- over 7 times greater per Hectare of Moorland Shot Over in 1999.

Impacts on Local Trades and Service Organisations

6.35 The location of the expenditure incurred by Providers is clearly important in relation to the local economy. Overall the leakages are seen from **Box 6.8** to have been quite high: 39% overall (comprising 21% for 'Commercial' Shooting Estates and 46% on Estates providing 'Non-Commercial' Grouse Shooting). Nonetheless it is noted that at least 56 main local organisations were involved in servicing the Lammermuirs' Providers. Not surprisingly, many of the organisations cited by the survey respondents were the same as those patronised by Lowland Game Shooting Providers. Information on the latter is provided in Chapter 10 (ref **Box 10.2**).

6.36 It was revealed that on the Commercial Estates in the Lammermuirs, the average total annual expenditure made through local organisations was approximately two thirds of that on the 'Non-Commercial' Estates.

BOX 6.8: PROPORTION OF 1999 GROUSE SHOOTING PROVIDERS' EXPENDITURE THROUGH LOCAL TRADES & SERVICE ORGANIZATIONS IN THE LAMMERMUIRS ONLY WITHIN THE SCOTTISH BORDERS

ITEM	Units	Commercial Clients	Family & Friends	TOTAL
a) Total Annual Recurrent Costs	£	93,640	228,493	322,133
b) Local Expenditure	£	74,000	123,000	197,000
c) Local Expenditure as a Proportion of Total Recurrent Costs	%	79	54	61
Local Organisations	No.	56	25	81

Direct Employment Generated By Grouse Shooting Providers

6.37 **Box 6.9** indicates that substantial numbers of jobs and FTEs are directly associated with the provision of grouse shooting in the Borders: almost 260 jobs on all 'Commercial' Shooting Estates and 488 jobs on their 'Non-Commercial' counterparts. The total number of Full and Part-Time Jobs is estimated to be 748, representing 68 FTEs.

BOX 6.9: NUMBERS OF STAFF EMPLOYED BY GROUSE SHOOTING PROVIDERS IN 1999

ITEM	LOCATION							GRAND TOTAL
	Units	The Lammermuirs		The Central Southern Uplands		Sub-Total		
		Commercial Clients	Family & Friends	Commercial Clients	Family & Friends	Commercial Clients	Family & Friends	
a) <u>Permanent Full-Time Staff</u>								
Shoot Manager	No.	0.2	1	0	0	0.2	1	1.2
Head Keeper	No.	1.3	3	5.2	8.2	6.5	11.2	17.7
Assistant Keeper	No.	2.3	4	6.9	12.4	9.2	16.4	25.6
Trainees	No.	0.5	0	0	4.1	0.5	4.1	4.6
SUB-TOTAL	No.	4.3	8	12.1	24.7	16.4	32.7	49.1
SUB-TOTAL	FTEs	4.3	8	12.1	24.7	16.4	32.7	49.1
b) <u>Part-Time Jobs</u>								
Part-Time Keepers	No.	3	3	12.1	24.7	15.1	27.7	42.8
Beaters	No.	59	60	121	206	180	266	446
Pickers-Up	No.	9	4	13.8	28.9	22.8	32.9	55.7
Loaders	No.	9	5	0	0	9	5	14
Game-Carters	No.	0.3	0.6	0	0	0.3	0.6	0.9
Moor Burners	No.	2.6	6	15.5	33	18.1	39	57.1
Other	No.	1	1	0	82.4	1	83.4	84.4
SUB-TOTAL	No.	83.9	79.6	162.4	375	246.3	454.6	700.9
SUB-TOTAL	FTEs	3.8	3	5	7.3	8.8	10.3	19.1
TOTAL JOBS	No.	84.3	88	174.5	399.7	258.8	487.7	746.5
TOTAL FTEs	FTEs	8.1	11	17.1	32	25.2	43	68.2

6.38 In terms of ‘Commercial’ Shooting the intensity of employment, in relation to the relative areas shot over, was higher in the Lammermuirs than the Central Southern Uplands. However, in the case of ‘Non-Commercial’ Shooting, the intensities were broadly similar for the two areas.

Changes in Employment Provision

6.39 Box 6.10 shows the overall net changes in Full-Time Jobs, Part-Time Jobs and FTEs in the past 10 years, covering permanent and part-time employment.

BOX 6.10: CHANGE IN GROUSE SHOOTING EMPLOYMENT PROVISION IN THE LAST 10 YEARS IN THE SCOTTISH BORDERS

ITEM	LOCATION							
	UNITS	The Lammermuirs		The Central Southern Uplands		Total		GRAND TOTAL
		Commercial Clients	Family & Friends	Commercial Clients	Family & Friends	Commercial Clients	Family & Friends	
a) Permanent/ Full-Time Staff	FTEs	+1.8	+2.2	-1.4 to -1.7	-2.5 to -4.1	+0.4 to +0.1	-0.3 to -1.9	+0.1 to -1.8
b) Part-Time Staff	Jobs	0	+124 to +186	-27 to -34	-26 - -41	-27 to -34	+98 to +145	+71 to +111
	FTEs	0	+4.7 to +7.0	-1.02 to -1.3	-0.97 - -1.55	-1.02 to -1.3	+3.73 to +5.45	+2.71 to +4.15
TOTAL	FTEs	+1.8	+6.9 - +9.2	-2.42 to -3.0	-3.47 - -5.65	-1.01 to -1.7	+3.43 to +3.55	+2.81 to +2.35

6.40 The main changes have been as follows:

- the number of Full-Time Jobs have decreased by less than 2. The overall loss has occurred on Estates involved in providing ‘Non-Commercial’ grouse shooting;
- there was an overall net gain in terms of Part-Time employment in the Lammermuirs, amounting to between 124 and 186 jobs. This represented between 4.7 and 7 FTEs and was associated with a big increase in Part-Time Jobs on ‘Family and Friends’ grouse shoots. However, this was not mirrored in the South Uplands, where the numbers of Part-Time Jobs declined on both Commercial and ‘Non-Commercial’ grouse shooting Estates. In total, the reduction in the numbers of Part-Time Jobs provided in the Central Southern Uplands fell by between 53 and 75. The reasons for this decline were not revealed by the survey;
- overall, however, the numbers of FTEs grew by between 2 and 3 FTEs. This was due to the fact that a small increase on the ‘Non-Commercial’

grouse shooting Estates in the Lammermuirs exceeded the decrease experienced on the Central Southern Uplands Estates.

- 6.41** In view of both the many difficulties with which Estates have had to contend during this period and the overall decline in rural employment, the sustained contribution made by grouse shooting, displayed in **Box 6.10**, needs to be recognised.

Participation Survey Results and Their Aggregation

The Origins of the Shooting Participants

- 6.42** In the case of the Lammermuirs' Commercial Providers, it is interesting that **Box 6.11** shows the majority of clients to have originated from either the Borders itself or the Rest of the UK. The Rest of Scotland was not a prime source of clients. It was also notable that it was primarily in the Best Year that clients came from abroad.

BOX 6.11: ORIGINS OF SHOOTING PARTICIPANTS IN THE SCOTTISH BORDERS

ITEM	The Lammermuirs				The Southern Uplands	
	Commercial Clients		Family & Friends		Commercial Clients	Family & Friends
	Best Year	1999	Best Year	1999	1999	1999
Borders	0-83%	0-100%	0-66%	0-50%	0-50%	0-70%
Rest of Scotland	0%	0-10%	0-33%	0%	0-100%	0-30%
Rest of UK	0-55%	0-70%	0-34%	0-30%	0-60%	0-100%
USA	0-20%	0%	0-66%	0%	0-30%	0%
Rest of World	0-75%	0-20%	0%	0-70%	0-5%	0%

- 6.43** In the case of the Southern Uplands, the importance of both the Borders and the Rest of the UK also featured prominently as major sources of both clients and guests. However, in comparison with the Lammermuirs, it was notable that:

- few clients or guests came from abroad;
- the Rest of Scotland featured as a source of clients.

- 6.44** It was clear from the two surveys undertaken that driven grouse shooting has been by far the most popular form of sport. Only a relatively small amount of walked-up shooting has taken place.

Levels of Recurrent Expenditure Incurred by Participants

- 6.45** The results of the survey of Participants, involved in shooting grouse on those sections of the Lammermuirs within Borders Region, revealed that for the 3

Estates from whose participants responses were received, the average expenditures per Gun Day varied greatly. The averages of the responses are displayed in **Box 6.12**.

BOX 6.12: AVERAGE LEVELS OF RECURRENT EXPENDITURE PER GUN DAY INCURRED BY LAMMERMUIRS GROUSE SHOOTING PARTICIPANTS IN 1999

ESTATE	Number of Survey Respondents	Total Expenditure on Recurrent Cost Items	Total Expenditure on all Cost Items	Total Number of Gun Days Grouse Shooting	Average Total Expenditure Per Gun Day	Proportion of Total Spend Made Locally
	No.	£	£	No.	£/Gun Day	%
A	9	134,513	187,840	36	5,218	39.8
B	9 of 28	53,425	88,533	31	2,856	51.5
C	7 of 11	47,935	104,778	33	3,715	5.7
TOTAL	25	235,873	381,151	100	3,812	33

6.46 Based upon the Provider survey result of 135 Gun Days of grouse shooting in 1999, the grossed-up estimate of total expenditure in the Borders section of the Lammermuirs was between £447,900- and £514,600. However, 1999 was recognised to be a poor year for grouse shooting. In a normal year' the average number of Gun Days would have been between 175 and 200 (i.e. an average of 7 to 8 guns present on each of the 25 days). Based upon that assumption, the grossed-up expenditure by Participants shooting in the Borders section of the Lammermuirs would have been between £524,100 and £762,400.

6.47 In the absence of specific survey results for Participants' spend per Gun Day on grouse shooting in the Southern Uplands the same unit costs have been assumed for the purpose of aggregation. Although this is a broad assumption, it was considered to be the most appropriate in the circumstances. The resultant grossed-up expenditure estimates for the 489 to 599 Gun Days provided in the Southern Uplands in 1999 ranged between £951,000 and £1,864,100

Total Direct & Secondary Expenditure and Employment Impacts

6.48 The combined aggregated estimates for Grouse Shooting Providers and Participants are presented in **Box 6.13**. The estimates cover both 1999 and a more 'normal' year. In the case of the Lammermuirs this, as mentioned in paragraphs 6.23 and 6.46, amounted to the provision of between an extra 40 to 55 Gun Days (i.e. an increase of at least 30%).

BOX 6.13 SUMMARY – REGIONAL GROSSED-UP ESTIMATES OF DIRECT NET COST & EMPLOYMENT IMPACTS OF GROUSE SHOOTING							
ITEM	UNITS	1999			‘Normal’ Year		
		Lammermuirs	Central Southern Uplands	Total	Lammermuirs (rounded)	Central Southern Uplands (rounded)	Total (rounded)
Direct Annual Costs							
Providers *	£	238,150	447,400 to 716,450	685,550 to 954,600	274,000	582,000	856,000
Participants (ref Paras 6..45 & 6.46)	£	447,900 to 514,600	951,000 to 1,864,100	1,398,900 to 2,378,700	524,100 to 667,100	951,000 to 1,864,100	1,475,100 to 2,531,200
TOTAL		686,050 to 752,750	1,398,400 to 2,580,550	2,084,450 to 3,333,300	798,100 to 941,100	1,533,000 to 2,446,100	2,331,100 to 3,387,200
Employment							
TOTAL Jobs (ref Box 6.9)	No.	172	574	746	Not Available	Not Available	Not Available
TOTAL FTEs (ref Box 6.9)	No.	19	49	68	Not Available	Not Available	Not Available

Footnote *: The estimates were derived from Box 6.6 and represent the average of the Total Annual Gross Recurrent Costs net of Annual Revenues from Game Bag Sales & Rents

6.49 Overall the Total Regional Direct Costs associated with grouse shooting are estimated in a ‘normal’ year to be between £2.3 million and £3.4 million. In 1999 the corresponding estimates were £2.1 million and £3.3 million. In terms of actual Direct Gross Expenditure (excluding the impact of reduced stocking levels), the 1999 estimates totalled between £2.5 million and £4.0 million.

6.50 In the case of the Borders section of the Lammermuirs, the grossed-up net costs incurred by Providers in the ‘Best Year’ were approximately 84% lower than in 1999. If the same differential were to apply in the case of the Southern Uplands, the grossed-up Total Regional Direct Net Annual Costs for the Best Grouse Shooting Year would be reduced from £856,000 for a normal year to £143,000.

6.51 The direct expenditure by Providers on ‘off-site’ (intermediate) purchases of goods and services was estimated to have generated secondary expenditure (through multiplier effects) in the local economy of between £197,000 and

£275,000 in 1999. With the addition of the estimated local 'off-site' expenditure by Grouse Shooting Participants, which amounted to between £294,000 and £500,000, the grand total direct expenditure in the local economy was between £491,000 and £775,000 in 1999. Application of appropriate multipliers for rural areas (1.31 to 1.34; ref Scottish Tourism Multiplier Study, 1992) indicated that the secondary expenditure. That was estimated to have been between £152,000 and £264,000.

- 6.52** Other indirect impacts, relating to employment generation, were estimated based on the use of the Scottish Input-Output Tables, 1996 (published in the Scottish economic Bulletin, 1999). The latter indicated an average output of £72,000 per FTE job (for the secondary employment associated with the multiplier effects). The direct and secondary expenditure in the Scottish Borders local economy, associated with Grouse Shooting, was estimated at between £777,000 and £1,126,000. Application of the £72,000 per FTE job suggested that secondary employment generated by Grouse Shooting was between an additional 10 and 16 FTE jobs. Estimates of the total employment associated with Grouse Shooting in 1999 were made by adding these 10 to 16 additional FTE jobs to the 68 FTEs, presented in **Box 6.13**.

Concluding Comments & Comparisons with Other Survey Results

- 6.53** With respect both to local expenditure and the sustained contributions made to rural employment, grouse shooting is clearly important to the Regional economy. The importance of these contributions is highlighted by the relatively small area from which they are derived, namely just under 52,000 hectares.
- 6.54** Leaving aside the value of the land, the capital investment covering vehicles, equipment, buildings, structures and guest accommodation, made by the Providers in supporting their grouse shooting activities was estimated to be at least £3.8 million. The annual depreciation costs relating to this investment are reflected in the total gross recurrent costs, presented earlier in the Chapter.
- 6.55** In 1999 the total direct expenditure and employment contributions made by grouse shooting activities amounted respectively to:
- between £2.1 and £3.3 million, in round terms; and
 - almost 750 jobs, representing 68 FTEs

These economic and employment contributions need to be viewed in the wider context of the landscape and wildlife values attributed to the Region's grouse moors. These scenic, tourist and wildlife values are reflected by the fact that the moors are variously designated as parts of Areas of Great Landscape Value, Sites of Special Scientific Interest, Special Protection Areas and a Ramsar site. In short, heather moorland is a Regional, National and European

asset, the sustained maintenance of which is the prime responsibility of the owners/grouse shooting providers.

6.56 In that context the contributions of the Providers towards conserving and improving their moorland landscapes through such activities as bracken control, reductions in sheep stocking levels and the upkeep of structures (fences, butts etc) are also significant. It was estimated that, in the Scottish Borders as a whole, the Providers spent between £54,000 and £81,000 per year on sustaining their moorland landscapes. The average annual costs were between £2,000 and £3000. These confirmed an earlier estimate of £2,456 per Estate (1994) made by another researcher (McGilvery, J [1995] An Economic Study of Grouse Moors, Game Conservancy Limited) covering the whole of Scotland. Recently this complementary research has been updated (Fraser of Allander Institute Study, 2001) and further research findings have also been published (Mackenzie , 2000). Again the figures published broadly confirmed the findings reported in this Chapter.

6.57 The comparative estimates are summarised below in **Box 6.14**.

BOX 6.14: COMPARATIVE GROUSE SHOOTING STUDY RESULTS			
ITEM	Scottish Borders Region	All Scotland	Upper Findhorn Valley
	BFRS/SWRC Study	Fraser of Allander Institute Study	Mackenzie Study
Average Employment per Estate: FTEs			
1989	dna	1.20	dna
1994	dna	2.01	dna
1999	2.52	dna	dna
2000	dna	2.05	dna
Average Annual Recurrent Expenditure: £/ha	Total Gross 14.99 to 19.97	dna	22.0

Footnote: Data Not Available = dna

6.58 Further broadly confirmatory comparisons between the results of the Scottish Borders and Upper Findhorn Valley studies are provided by **Box 6.15**.

BOX 6.15: COMPARATIVE SURVEY FINDINGS – PROVIDERS’ GROUSE SHOOTING EXPENDITURE PER HECTARE

LOCATION	AVERAGE TOTAL ANNUAL GROSS RECURRENT EXPENDITURE PER HECTARE (£/Ha)	AVERAGE TOTAL ANNUAL NET RECURRENT EXPENDITURE PER HECTARE (£/Ha)
Upper Findhorn Valley	22.00	Not Available
Total Borders	14.99 to 19.97	13.29 to 18.53
Lammermuirs	24.49	18.04 to 18.16
Central Southern Uplands	11.73 to 18.42	11.65 to 18.66

6.59 The finding, that despite poor performance years, the levels of both the costs incurred and employment have generally been sustained is encouraging. The temptation to reduce employment has been resisted, thereby enabling moorland qualities to be maintained.

6.60 The levels of cost recovery were noticeably much higher on ‘Commercial’ Shooting Estates compared with those achieved on their ‘Non-Commercial’ counterparts in the Lammermuirs. This also applied in the case of the Central Southern Uplands. In the Lammermuirs the levels of cost recovery on ‘Commercial’ Estates exceeded those achieved on ‘Non-Commercial’ Estates by a factor of at least 7. The differences between the ‘Commercial’ and the ‘Non-Commercial’ Estates in the Central Southern Uplands were even greater.

6.61 More importantly, the cost recovery levels in the Best Years were greater than in 1999 by a factor of at least 2. This applied in the case of both ‘Commercial’ and ‘Non-Commercial’ Estates.

6.62 As noted by the BFRS Co-ordinator, Denise Walton, in reporting on the results of the Grouse Shooting Survey undertaken for the Lammermuir Moorland Owners’ Forum:

“ Costs per Gun Day and Costs per Hectare provide a useful baseline for comparisons between moorlands at any one time and also for monitoring management changes on any one moorland over a period of time. As was expected ‘Non-Commercial’ grouse moorlands entailed higher net costs per Gun Day and per hectare in both 1999 and the Best year than did the ‘Commercial’ Estates. The wide range in costs between moorlands clearly demonstrated the differences existing between grouse shooting establishments”.

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- 6.63** Again the low levels of total spend by Participants made locally (33% to 35%) were not surprising, bearing in mind that large numbers of the Participants originated from outside of both the Borders and Scotland.
- 6.64** Improved prospects for annual income levels from grouse shooting were predicted by almost 70% of the grouse moor owners responding to questions about the future, during the Fraser of Allander Institute Study. It was reported that ‘over 40% of owners, for example, felt that the income derived from grouse could be increased by more than 75%’. Whilst such responses need to be treated with caution, they nonetheless suggest that there is scope for expanding the contributions of grouse shooting to the rural economy. This relates to the provision of local off-site (e.g. accommodation, clothing and equipment) services and thus expenditures in particular.

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Consultees

Mr D. Ainslie	Trustee of Borders Foundation for Rural Sustainability, Head Moorland Keeper, Roxburghe Estates
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