

Scotland's Rural College

## **Grouse shooting, moorland management and local communities: community perceptions and socio-economic impacts of moorland management and grouse shooting in the Monadhliath and Angus Glens**

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# Grouse Shooting, Moorland Management and Local Communities

## Community Perceptions and Socio-Economic Impacts of Moorland Management and Grouse Shooting in the Monadhliath and Angus Glens



SRUC and the Centre for Mountain Studies (Perth College UHI), September 2015

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# Executive Summary

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## **i. Background**

This summary presents findings from an investigation of community perceptions and socio-economic impacts of grouse shooting and moorland management. The research incorporated a community survey, estates survey and stakeholder (19) and business interviews (18) conducted in two areas: i) the north-eastern and western Monadhliath (Stratherrick and Strathnairn); and ii) the Angus Glens.

Postal surveys were sent to 1378 households across the two areas with a 19% (266) response rate. The majority of respondents in both areas had been locally resident for over 10 years, with a higher proportion of long-term residents and a higher number employed by estates and/or working in land-based industries in Angus than in the Monadhliath. The majority of large (1000ha+) estates in both areas responded to the estates survey (11 in the Monadhliath and 15 in Angus), with respondents accounting for 67,043ha (55,981ha of grouse moor) in Angus and 49,325ha (29,068ha of grouse moor) in the Monadhliath.

## **ii. Socio-economic benefits and impacts**

Key community survey findings on perceived benefits and impacts of the grouse shooting industry included:

- A higher proportion of respondents in Angus than in the Monadhliath (49% compared to 26%) reported personal positive effects with 49% in the Angus Glens and 60% in the Monadhliath reporting no personal positive effects.
- Higher numbers in both areas (70% in Angus and 53% in the Monadhliath) perceived community-level benefits, with employment and spend the most important benefits at personal and community levels. In Angus, 8% did not recognise any community-level benefits, while 15% did not recognise community-level benefits in the Monadhliath.
- In Angus 35% reported either direct or indirect dependence on the grouse shooting industry for their livelihoods, compared to 21% in the Monadhliath.
- Business interviewees confirmed that the industry provided income for businesses directly and through shooting parties spending locally, although these impacts were viewed as less extensive in the Monadhliath.

Estate survey findings demonstrate that sporting employment is higher in Angus than in the Monadhliath, linked to higher spend, larger grouse bags, larger area of grouse moor and a higher number of estates. Gamekeeping staff numbered 64 in Angus and 28 in the Monadhliath, spending, on average, 53% of their time on grouse related activities. There were 110 FTE estate employees in Angus and 44 in the Monadhliath, with seasonal employment increasing these figures to 130 and 56 respectively.

Total revenue from sporting activities in 2014 was £2.6M (£2M of which related to grouse) in Angus and £545K (£207K of which related to grouse) in the Monadhliath. Calculations suggest per/ha sporting revenues of £76.59 in Angus and £15.63 in the Monadhliath, with an average per/ha revenue across both areas of £45.90. The lower revenues in the Monadhliath are the result of lower numbers of estates and lower commercial sporting activity levels, with the low per/ha values also influenced by a small number of large estates with very little or no commercial grouse shooting.

Total sporting expenditure in 2014 was £6M in Angus and £1.7M in the Monadhliath, an estimated 60% of which was on grouse moor management in both areas. Calculations suggested per/ha expenditures on grouse moors of £108 in Angus and £61 in the

Monadhliath, with an average per/ha spend of £92 per/ha of grouse moor across both areas. Increased investment on grouse moors in recent years is evident in both areas (particularly Angus).

The level of expenditure (when investment spending is included) is considerably higher than revenue in both case study areas across all years, indicating that on average sporting land management in the case study areas runs at a significant cost. This equated to a total net cost in 2014 of £3,458,387 in Angus and £1,231,544 in the Monadhliath and an average per/ha net cost and total net cost of £30.68 and £4,689,931 across both areas combined. This indicates a high degree of sporting expenditure is occurring which is funded from other on or off-estate sources of finance. However, when investment expenditure is removed, total net costs fall to £592,989 in Angus, £485,039 in the Monadhliath and £1,078,028 combined.

Direct and indirect impacts of the grouse shooting industry on local businesses were evident in both areas, including use of local accommodation. Additional examples included spend by estates, estate staff and/or estate customers in garages, vehicle dealerships, sporting goods suppliers, butchers and on local tradesmen. Local business impacts were more prevalent in Angus, due to lower spending, a lack of local businesses (and the proximity of Inverness), and more use of estate-based accommodation for shooting parties in the Monadhliath.

Features of estate-business interactions indicated by businesses included the consistency of estate custom; estates were viewed as a reliable income stream which had played a part of business growth in a number of examples. However, impacts can be highly variable between businesses, largely due to established relationships (or the lack thereof) and the business relevance. Sporting related spend was also seasonal, with declines evident in years of low grouse numbers.

Gamekeepers and their families were recognised as valued community members by community survey respondents and as consistent customers by local businesses. Gamekeeper's families were also recognised as contributing to the local economy as well as school rolls and retention of services.

### **iii. Community engagement and awareness**

A majority of community survey respondents in both areas felt they had good or some awareness of estate management (74% in Angus and 62% in the Monadhliath), although a substantial minority had limited or no awareness (26% in Angus and 37% in the Monadhliath). Higher awareness (and use of moors) was in Angus reflects the higher levels of sporting activity, spending and land-based employment in the region. Standards of estate management were also perceived as higher in Angus although more respondents viewed estate management positively than negatively in both areas.

More respondents in Angus were satisfied (48%) with the level of communication between estates and communities than unsatisfied (20%), with opinion more divided in the Monadhliath (31% satisfied, 35% unsatisfied). A degree of perceived 'disconnect', between estates and communities was evident in both areas, with significant numbers (40%) in both areas expressing interest in learning more about grouse shooting, with a quarter interested in attending estate open days or events. Examples of pro-active estate engagement with communities existed, but were largely limited to engagement for a specific purpose (e.g. a windfarm application) or with a specific group (e.g. tenant farmers), with examples of community-wide engagement more limited. However, a number of estates (4 in the Monadhliath and 7 in Angus) expressed a willingness to engage further with communities.

#### **iv. Grouse shooting and the environment**

Community survey and estate survey respondents recognised environmental benefits and negative environmental impacts linked with the grouse shooting industry. The majority of community survey respondents generally agree with grouse moor management practices, with a majority in both areas also viewing grouse moors as attractive or extremely attractive (75% in Angus and 60% in the Monadhliath). Perceptions of environmental damage from grouse moor management varied, with a higher proportion perceiving environmental damage (30%) in the Monadhliath than in Angus (13%).

The majority of community survey respondents viewed hilltracks positively in both areas, although a minority viewed increased development of hill tracks in recent years with concern. A concern common to both areas was illegal raptor persecution and how this could be effectively policed and stopped in the future.

#### **v. Conclusions**

A majority of community survey respondents (74%) were supportive of the continuation or expansion of grouse shooting in Angus, with a smaller supportive majority (52%) in the Monadhliath, with 9% (Angus) and 7% (Monadhliath) supportive of their continuation at lower levels and a minority (5% in Angus, 16% in the Monadhliath) unsupportive of the continuation of grouse shooting<sup>1</sup>. Lower levels of support in the Monadhliath reflect lower levels of (and more dispersed) benefits, and the lower numbers employed in land-based activities in the region.

Findings demonstrate a wide range of direct and indirect socio-economic impacts, which are likely to be disproportionately significant in the marginal, remote communities of the case study areas. Negative impacts are also evident and findings on benefits and negative impacts are generally consistent across different elements of the research and reflect those of the previous (2009) study of grouse shooting in Tomintoul.

The difference in revenue, spend and employment between Angus and the Monadhliath indicates the potential variability in the socio-economic impacts of grouse shooting between regions/communities across the Highlands, with impacts likely to be concentrated in specific high activity areas close to communities. In other areas, community-level benefits of grouse shooting may be absent or more dispersed, dependent largely on the landcover and presence of estates with sporting objectives.

Estate-led investment in driven grouse is likely to continue, at least in the short term, due to the prestige associated with grouse moors (attracting new owners), the high value of the product, increasing international market demand and the potential for subsidising moorland management through other land uses (e.g. renewables). However, the marginal nature of grouse shooting and landowner concerns relating to time and financial pressures resulting from compliance with legislation and political pressure, indicate that uncertainty exists around investment (and associated impacts) in the longer term.

It is apparent from this research (and comparison of the two case study regions) that community support is linked to recognition of community benefits associated with the industry and high general awareness of estate management. Given ongoing demographic change (e.g. in-migration) in many areas of rural Scotland, community engagement and involvement is likely to be of greater importance going forward. Four specific opportunities for enhancing estate-community engagement and education and awareness raising around sporting land management are identified as: i) estate engagement with local primary and

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<sup>1</sup> The remainder did not respond to this question (2% in Angus and 3% in the Monadhliath or indicated a 'don't know' response, with 20% of respondents indicating 'don't' know in the Monadhliath and 10% in Angus.

secondary schools through school visits by gamekeepers and school visits to estates; ii) establishing estate 'demonstration days' for local community members and wider stakeholders to demonstrate best practice sporting land management; iii) increased estate engagement with local community councils; and iv) increased emphasis on recruitment of beaters and loaders from local communities. Pro-active engagement such as this strongly reflects objectives of the Scottish Land Use Strategy and Community Empowerment Bill and the spirit of recent land reform legislation.

Policy frameworks relating to land use continue to evolve rapidly. This necessitates a continued evolution of best practice in grouse moor management. Further research is also required, to fully understand the positive and negative aspects of grouse moor management from new perspectives (e.g. ecosystem services).

Estate survey responses and interviews indicate that many estates view government agencies and emergent policy as a threat to their current existence. However, the development and maintenance of transparent and constructive dialogue between the industry and wider stakeholders represents a critical aspect of the long-term development of grouse shooting in Scotland. Estate collaboration (e.g. through regional grouse moor management groups), wider stakeholder engagement and self-monitoring represent potential opportunities in this regard.

# 1 Introduction

This report outlines the results of an investigation of the local and regional socio-economic impacts of grouse shooting and moorland management. The methodology incorporated a threefold approach including a community survey, an estates survey and semi-structured interviews. The results from the surveys are presented for the two chosen study areas: i) the north-eastern and western Monadhliath (Stratherrick and Strathnairn); and ii) the Angus Glens. The results explore community perceptions of moorland management and grouse shooting and the direct impacts of these activities on local communities and their economies. This research has been funded by estates in the Angus Glens and Monadhliath (Stratherrick and Strathnairn) coordinated by Scottish Land and Estates.

## 1.1 Research context and background

The sport shooting of red grouse (*Lagopus lagopus scoticus*) on heather moorlands has occurred since the mid-1800s, having developed with the rise of sporting estates and the decline in the grazing value of the uplands (Moorland Working Group 2002). Driven shooting of red grouse is an activity unique to the UK, attracting people from all over the world, and represents an important component of the wider UK shooting industry which contributes over £2 billion to the UK economy annually (PACEC 2014). Some 25% of the British uplands are considered to be heather moorland and as much as 50% (7500km<sup>2</sup>) of this may be managed for grouse, although the level and intensity of management can vary considerably between sites (Hudson 1992). Domestic sheep and red deer (*Cervus elaphus*) also occur on many moors. The numbers of grouse shot can vary widely from year to year, with an overall decline evident from the 1970s onwards (Smith et al. 2000).

The management of moorland for red grouse involves the burning of the vegetation at intervals, to create a patchwork of heather of varying ages for grouse to nest in, feed on and use for cover (Watson & Miller 1976). Wrightham and Armstrong (1999) showed that, in 1988, some 20% of heather moorland in Scotland was being regularly burnt. Hudson (1992) estimated that some 746 properties (3,700,000ha) were involved in grouse shooting in the UK, with 459 of them actively engaged in the management of grouse moors, with a gamekeeper employed for every 1,300ha of moor. In 2010 the Game and Wildlife Conservation Trust Scotland (GWCT) identified a total of 304 estates in Scotland, where grouse were known or likely to have been shot in the preceding five years (Fraser of Allander Institute 2010). This is likely to be an underestimate of the total number of moors where red grouse are present in Scotland. Grouse moors therefore represent an important resource, with shot grouse also being consumed, with many birds going to restaurants as a speciality food.

Heather moorland is now extensive only in Great Britain and Ireland, with the vast majority being in Scotland; this heather resource is therefore of considerable international conservation importance (Thompson et al. 1995). However, recent decades have witnessed significant declines in heather moorland, with an overall decline of 23% in Scotland between the 1940s and 1980s and a similar rate of decline between 1990 and 1998 (Haines-Young et al. 2000). It was estimated that heather moorland declined at a rate of around 80km<sup>2</sup> a year between 1947 and 1988, with moors which were not used for grouse shooting having experienced the most significant declines, suffering a 41% loss in heather cover between 1940 and 1980, while moors that were used for shooting lost 24% of their heather cover over the same time period (Barton and Robertson 1997). These declines have been due attributed to a number of factors, including afforestation and agricultural encroachment of moorland habitats (SNH 2003; Mackay et al. 1998, Hester et al. 1996), heavy grazing pressure and a decline in grouse shooting (resulting in the decline of active moorland

management) (Moorland Working Group 2002). Other factors have included threats from grouse pestilence (Hudson et al. 1992), reduction in the frequency of muirburn (Hester and Sydes 1992), and decline in the range of red grouse (Gibbons et al. 1993).

There is increasing pressure on land managers to deliver multiple benefits from moorland areas and there is now considerable focus on the public benefits these areas provide. One of the commitments of the Climate Change (Scotland) Act 2009 was the production of the Scottish Land Use Strategy (Scottish Government 2011) that promotes an integrative approach to land management to increase sustainability in light of the predicted threats of climate change. Thus, increases in woodland regeneration, biodiversity conservation, carbon sequestration and recreation are encouraged in moorland areas alongside traditional sporting activities. Delivering integrated land management is challenging, requiring increased collaborative working, long term planning and trade-offs between land management objectives. There is a requirement for an improved understanding of the impacts and benefits associated with upland management practices to inform decisions relating to future changes in these practices. Grouse shooting and other forms of land use have a range of associated socio-economic benefits that are not wholly understood, particularly in relation to community-level impacts. This work therefore focuses on providing evidence on how a range of benefits from moorland management can be maintained and enhanced while pursuing a range of environmental, social and economic goals for rural Scotland.

## **1.2 Benefits and impacts**

Recent studies have found that estates in Scotland make a substantial contribution to the rural economy (Hindle et al. 2014; McMorran et al. 2013). Sporting activities, particularly grouse shooting, were most frequently ranked as being 'of high importance' and the majority of landowners undertaking grouse management indicated their intention to maintain or increase their involvement in this activity in the future (Hindle et al. 2014). A study of the economic contributions of land owners in the Cairngorms National Park found that the area of managed grouse moor increased from 189,000ha to 289,000ha between 1999 and 2013, with accompanying increases in employment and expenditure (McMorran et al. 2013). Both studies found that the large majority of estate expenditure remained within the local economy. An economic survey of estates managed specifically for grouse shooting, commissioned by GWCT, estimated that, across Scotland, grouse shooting supports 1,072 jobs, provides £14.5 million worth of wages and contributes £23.3 million to GDP (Fraser of Allander Institute 2010). The majority of spending associated with grouse moor management and grouse shooting is made within Scotland, providing benefits for the local economy. The report indicated that the profitability of grouse moors increased considerably between 1994 and 2010 and although only 43% of grouse estates were found to make a profit, this trend could encourage greater activity and investment on grouse moors in the future.

The management of grouse moors also has benefits from a conservation perspective. In particular, moorland management for grouse can result in restrictions on land uses less compatible with nature conservation, such as high-density stocking with sheep or afforestation with non-native conifers. Grouse moor management also includes the control of pest species such as the hooded crow and red fox. This management is beneficial for breeding waders, with Tharme *et al.* (2001) showing that Golden Plover, Lapwing, Red Grouse and Curlew populations were found at significantly higher densities on grouse moors than on other moors with similar vegetation (Aebischer et al. 2010; Tharme et al. 2001). Fletcher et al. (2010) also demonstrated that legal predator control on grouse moors is beneficial for the breeding success of several ground-nesting waders. Merlin also appear to be more abundant on managed grouse moors than on non-managed moors (Tapper 2005). However, Meadow Pipit, Skylark and Whinchat can occur at lower densities on grouse moors (Tharme et al., 2001). Grouse moor management has also been associated with the

illegal shooting, trapping or poisoning of various raptor species (Redpath et al. 2012; Whitfield et al. 2003; Thirgood et al. 2000). The use of poisoned baits for crow and fox control can also result in accidental poisoning of these birds.

Despite recognition of the economic and environmental benefits of grouse shooting, there has been little exploration of the social benefits and impacts at the community level. One case study to address this question was conducted with communities in the Tomintoul and Strathdon areas of the Cairngorms National Park (Mc Morran 2009), where local community perceptions of grouse shooting and moorland management were explored. The majority of residents (81%) reported experiencing benefits as a result of the grouse shooting industry, with increased employment and local economic benefit the most commonly perceived benefits. Some negative impacts were also reported by 17% of respondents, including impacts on wildlife and habitats, public access and a perceived lack of integration between estate management and community activities.

A growing emphasis on community engagement and empowerment (e.g. through the Scottish Land Use Strategy, Part 4 of the Land Reform (Scotland) Bill and recent Community Empowerment and Renewal Bill), has placed increasing pressure on landowners to account for local and wider communities in decision-making processes around land in more meaningful ways. A requirement therefore exists to understand better the relationships between rural land management and local communities to foster mutual understanding and constructive dialogue to improve the resilience of rural areas, in light of the pressures and drivers facing rural land use in Scotland (Glass et al. 2012). This requirement for more proactive community engagement on the part of landowners has been recognised, with Scottish Land and Estates, for example, having recently developed a community engagement programme to support the development of collaborations and partnerships between communities and estates<sup>2</sup>.

This study addresses the relationship between estate management, grouse shooting and local communities in the Monadhliath (Stratherrick and Strathnairn) and the Angus Glens. Both of these areas have significant levels of grouse shooting activity, in which there has been increased investment in recent years. This study represents an opportunity to build a more comprehensive picture of the social benefits and impacts of grouse shooting and moorland management and build on limited previous work in this area (Mc Morran 2009).

### **1.3 Aims and objectives**

The overall aim of this research was to identify the impacts on the local community and economy of grouse shooting and moorland management in two distinct rural areas. The specific objectives of the research were:

1. To assess (i) the extent of grouse shooting and moorland management in the study areas, (ii) the wider objectives of grouse shooting estates, (iii) landowner objectives and (iv) future priorities for grouse moors;
2. To assess the direct (and indirect) benefits and impacts of the grouse shooting industry for local communities, local businesses and local economies, including employment impacts;
3. To determine, both qualitatively and quantitatively, local community perceptions of (i) the grouse shooting industry and (ii) the benefits and impacts of this industry and moorland management more generally, for the local economy and local communities;
4. To explore possible future trends in the identified impacts.

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<sup>2</sup> Further information on Scottish Land and Estates Community Engagement Programme is available here: [http://www.scottishlandandestates.co.uk/index.php?option=com\\_attachments&task=download&id=1366](http://www.scottishlandandestates.co.uk/index.php?option=com_attachments&task=download&id=1366)

## 2 Approach and Methodology

Two distinct areas (see Section 2.1) where grouse shooting is a prevalent estate activity were studied in detail to examine the socio-economic impacts of this activity on local communities. The proposed methodology had three distinct elements:

1. A postal questionnaire survey of local community residents;
2. A questionnaire survey of local estate owners/managers to gather information from estates on their moorland management and grouse shooting activities;
3. Semi-structured interviews with community representatives and other key stakeholders and local businesses.

### 2.1 Study site location

The locations for this study are the north-eastern Monadhliath mountains and the Angus Glens. These two case study locations have been chosen for a number of reasons:

- Both sites represent relatively topographically distinct areas. The Monadhliath site is separated from the remainder of the Monadhliath (the Strathspey area to the east and Spean Bridge area to the west) by the mountain core and the Angus Glens make up a distinct upland area in the most southerly part of the Cairngorms;
- The regions have relatively consistent socio-economic contexts, distinct from the 'honeypot' areas of Aviemore and Grantown-on-Spey in Strathspey and Forfar in Angus;
- Moorland management and grouse shooting are relatively widespread in both areas, with both sites incorporating a number of long-established grouse shooting estates and some estates which have recently restored grouse moors;
- Both of the selected regions include a number of small, scattered settlements and some larger villages suitable for conducting a community survey. Both sites lie within reasonable commuting distance of cities (Dundee and Inverness), with the Strathnairn community particularly influenced by its proximity to Inverness.

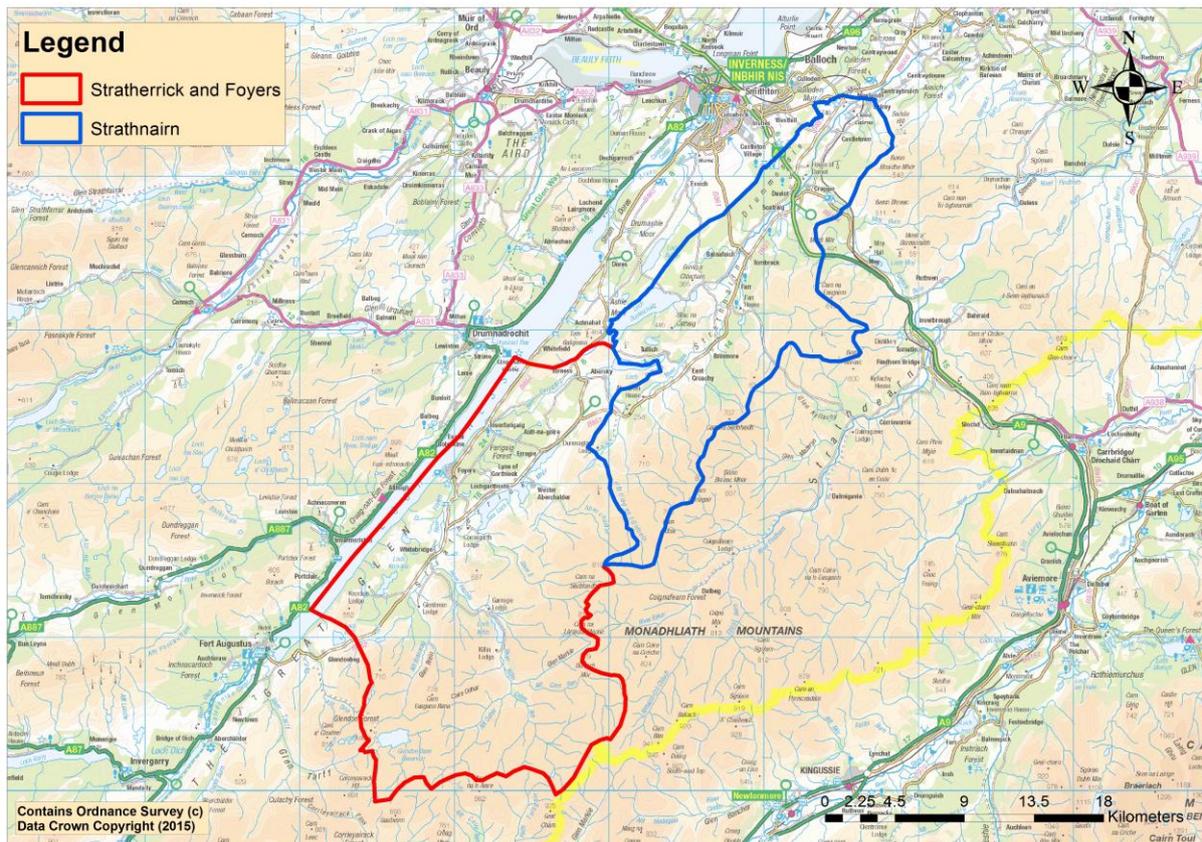
Both case study areas were defined and delineated for the purposes of this research using relevant community council boundaries and (in the Angus Glens) deer management group (DMG) sub-area boundaries were also used to assist in defining the study area. The community council boundaries represented a useful mechanism for characterising and defining the spatial extent of the communities of relevance to the study. Appendix 1 contains a full list of datasets utilised in the GIS (Geographic Information System) developed for this study.

#### 2.1.1 *The Monadhliath Study Site*

The Monadhliath study area was defined based on the amalgamated Stratherrick and Strathnairn Community Council area boundaries (Figure 2.1). The study area runs in a north-east to south-west direction and stretches from just above sea level on the shores of Loch Ness to over 800 metres above sea level. The site is dominated by peaty soils, with land cover consisting of predominantly montane, bog and moorland habitats, with some woodland (broadleaved and coniferous) and grassland areas. In general, both land cover and land use are more varied in the eastern parts of the study area, although grouse moor management is a prevalent activity. Upland sheep grazing is the predominant form of agriculture, with limited numbers of cattle present.

As well as agriculture and sporting land uses, tourism is an important element of the local economy, particularly in communities on the lower ground along the shores of Loch Ness.

The higher ground areas receive relatively low visitor numbers, with walkers more generally drawn to the nearby Creag Meagaidh National Nature Reserve, the Munros around Strathspey, and the Cairngorms National Park. Within the study area, other economic activities such as grouse shooting are therefore of comparatively greater importance within a relatively marginal economy. Renewable energy is also a strongly emergent land use, with a number of windfarm applications evident across the area at different stages of the planning process. The study area includes some designated sites, including the Ness Woods Special Area of Conservation (SAC) and Loch Knockie Special Protection Area (SPA). However, the majority of the larger designated areas in the Monadhliath (e.g. the Monadhliath SAC, Kinveachy SPA and Creag Meagaidh SSSI) are all outwith the study site. The Cairngorms National Park lies outwith the study area to the south-east and south-west.



**Figure 2.1** General location of the Monadhliath study area showing the Stratherrick (red) and Strathnairn (blue) community council area boundaries

Sheep are also present in varying densities on most estates, with grazing patterns varying seasonally. Sheep grazing has a ‘tick mopping’ function on many estates, with grazing on moorlands carried out in an effort to reduce tick numbers, a significant cause of mortality in grouse chicks (Newborn and Baines 2012). The estates also manage wild deer, with commercial deer stalking an important activity on some estates. The wider Monadhliath are home to approximately 20,000 red deer. There is evidence of a decline in deer numbers in some parts of the area in recent years due to increased culling linked with conservation objectives and/or a change in emphasis from deer to commercial grouse shooting (Campbell et al. 2014).

The study area includes a number of small scattered communities, many of which occur on the north-western perimeter of the site, near the shores of Loch Ness. These stretch from Whitebridge in the south-west through Bailebegg, Foyers, Lochgarthside, Inverfarigain, Torness, Abersky, Whitefield, Dores, Bainstoich and Tombroc.

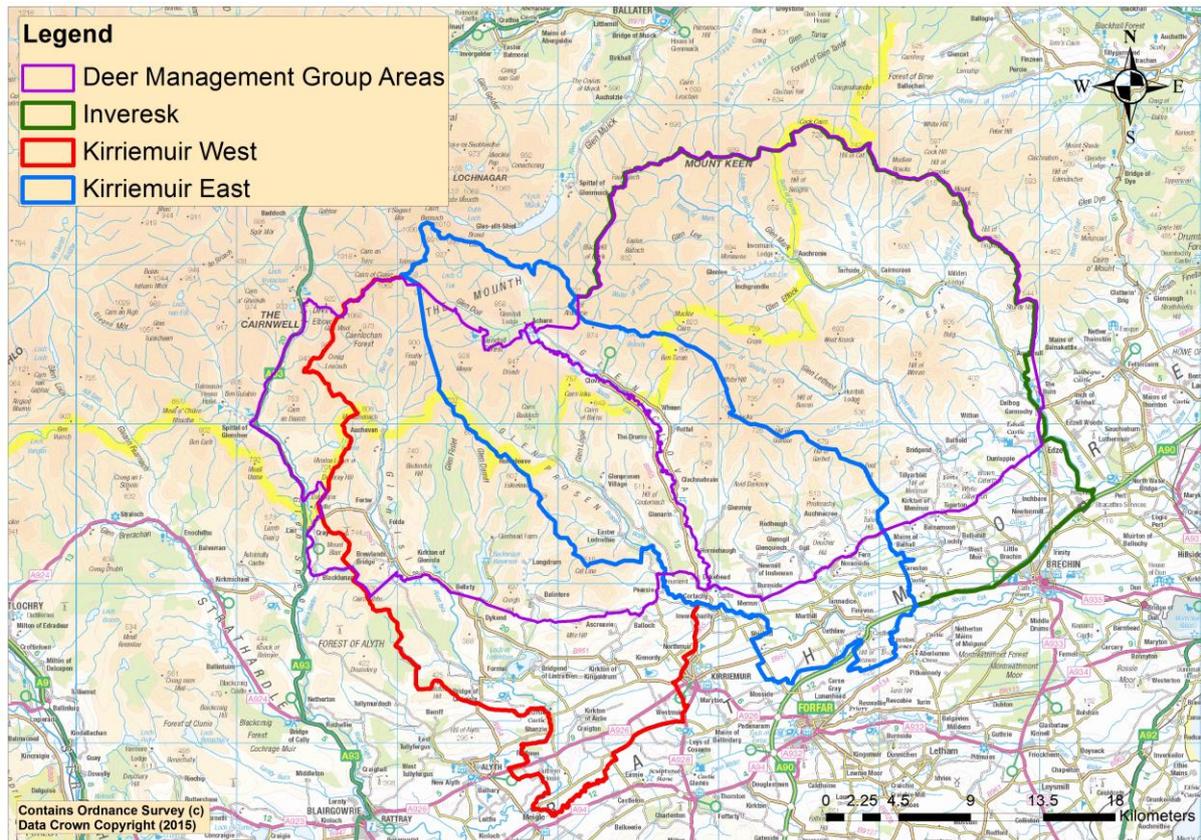
### **2.1.2 The Angus Glens Study Site**

The Angus Glens study area was initially defined based on an amalgamation of the three most relevant community council areas (Inveresk, Kirriemuir East and Kirriemuir West). As this amalgamated boundary included some areas to the south and south-east with comparatively high population densities which were considered as lying outside of the actual Angus Glens, it was reduced by overlaying it against the two sub-areas of the East Grampian Deer Management Group (DMG) which covered the Angus Glens area: i) the *Glen Isla/Glen Shee* sub-area and ii) the *Angus Glens* sub-area (Figure 2.2). A revised study area was then delineated by outlining the areas of overlap between the two DMGs and the three amalgamated community council areas, excluding some of the most populated lower ground areas. This resulted in a focus on the area topographically recognisable as encompassing the five main glens of Angus and the settlements therein.

The Angus Glens study area stretches from the relatively low level village of Kirriemuir (140m above sea level), to the mountain tops of Glenisla and Glen Clova, which reach over 1000m (Figure 2.2). The region lies across the boundary of the Cairngorms National Park and encompasses a range of high value habitats and landscapes, with agricultural and sporting land uses predominating, with some forestry and limited arable cropping (Cairngorms Partnership 1996; Turnbull Jeffrey Partnership 1996). The study area is represented by the area around the north and south Esk rivers in Angus and includes Glenisla, Glen Esk, Glen Prosen, Glenlethnot and Glen Clova. The area includes a number of small settlements in the lower parts of the glens, including Cortachy, Dykehead and Menmuir.

Bordering Glenshee to the west and Glen Clova to the east, Glenisla is the most westerly of the Angus Glens and the only glen with a through road to Deeside (Figure 2.2). The area includes the parishes of Glenisla, Kilry and Lintrathen to the north; and, Airlie, Ruthven and Kingoldrum to the south. Glenprosen, lying to the east of Glenisla, consists of predominantly high ground, with the exception of the farms in the lowest part of the glen. The higher ground is mainly moorland and historically represented highly productive grouse moors, with the area of grouse moor having declined from the 1960s due to planting by the Forestry Commission of much of the land between 350m and 550m (Cairngorms Partnership 1996). The lower ground is relatively wooded, with large areas of native birch and alder, with some farming, mainly of sheep and cattle (Cairngorms Partnership 1999). Sitting between Glen Clova and Glenesk is Glenlethnot, which stretches for 15 miles, rising to over 600m and including extensive areas of high ground. Further to the north-east lies Glen Clova, a wide valley with a combination of lower, shallow slopes and steeper crags and corries further up the glen (Turnbull Jeffrey Partnership 1996). Glenesk, some fifteen miles long and the most easterly of the Angus Glens, lies at the foot of the Grampians, bounded by Glenlethnot to the west and Aberdeenshire to the north.

Across the Angus Glens as a whole, the emphasis on sporting land uses varies, with agriculture representing a more important land use in certain areas and sporting predominant as a key economic activity in others. Each glen has relatively distinct characteristics and a varying balance in emphasis between agriculture, sporting and tourism-based land uses. The glens are relatively isolated, even compared to other upland areas in Scotland (including the Monadhliath), with most having no through roads.

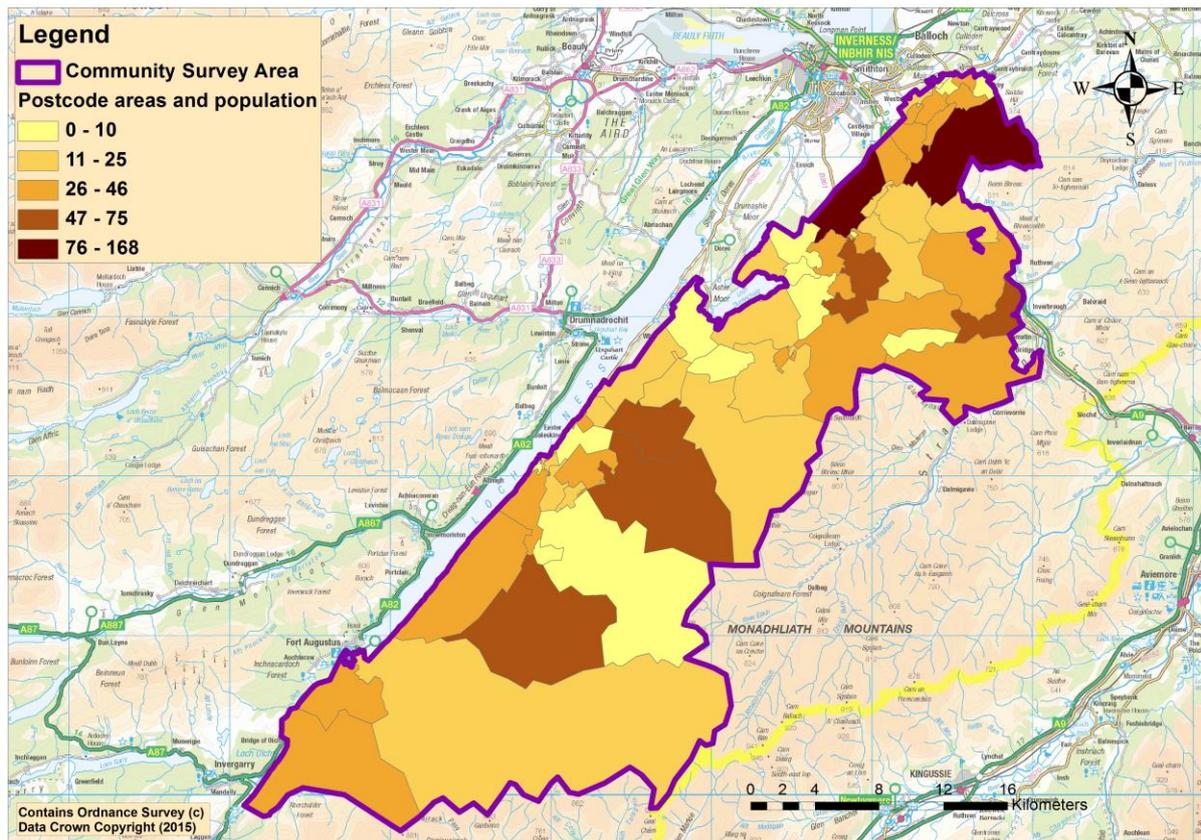


**Figure 2.2** General location of the Angus Glens study area showing the Inveresk (green), Kirriemuir East (red) and Kirriemuir West (blue) community council area boundaries and the Angus Glens and Glenisla/Glenshee DMG Sub-Area boundaries

## 2.2 Household questionnaire survey

A household postal questionnaire survey was conducted in both study sites. An initial draft questionnaire was developed and refined through conducting a pilot survey of a small group of rural community residents (approximately 15 from outside the study sites); consulting with the steering group and other relevant personnel on the draft. This process resulted in a revised final survey. The adult population and number of households for each site was identified by overlaying the boundary of the defined case study area in each case with postcode boundary data in a GIS, with the aim of surveying all households in the study areas for which address data was available. The postcode boundary dataset was then clipped to the case study area boundary for each site and household address data (including the main householder's name) for all of the postcode boundary areas in each area was sourced from the Royal Mail Postcode Address File (PAF) database. Figure 2.3 and Figure 2.4 show the postcode boundaries within the two study areas and the indicative numbers of people of voting age within each postcode boundary area. In total, addresses were identified for 1,378 households across the two study areas (674 in the Monadhliath and 704 in the Angus Glens)<sup>3</sup>. A copy of the final survey, a freepost return envelope, and a covering letter (see Appendix 2) explaining the rationale for the research, were then posted to all of the identified addresses in each of the two areas. The named recipient or any other person in the household over 18 was asked to complete and return the survey.

<sup>3</sup> PAF data was purchased from Map Logic ([www.map-logic.co.uk](http://www.map-logic.co.uk)). This figure does not include those members of the community registered under the Mail Preference System (MPS) as households registered under the MPS have opted to not have their address made available through the Royal Mail PAF.



**Figure 2.3** Defined location for the community survey area in the Monadhliath study site showing indicative population in each postcode boundary area

An online version of the survey was developed using Survey Monkey<sup>4</sup> and the URL to this was also provided in the survey letter. Awareness-raising about the work was conducted in advance of the fieldwork through advertising on community websites and posting notices in local hotels, shops and community centres within the communities. Local community councils were also contacted prior to undertaking the survey to facilitate their assistance with raising awareness within the communities and to publicise the survey in their newsletters and on their websites<sup>5</sup>.

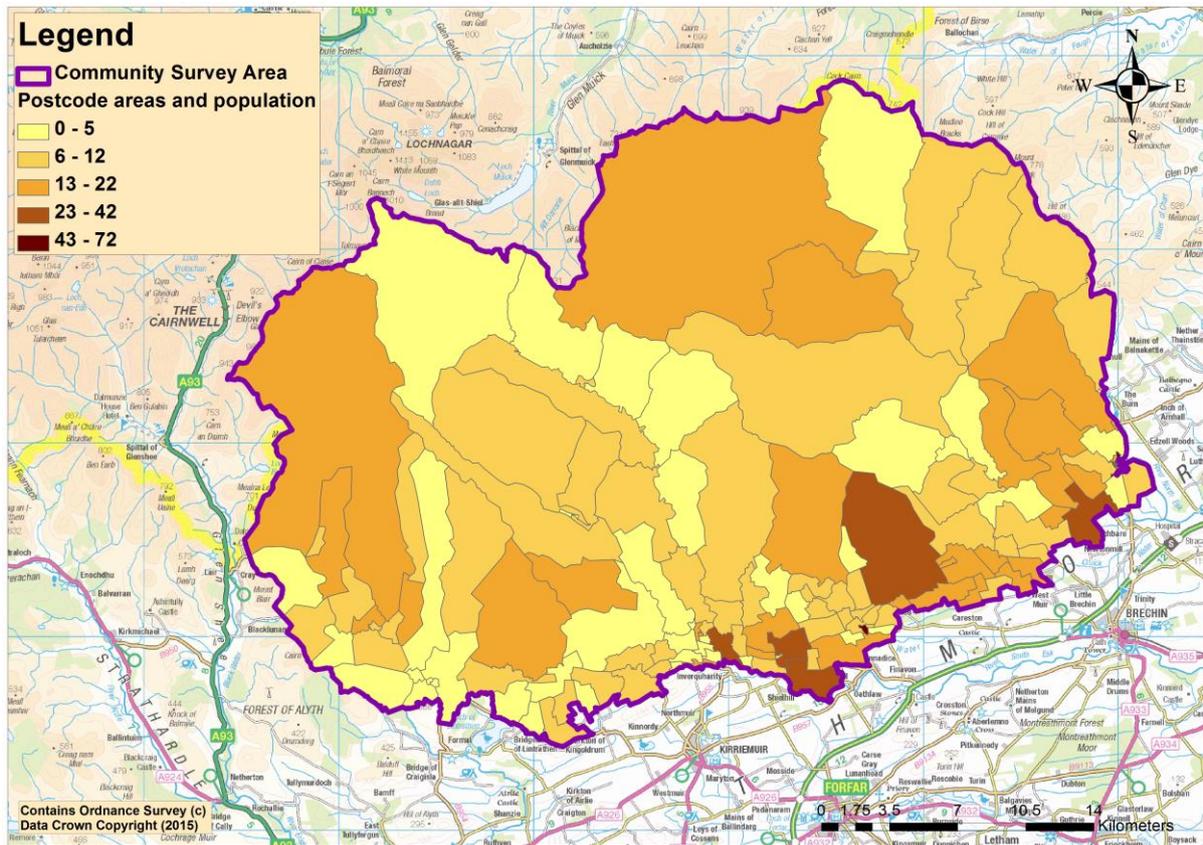
The survey targeted the collection of data relating to a number of topics, including:

- General information about the respondents;
- Employment categorisation of respondents;
- The general opinions of residents about estate management;
- Opinions on, and levels of, awareness of moorland management;
- Perceptions of the benefits (economic/social/environmental) associated with moorland management;
- Perceptions of any negative aspects of moorland management;
- The level of usage of grouse moors (for any activities) among residents;
- Awareness of management changes and their impacts on communities;
- The level of awareness of the grouse shooting industry within the communities;
- The perceptions of the benefits and negative impacts associated with this industry;

<sup>4</sup> <http://www.surveymonkey.com>

<sup>5</sup> <http://stratherrick.net/> and <http://www.strathnairn.org.uk/>

- The impacts of moorland management and grouse shooting in terms of retaining young people within the area;
- The positioning of moorland management and grouse shooting within local culture (as perceived by respondents);
- The level of satisfaction among community respondents in relation to current procedures and processes relating to grouse shooting and associated management within the communities and surrounding environs.



**Figure 2.4** Defined location for the community survey area in the Angus Glens study site showing indicative population in each postcode boundary area

Data from returned surveys was coded and entered into a spreadsheet, with the final results merged with the output database from Survey Monkey software (for survey returns provided through the online survey). Results were analyzed using descriptive statistics, with results analyzed for both study sites separately to allow for cross comparison and grouping where relevant. The comments made by respondents on benefits and impacts were analysed and categorised in NVIVO™ (a qualitative data analysis software package) according to a set of broader themes that emerged from responses.

### 2.3 Estates survey

Landholdings within the two study sites were identified and mapped based on Scottish Natural Heritage’s Deer Management Units (DMUs)<sup>6</sup> dataset. Information on ownership and contact points for landholdings was derived from multiple sources, including the project

<sup>6</sup> Delineated units within SNH’s DMUs dataset generally correspond with estate boundaries but in some cases a DMU may consist of two estates or one very large estate may be divided into two or more DMUs. In the case study areas DMU boundaries were generally a reasonably accurate representation of estate boundaries.

steering group, Scottish Land and Estates, and land agents operating in the areas. This resulted in a comprehensive dataset on estate ownership for both study areas. Landholdings under 500ha<sup>7</sup> were removed from the dataset at this point, as the focus of the survey was on landholdings with managed grouse moors. Landholdings partly within but predominantly (>50%) outwith the defined study areas were also excluded.

This process led to the identification of 15 relevant estates in the Monadhliath<sup>8</sup> and 21 in the Angus Glens, the majority of which were over 2,000ha. Two further relevant estates were also identified in the Angus Glens which did not occur within the DMU's dataset and for which boundary line data was not available. Landholdings over 500ha were included if over 50% fell within the defined study area. Estate boundaries often matched reasonably well with the study areas as defined, due to similarities between estate boundaries and community council and DMG boundaries. As apparent from Figure 2.5 and Figure 2.6 the majority of the land in both sites is under the ownership of large (over 2,000ha) estates, with Forestry Commission Scotland (FCS) land accounting for a significant proportion of land in the Monadhliath. The lowest ground and most populated parts of both study sites are generally under more diverse and fragmented ownership structures.

All of the identified landholdings were contacted at an early stage to discuss the survey and to confirm their willingness to take part. Estates were contacted initially by email or phone and a survey form was sent via email for their completion over a two month period (March and April 2015). A copy of the estates survey and cover letter can be found in Appendix 3. Specific information sourced included:

- General information on landholdings;
- Key land uses and overarching landholding objectives and aspirations;
- The number of full time equivalent (FTE) jobs resulting directly from moorland management and grouse shooting and related supporting industries;
- The areas in hectares of managed grouse moors on each estate;
- The number of shooting days and total grouse bags over this five year period;
- Staff and management costs/spend, other costs;
- Economic investment in various aspects of moorland management;
- Local business utilised by landowners in moorland management/grouse shooting and extent of 'local' spend;
- Changes in the factors above over previous five years;
- Key challenges and future aspirations of landowners relating to moorland management and grouse shooting.

Key information was collected for a five year period where possible (2009-2014). The findings of the estates survey were inputted to Excel and Arcview<sup>TM</sup> (a GIS Software package), analysed and summarised to determine key factors, including level of related employment, level of direct spend, investment, grouse bag size, current management objectives for grouse shooting and moorland management and future aspirations. Findings have been presented separately for the two study sites and grouped where relevant.

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<sup>7</sup> The 500ha cut off was applied as an approximate rule of thumb in agreement with the steering group based on the view that in the majority of cases landholdings actively managing grouse moors tended to be larger than this.

<sup>8</sup> Including Migovie and Corriegarth as one landholdings as Corriegarth leases the shooting on Migovie.

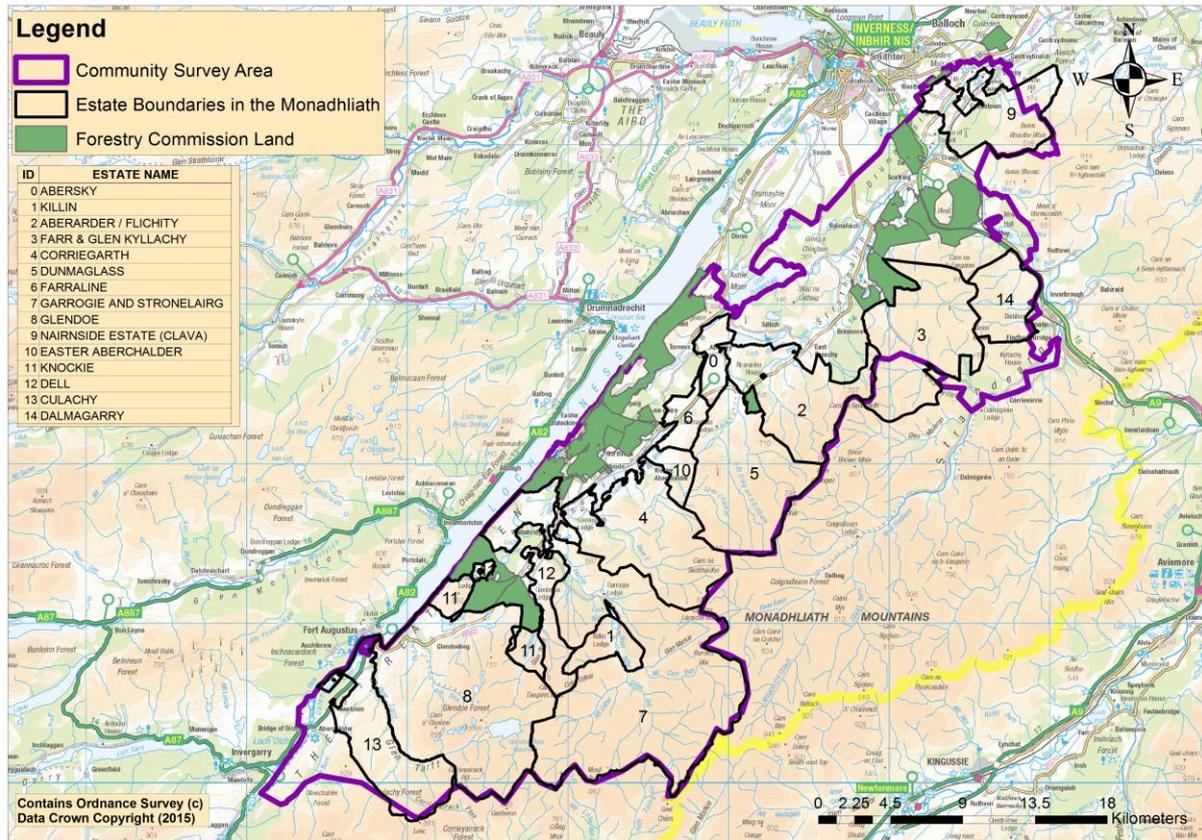


Figure 2.5 Estates boundaries occurring wholly or mainly within the defined community survey area for the Monadhliath study site

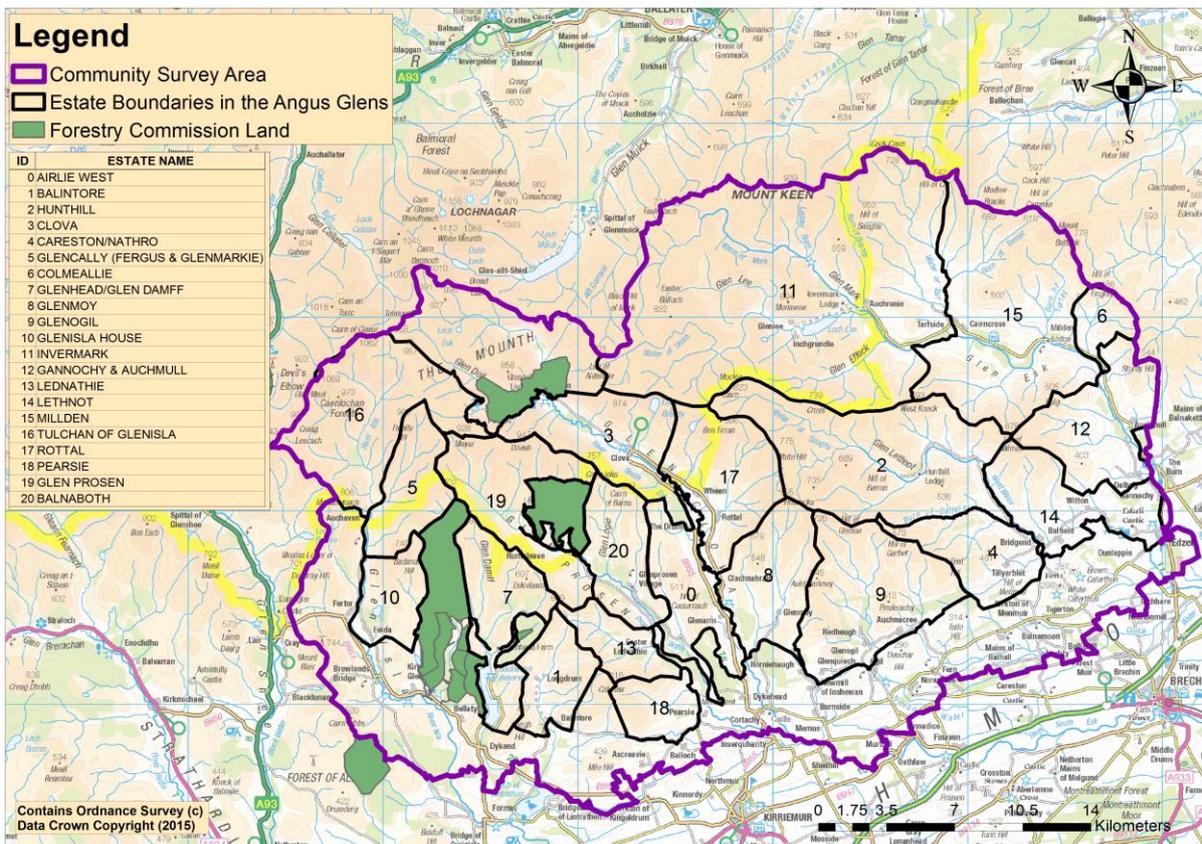


Figure 2.6 Estates within the defined community survey area for the Angus Glens study area

## 2.4 Semi-structured interviews

On both study sites, semi-structured interviews were conducted with two groups: i) community representatives and relevant stakeholders (group 1); and ii) local business owners/managers (group 2). In total 19 interviews were conducted with representatives from group 1 (10 in Angus and 9 in the Monadhliath). This group included community council members; representatives from other community bodies; teachers from local schools; representatives from public bodies and NGOs (SNH, FCS and RSPB) and estate representatives (factors/owners). Interviewee selection was based on building a diverse sample representative of a broad range of perspectives, with initial interviews being used to establish the identity of further possible interviewees.

To facilitate interviews with business owners, a database of businesses in both areas was developed. Some businesses were excluded to allow the development of a group of manageable size (e.g. bed and breakfast businesses, which would dominate the sample unless limited). A diverse selection was approached for interviews with the aim of developing a representative cross-section of relevant local businesses. In total, 10 business representatives (owners/managers) were interviewed in the Angus Glens and 8 in the Monadhliath study site. Businesses represented by those interviewed included tourism and catering businesses (3 hotels and a guest house), sporting goods outlets (2), local garages and vehicle dealerships (3), cafes linked with farmshops (2), general stores (2), an outdoor clothing and equipment outlet (1), veterinary supplier (1), forestry and fencing business (1) and a joinery business (1). The majority were small to medium sized enterprises, with turnover in the region of £100K to £1.5M. The largest employers included a Landrover dealership (26-28 Full Time (FT) staff), a butcher (22 FT and Part Time (PT) staff), a hotel in Angus (11 FT and 9 PT) and a sporting goods shop in Inverness (10 FT and 2 PT). The remaining businesses employed 2-6 FTE staff, with employment varying seasonally in some cases. The sample included some very well established businesses, including two sporting good suppliers (one per area), both of which had existed since the 1850s, garages and/or specialist vehicle dealerships with a history of operating in the area and long term established hotels in both areas. The majority of businesses had a history of working with estates to some extent.

The businesses interviewed are listed in Appendix 4. The sample included some businesses outside of the study area boundaries, particularly in the case of the Monadhliath site, as many of the businesses being used by estates were located elsewhere (e.g. Inverness). A number of businesses also had large catchment areas which stretched well beyond the confines of the study sites, with the specialist vehicle suppliers in particular relying on customers from large parts of Scotland. In these cases it has been difficult to indicate the proportion of impact directly related to estates within the case study areas.

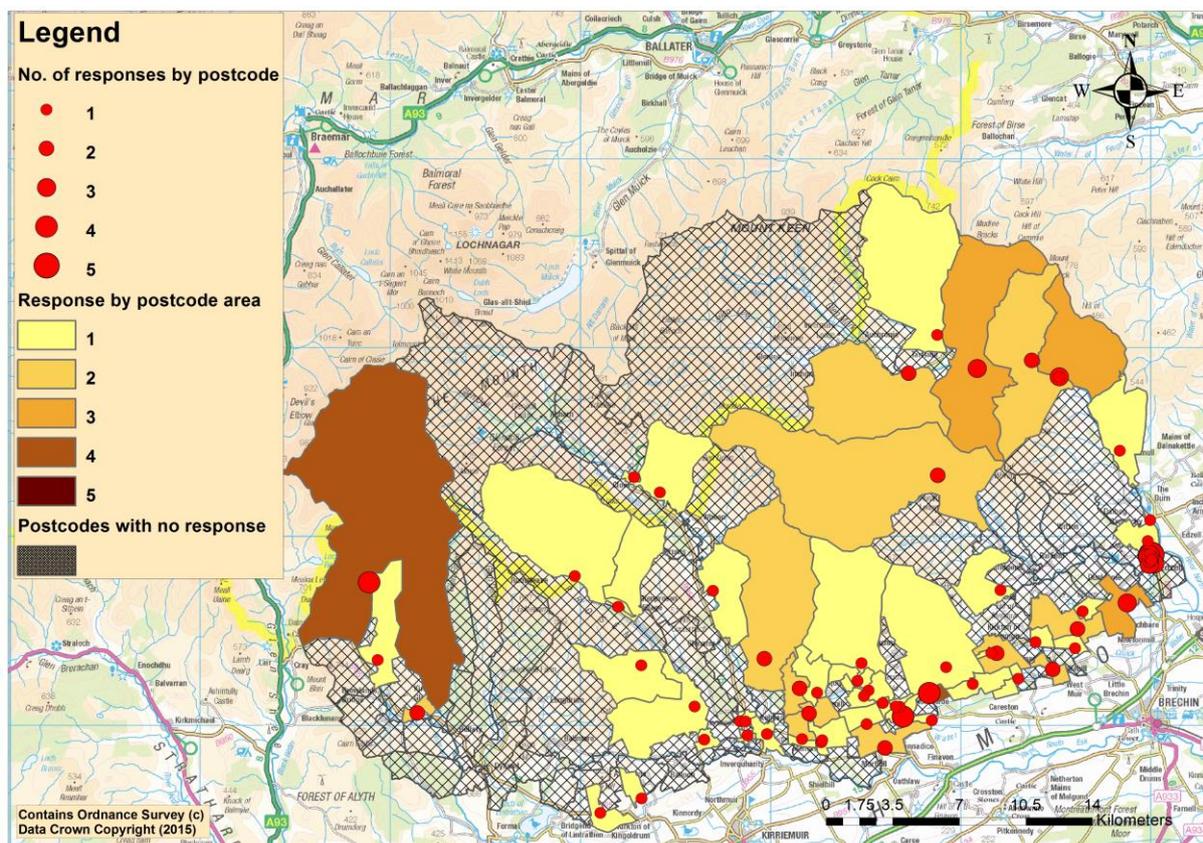
Interviews were conducted in person where possible (and by phone if not), recorded using a digital voice recorder, and transcribed by a third party. The specific stakeholder and business interviewees are shown in Appendix 4 and the key topics discussed (based on the project objectives) in both sets of interviews are listed in Appendix 5. A concise thematic analysis of all of the interviewee responses was conducted. For the purposes of data analysis, stakeholder interviewees were grouped into one of three groups ('estates'; 'public sector'; and 'community stakeholders') to ensure a level of anonymity in the presentation of interview data. The interviews were used to assess, qualitatively, any conflicting perceptions of the grouse industry among interviewees and key perceived impacts and benefits of the industry for the community. The results of the stakeholder interviews have been integrated with the relevant areas of the community survey findings (Section 3) and the results of the business interviews integrated with the relevant findings from the estates survey (Section 4.7). The comments from the interviews are intended to triangulate and provide additional depth to the responses given in the community and estate surveys.

### 3 Community and Stakeholder Perspectives

This section presents findings from the household questionnaire survey. These findings have been integrated in this section with key findings from the semi-structured stakeholder interviews.

#### 3.1 Community survey response and demographic of respondents

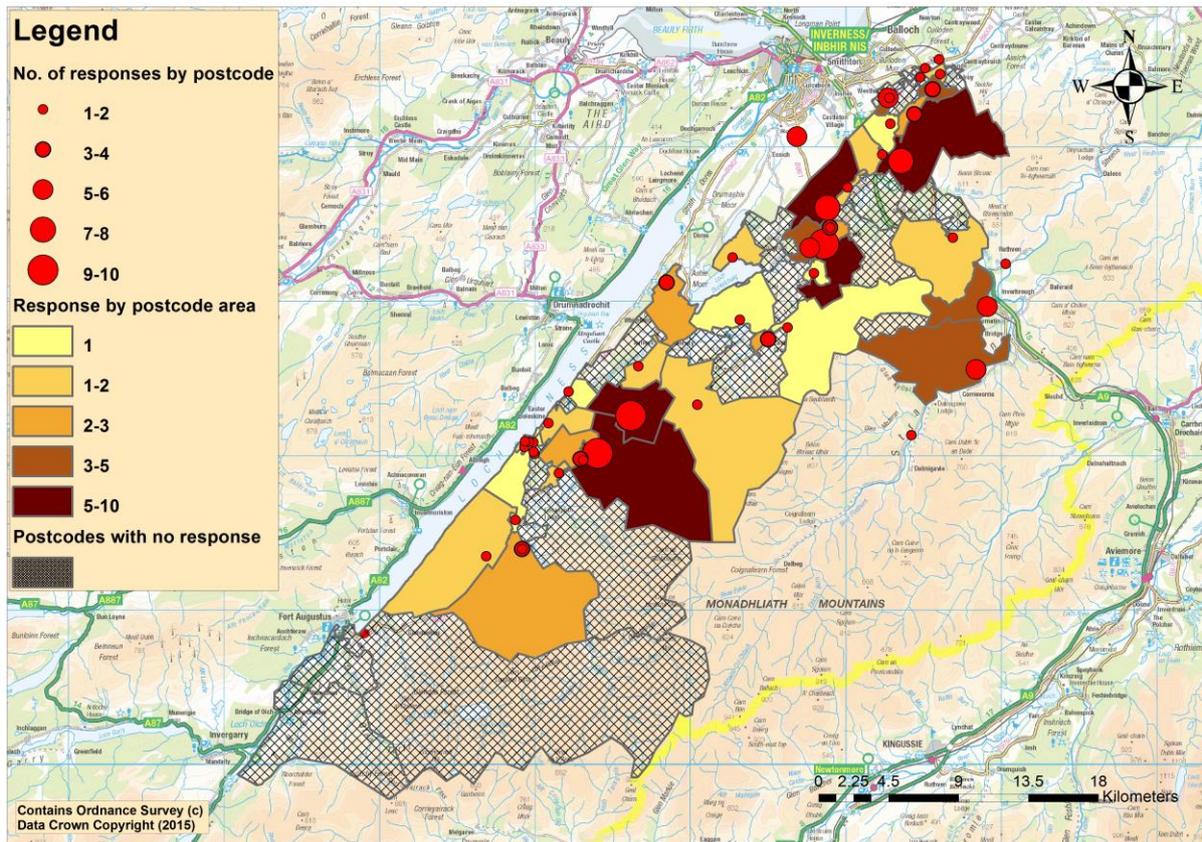
Surveys were sent out by post to 1,378 households in the two areas. There was a 19% response rate (266 useable surveys returned). Four were rejected due to missing postcode data and 50 of those sent out were returned to sender. Figure 3.1 and Figure 3.2 illustrate the spread of community survey respondents across the two study areas. In general, responses in both areas were more concentrated around population centres, as would be expected. However, scattered responses were also evident from across the wider area of both sites, including from the higher ground in each of the Angus Glens and from some of the less populated areas on estates in the Monadhliath. Some areas/estates are not represented within community survey responses, which reflects the lower population densities in some of these postcode zones.



**Figure 3.1** Distribution of community survey responses across postcode areas and specific postcode points in the Angus Glens site ('Level of response' in legend equates to number of respondents)<sup>9</sup>

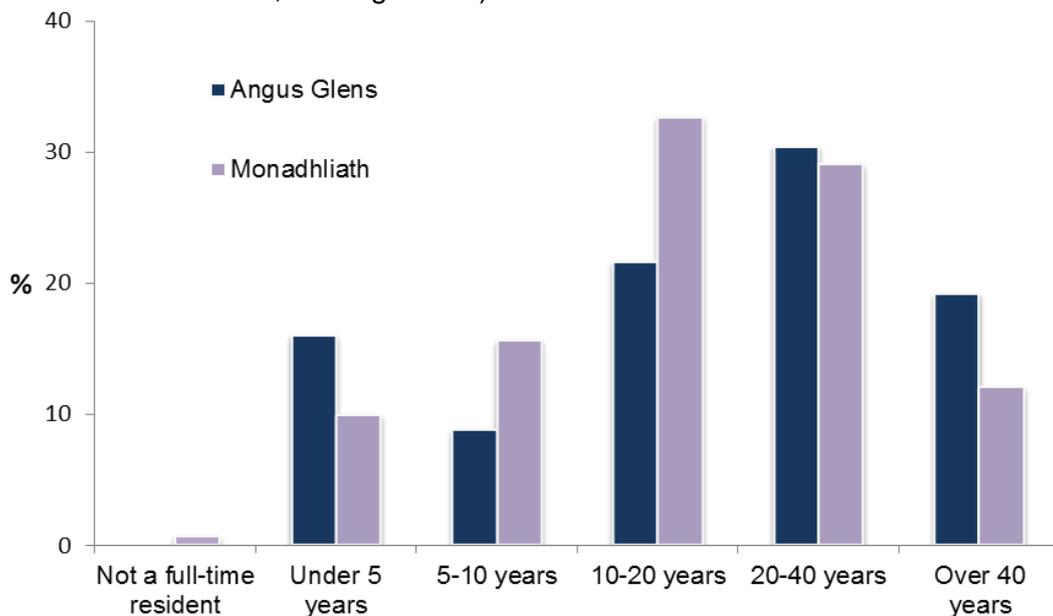
Gender of respondents was 54% male and 43% female in the Angus Glens, and 58% male and 41% female in the Monadhliath, with the remainder not indicating their gender. All but one claimed to be full-time residents in the areas.

<sup>9</sup> Response data mapped by postcode points is indicative of the general area of responses only and based on conversion of specific postcode to geographic coordinates which is inaccurate.



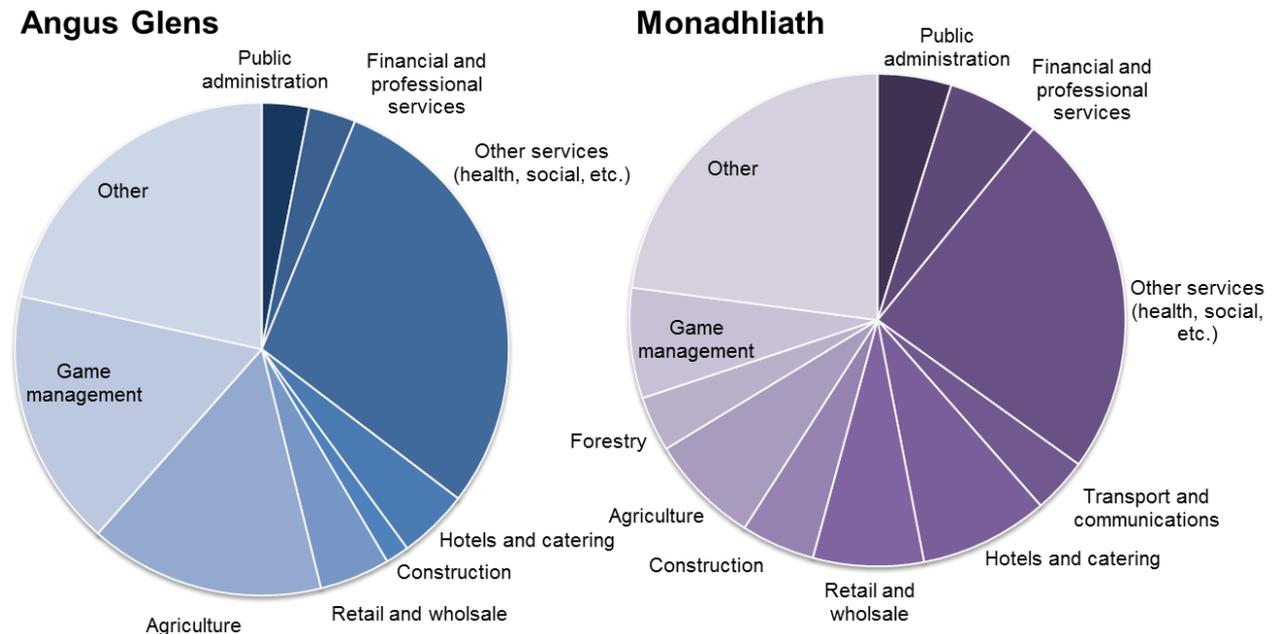
**Figure 3.2** Distribution of community survey responses across postcode areas and specific postcode points in the Monadhliath study area

The educational level of respondents was similar in both areas. Approximately 60% held college or university qualifications. Most respondents had lived in the study area for a considerable period. Approximately half of those in the Angus Glens and 60% in the Monadhliath were long term residents (10-40 years). A higher number of newer community members occurred in the Angus Glens (16% had been resident for under 5 years compared to 10% in the Monadhliath, see Figure 3.3).



**Figure 3.3** Length of time survey respondents were resident in area (Angus Glens: n=125, Monadhliath: n=141)

The range of employment sectors reported by respondents is shown in Figure 3.4. There were a higher number of respondents working in land-based industries (i.e. game management and agriculture) in the Angus Glens than in the Monadhliath, although there were also employees in forestry in the Monadhliath (due to a higher level of forest cover in the region), which was not the case in the Angus Glens. The overall employment profiles also suggests the Monadhliath study area is likely to have a higher number of commuters than the Angus Glens site.

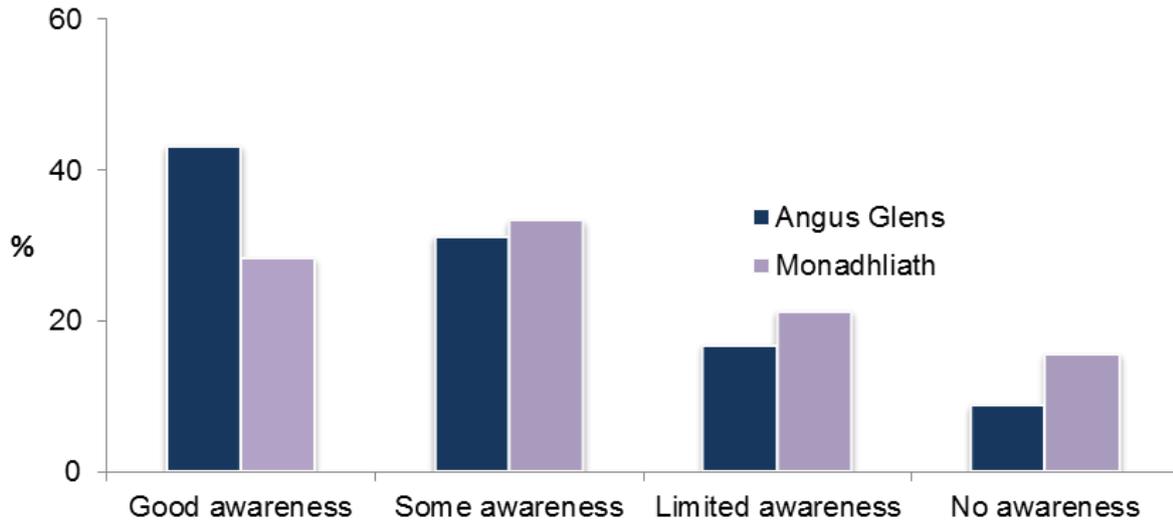


**Figure 3.4** Employment sectors of employed survey respondents (Angus Glens: n=65, Monadhliath: n=83)

A higher number of respondents in the Angus Glens said they were employed by local estates (10%), compared to the Monadhliath (6%). Of those employed by estates, a slightly higher proportion were provided with estate housing in the Angus Glens (83%) than in the Monadhliath (75%). Further demographic information about respondents such as age, income and household size is shown in Appendix 6.

### 3.2 Attitudes to estate management and use of estate land

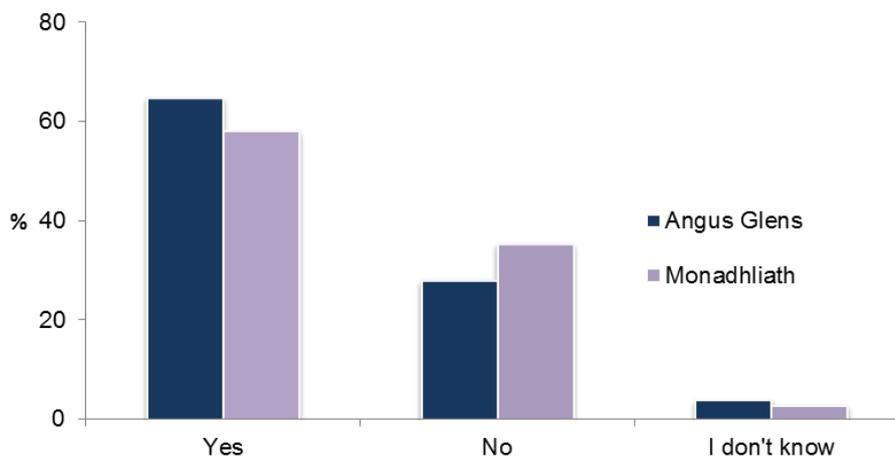
This section of the survey asked respondents about the extent of their knowledge in relation to: management of local estates; the ways in which they use estate land; and how they perceive the quality and impact of management. A considerable majority of survey respondents had either a 'good awareness' or 'some awareness' of estate management activities in their area (Figure 3.5), with more people having a 'good awareness' in the Angus Glens. Sixteen per cent of respondents in the Monadhliath had 'no awareness' of management, compared to 8% in the Angus Glens.



**Figure 3.5** Awareness levels of survey respondents of estate management activities (Angus Glens: n=125, Monadhliath: n=141)

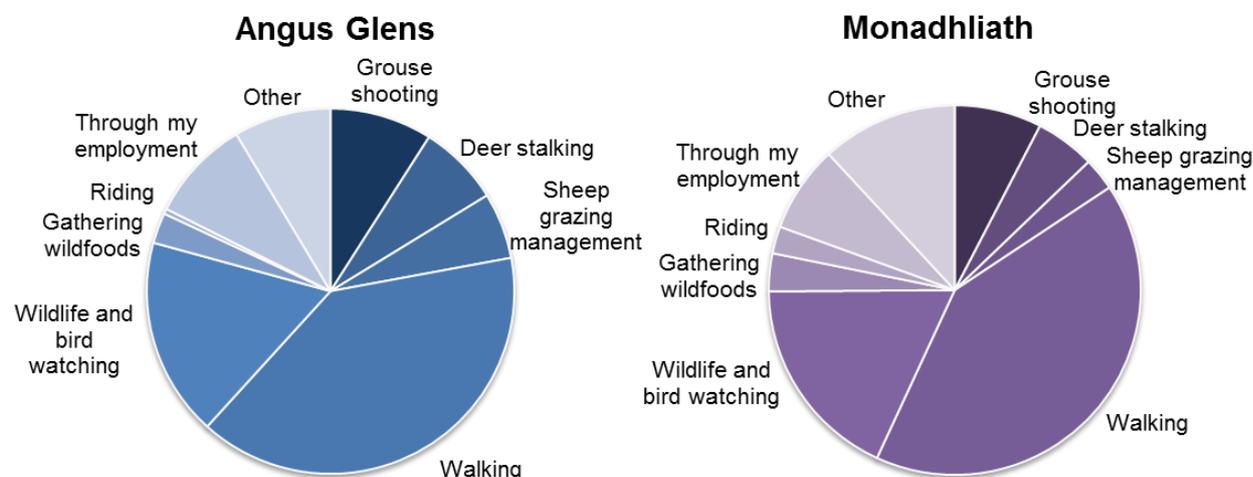
In the Angus Glens, the majority of interviewees felt that people living in the glens were likely to have a good awareness of estate management and, in general, be supportive of the industry. Two public sector interviewees and one community stakeholder interviewee perceived people who do not live in the local communities, along with the general public, as having a lower awareness of estate management and likely to be more influenced by media coverage than those living locally. In the Monadhliath, several interviewees articulated a degree of community apathy towards estates in general, crediting this mainly to the high proportion of the local population that commutes out of the area for work purposes. Nonetheless, two community stakeholder interviewees in the Monadhliath noted higher awareness amongst schoolchildren who either interact with children of estate employees or take part in beating/shooting activities.

The majority of survey respondents reported using estate land in both areas (71% in the Angus Glens and 58% in the Monadhliath). Similar figures emerged for those respondents who reported specifically using grouse moors (Angus Glens: 65%, Monadhliath: 58% - see Figure 3.6). However, it was noted that 22% of respondents in the Angus Glens and 29% in the Monadhliath said they had not visited a grouse moor in the past twelve months. The remainder were variable in the frequency of their visits (see Appendix 7).



**Figure 3.6** Use of grouse moors by survey respondents (Angus Glens: n=125, Monadhliath: n=141)

Grouse moors were used for a range of purposes by survey respondents. The main uses are shown in Figure 3.7. The patterns of use were found to be very similar in each area with walking being by far the dominant activity, followed by wildlife and bird watching. Other reported uses are shown in Appendix 7.

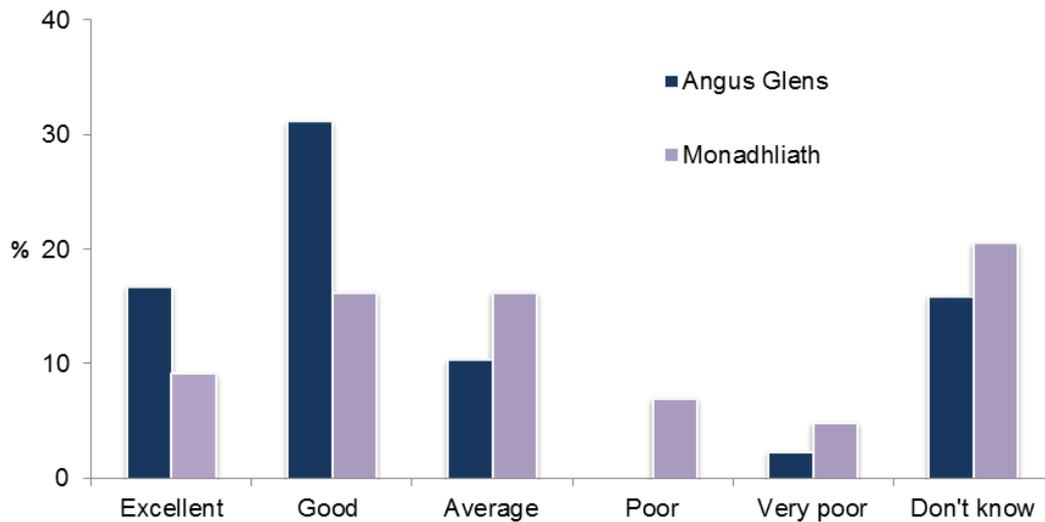


**Figure 3.7** Main uses of grouse moors by survey respondents (Angus Glens: n=222, Monadhliath: n=211)

Respondents were asked if they were aware of any changes in land use or management that have taken place on estates in their locality in the last five years. There was an approximately even split in the Angus Glens between those who were aware of changes (43%) and those who were not (49%). In the Monadhliath, 60% of respondents were aware of changes and 28% were not. In the Monadhliath, many of the reported changes in land use referred to the development of renewable energy schemes. Many survey respondents described the development of wind turbines and access paths/roads and there were also several references made to new hydro schemes. Development of new housing, harvesting of forestry and general intensification of grouse moor management were other changes observed. The main change reported in the Angus Glens was the construction of estate infrastructure such as new paths, hill tracks and fences. There were some comments about wind farm construction but these were less frequent than for the Monadhliath, potentially due to a lower frequency of large windfarms (proposed or built) in Angus<sup>10</sup>. Both tree planting and forestry clearance were noted and a reduction in deer numbers reported. Some concerns were expressed about the declining condition of some buildings and the removal/condition of certain footbridges.

Survey respondents from the Angus Glens indicated that, in general, they consider estate management to be of high quality with nearly half saying it is 'excellent' or 'good' (Figure 3.8). This sentiment was echoed in the interviews, with several interviewees describing estates as 'well-managed'. Views were more mixed in the Monadhliath where a quarter described management as 'excellent' or 'good' and another quarter selected 'average' (16%) or 'poor' (7%). Similarly, there was a range of responses among interviewees in the Monadhliath, with a common sentiment being that some estates were managed better than others. The high proportions of respondents who said they 'don't know' must also be noted (16% in Angus and 21% in the Monadhliath).

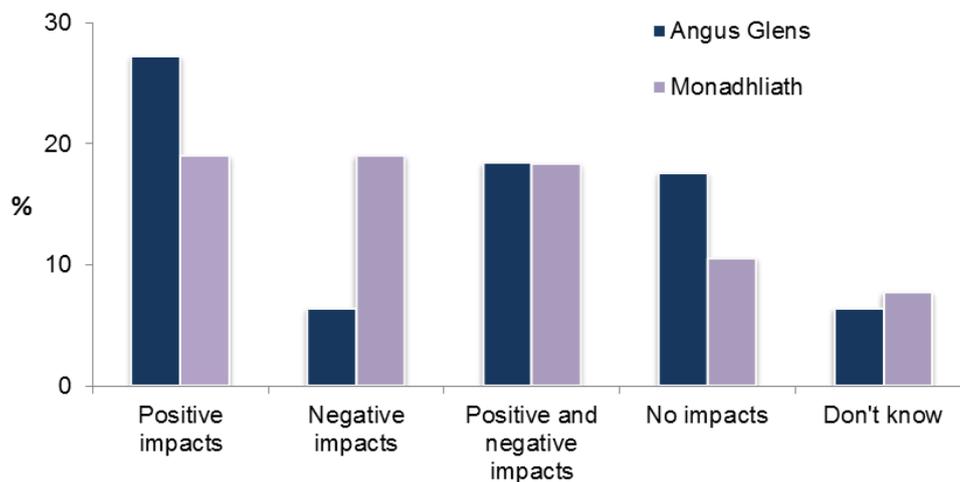
<sup>10</sup> See: <http://www.snh.gov.uk/planning-and-development/renewable-energy/research-data-and-trends/trendsandstats/windfarm-footprint-maps/> for windfarm distribution across Scotland.



**Figure 3.8** Perceived quality of estate management by survey respondents (Angus Glens: n=96, Monadhliath: n=105)

### 3.3 Benefits and impacts of moorland management

The findings in the data about the perceived quality of estate management are reflected in the survey responses about whether estate management has positive or negative effects on respondents (Figure 3.9). A similar proportion (18%) in each area reported both positive and negative impacts but a higher proportion in the Angus Glens reported only positive benefits (27%) compared to the Monadhliath (19%). Only 6% in the Angus Glens reported solely negative impacts, compared to 19% in the Monadhliath. Indeed, further questions revealed that, in both areas, benefits are perceived to accrue more to the local community and local economy rather than having positive effects on the individual respondents directly.



**Figure 3.9** Impacts of estate management activities on survey respondents (Angus Glens: n=95, Monadhliath: n=106)

Survey respondents were asked to list up to three positive effects and three negative impacts that grouse shooting and moorland management have for a) the respondent personally and b) their local community and economy. The comments made were analysed and categorised according to a set of broader themes that emerged from responses. The themes that emerged are summarised in Figure 3.10. The remainder of this section looks at personal benefits and community/local economy benefits and impacts in more detail.

Benefits	Angus Glens		Monadhliath	
	Personal	Community/Economy	Personal	Community/Economy
Local employment	13	52	16	48
Local economy	9	62	10	35
Postive effects of management on environment/wildlife	15	8	11	15
Local facilities and infrastructure	5	9	0	7
Way of life	5	0	10	1
Keeping people in the area	4	6	2	3
Sense of community/social cohesion	3	5	2	5
Enhanced recreational access	6	1	2	0
Beating opporunities	3	1	2	3
Recreation	1	2	3	1
Estate Housing	2	3	0	1
Education	2	0	0	1
Tradition	0	1	2	0
Use of grouse moors	2	0	1	0
Local security	1	0	0	0
Production of food		1	0	0
Positive effects on other land uses	0	0	1	0
<b>Negative Impacts</b>				
Envrionmental damage	5	4	17	6
Acess restriction	8	4	5	2
Increase in disturbance/damage	7	1	5	4
Low contribution to local economy	0	2	3	10
Concerns about estate culture and attitudes	0	1	9	3
Impacts on other land uses and developments	0	2	5	5
Negative social interactions	5	2	2	0
Animal welfare concerns	2	0	3	1
Lack of engagement of estate with community	0	4	0	1
Domination of housing/land market by estates	1	0	1	1
Low quality of estate management	2	0	0	0
Public safety concerns	0	0	0	1

**Figure 3.10** Relative frequency (number of comments) of benefits and negative impacts reported by survey respondents for each study area. Bars show how often comments were made for each benefit and impact type relative to the one most frequently mentioned in the each area

### **3.3.1 Personal benefits and impacts**

Forty-nine per cent of respondents in the Angus Glens and 26% in the Monadhliath reported personal benefits as a result of the grouse industry, compared to 49% in the Angus Glens and 60% in the Monadhliath who said there were no positive personal effects for them. An important reported personal benefit in the survey responses for both sites was the contribution that estates make to employment. Interviewees discussed the personal benefits associated with estate employment, local school provision and tied accommodation. In the Angus Glens, 35% of respondents reported either direct or indirect dependence on the grouse shooting industry for their livelihoods. In the Monadhliath, 21% of survey respondents reported either direct or indirect dependence: direct dependence is largely due to employment as gamekeepers or through domestic work for the estate and indirect dependence was recognised by those working for other local businesses such as hotels, tearooms, veterinary services, local mechanics, etc. In the Monadhliath, a community stakeholder interviewee suggested that, overall, the personal benefits associated with grouse shooting in the area had declined over the last decade as a result of more people commuting to work out of the area and an increased reliance on the local tourist industry.

The positive, personal effects of moorland management for the environment and wildlife were also frequently reported by survey respondents. Within this theme, there were a range of perceived personal benefits, including: improved aesthetic quality; improved biodiversity; vermin control; and the idea that the land is being cared for or maintained through stewardship by estates. Across both areas, 70% of the comments related to the environment described grouse management as beneficial, compared to 30% that described negative impacts. It should be noted that when considering *personal* effects in the Monadhliath, there were as many written comments highlighting concerns about environmental damage as comments reporting benefits (Figure 3.10). For example, fourteen survey respondents in the Monadhliath perceived a reduction in animal and birdlife in the area (over an unspecified period). This was not the case among survey respondents in the Angus Glens where environmental effects were deemed to be positive overall. Other negative impacts reported included: increases in the number of hill tracks; reduced aesthetic quality; perceived industrialisation; and lack of woodland cover. Some of these environmental benefits and impacts are discussed in more detail in Section 3.5.

Another personal benefit described in both areas was access to estate land, complementing the earlier data collected about the use of moorland, which showed its importance for walking (Figure 3.7). Similarly, respondents in both areas described how moorland management provides personal benefit through a 'way of life' which allows easy access to the surrounding land. There was some disagreement between survey respondents in both areas with regards the development of hill tracks and paths in both areas. While some felt that these enabled easy access to the land, others were concerned about the negative impacts of these tracks from an aesthetic point of view. In both areas, concerns were noted about reduced access to estate land for walking (particularly during the shooting season, as well as in relation to the closure of bridges and infrequent access points along electrified fences) and some other comments were made on difficulties walking with dogs in both areas, as well as some disturbance from estate-related traffic and noise.

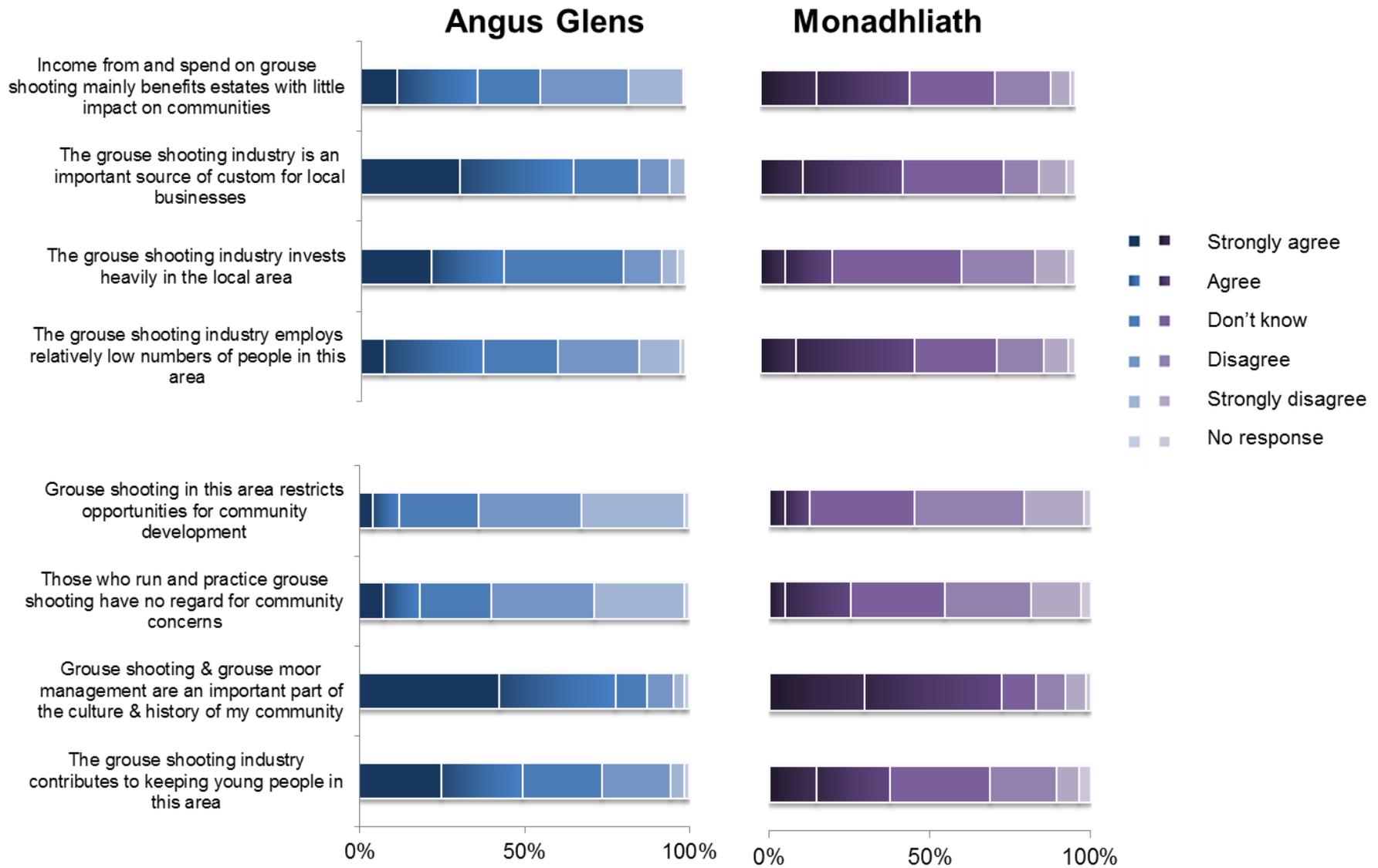
### **3.3.2 Community-level benefits and impacts**

In relation to the perceptions of respondents about community-level benefits of grouse shooting, 70% in the Angus Glens and 53% in the Monadhliath noted community-level benefits. In the Angus Glens, 8% did not note any community-level benefits, while 15% did not note any community-level benefits in the Monadhliath. Overall, the number of perceived community-level benefits of grouse shooting and moorland management considerably outweighed the negative impacts among survey respondents. Figure 3.10 shows the level of agreement expressed by survey respondents in response to a range of statements related to

the benefits and impacts of grouse shooting on the community and economy. Most respondents (75%) 'agree' or 'strongly agree' that grouse shooting is an important part of the culture and history of the community. A minority (12%) 'agree' or 'strongly agree' that grouse shooting restricts opportunities for community development and 22% felt that managers of grouse moors have no regard for community concerns. Over a quarter indicated that they 'don't know' if they agree or disagree with these negative statements (29% in the Monadhliath and 26% in Angus), while the largest numbers 'disagree' or 'strongly disagree' (57% and 50% respectively).

Half of the survey respondents in the Monadhliath agreed that the grouse shooting industry employs relatively low numbers of people in the area, compared to about 40% in the Angus Glens. Nonetheless, in both the Angus Glens and the Monadhliath, local employment and the local economy were by far the most frequently reported community-level benefits (Figure 3.10). This was due both to direct employment by estates and also indirect employment in local industries that benefit from estate activities. The use of such businesses was seen as providing benefit to the local economy, together with an influx of sporting clients and tourists who, attracted by recreational opportunities and the moorland environment, spend money in the area on hotels and restaurants, local shops, etc. The majority of interviewees in the Angus Glens also recognised the direct and indirect economic benefit of estates and the grouse shooting industry was viewed as an important source of custom for local businesses. This view was not shared so widely in the Monadhliath but this is partly due to 20% of respondents not being aware of these effects (selecting 'I don't know'). In the Monadhliath, some respondents' comments suggested that the extent of employment resulting from estate management was small, with additional doubts expressed about whether spending by visitors had much effect beyond the estates themselves. Nonetheless, these concerns amounted to only 6% of the total number of comments related to economy/employment in the area. Also in the Monadhliath, several interviewees attributed lower levels of estate employment to a shift in focus to tourism, rather than land-based activities, and there was general agreement that estates used businesses that are outwith the immediate area (mostly in Inverness), due to a lack of local businesses and contractors.

Fifty per cent of survey respondents in the Angus Glens and 40% in the Monadhliath agreed that the grouse shooting industry contributes to keeping young people in the area. In the Angus Glens, interviewees emphasised the importance of estate management in general, and grouse moor management in particular, for creating opportunities for people to work and reside in remote areas, tackling rural depopulation. An increase in employment opportunities and the associated economic benefit in this area was seen as "very important" by one public sector interviewee in the Angus Glens who explained that: "[...] to my mind there's fewer and fewer people either staying in the countryside that are actually actively working, that are not actively working through estates". Another community stakeholder interviewee explained that the majority of children at a local primary school in the Angus Glens are gamekeepers' children, ensuring that class sizes are large enough for sustained local educational provision (although the number of pupils at the school has decreased from 16 to six in less than a decade). Similarly, estates and community stakeholder interviewees in the Monadhliath clarified that gamekeepers' children attended the local primary and secondary schools (although less than 4% of the school roll in both cases) and that many keepers were accommodated in tied housing on their various estates. Just under half of the survey respondents in the Angus Glens believed that the grouse shooting industry invests heavily in the local area, compared to approximately 20% in the Monadhliath.

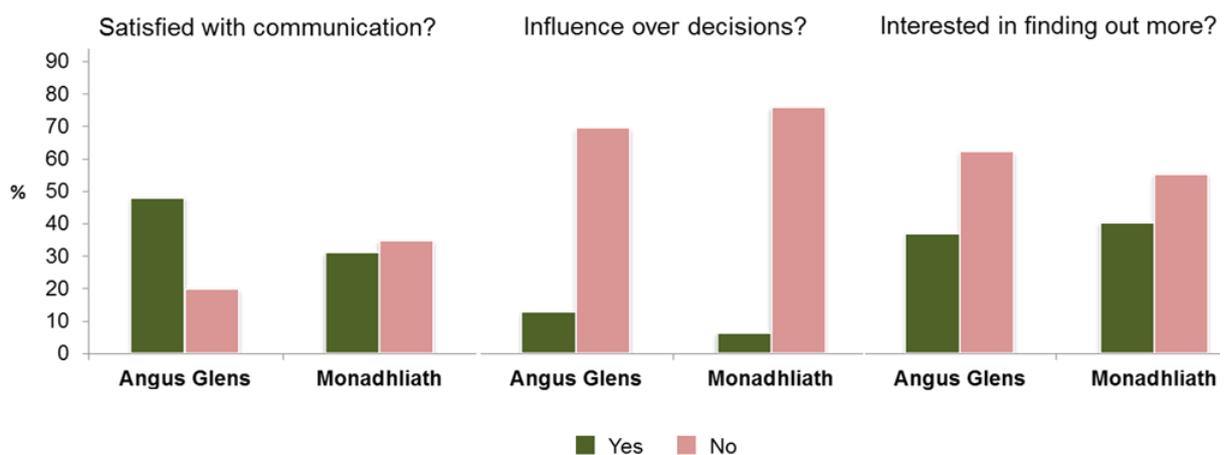


**Figure 3.10** Agreement with key statements about benefits and impacts of grouse shooting on local community and economy. Angus Glens: n=103-125 (varies between statements), Monadhliath: n=123-141 (varies between statements).

In relation to the investment made by some estates to increase and intensify grouse shooting activities, other community-level benefits noted by survey respondents included an investment in local facilities and infrastructure (e.g. schools, roads, shops, cafés), which were perceived to be maintained through the presence of estate employees and through direct financial contributions from estates in some cases. Specifically, interviewees in the Angus Glens noted the large amount of financial investment that had been made by estates in the area over the past decade to intensify grouse moor management activities, although there were differing perceptions about whether this intensification had led to more or less direct employment. While one community stakeholder noted some estates “*doing it a different way, with less keepers, more beats [...] maybe joining together or not replacing people that have left*”, another suggested a small increase in employment opportunities; “*it’s just small numbers, you’re only talking about two or three people extra, apart from the ones that they have*”. Some concerns were also raised by survey respondents and interviewees in both case study areas about intensification currently evident within grouse moor management and the potential negative impacts this may have on communities. Examples included: a high turnover of gamekeepers (and their families), questioning impacts this may have on local services, such as the local primary schools; less employment of ‘locals’, with staff being brought in and/or contracted; an increased number of properties kept as second homes or let by estates as holiday cottages; and occasional negative social interactions between estate representatives and other members of the local community.

### 3.4 Communication between estates and communities

To understand the interactions and communication between communities and estates in more detail, survey respondents were asked questions about: their satisfaction with the level of communication between estates that carry out grouse shooting and the local community; the extent to which respondents feel that they can influence decisions about the management of grouse shooting estates; and whether respondents would like to have access to more information about grouse shooting and moorland management in their area. Figure 3.11 shows the responses to these questions. Overall, there was a high level of satisfaction with communication, particularly in the Angus Glens where less than 20% found communication unsatisfactory; there was a more even split between the satisfied and dissatisfied in the Monadhliath (approximately 30% in each). In both areas, approximately 40% of respondents would like to find out more about grouse shooting in their area, while more than half of the respondents in each area did not feel the need for further information.



**Figure 3.11** Communication to communities and involvement in decision-making. Respondents that responded ‘yes’ or ‘no’ are included. Other respondents gave no response or ticked ‘don’t know’.

In relation to influencing estate decisions, some respondents thought that they did not have the appropriate knowledge to do this and that this should be left to well-informed estate managers. Other comments suggested that two-way communication between estates and the community is important, and that managers who take on board community concerns are held in high regard. Table 3.1 shows the ways in which respondents were interested in learning more about grouse shooting and moorland management. There was considerable interest among respondents in attending estate open days and a smaller number who would take part in beating or volunteering activities. Other suggested ways of obtaining information included newsletters and websites, communication with local schools and improved signage.

	Angus Glens (% respondents)	Monadhliath (% respondents)
General estate open days	27.2	29.8
Moorland management open days	26.4	17.0
Acting as a part-time beater	5.6	7.1
Volunteering in land management activities	6.4	6.4

**Table 3.1** Ways in which respondents were interested in learning more about moorland management

Similar to the survey respondents, interviewees in the Angus Glens, while generally positive about communication between estates and communities, did not feel that communities *“would be able to influence anything that happens”*. Recreational access provision was regarded as crucial for building relationships between estates and communities, particularly as the main use of estate land by survey respondents is walking (see Figure 3.7): *“that’s the kind of things that happen, which really irritates locals. And particularly those who live in the area who have used an area, used a walk, and a landowner comes in and changes the goalposts, if you like, without a by your leave”* [public sector interviewee, Angus Glens].

Interviewees in the Angus Glens recounted some positive attitudes and experiences in relation to communication between estates and communities. Specific examples included: good working relationships between estates; involvement in community publications; interactions with the local school; a wildlife officer employed on one estate to work with local people; landowner representation on community councils and a local catchment partnership initiative. Similarly, interviewees in the Monadhliath spoke positively about social events organised on estates, including a community clay pigeon shoot on one estate, as well as school children, other locals and individuals coming from further afield to take part in a beating activities and a local gun club (run by the head keeper of one estate). In the Monadhliath, an estate interviewee and a community stakeholder interviewee talked about the difficulties sometimes encountered in finding enough people to take part in beating, due to lower levels of awareness and interest in the local community. Estate representation on local community councils was regarded as a missed opportunity by some interviewees.

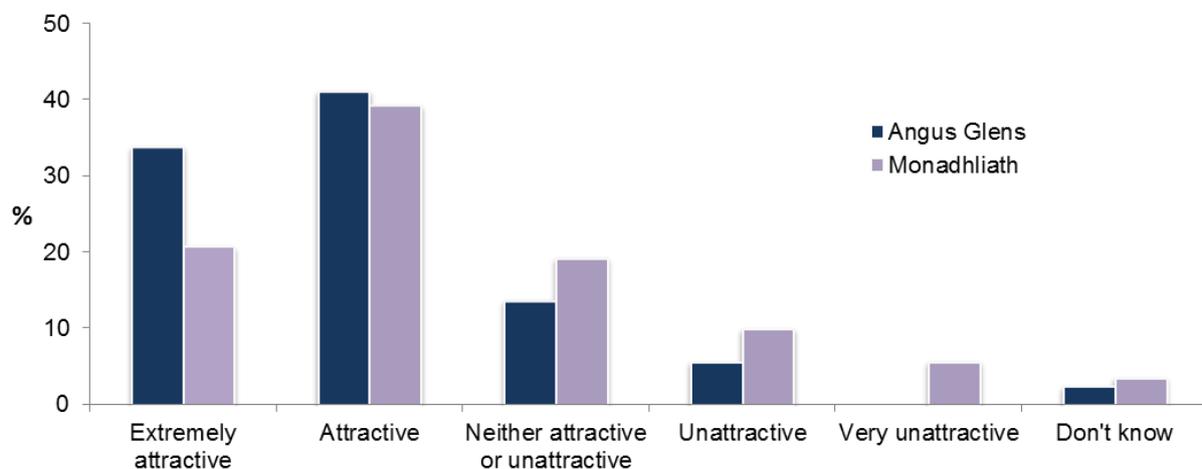
One community stakeholder interviewee in the Angus Glens explained that more involvement of estate representatives on community councils might help to increase community understanding of land management activities. In the Monadhliath, a community stakeholder interviewee and an estates interviewee explained that communication with the community councils had tended to be done recently by renewable energy developers on behalf of estates (and on the advice of those developers). However, one estates interviewee explained that a group had been set up in the past few years within a community council in the Monadhliath to have bi-annual meetings with estate owners. This was seen as a positive initiative that provided a suitable forum for exchanging ideas. Estate representation on deer management groups and regional grouse groups was also considered as potentially useful for interacting with neighbours and stakeholders in both areas.

Some less positive reactions to communication between estates and communities were made by some interviewees. One in the Angus Glens felt that estates *“keep themselves*

pretty much to themselves [...] they don't really want people to know too much about what they're up to", while another in the Monadhliath said that "[some] estates will hold their distance almost entirely from the community". Some frustrations were aired in the survey responses and interviews about being unable to contact some estates regarding access or other issues. The untapped potential to communicate with schools was raised by four interviewees in the Angus Glens (spanning all three stakeholder groups) and four in the Monadhliath (public sector and community stakeholders) as an avenue for tackling some of the aforementioned challenges and raising awareness about estate management. One public sector interviewee in the Angus Glens said: "I think always getting schools interested in what's happening [...] it's getting it in their mind for future generations, they're always going back and speaking to their parents as well about what they've done and just making them more aware...and more of an interest than in what's happening". Some estates in both areas already interact with the local primary schools: in the Monadhliath, several interviewees described how local schoolchildren have taken part in beating, raising an awareness of grouse moor management. Nonetheless, there was a clear opportunity identified by interviewees to develop such activities further. School visits to estates were also seen by one community stakeholder interviewee as an opportunity for children to learn about careers in land management.

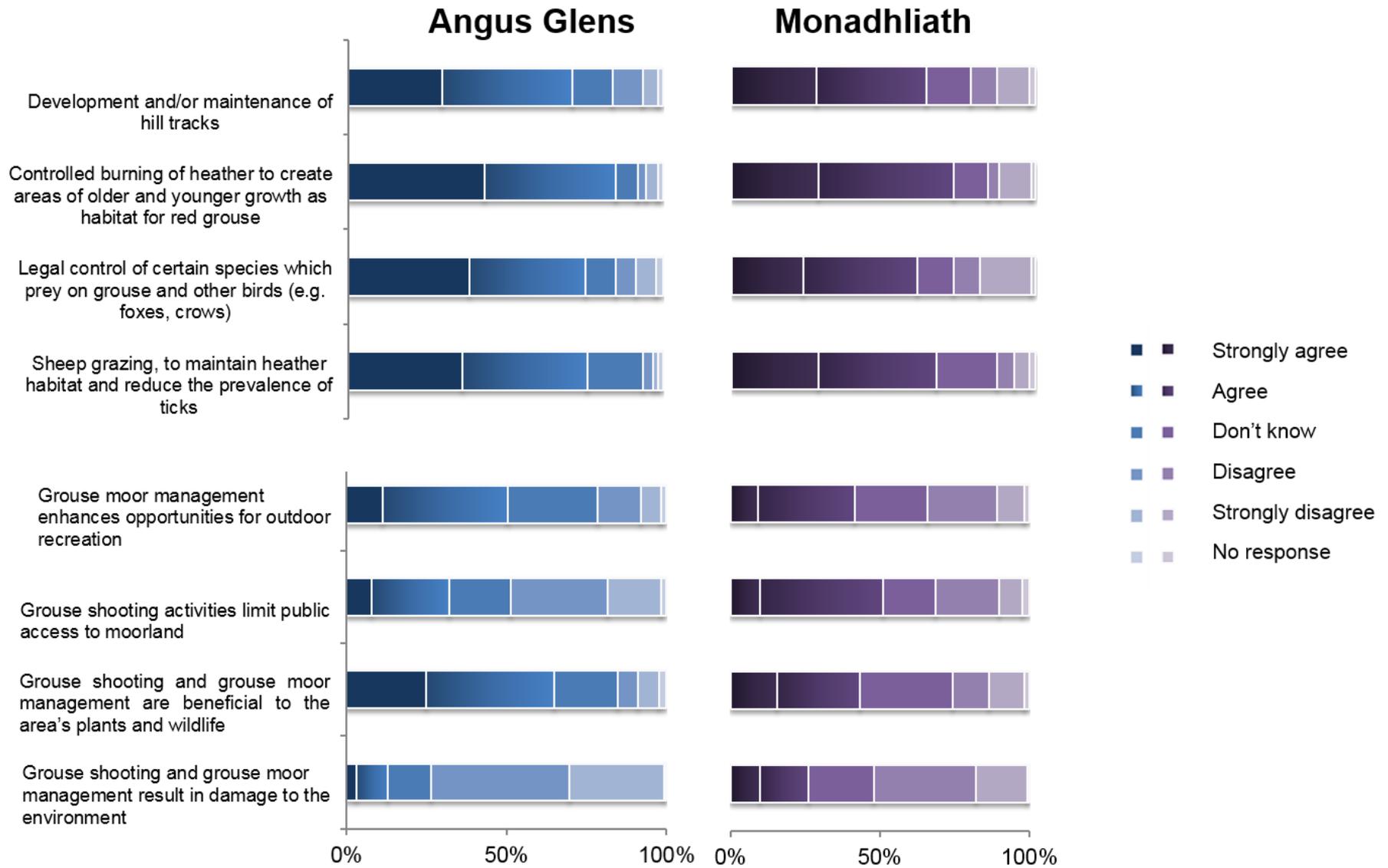
### 3.5 Grouse shooting and the environment

In general, survey respondents viewed grouse moors as visually attractive (Figure 3.12). Seventy five per cent of respondents in the Angus Glens and 60% in the Monadhliath reported them as being either 'attractive' or 'very attractive' with a minority finding them 'unattractive'.



**Figure 3.12** The visual attractiveness of grouse moors (Angus Glens: n=120; Monadhliath: n=138)

Survey respondents generally agreed with the ways in which grouse moors are being managed, as illustrated in Figure 3.13. Controlled burning of heather was the management practice that was most supported in both areas with the majority of respondents also agreeing with sheep grazing to maintain heather habitat and to reduce the prevalence of ticks. Several interviewees in the Angus Glens commented on the intensification of grouse moor management practices in the case study area. Interviewees were aware of an increase in burning and sheep numbers on the hill, as well as the installation of deer fences to discourage browsing on the grouse moors.



**Figure 3.13** Attitudes towards the management of grouse moors (Angus Glens: n=125, Monadhliath: n=141)

There was a contrast between the Angus Glens and the Monadhliath in the survey responses to statements about grouse shooting being beneficial to plants and animals or causing environmental damage, which complements the findings shown earlier in Figure 3.10. Fewer respondents believed grouse moor management to be environmentally damaging in the Angus Glens (13%) compared to the Monadhliath (30%). Approximately 60% of respondents in the Angus Glens agreed that management is beneficial to plants and animals compared to just under half in the Monadhliath. Among the interviewees, there were also contrasts about the perceived impacts of grouse moor management on plants and animals. For example, one public sector interviewee in the Angus Glens felt that *“the amount of wildlife you see, in my opinion, is less than it was [...] but I do appreciate there’s an economic value to this”*, while other interviewees in that area recognised the beneficial effects of grouse management for other wildlife, such as black grouse and waders. Specifically, wader populations on farmland were perceived to have increased as a result of legal predator control conducted on the adjacent moorland; a benefit for local wildlife tourism activities.

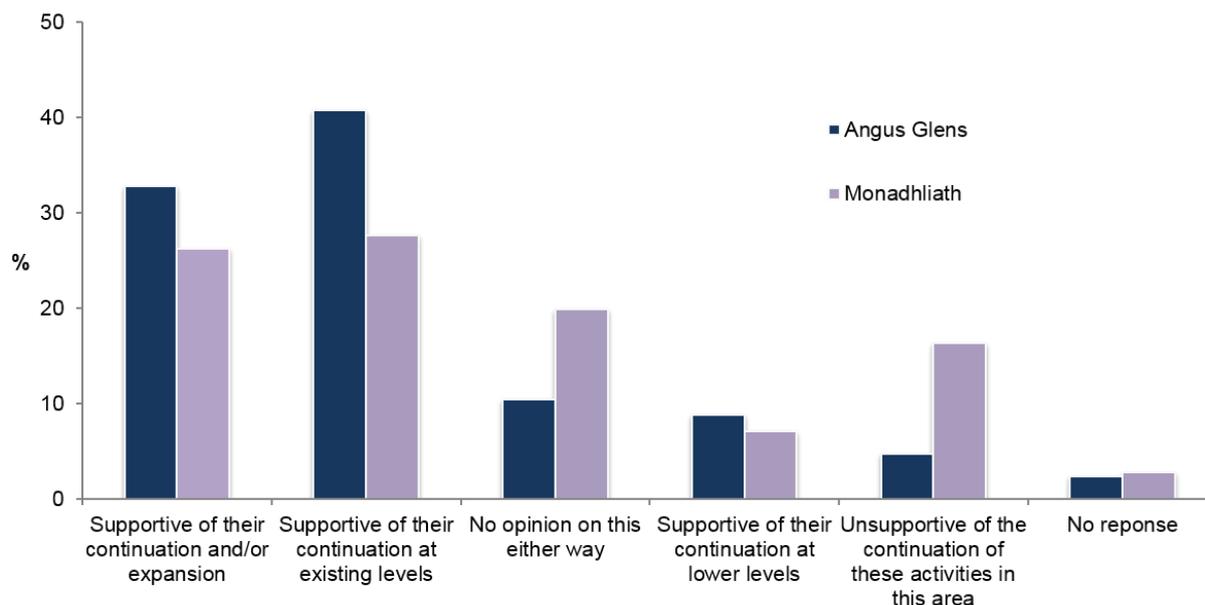
Some concerns were raised among interviewees about the lack of tree planting on grouse moors, as well as the medication used for grouse worming and the impacts of this on the food chain. Specific concerns were also raised by interviewees in both areas about persecution of raptors, although recent improvements were noted. This included a perceived reduction in the numbers of poisonings in recent years. Nevertheless, raptor persecution was highlighted by public sector and community stakeholders as a critical area to address for the grouse shooting industry generally, to reduce environmental impacts as well as damage to public perception of the grouse shooting industry.

Complementing earlier comments made about intensification of grouse moor management, one public sector interviewee in the Angus Glens talked about impacts on deer management and described *“a general feeling that the problem with the grouse from a deer point of view is that they fence off these big tracts of land and it does inevitably affect the way that the deer will move about”*. Linked to some of the comments in Section 3.4 about communication, under-representation of grouse managers on deer management groups has potentially exacerbated this latter issue. Views about the development and maintenance of hill tracks and the legal control of certain species were more mixed, although the majority of survey respondents expressed agreement with these practices (Figure 3.13).

Intensification in both areas was also seen as directly related to the number of hill tracks present on an estate. Described by several interviewees in the Angus Glens as *“motorways”* (or *“green roads”*, where some older, more established tracks now blend in with the landscape), there was a common sentiment that there had been a noticeable increase in the number of hill tracks present in the area (and the amount of traffic on them), in order to intensify driven grouse shooting activities and facilitate access to wind and hydro energy developments. Several interviewees accepted this increase, recognising the potential improvement to access for both shooting clients and walkers (as discussed in Section 0). However, others felt that the rapid increase in the number of tracks was worrying and a potential environmental impact.

### **3.6 Grouse shooting and the future**

The evidence from the survey and the interviews suggests that the communities in both the Angus Glens and the Monadhliath are broadly supportive of grouse shooting. Figure 3.14 shows that 70% of survey respondents in the Angus Glens support either the continuation of grouse shooting at current levels or an expansion of activities. This figure is lower in the Monadhliath at just over half. A larger proportion of respondents (16%) are unsupportive of grouse shooting in the Monadhliath compared to 5% in the Angus Glens.



**Figure 3.14** Support for grouse shooting in the future (Angus Glens: n= 125; Monadhliath: n=141)

Many survey respondents made comments about the future of grouse shooting and moorland management which reiterated benefits reported earlier and emphasised the need to maintain the industry for the good of the community. Concerns were expressed about the possible implications of land reform for the industry and the long-term viability of communities if grouse shooting is reduced. In the Monadhliath, the shift towards more tourism was perceived to have led to less reliance on the grouse shooting industry in some areas. In Angus, wind energy was not seen by the interviewees as a viable alternative due to recent objections to proposed projects and the associated community benefits packages, although some potential was associated with the growth of hydro-electricity generation in the area. An increase in tourism in the area was generally seen as positive by both survey respondents and interviewees, with recent increases in the number of hillwalkers and mountain bikers noted in the Angus Glens.

Other comments reflected a desire to see future change in land use with more woodland creation and more diverse habitats and species in moorland areas. The value of collaboration between moorland managers and other land managers (e.g. farmers, conservation managers) was emphasised. In Angus, estate and public sector interviewees mentioned specifically the need for more “good quality riparian woodland” to improve water quality and aid flood alleviation. The role of upland management in enhancing carbon storage and flood protection was also highlighted in survey responses; there were concerns that current riparian management, grazing and muirburn on estates can detract from these functions. Related to this, a need for high quality research on the effects of upland management was mentioned. Another concern common to both areas was illegal raptor persecution and how this could be effectively policed and stopped. There were also concerns about negative media coverage and the resulting impacts for all shooting estates.

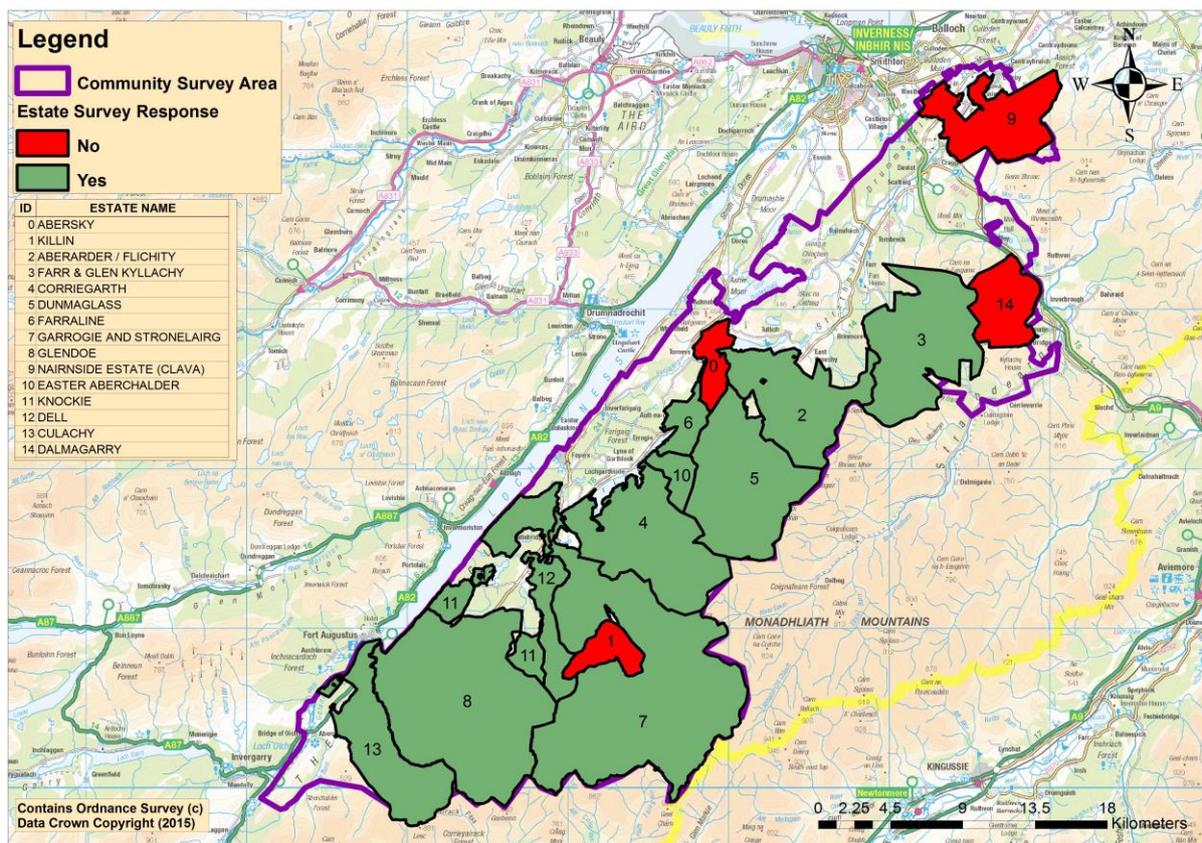
Finally, there were various comments in the survey responses about a perceived ‘disconnect’ between the community and estate managers/employees and a wish to see greater integration and communication. There was a perceived need for education and information for both communities and the wider public. A need for external funding to support estates in providing more community benefits was noted. One respondent said it would be good to see a wider range of people experiencing grouse shooting; which is not accessible to most local people and hopes were expressed that more young people could be attracted to the grouse industry in the future.

# 4 Estate and Local Business Perspectives

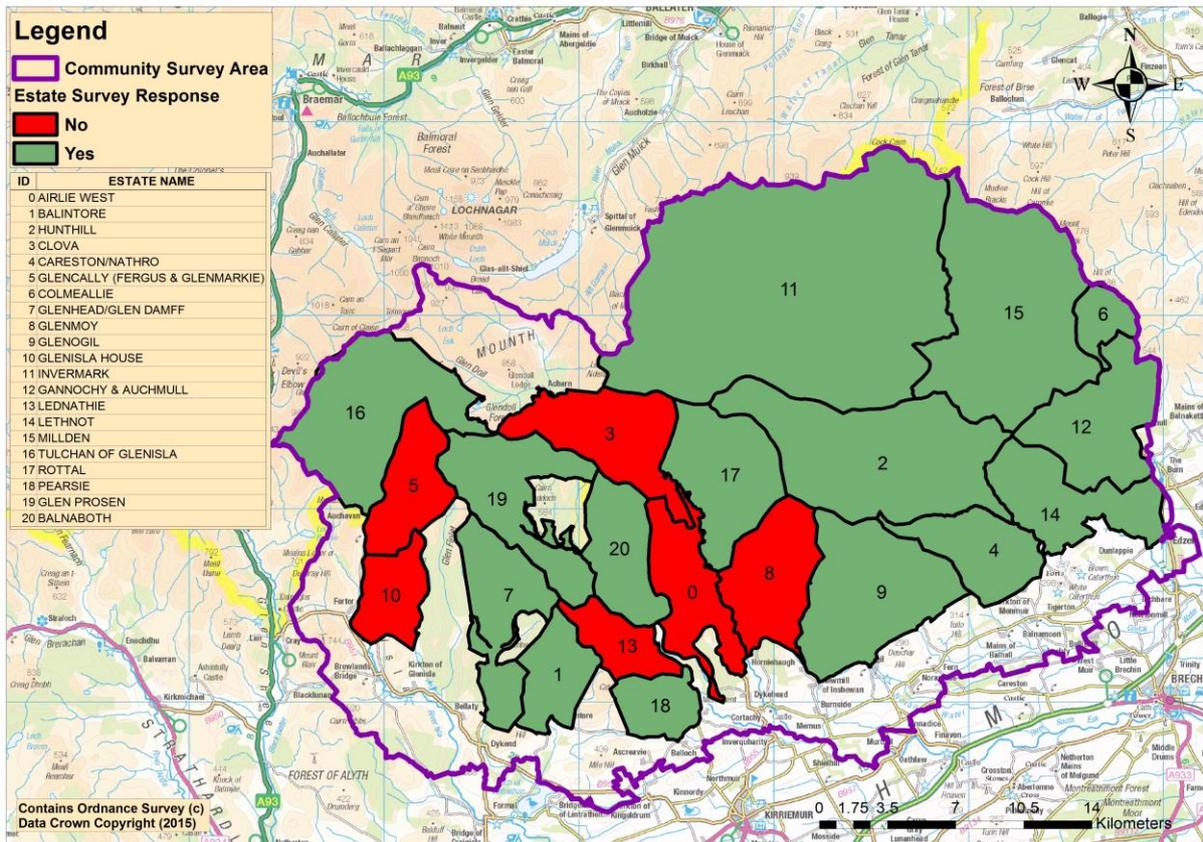
This section presents the results from the estates survey and a summary of key findings from interviews with a sample of business owners and managers from each of the two study areas (Section 4.7).

## 4.1 Estates survey return rate

Of the fifteen relevant estates identified in the Monadhliath study area, eleven provided survey returns. Of those not returning responses, one did not engage in grouse shooting to any significant extent and two were landholdings under 1,000ha with minimal or no grouse moor management (Figure 4.1). Of the 21 estates identified in the Angus Glens study area, fifteen returned (Figure 4.2). Of those not returning responses, two did not manage grouse moors and one stated that information relating to their grouse moors was included in the response for a neighbouring estate due to a lease arrangement. The additional three non-returning Angus Glens estates were unable to provide survey returns within the survey timeframe; all three were small relative to other estates in the survey sample. Two further estates (Brewlands and Blacklunans) not initially identified and not mapped (due to a lack of available boundary data) were also contacted for this research and both provided survey returns. Excluding these two estates, the overall return rate across both sites combined was 72% of the originally identified estates, with returning estates corresponding to a considerable majority of the total study areas in both sites.



**Figure 4.1** The Monadhliath study area showing the survey response status of estates within the community survey area



**Figure 4.2** The Angus Glens study area showing the survey response status of estates within the community survey area

The survey return group corresponded to the vast majority of estates active in grouse moor management and grouse shooting, with only three comparatively small estates which were actively managing grouse moors identifiable as absent from the total respondent group across both areas. Some returned surveys did not provide full responses, with some excluding data (e.g. financial data) in relation to certain parts of their response.

#### 4.2 Respondent and landholding characterisation

The total area of respondent estates as indicated in the survey responses was 67,043ha in the Angus Glens and 49,325ha in the Monadhliath, with a mean estate size in Angus of 3,944ha and 4,484ha in the Monadhliath. The average length of time under current estate ownership was 46 years in Angus and 31 years in the Monadhliath. Table 4.1 shows the role of survey respondents, with a relatively even split between owners and managers/factors in both areas. The other category consisted of an estate management company and three estate directors.

Role	Angus	Monadhliath	Overall
Owner	13	7	6
Manager/Factor	11	8	8
Other	4	2	2

**Table 4.1** Role of respondents to estates survey

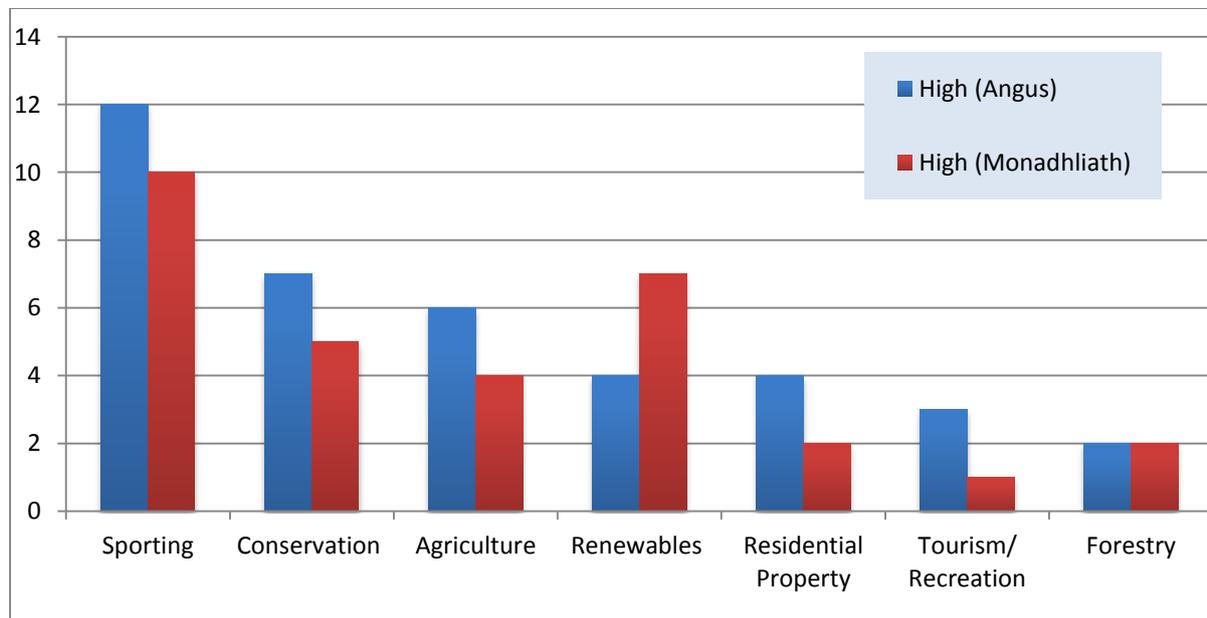
The majority of respondents in both areas categorised their landholdings as mixed estates (Table 4.2), with smaller numbers categorising themselves as mixed (mainly sporting), sporting and agricultural (some sporting).

Estate Type	Angus	Monadhliath
Mixed	10	8
Mixed (mainly sporting)	3	2
Sporting	2	1
Agricultural (some sporting)	2	0

**Table 4.2** Estate categorisation by respondents

#### 4.2.1 Estate management objectives

The majority of estate respondents had a strong emphasis on sporting (often seen as the core objective); however, this usually occurred within a wider range of activities, including farming, forestry, tourism and renewable energy. Many also referred to the importance of generating income and running the estate overall as a sustainable business in a way which improved the estate asset base, with the importance of delivering opportunities for family enjoyment also noted by some as an objective. The objective most frequently ranked as being of high importance in both sites was sporting, followed by conservation, with agriculture occurring as the third most highly ranked objective in Angus and renewables as the third most highly ranked in the Monadhliath (Figure 4.3). Some additional objectives (not shown in Figure 4.3) were noted as being of medium or low importance, including access and interpretation, tourism and recreation, commercial property and extraction of minerals/quarrying. In general, access and interpretation and forestry occurred more frequently as objectives in the Angus Glens than in the Monadhliath.



**Figure 4.3** Estate management objectives ranked as being of high importance by respondent estates

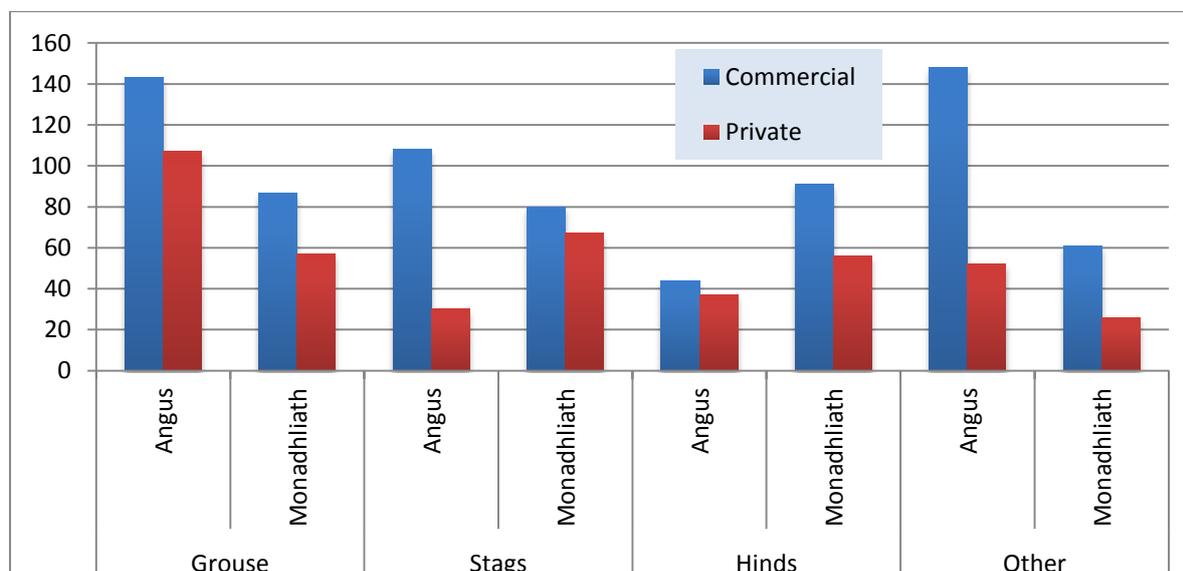
#### 4.3 Sporting land management

The majority of the land accounted for by survey respondents was being managed as grouse moors and/or for other sporting objectives, with 55,981ha in Angus and 29,068ha of land in the Monadhliath recorded as being actively managed grouse moor. The average area of

grouse moor managed by respondents was 3,999ha in Angus and 3,230ha in the Monadhliath. The majority actively managed grouse moors, with four of the smaller landholdings (three in Angus) not specifically managing moorland, but engaging in low levels of walked up grouse shooting.

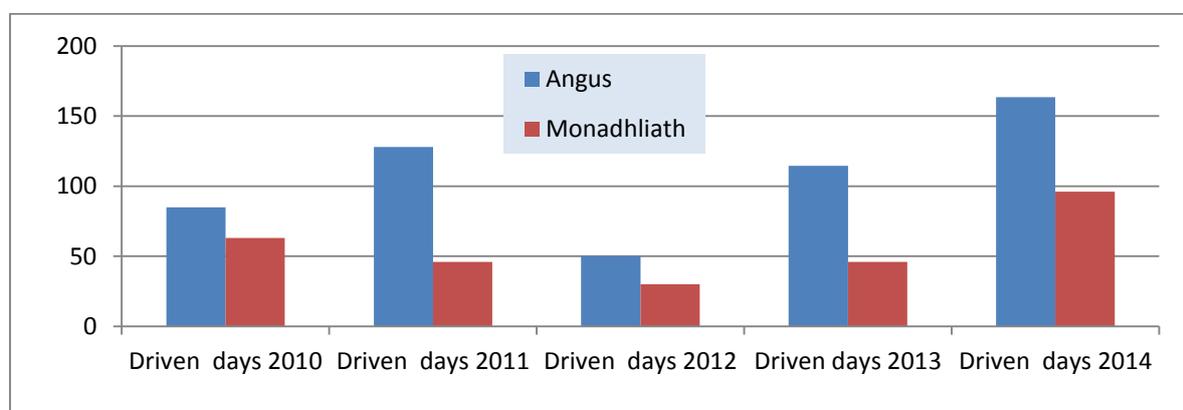
#### 4.3.1 Shooting and stalking activity levels

Figure 4.4 shows the number of commercial and private (family) sporting days carried out on estates. The numbers of commercial days exceeded the number of private days for all activities. Activity levels in Angus were higher for grouse and sporting activities in the ‘other’ category (primarily pheasant and partridge). Hind stalking days occurred at higher levels in the Monadhliath, with commercial stag stalking days slightly higher in Angus, although private stag stalking occurred at higher levels in the Monadhliath. The number of estates providing data for deer stalking in Angus (five) was lower than for the Monadhliath (seven) and stag stalking activity generally was lower than grouse shooting activity in both areas.



**Figure 4.4** Number of commercial and private sporting days on respondent estates

The number of driven grouse days in both areas is shown in Figure 4.5. A decline was evident in 2012 in both areas<sup>11</sup>, and the number of days is consistently higher in Angus, with over double the number of days in Angus in 2013 and just under double in 2014.



**Figure 4.5** Number of driven days (2010-2014) in both study areas (commercial and private)

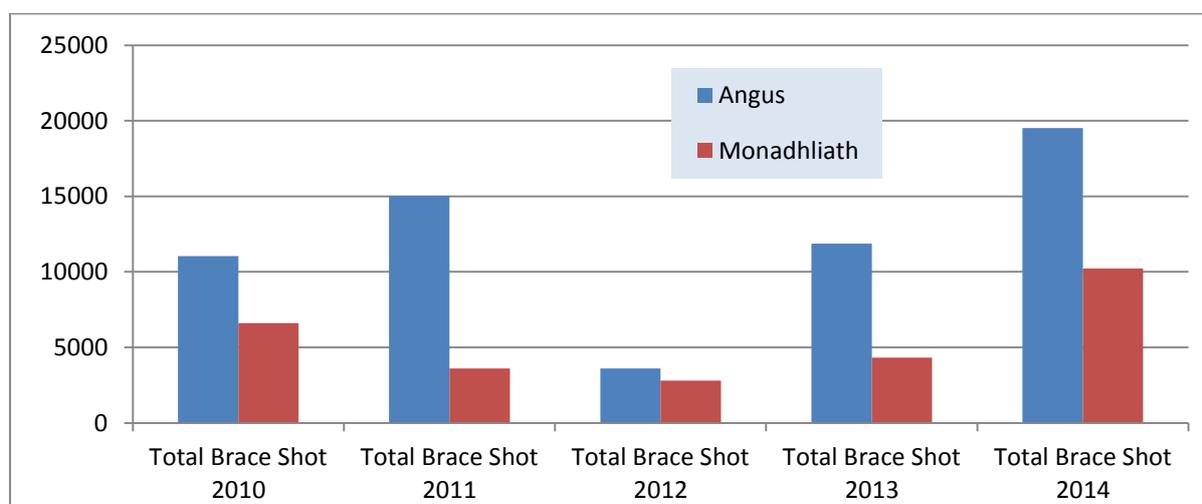
<sup>11</sup> The lower grouse numbers in 2012 can be at least partly explained by poor weather conditions in the summer-autumn period of 2012.

As shown in Table 4.3, the number of walked up grouse days was generally much lower than driven days, with increased levels of walked up activity in recent years and a smaller gap (relative to driven grouse) evident in terms of number of days between the two sites.

	Walked up days 2010	Walked up days 2011	Walked up days 2012	Walked up days 2013	Walked up days 2014
Angus	32	35	38	45	51
Monadhliath	28	43	33	37	64

**Table 4.3** Number of walked up grouse days (2010-2014) in both study areas

The total brace of grouse shot in both areas (Figure 4.6) reflected the number of driven days in both areas (Figure 4.5).



**Figure 4.6** Total brace of grouse shot (2010-2014) on the two study sites

#### 4.4 Employment

The total number of full-time equivalent (FTE) posts on respondents' landholdings was 154, with 110 of these in the Angus Glens and 44 in the Monadhliath. Estate employees specifically employed full-time to engage in sporting activities (i.e. keepers) numbered 64 in Angus and 28 in the Monadhliath study area. These figures do not include seasonal employment, which when accounted for brings total estate employment to 130 in Angus and 56 FTE posts in the Monadhliath (Table 4.4). A number of the estate posts not recorded as direct sporting jobs were noted as being related indirectly to sporting (e.g. catering staff).

	Total FTEs	Sporting FTEs	Seasonal sporting staff (FTE Equivalent) <sup>12</sup>	Total sporting employment (FTEs)	Total estate employment
Angus	110	64	20	84	130
Monadhliath	44	28	12	40	56

**Table 4.4** Employment on respondent estates calculated in terms of full-time equivalent (FTE) posts

<sup>12</sup> To calculate an FTE figure for seasonal employment for each estate, the number of casual staff (beaters etc.) employed per day of driven grouse (this figure was provided in estate survey responses) was multiplied by the number of driven days in 2014 in each case. One FTE post was considered to equate to 200 person days of seasonal employment. This formula allowed a total FTE figure to be calculated for each case study area.

Estate respondents indicated that, on average, sporting employees spent 53% of their time on grouse-related activities and 20% of their time, on average, on deer management activities (both figures were the same in both areas), with the remainder of their time spent on other activities. In line with the increased sporting activity over the last five years shown in previous sections, employment had increased on seven estates in Angus and on six estates in the Monadhliath over this time period. Two estates in Angus had decreased their employment and the remainder had remained the same over the previous five years. Most indicated they had no future plans to change employment levels, with three indicating that a small increase was possible.

#### 4.5 Sporting income and expenditure

Total revenue from all sporting activities in the Angus Glens recorded in 2014 was £2,636,769 (£2,025,269 of which related to grouse) and £545,638 (£207,548 of which related to grouse) was generated in the Monadhliath study area (Table 4.5 and Figure 4.7)<sup>13</sup>. The revenue data provided was used to calculate per/ha revenues (Table 4.5). Total revenue values were not extrapolated for the wider case study area (i.e. to include estates not returning revenue data) as it was confirmed that in most cases these estates were not obtaining revenue from commercial sporting activities. These figures show considerably higher per/ha revenues and total revenues in Angus than in the Monadhliath. This relates to higher levels of commercial activity and particularly high revenues for commercial grouse shooting on some Angus Estates. In general, respondent estates were not acquiring any public funding to support their grouse moor management activities, with four noting that they derived income from SRDP or conservation-related grants in relation to carrying out specific activities in areas which also contained grouse moors.

	Angus	Monadhliath	Both study areas combined
Number of estates providing revenue data and total revenue on these estates	£2,636,769 (10)	£545,638 (7)	£3,182,407 (17)
Total area of estates providing revenue data	34,426ha [51% of the area of all Angus estate respondents]	34,905ha [71% of the area of all Monadhliath estate respondents]	69,331ha
Average revenue per/ha for estates providing data	£76.59	£15.63	£45.90

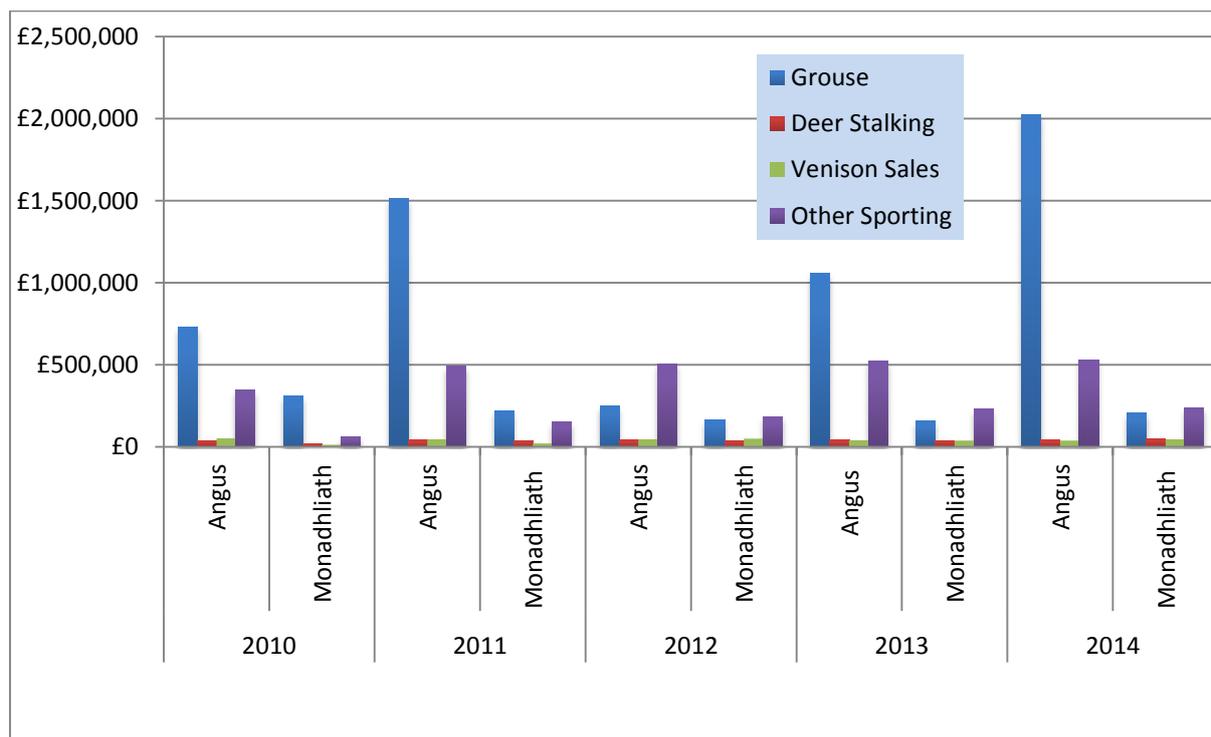
**Table 4.5** Revenue data (2014) provided by estates in both areas and per/ha values

Expenditure data was provided by a broader sub-section of estates (twelve in Angus and eight in the Monadhliath), with total collated sporting-related expenditure for 2014 amounting to £6,095,156 for Angus and £1,777,182 in the Monadhliath (Table 4.6). The mean expenditure across these estates was £507,929 in Angus and £222,147 in the Monadhliath. Extrapolated per/ha and total expenditure figures for the total area of estates (including estates not providing expenditure data) and the total recorded area of grouse moor are shown in Table 4.6. Per/ha spend values on grouse moors are higher than per/ha spend at estate level due to the total area of grouse moors being smaller than the total area of

<sup>13</sup> Not all estates engaged in grouse moor management were carrying out commercial sporting, which explains the higher numbers of estates providing expenditure than revenue data. Furthermore, four estates (3 in Angus and one in the Monadhliath) did not engage in driven grouse.

estates. Per/ha spend values in both cases are higher in the Angus Glens, due to the higher overall level of spend.

As shown in Figure 4.8, the most significant area of expenditure in recent years has been investment in development of sporting land uses, with investment levels in the Angus Glens particularly high. Staff costs have represented a comparatively higher proportion of total expenditure in the Monadhliath than in the Angus Glens, although investment levels in the Monadhliath increased in 2013-14. These figures reflect indications by the estates in both areas (eight in Angus and six in the Monadhliath) that the main change in their approach in the preceding five years had been increased investment in grouse shooting to increase grouse numbers and maximise the potential for driven grouse shooting. This included examples of major investment programmes on a number of estates (with one estate in Angus having invested £16.6M over 10 years and a second investing £10M over 8 years). Similar (if smaller scale) examples of investment in grouse moor regeneration were evident in the Monadhliath, two of which related to reinvestment of income generated from windfarm developments. In practice, this included investment in infrastructural improvements (e.g. sporting lodges, keeper accommodation, hill tracks and fencing), predator control, improvements to grouse butts, larder development and putting in and maintaining gritting areas for grouse. The majority of estates were also engaged in 'tick-mopping' using sheep flocks, with the majority using in-house flocks managed by shepherds, tenant farmers or farm managers.



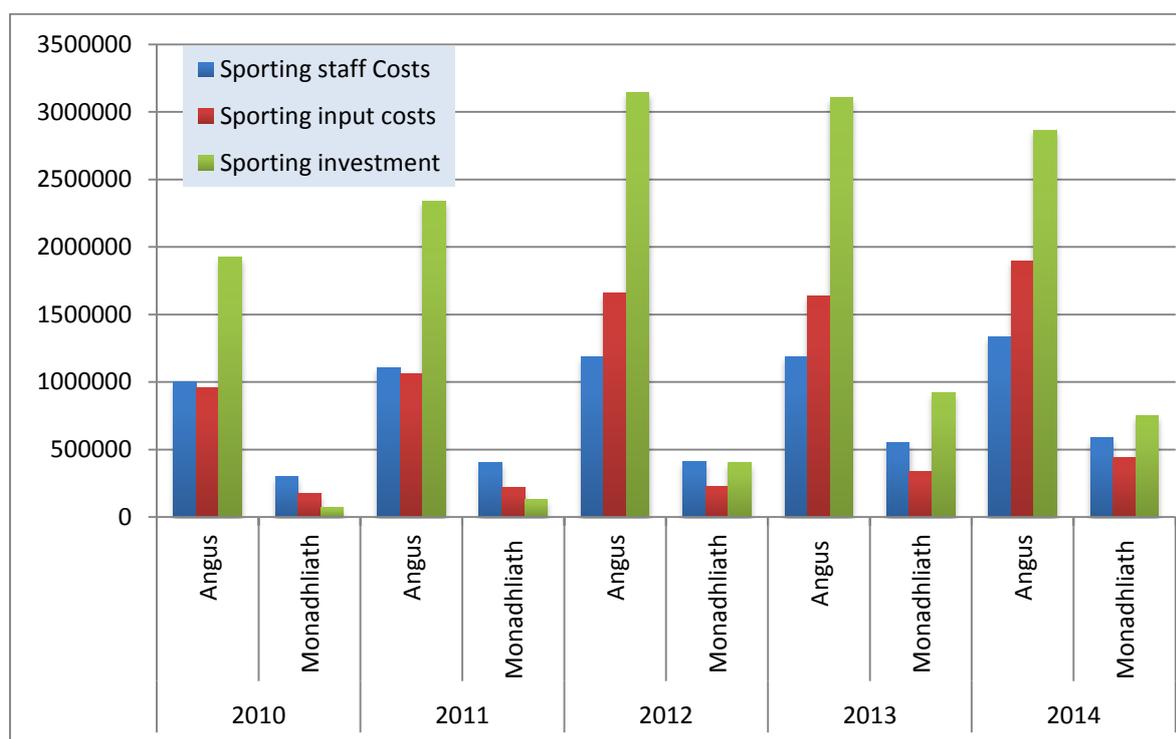
**Figure 4.7** Total revenues from different sporting activities as recorded by survey respondents in the two study areas

The average total sporting spend which related to grouse was indicated as 60% in both areas. In relation to income and spending trajectories, the majority of respondents predicted either an increase or no change in relation to both future income and spend, with a minority (three) predicting a decrease in future spending (due in part to major investment phases having come to an end). Critically, the level of expenditure (when investment spending is included) is considerably higher than revenue in both case study areas across all years, indicating that on average sporting land management in the case study areas runs at a significant cost. This equated to a total net cost in 2014 of £3,458,387 in Angus and

£1,231,544 in the Monadhliath and an average per/ha net cost and total net cost of £30.68 and £4,689,931 across both areas combined. This indicates a high degree of sporting expenditure is occurring which is funded from other on or off-estate sources of finance. However, when investment expenditure is removed, total net costs fall to £592,989 in Angus, £485,039 in the Monadhliath and £1,078,028 combined.

	Angus	Monadhliath	Study areas combined
Number of estates providing sporting costs data and total costs on these estates	£6,095,156 (12)	£1,777,182 (8)	£7,872,338 (20)
Total area of estates providing costs data	57,866ha [86% of the area of all Angus estate respondents]	44,925ha [91% of the areas of all Monadhliath estate respondents]	102,791ha
Average costs <b>per/ha of estates providing data</b> <sup>14</sup>	£105.33	£39.55	£76.58
Average costs <b>per/ha of grouse moors</b> <sup>15</sup>	£108.87	£61.13	£92.56
Estimated total costs for all survey respondent estates	£7,061,639 (67,043ha)	£1,951,241 (49,325ha)	£8,911,461 (116,368ha)

**Table 4.6** Expenditure figures provided by estates in both areas and extrapolated per/ha and total expenditure values.



**Figure 4.8** Total annual expenditure on sporting activities on respondent estates in both study areas for 2010-2014 divided by staff, inputs and investment costs

<sup>14</sup> Costs shown are per/ha expenditure calculations based on the **total** area of all estates providing costs data (as shown in the preceding row).

<sup>15</sup> Costs shown are per/ha expenditure calculations based on the total area of grouse moor on all estates in the survey response group (55,981ha in Angus and 29,068ha in the Monadhliath).

## 4.6 Use of local businesses by estates

Respondent estates listed a wide range and large number of businesses which they utilised through their provision of sporting activities (private and commercial). In particular, the majority of estates delivering commercial sporting used local accommodation providers (mainly hotels). Based on figures provided by estates, their use of local accommodation providers accounted for a total of 675 person bed nights annually in Angus and 338 person bed nights in the Monadhliath<sup>16</sup>. In Angus the majority of estates (10) used both local accommodation and shooting lodges on their own property (with two specific estates accounting for 400 person bed nights), with three estates exclusively using their own lodge accommodation and one using local accommodation only. In the Monadhliath, four estates used both local accommodation and their own shooting lodges, with two using only their own lodges and two using only local accommodation providers. In general, there was a higher emphasis on use of estate based shooting lodges in the Monadhliath and one of the biggest users of local accommodation in the Monadhliath (160 person nights annually) was in the process of refurbishing a lodge on their estate.

## 4.7 Local business owner perspectives

A variety of themes emerged from interviews with business owners (see Section 2.4 and Appendix 4 for businesses interviewed). Key findings are outlined in this section. It should be noted that businesses interviewed and the examples outlined below represent a sample of cases only.

### 4.7.1 Direct impacts of estates on businesses

The amount of business generated directly from estate spending varied between different types (and locations) of businesses. Specific examples from both areas which evidenced direct impacts of estate spending (on sporting objectives) for businesses included:<sup>17</sup>

- A specialist vehicle (Argocat) dealership in Beaulieu depended on sales to estates for most of their business, which included sales, maintenance and repair. The employment created (4.5 FTEs) was viewed as directly dependent on sporting land management, with Argocat use largely confined to sporting estates (from across Highland Scotland, including those in the Monadhliath).
- Estates across Highland (including those in the Monadhliath study area) were a consistent part of the customer base for an Inverness based Landrover dealership. An estimated 40-50% (30-40 units) of annual Defender sales were to estates. This had reduced as a proportion of overall sales over time (due to wider business growth), but had remained a stable component of the business for decades.
- Sporting goods retailers in both areas supplied goods directly to estates from across the study areas (and more widely). In one case, direct sales to estates (sales of guns, tackle, clothing etc.) was estimated at 10% of annual turnover (total turnover was £1.5M). In the second case the extent of sales to estates was unspecified, although their importance was emphasized, with the owner stating: "*without the estates I wouldn't have a business*".
- Estates were an important business component for some garages. One garage in Edzell for example, estimated that 70-75% of its business was from estates, with most of these within or near the Angus study area, with grouse estates representing their most frequent customers, providing year round income.

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<sup>16</sup> In total, seven estates (usually the smaller estates in the samples) did not answer this question (four in Angus and three in the Monadhliath).

<sup>17</sup> Notably, in the first three examples in particular, the customer base for these businesses was much larger than the case study area, although in all three cases the businesses had accounts with a number of estates from this study.

- Impacts of estates on tradesmen varied, although had the potential to be high. A fencing provider in Angus for example, viewed the estates as a 'lifeline' and estimated that 75% of his business (which employed 4-6) came from estates in the study area. However, a joinery business in the same area estimated that a relatively low level (5%) of his work came from estates, although he identified estate-based work as potentially more significant in the future.
- Other relevant examples included a butcher in Edzell (employing 22 staff), who highly valued estate customers and estimated 20% of annual sales were to local estates. and a veterinary supplier in Blairgowrie, which estimated that 5-10% of it's business was from local estates.

#### **4.7.2 Indirect impacts on businesses**

As well as estates in the study areas utilising businesses directly, examples of indirect impacts for businesses from estate activities were also evident. These included impacts linked to local spend and use of local businesses by: visitors to estates (e.g. shooting parties); gamekeepers; tradesmen and external businesses while working on estate infrastructure; and wider impacts of the existence of estates on tourism and marketing. Specific examples of indirect impacts evident from interviews included:

- In some cases visitors to estates (shooting parties) used accommodation providers, with this impact variable between businesses. One hotel in Stratherrick derived significant custom through providing accommodation for shooting parties, particularly during August and September. This hotel was being used annually by most local estates, with shooting parties accounting for at least 30% of their business in August-September. In two other hotels (one in each area) and one guest house (in Angus) business derived from estates was more limited, with grouse shooting guests accounting for 3-4% of business in one hotel (this hotel was attempting to expand this), very little business in the other hotel and 1% of business in the guest house. However, other shooting activities (stalking, pheasant and partridge) were an important part of autumn and winter business (to varying degrees) for these businesses, with the owner stating that: *'grouse has less impact as it's the summer and a short season and we are busy anyway, but the other shooting and the stalking has a big impact later and allows us to stay open during the winter'*. In two cases, shooting parties used the hotel bar and restaurant. Cafes and shops in both areas derived some custom from shooting parties, although this was not seen as particularly significant in most cases.
- Visitors to estates represented an important source of custom by a garage in Angus, usually recommended by estate staff. Sporting goods suppliers (and an outdoor shop) also noted that shooting parties on estates represented a component of their business (separate to direct sales to estates) which was difficult to quantify.
- Gamekeepers and their families were widely viewed by businesses as important as active community members who used their businesses all year round. Businesses noting impacts included local shops and cafes, hotel bars, a local butcher and sporting goods suppliers. Other businesses also recognised gamekeepers as their main point of contact for sales to estates in most cases.
- Tradesmen working on estate infrastructure (e.g. wind turbines, hydro schemes, refurbishment of properties) were recognised as adding to the daily customer base for local retailers and cafes, an important factor due to the increasing loss of local trade more generally to supermarkets.
- Sporting estates were recognised as part of the wider context in both areas, which was often of interest to visitors and therefore of value to tourism providers. Grouse shooting was noted by some businesses as a high profile sport and a high quality product, which impacted upon businesses linked to this activity. As one sporting goods supplier stated: *'grouse shooting is recognised as the premier sporting activity'*

*in the world...and sporting estates represent a broader element of marketing that aids our business and this links in to what we do and affects perception of our business'. An example of a product which utilised this image and targeted estates and shooting parties was 'Gunshot Gin', developed by a farm business in Angus.*

### **4.7.3 Features of estate-business interactions**

In both study areas, a feature of estate-related business referred to frequently was consistency and stability, with many businesses having long term accounts with estates as repeat customers. These businesses were very familiar with many estates from the study areas, particularly through gamekeepers, who were seen as regular (weekly or monthly) visitors by most of the businesses interviewed in both areas. In one hotel for example, surrounding estates had provided a consistent number of guests during the shooting season every year for the 11 years the current owners had managed the hotel *'It is very stable, we get the same customers from the same estates and that's carried forward from before we took over, so it's part of the basis of the hotel'*. This was echoed by other businesses in both areas, including sporting goods suppliers and the Argocat dealership, both of whom relied on estate accounts as a core element of their business. The consistency of estate business in these and other cases was viewed as having impacted positively on business growth through ensuring a dependable long-term core income stream. This view was supported by tradesmen, with one stating that: *'if you have worked for them before, they come back and they will be throwing work at us, asking us to do other jobs while we are up there...that has allowed the business to flourish'*. Nevertheless, the impact of estates varied seasonally, with peaks for many businesses during the grouse shooting season, although estate impacts were also noted at other times in relation to deer stalking, pheasant shoots and general estate activities. The seasonality of grouse shooting has the potential to create bottlenecks for some businesses, with garages noting much higher demand for vehicle servicing prior to the start of the season. Some variability also occurred between years, due to fluctuations in grouse numbers, with one accommodation provider noting that during a previous very poor year for grouse a number of booking cancellations were made and one sporting goods provider noting high levels of spend during years with high grouse numbers.

No examples of formal partnerships between estates and other businesses were evident, with regular accommodation provision, for example, being based on strong working relationships as opposed to a formal agreement. This was fostered and maintained in some cases through specific measures, with one garage commonly working extra hours to prioritise repair and maintenance of estate vehicles to return them as rapidly as possible. In a further example, one dealership sometimes provided an additional vehicle to estates free of charge to support them during busy periods. The consistency of estate business led to most businesses reporting having 'good' or 'excellent' working relationships with local estates and (specifically) local gamekeepers. No specific estate-related issues were raised, although the importance of advising visitors (e.g. hotel guests) of when shooting was occurring to avoid unnecessary conflicts was recognised

Some (3) businesses in Angus stated that local estates supported them by keeping their spending local where it was feasible for them to do so. Estates were viewed as having an important role in the local economy, with one business owner noting that: *'by and large I think they're very conscious of the fact that contributing to the local economy is important and they do tend to go down that road...but you'll always get one or two exceptions that want to go to the cheapest source wherever they can regardless of where it is and where it's located....the owners of the estates should pay attention to make sure that the business does go local and doesn't go away from that'*. Benefits for local businesses in the Monadhliath were less evident in some cases, with some smaller retail businesses noting that sporting estates were 'self-contained' and therefore not requiring of some local businesses: *'I have no issue with them but they usually have their own caterers and the*

*shooting parties don't really use businesses like ours [a café and shop] but just stay on the estate and then go home*'. This was reflected in the comments of one local (Monadhliath) accommodation provider who stated that: *'grouse parties and the estates are not a big part of our business....because they are businesses in their own right and the estates have their own lodge accommodation and the guests stay there and eat there'*. Local small retailers noted that the development of online ordering and delivery by Inverness supermarkets had also had an impact on their businesses, as this was now being commonly used by estates, with knock on impacts on their use of local shops.

#### **4.7.4 Estate-led investment and the future**

Reflecting the increased investment in grouse shooting in both areas evident in Section 4.5, six businesses in Angus perceived increased estate investment, activity and estate employment relating to grouse moors in their local area over the last five years, with corresponding increased revenues for their businesses. This included a fencing provider, vet suppliers, butcher, local accommodation provider, garage and sporting goods provider. High investment levels on some estates in Angus had resulted in one fencing provider growing his business and employing additional staff, with other contractors also having become established locally due to investment in sporting infrastructure. As one sporting goods retailer commented: *"New money arrives in the area and then extra keepers are employed, lots of vehicles, other equipment...and various trades benefit hugely from having these moors brought back to what they used to be. I don't think a lot of people understand how much that money spreads round the area. If you get a builder or a joiner or a plumber or a road builder, or take any of these trades...they're getting a lot of work from these places'*. Increased investment in sporting was also recognised as occurring in the Monadhliath (e.g. by two vehicle dealers and a sporting goods supplier), although to a lesser degree than in Angus, with increased investment in the Monadhliath viewed as linked to increased estate income from windfarm developments. Notably, four businesses (3 in Angus and one in the Monadhliath) commented that recent investment by sporting estates had increased their confidence in the future, with these businesses targeting increased growth linked with increasing delivery of their services/products to sporting estates.

#### **4.8 Grouse shooting and local communities**

All but one of the respondent estates felt that positive community benefits occurred from their sporting-related activities. It was recognised in the Monadhliath that there were few local businesses (i.e. businesses within the actual community survey areas) and much of the related spend occurred in Inverness, although gamekeepers lived locally and contributed to the local economy. In general, the main areas of community benefits recognised by estates respondents included:

- Local economic benefit (as outlined in earlier sections)
- The provision of employment (and associated housing) through gamekeeper posts, which had a disproportionate impact in remote areas in terms of community survival;
- Development and maintenance of a hill track network which can be used by locals and visitors to walk and bike through the hills;
- Environmental benefits resulting from moorland management, including benefits for waders and other bird species and maintenance of heather moorland habitats;
- Long-term improvement and maintenance of estate infrastructure – roads, housing, buildings, fencing, walls etc.;
- The preservation of a culturally significant activity and landscape (heather moorland).

Seven estates in Angus and five in the Monadhliath indicated that they currently engage with local communities through various mechanisms. This included a minority (two to three)

attending community council meetings. However, the majority of examples of community engagement related to engaging with specific sub-sections of the community due to their existing interactions with the estate or engaging on specific issues (e.g. a development proposal), such as tenant farmers, grazing committees, and consultations on renewables proposals. Some estates also referred to informal interaction with the community and engagement with their employees, who represented members of the community. Examples of organised community-wide engagement (e.g. estate open days) were limited. However, estates expressed a general willingness to engage, with four estates in the Monadhliath and seven in the Angus Glens willing to carry out further community engagement measures should there be a call from the community to do so.

#### **4.9 Challenges, opportunities and the future**

The main challenge perceived by estate respondents in both areas was the impacts of 'red tape' and specifically the legislative and governance framework around land management. Politicians and government agencies were seen by some as hostile towards private landowners and sporting land management and lacking a full understanding of the countryside. The positive effects of rural sporting businesses were seen as 'over-shadowed' by incidents of wildlife crime on a minority of estates. Political pressure was viewed as resulting in restrictive legislation and policy mechanisms poorly aligned with land management realities. Policy areas repeatedly viewed as threatening included Land Reform (the introduction of sporting rates), wildlife management legislation (e.g. a potential ban on use of lead shot) and (to a lesser extent) Common Agricultural Policy (CAP) reform. Complying with restrictions was viewed as requiring a continual adaptation of moorland management practices, with the resulting time and financial pressures on land managers reducing the viability of commercial sporting activities and creating uncertainty around long term investment by estate owners. This related to a wider concern around the marginal nature of sporting land management (together with agriculture and forestry), with sporting enterprises loss making in a number of cases and/or requiring on-going investment (often from other income streams) to ensure longer term viability. As one estate survey respondent stated:

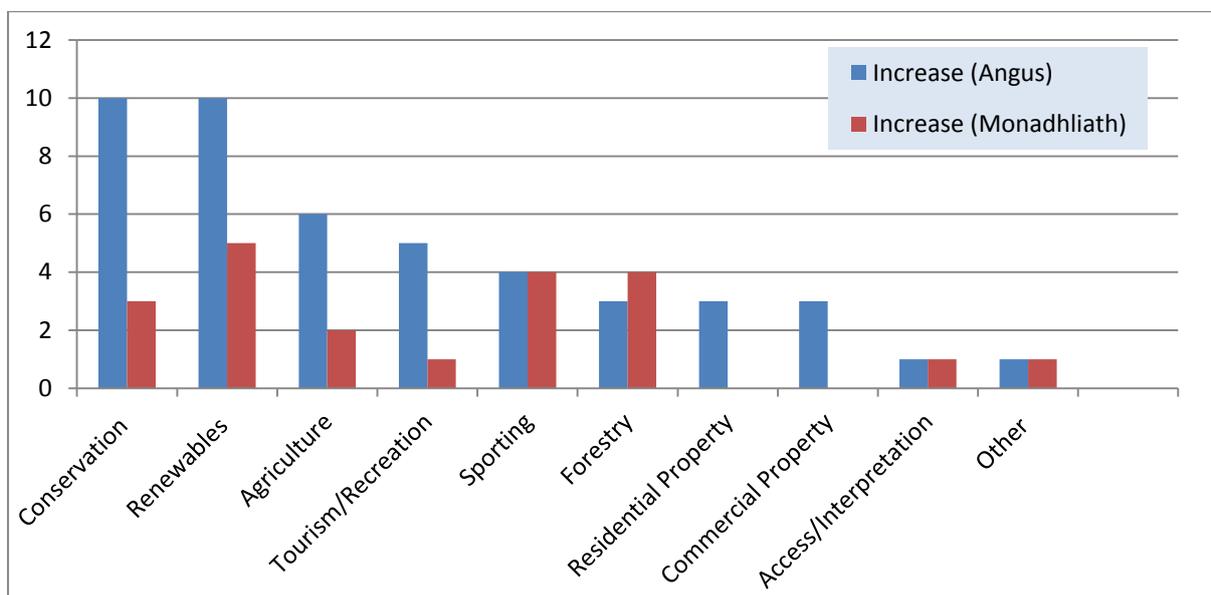
*'If the Government maintains its negative stance towards landowners and shooting sports...then needs must that this capital will be reallocated to higher return investment opportunities outside of Scotland. It is such a marginal business opportunity that is done out of passion for Scotland and its fine heritage of field sports, that it cannot bear ongoing regulatory uncertainty or further economic burden'.*

Further specific challenges noted by estate respondents included:

- Differing public perceptions of sporting land management, with some members of the general public seen as having a low awareness and understanding of what estates did (e.g. why predators were controlled). This had the potential to result in conflict; two landowners from each area noted that public access to their land sometimes resulted in damage to estate infrastructure (e.g. legal predator traps) and potentially unsafe situations due to a lack of consideration of sporting activities at specific times.
- Local afforestation, was associated with loss of moorland and increased numbers of predators due to increased cover and habitat availability.
- Requirements to reduce deer were seen as having reduced potential stalking income by two estates in the Monadhliath, although it was apparent that the emphasis on deer stalking had also been reduced on a number of estates due to increased emphasis on grouse shooting.

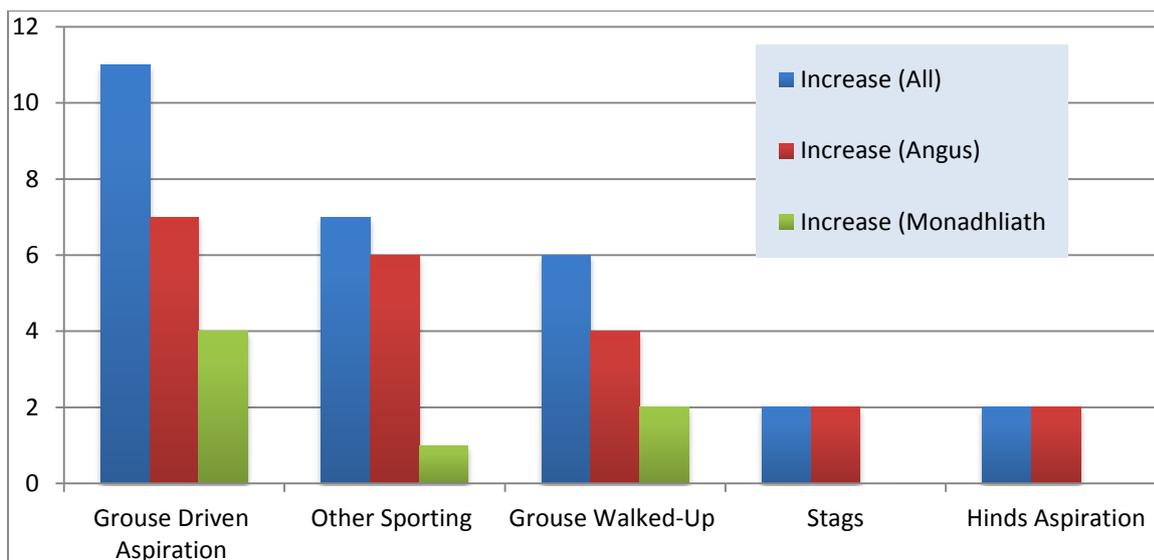
- Two Monadhliath estates also noted the challenge of managing traditional land uses while developing a windfarm, which resulted in landscape changes and considerable modifications to estate infrastructure (road networks).

Figure 4.11 illustrates the main general opportunities estates wished to pursue in the future. Trends between the two areas were similar; however, a more diverse range of possible future activities was apparent in the Angus Glens, with increased emphasis on conservation, tourism and agriculture relative to the Monadhliath. A larger number of Angus estate respondents also placed emphasis on renewable energy for the future, which may be partly explained by some of the Monadhliath estates having already engaged in this as a management activity (See Section 4.2), with the resulting income available to support increased investment in grouse moor management. In relation to sporting objectives, estates generally aspired to maintain or increase their sporting activity levels.



**Figure 4.11** Estate management activities respondent estates aspired to increase in the future (bars indicate number of estates)

The key sporting opportunity most estates aspired to pursue in the future was expanding their delivery of high quality driven grouse shooting. A number of estates were also interested in increasing other sporting activities (pheasant, partridge, hare and fishing) (Figure 4.11).



**Figure 4.12** Sporting management activities respondents aspired to increase in the future in both study areas (bars indicate number of estates)

Continued long term investment in moorland management to regenerate neglected moorlands, increase management standards and increase the numbers of grouse was widely viewed as the key mechanism for ensuring long term continuation of sporting objectives and delivering local economic benefits. This reflects the recent high levels of investment in grouse shooting infrastructure evident on a number of estates in both areas in recent years (See Section 4.5), with most indicating a continuation of this trend to some degree in the future. In some cases moorland regeneration was also linked to longer-term plans for development of estate-based accommodation for sporting guests. The uniqueness of driven grouse shooting internationally was viewed as a key strength and generating continued international exposure (e.g. through attending hunting shows around the world) was seen as a key opportunity for capitalising on global market demand for high quality field sports.

A further opportunity highlighted by a number of estates in both areas was increasing proactive awareness raising and education of key stakeholders (including the government) and the general (wider and local) public about grouse moor management activities, including the conservation importance of moorlands, the international appeal of driven grouse as a sport and the economic impacts of these activities. The importance of further evidencing the environmental benefits of high quality moorland management was recognised, including through increased research and the development of demonstration sites. Research on grouse moors had occurred or was occurring on some estates (14), with this usually having been through the Game and Wildlife Trust (8) in relation to monitoring or in some cases a specific project. A smaller number of estates also noted that research or monitoring had occurred on the designated sites on their estates through SNH monitoring of deer or habitats. In a small number of cases estates has also participated in NGO-led research on birds, or environmental impact monitoring in relation to a proposed windfarm.

Linked with this, two estate respondents noted the importance of demonstrating the capacity for managing grouse moors in a diverse integrated land use setting, which included native woodland conservation, agriculture and renewable energy. A linked opportunity recognised by two estate respondents was to proactively inform young people on countryside management, potentially through programs of school visits to farms and estates or land manager visits to schools. A further opportunity recognised by some landowners related to further collaboration between landowners, to achieve a more coordinated approach to grouse moor management (e.g. staff sharing at key times, fire management etc.).

## 5 Synthesis and Conclusions

### 5.1 Methodological Critique

The approach used to define the case study areas proved a useful mechanism for clearly delineating two distinct areas of Scotland where grouse shooting was a prevalent activity. However, the areas as defined are not wholly separate or distinct from surrounding estates and communities. Defining and fully characterising an area in terms of sporting activities and related impacts is therefore challenging, with many impacts not confined to the defined area (e.g. estates within the area using businesses elsewhere). Impacts resulting from sporting activities in the Monadhliath study area in particular are more dispersed, due in part to the less topographically distinct/enclosed nature of the site and the proximity of Inverness.

Both of the defined areas have high concentrations of sporting estates; this is useful for characterising related impacts on communities, but not necessarily representative of many areas of upland Scotland. In other areas, community-level benefits of grouse shooting activities may be wholly absent or more dispersed, dependent largely on the landcover and presence or absence of estates with sporting objectives. The Angus Glens in particular has a very high concentration of grouse moor management and related investment.

Respondents to the community survey were reasonably well distributed across the survey areas, largely reflective of overall population distribution. However, some of the remoter areas are not represented within the sample group in both sites. The respondent group was also slightly skewed towards males in both areas, possibly due to the address data using the 'head of the household' as the named party. Furthermore, for certain questions, the number of respondents indicating 'don't know' was relatively high, which may indicate a lack of knowledge about the grouse shooting industry among a segment of respondents.

The degree of coverage accounted for by estate survey respondents was high in both cases, with almost all large sporting estates accounted for in both areas. Direct comparison of both areas based on estate survey findings illustrates a number of key differences and similarities. However, it should be noted that the Angus Glens site included a larger number of estates, was more topographically distinct and included a larger area of grouse moor. The financial data presented is based on survey responses; all findings are therefore summaries of data provided by self-reporting respondents as opposed to definitive statements on the income and expenditure of landowners. Estimates and rounding up/down of financial figures may have occurred. As the sample size was limited in some cases extrapolated figures should be treated with caution.

The findings from business interviews represent a useful point of triangulation for findings from the estate and community surveys. These findings also provided a range of specific examples of direct and indirect impact of sporting activity on businesses in the local area and more widely. However, these findings are representative of only a sample of businesses as opposed to a comprehensive data collection exercise in both areas. Economic impacts for these businesses are also not quantified; a fuller quantitative business survey linked to an input-output analysis would provide a more accurate picture of supply chain impacts; however, this was beyond the scope of this work. While respondents did not provide comprehensive data in all areas (e.g. income), they have facilitated a detailed characterisation of the benefits and impacts of grouse shooting and related sporting activities from community (and wider stakeholder), estate and business perspectives for two specific regions of Scotland. Notably, many of the findings presented in this report represent perceptions of community members, stakeholders, business owners/managers and estate representatives. Findings should therefore be interpreted in this light and treated with caution in relation to determining conclusions. Nevertheless, a number of consistent findings are

apparent across the different methodologies applied and groups surveyed and interviewed, which provides the basis for the synthesis and conclusions presented here.

## 5.2 Community and business impacts

The personal and community-level benefits and impacts recognised by the majority of community survey respondents reflect many of those identified by estates themselves and link directly with those identified by business interview respondents. The key community-level impacts identified by estates (employment and direct and indirect spend) were consistent with those identified by community survey respondents (Figure 3.10), with a range of direct and indirect economic impacts further corroborated by businesses dealing directly with the estates in both case study areas (see Section 4.7). Employment benefits are directly identified in community survey findings in relation to the numbers employed in game management in both areas and the relatively high numbers stating they are either directly or indirectly dependent on the grouse shooting industry for their livelihoods. These figures reflect employment levels recorded in the estates survey and represent a significant impact, which is likely to be magnified in remote marginal areas, where employment opportunities are limited and gamekeeping positions (which account for more than half of all estate employees in both areas) become disproportionately important. The level of survey respondents employed in land-based industries is higher than for Scotland as a whole<sup>18</sup> and for the CNPA (Mc Morran et al. 2014).

The level of annual spending on sporting land management evident from the estates survey represents a significant annual investment in otherwise marginal areas. Notably, the level of difference in total sporting revenues and spend between Angus and the Monadhliath (Section 4.5) does not fully reflect the differences in the number of commercial sporting days, driven grouse days and brace of grouse shot between the two areas. These figures for the Monadhliath equated to more than half their equivalent values for the Angus Glens (see Section 4.3.1) while spend and particularly revenue were by comparison less than this. This can be at least partly explained by the larger area of grouse moor accounted for in the Angus Glens sample, as well as very high levels of recent expenditure on some estates in the Angus Glens and the high levels of sporting activity on some estates in particular. Expenditure consistently outweighs sporting revenue, with sporting revenue completely absent on some estates and sporting activities often running at a considerable net cost to the owner. In general, sporting activities (of which grouse shooting is dominant in terms of revenue and costs) therefore result in a significant net investment in local and wider economies through direct expenditure. This indicates a considerable amount of sporting expenditure is occurring which is funded from other sources. In some cases, this is likely to include on-site income (e.g. from renewable energy), while in others it is likely to be financed from off-site sources.

Business impacts resulting from this expenditure were varied and appeared to be more pronounced in the Angus Glens (reflecting higher overall estate spend levels), although a range of business impacts were also evident in the Monadhliath. As confirmed by community and estate survey responses and businesses themselves, reasons for lower economic impacts within the Monadhliath case study area included the lower number of businesses in the study area, the proximity of Inverness and potentially that some grouse shooting guests remained more confined to the estates in the Monadhliath. Businesses and estates both confirmed that strong long-term working relationships were a feature of their business interactions. Business interviewees evidenced a range of direct and indirect impacts of long-term estate investment (particularly in Angus), including business growth. Notably, in both

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<sup>18</sup> See: Rural Scotland Key Facts (<http://www.gov.scot/Publications/2011/09/29133747/4>) and PACEC (2015) The Benefits and volume and value of country sports tourism in Scotland. Final Report.

areas business impacts can be highly variable between businesses, largely due to established relationships (or the lack thereof) and the relevance of a given business. Seasonal differences in impacts were also evident and despite businesses often viewing estates as highly consistent customers, the vulnerability of grouse populations year-on-year had the potential to impact heavily on businesses (e.g. through cancellations) a factor raised by community, estate and business respondents. The use of windfarm income to subsidise land management also suggested a degree of uncertainty around the long-term viability of grouse shooting activities.

Gamekeepers were also recognised as valued community members by survey respondents and businesses repeatedly referred to gamekeepers as their estate contact points and as consistent year round customers in many cases. This valuing of gamekeepers (often above that of direct spend impacts) reflects findings from the previous (2009) study of communities and grouse shooting in Tomintoul. As in Tomintoul (Mc Morran, 2009) gamekeepers were viewed in both Angus and the Monadhliath as important members of the community, with gamekeepers families contributing to the local economy as well as school rolls and retention of services. The general levels of perceived community benefits in the Tomintoul (2009) study also equate well to those found in this study, particularly in the Angus Glens area.

### **5.3 Community engagement and awareness**

While awareness of estate management within local communities was generally good, a proportion of the community lacked awareness, a factor further evidenced by the number of 'don't know' responses to a number of questions in the community survey. As those more aware of/interested in estates were likely to respond to the survey, it is likely that awareness of estate management in the wider (non-responding) populations in both areas is lower than indicated by survey responses. Higher levels of community awareness (and use of moors) in Angus reflect the higher levels of sporting activity, spending and land-based employment evident from Angus estate survey responses. Angus residents were more likely to be involved directly, or on the fringes of grouse moor management, or benefitting indirectly through business linkages, which may also explain the higher levels of satisfaction with the quality of estate management in Angus.

Nevertheless, examples of pro-active estate-community engagement specifically relating to sporting land uses were limited, and a distance between communities and estates was perceived in both areas, with occasional tensions usually relating to public access. Additionally, 40% of survey respondents in both areas were interested in finding out more about sporting land management activities. This equates to a substantial proportion of the population interested in engaging with their local estates. This can be compared with the apparent willingness to engage with communities on the part of some estates in the estates survey group (4 in the Monadhliath and 7 in Angus).

Taken together, these factors represent a clear opportunity for enhancing estate-community engagement and education and awareness raising around sporting land management. Four particular opportunities are evident: i) estate engagement with local primary and secondary schools through school visits by gamekeepers and visits to estates by students; ii) establishing estate 'demonstration days' for local community members and wider stakeholders with the aim of demonstrating best practice sporting land management; iii) increased estate engagement with local community councils; and iv) increased emphasis on recruitment of beaters and loaders from local communities. Estate engagement with local schools in particular appeared to represent a win-win, with all survey respondent types and stakeholder groups (including estates) recognising this as a positive future opportunity. Notably, potential pro-active engagement on the part of estates such as this, strongly reflects

objectives of the Scottish Land Use Strategy and Community Empowerment Bill and the spirit of recent land reform legislation (See Section 1.1).

#### **5.4 Grouse shooting and the environment**

Community survey and estate survey respondents recognised both environmental benefits and negative environmental impacts linked with the grouse shooting industry. Estate respondents also perceived moorland management as maintaining culturally significant landscapes of international conservation value. In general, most community survey respondents appeared to agree with grouse moor management practices, with a majority in both areas also viewing grouse moors as attractive. Nevertheless, a substantial number of respondents perceived environmental damage linked to the grouse shooting industry, particularly in the Monadhliath (30%). This may be a reflection of the difference in the make-up of the community and number of commuters in Stratherrick and Strathnairn. It may also be linked to a lower emphasis on the part of estates in the region on conservation objectives, with renewable energy of comparatively greater importance to landowners in the area (and a number of large windfarms having been established in recent years). It is notable that increased investment in grouse moor management indicated a degree of increased intensity of management, at least in certain areas.

A further environmental concern apparent from the community survey and stakeholder interviews was that of illegal raptor persecution. Estates also commented on this factor and the question of how it might be effectively policed in the future. Effective collaboration and self-policing/monitoring represented one potential opportunity in this regard. Regional grouse moor management groups (already established in both areas) represented one forum for further development of monitoring, with wider landowner/manager collaboration also offering potential on other fronts, such as improving integration between deer and grouse moor management over large areas.

Opinions on hill tracks were generally positive across the community survey respondent group; however, some viewed the recent increased development of hill tracks with concern. This mixed response reflects wider differences in opinion, but also the degree of use of tracks by community members for recreation on the one hand and appreciation for landscape on the other (with landscapes perceived by some as negatively impacted by new hill track development).

Importantly, this report has not attempted in any way to determine scientifically the environmental benefits and/or impacts of grouse shooting and moorland management. Both environmental benefits and negative environmental impacts of grouse shooting have been investigated in a range of other studies (see Section 1.2). Socio-economic aspects are only one part of a wider debate around grouse shooting and sporting land management more generally and the findings presented here should be viewed in this light.

#### **5.5 Grouse shooting and the future**

In general, community respondents were broadly supportive of the continuation or expansion of grouse shooting in both areas, with a larger unsupportive minority (16%) in the Monadhliath. This reflects the relatively high support levels for grouse shooting apparent in the Tomintoul community in 2009. Lower levels of support apparent in the Monadhliath reflect lower levels of benefits recognition generally, reflecting more dispersed activity and a more dispersed and arguably more diverse community. Clearly, the findings presented here demonstrate a wide range of beneficial impacts for the communities concerned, as well as a range of negative impacts. Socio-economic benefits and impacts occur to different extents in different areas, which may reflect the situation across other parts of the Highlands.

It appears likely that estate-led investment in development of high quality driven grouse shooting will continue, at least in the short term, due to the prestige associated with grouse moors (attracting new owners), the high value of the product, increasing international market demand and the potential for subsidising moorland management through other land uses (e.g. renewables). However, given the marginal nature of grouse shooting and landowner concerns relating to legislation and political pressure, some uncertainty exists longer term.

Critically, continued community and wider support cannot be presumed. It is strongly evident from this research that community support is linked to recognition of community benefits associated with the grouse shooting industry and high general awareness of estate management. Given ongoing demographic change (e.g. in-migration) in many areas of rural Scotland, community engagement and involvement is likely to be of greater importance going forward; the engagement opportunities outlined above are therefore key.

Furthermore, policy frameworks relating to land use continue to rapidly evolve. This suggests the need for a continued evolution of best practice in relation to grouse moor management. Further research is likely to be required on a number of fronts, to fully understand the positive and negative aspects of grouse moor management from new perspectives (e.g. ecosystem services).

It is apparent from estate survey findings and specific interviews that many estates view government agencies and emergent policy as a threat to their current existence. However, the development and maintenance of transparent and constructive dialogue between the industry and key wider stakeholders represents a critical aspect of the long-term development of grouse shooting in Scotland.

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