

# Glenartney Deer Management Group

## Part 1: Deer Management Plan Information



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# 1. Introduction

## 1.1 Glenartney Deer Management Group

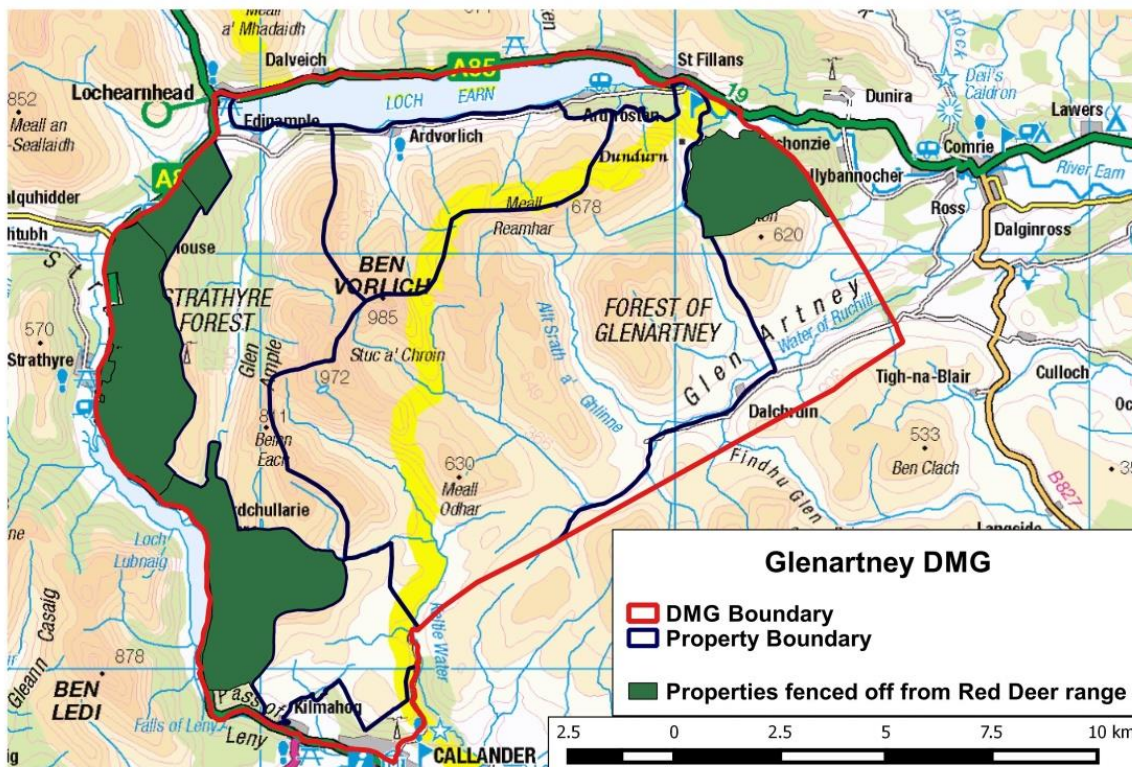
The Glenartney Deer Management Group (GDMG) lies in Central Scotland but spans the Regions of both Stirling and Perth & Kinross (Figure 1). The DMG covers the area to the south of Loch Earn and to the east of the A84, extending as far south as Callander (Figure 2). The Group boundary lies partially within the Loch Lomond and Trossachs National Park and contains the popular Munros of Ben Vorlich (985m) and Stuc a' Chroin (972m).

Figure 1: Group Location



Whilst the Glenartney DMG boundary extends to **20,063 hectares**, a number of properties are fenced off from the main Red Deer range which covers approximately **12,200 ha** (Figure 2).

Figure 2: Deer Management Group Boundary



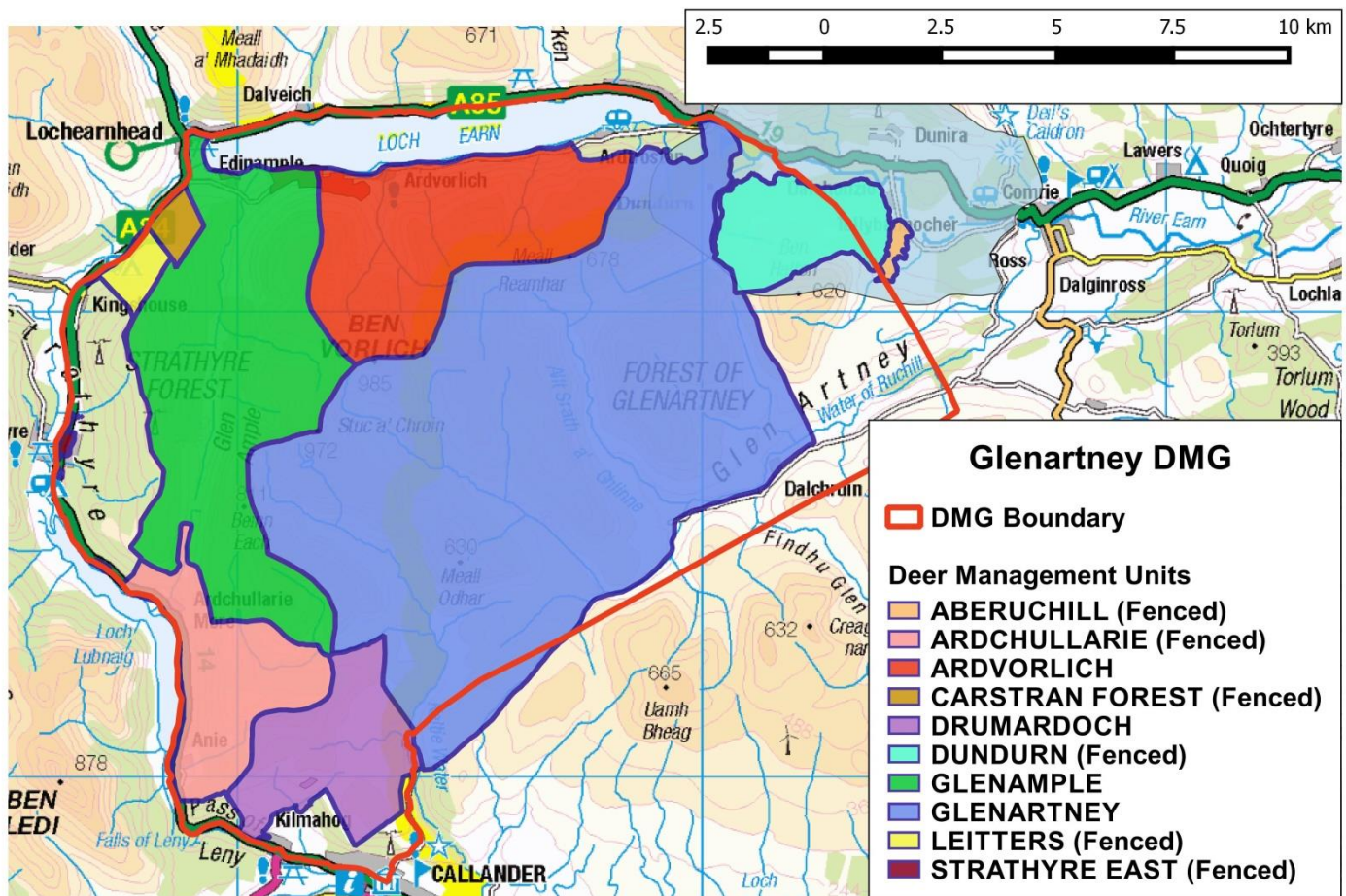
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## 1.2 Management Units

There are 9 management units (Figure 3) that sit within the DMG boundary (and Aberuchill that sits just out-with):

- Ardchullarie (under same ownership as Drumardoch)
- Ardvorlich
- Carstran Forest
- Drumardoch (under same ownership as Ardchullarie)
- Dundurn
- Glenample
- Glenartney
- FCS Strathyre
- Leitters

Figure 3: DMG Management Units



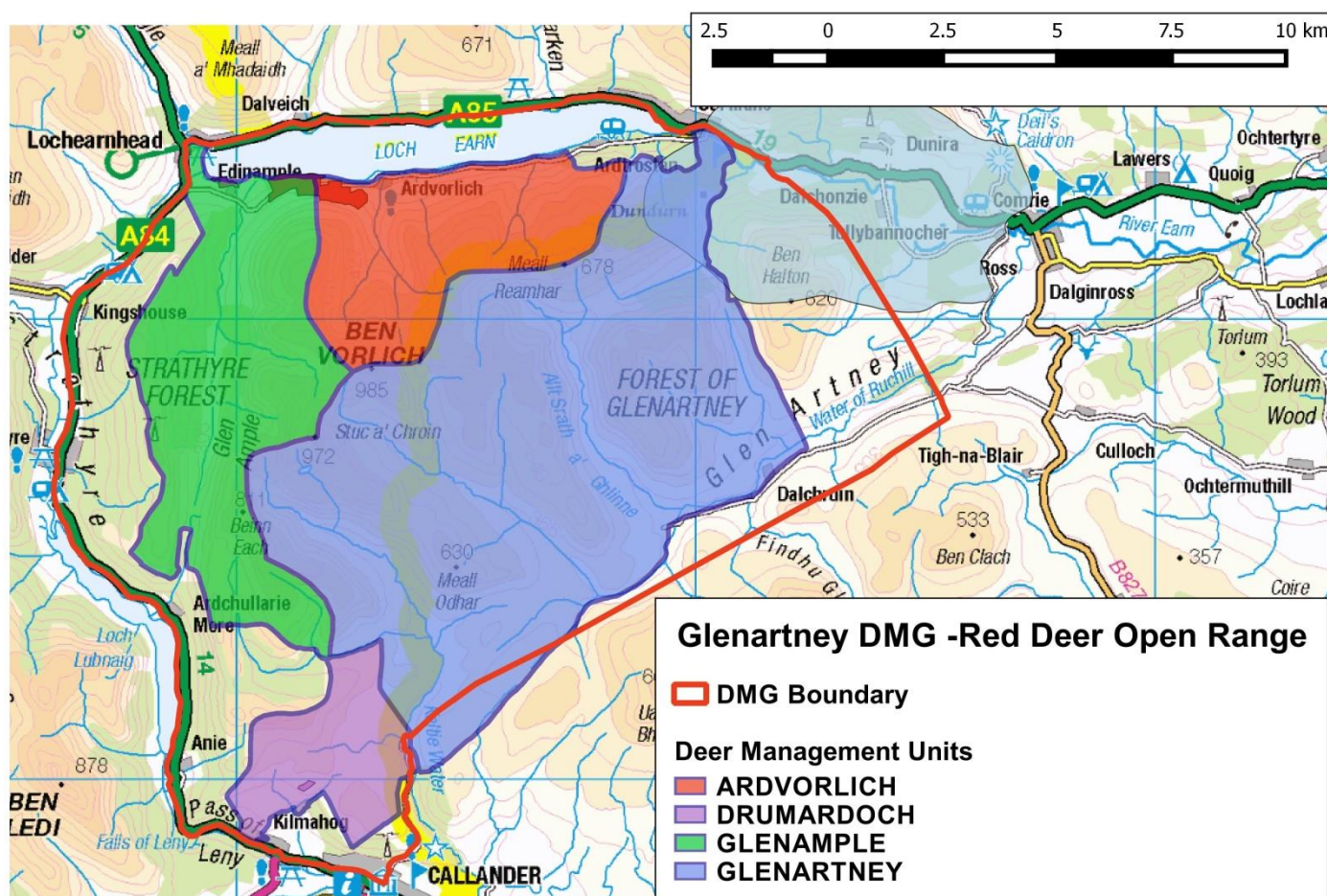
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The main Group however consists of the 4 management units (Figure 4: Ardvorlich, Drumardoch, Glenample & Glenartney) that make up the open Red Deer range plus Archchullarie East (not shown on the map).

The main Group maintains communication with all neighbouring properties within the DMG boundary which have been fenced off from the Red Deer open range. The DMG also maintains on-going communication with neighbouring Deer Management Groups (South Perthshire to the north and Balquhider to the west) to ensure a landscape collaborative approach to deer management.

Combinations of land use objectives and priorities vary from property to property throughout the Deer Management Group area but as a whole Conservation is a common and strongly shared focus of all. Further information on individual management units is contained in Sections 18 to 21.

Figure 4: Open Range Deer Management Units.



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### 1.3 Sustainable Deer Management and the Public Interest

The management of red deer at a landscape population level as set out in the [Code of Practice on Deer Management](#) (The Deer Code) requires a collaborative approach. Deer are regarded as a natural resource and as such all those who manage them have a 'responsibility' to:

- manage deer as a resource sustainably;
- minimise negative deer impacts on public interest;
- safeguard deer welfare.

The deer management objectives of members of the DMG currently contribute to delivering a wide range of public benefits as set out in The Deer Code. This plan will demonstrate how the DMG is currently contributing to sustainable deer management and will identify further opportunities for the DMG to deliver the Public Interest.

### 1.4 The purpose of the Deer Management Plan

The overall purpose of this Deer Management Plan (DMP) is to provide:

- An agreed framework for the management of wild deer in the area covered by the Group;
- An agreed set of actions;
- An agreed pattern of arrangements to ensure that the actions are implemented and their effectiveness monitored.

### 1.5 Deer Management Plan Structure

The DMP consists of three main parts:

- **Part 1: Deer Management Working Plan:** The Working Plan sets out the most up to date information on culls, counts and population targets as well as specific actions the Deer Management Group will undertake throughout the life of the plan. The Working Plan will be reviewed at least annually, with a systematic review of the whole plan taking place at the end of the five year period.
- **Part 2: Deer Management Plan Information.** This sets out background information and details the Public Interest relating to Deer Management in the local area. Information on individual management units is also contained here.
- **Part 3: Group Operation.** This section contains information relating to the Operation and Functioning of the DMG.

### 1.6 Deer Management Plan Implementation

The Plan will identify specific actions for the Group and targets to be delivered by 2021. These will be reviewed on an annual basis in the Working Plan. The DMG will use information gathered from habitat monitoring, population census and cull reporting to agree and set culls on an annual basis. Each management unit is committed to implementing the necessary culls to achieve this although it is accepted that there may be specific geographical areas within the Group area where deer management requires to be focussed.

The Group are committed to working collaboratively to achieve deliver the objectives of the plan and will meet regularly to discuss deer management and issues that arise in the local and wider area. This Plan will therefore take account of all land management interests as well as those of other Statutory Organisations and the wider public interest.

## 1.7 Deer Management Plan Adoption and Consultation

This Deer Management Plan has been formally adopted by all the Members of the Group and will run from 2016 to 2021. It has been through a consultation process and a copy of the current DMP has been given to the local Community Councils.

## 2. Deer Populations, Movements and Management

### 2.1 Deer Populations

The available open-range for Red Deer throughout the Group area amounts to approximately **12,200** ha. Although sheep numbers on one property have been reduced over the last 20 - 30 years, red deer and sheep (with some cattle grazing in summer) provide the main grazing impact over much of the hill ground. Roe Deer are also widespread but at lower density and mainly limited to woodland. Fallow Deer and Sika Deer have been seen and shot occasionally over recent years but they are not considered to be established within the Group area.

In order that culls can be set to achieve a target density that enables all objectives of the Group to be met, it is essential to be able to estimate the current deer population. Since 1986, the open-range Red Deer population has been counted annually by foot (Figure 5 & Table 1). Following the count in 1986, the DMG increased the cull significantly reducing the overall population from 45 deer per km<sup>2</sup> to 17 deer per km<sup>2</sup> in 2001. Since 2002, stag numbers have fluctuated between 972 to 1340 and hind numbers have ranged between 1155 and 1694. Over the last 3 years, numbers of stags and hinds have remained stable and the current population is estimated to be **3178** deer (**26 deer per km<sup>2</sup>**).

Figure 5: Historic Deer Foot Counts

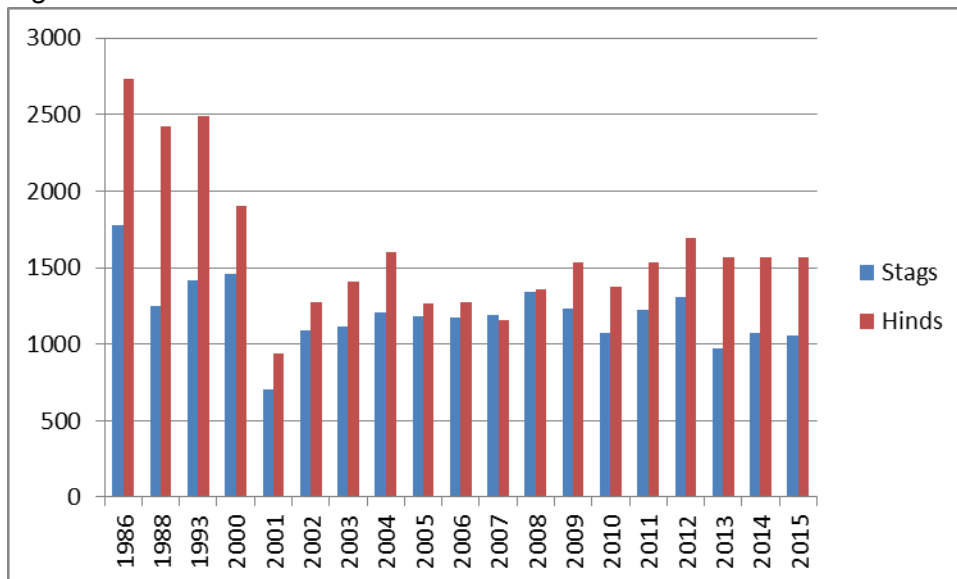


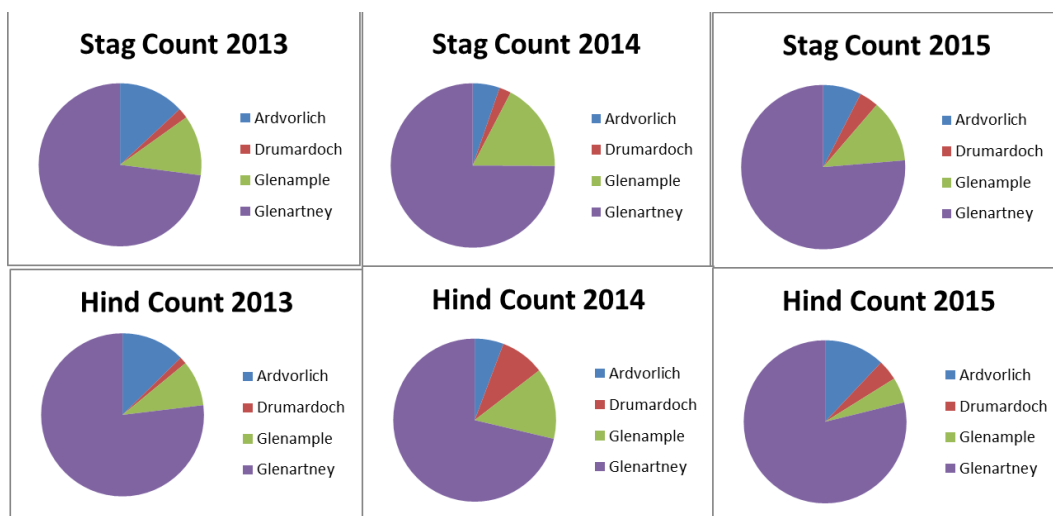
Table 1: Historic Deer Foot Counts

Glenartney DMG Open Range					
Year	Stags	Hinds	Calves	Total	Density
1986	1774	2730	964	5468	45
1988	1252	2423	930	4605	38
1993	1418	2491	759	4668	38
2000	1462	1902	537	3901	32
2001	703	940	417	2060	17
2002	1086	1271	494	2851	23
2003	1111	1408	466	2985	24
2004	1206	1605	707	3518	29
2005	1183	1269	552	3004	25
2006	1177	1277	439	2893	24
2007	1191	1155	546	2892	24
2008	1340	1354	555	3249	27
2009	1232	1531	672	3435	28
2010	1074	1371	500	2945	24
2011	1222	1535	578	3335	27
2012	1307	1694	581	3582	29
2013	972	1571	716	3259	27
2014	1071	1565	634	3270	27
2015	1060	1569	549	3178	26

Table 2: Deer Counts by Management Unit

Ardvorlich					Drumardoch					Glenample					Glenartney				
Stags	Hinds	Calves	Total	Density	Stags	Hinds	Calves	Total	Density	Stags	Hinds	Calves	Total	Density	Stags	Hinds	Calves	Total	Density
127	199	111	437	24	20	22	9	51	6	116	142	63	321	16	709	1208	533	2450	33
57	90	37	184	10	25	138	24	187	21	187	221	64	472	24	802	1116	509	2427	32
80	189	47	316	18	40	64	29	133	15	131	79	22	232	12	809	1237	451	2497	33

Figure 6: Stag and Hind Counts by Management Unit



## 2.2 Deer Movements

Due to the extent of deer fencing within the DMG boundary, deer movements are largely restricted between the 4 main properties of Ardvorlich, Drumardoch, Glenample and Glenartney.

Given that all 4 management units within the Red Deer open range wish to continue to utilise deer as a resource, determining the overwintering areas of stags will be an important element of this plan. Whilst overwintering areas provide essential shelter for deer generally, there is a risk of increased localised impacts to natural heritage as well as agricultural and woodland interests through temporal concentrations of deer.

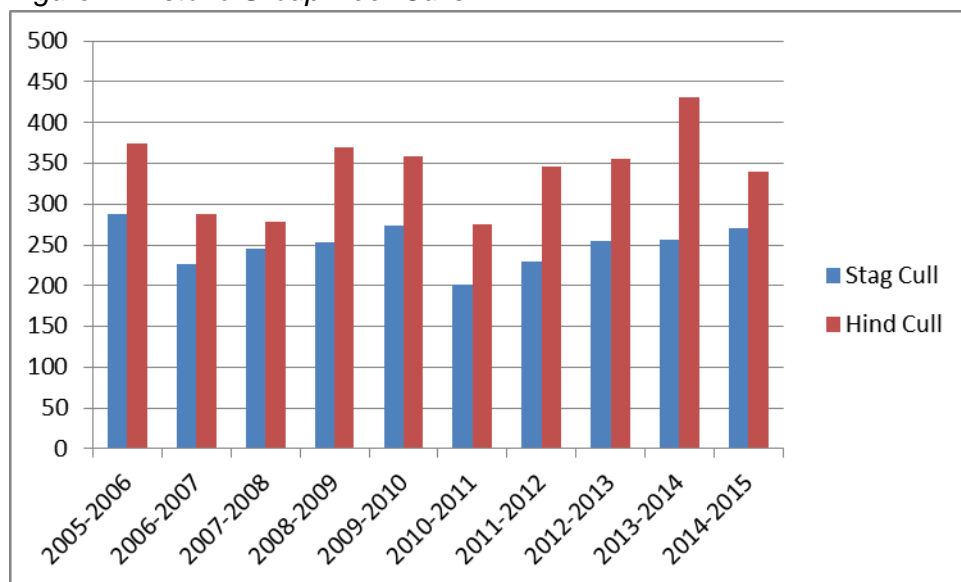
## 2.3 Deer Culls

The historic culls for the 4 main management units are shown in Table 3 below.

*Table 3: Group and Individual Property Culls.*

Red Deer	Open-Range DMG Total				Ardvorlich				Drumardoch				Glenample				Glenartney			
Year	Stags	Hinds	Calves	Total	Stags	Hinds	Calves	Total	Stags	Hinds	Calves	Total	Stags	Hinds	Calves	Total	Stags	Hinds	Calves	Total
2005-2006	288	375	102	765	58	51	12	121	16	7	0	23	53	50	20	123	161	267	70	498
2006-2007	226	288	82	596	42	49	14	105	17	8	0	25	50	54	18	122	117	177	50	344
2007-2008	245	279	94	618	47	42	11	100	15	15	2	32	53	50	20	123	130	172	61	363
2008-2009	253	370	94	717	53	55	16	124	13	10	0	23	53	60	22	135	134	245	56	435
2009-2010	273	358	98	729	59	70	21	150	20	18	1	39	57	79	38	174	137	191	38	266
2010-2011	202	276	75	553	40	51	17	108	25	15	0	40	47	58	27	132	90	152	31	273
2011-2012	229	346	83	658	54	70	12	136	31	31	6	68	46	64	31	141	98	181	34	313
2012-2013	255	355	143	753	55	80	15	150	43	14	34	91	52	80	36	168	105	181	58	344
2013-2014	257	431	197	885	56	71	33	160	42	31	34	107	49	91	49	189	110	238	81	429
2014-2015	271	340	111	722	59	70	12	141	49	12	27	88	53	68	35	156	110	190	37	337

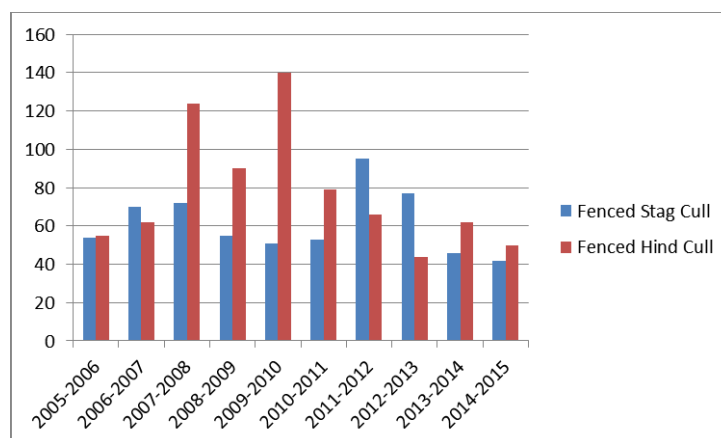
*Figure 7: Historic Group Deer Culls*



Although cull figures from the fenced properties within the DMG boundary are not included in the open-range population model for the group, they are presented in Table 4 and Figure 8. Culls have remained relatively stable over the last 3 years.

Table 4 & Figure 8: Cull Figures for Fenced Management Units.

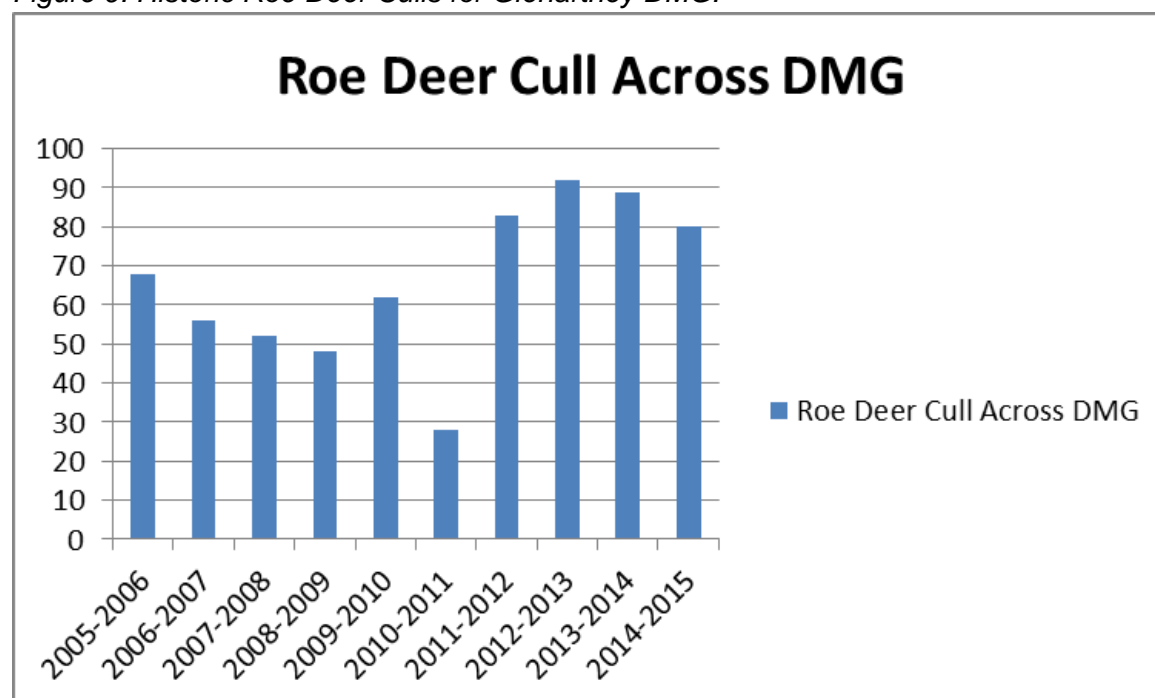
Red Deer	Fenced DMG Total			
Year	Stags	Hinds	Calves	Total
2005-2006	54	55	19	128
2006-2007	70	62	25	157
2007-2008	72	124	74	270
2008-2009	55	90	40	185
2009-2010	51	140	69	260
2010-2011	53	79	37	169
2011-2012	95	66	25	186
2012-2013	77	44	18	139
2013-2014	46	62	15	123
2014-2015	42	50	30	122



## 2.4 Other herbivores

Roe Deer are present throughout the DMG area and are culled at the discretion of individual properties. Cull figures for all management units in the DMG are presented in Figure 9.

Figure 9: Historic Roe Deer Culls for Glenartney DMG.



The open hill is currently grazed by both sheep and deer, although numbers of sheep and deer have been reduced over the DMG area in the last 30 years. During the 80's there were around 1500 sheep on Ben Vorlich and almost 5,500 deer over the DMG area. Currently, livestock are managed as follows:

- During the 80's Ardvorlich sought to reduce grazing pressure on the Estate and reduced deer numbers. Around 2000, sheep numbers were reduced from about 1400 to 800. The Estate currently has just under 900 sheep. The Estate also has 16 cows with followers, which are on the open hill during June, July and August.

- Drumardoch currently has around 700 Blackface ewes on the open hill and 400 Mule ewes on lower ground. Cattle numbers have increased from 20 in last 10 years, but sheep numbers have been reduced.
- Glenample has 475 ewes and followers and 18 summer heifers which have access to the open hill.
- Glenartney is part of Drummond Estate which is a hill and upland farm carrying around 2000 breeding Blackface ewes and 42 suckler cows. The main farming activity takes place outwith the DMG area but Glenartney has been stocked with sheep in the past. The medium term aim of the Estate is to increase stock numbers on Glenartney in the future. In order to support this objective, the Estate has undertaken an extensive Farm Environment Assessment in 2015.

Additional herbivores across the DMG include Feral Goats on all parts of the open hill as well as Mountain Hares and Brown Hares.

### **3. Natural Heritage and Biodiversity Interests**

#### **3.1 Plants**

A large range of plant species were recorded (95 species in total) in the Farm Environment Assessment conducted across Glenartney Estate in 2015.

#### **3.2 Mammals**

Foxes, Stoats, Rabbits, Red Squirrels, Hedgehogs, Wild Goats and Mountain Hares are all present within the Management Area.

#### **3.3 Birds**

The DMG area hosts a range of UK Red Listed species such as Dunlins, Lapwings, Skylarks, Twite, Hen Harriers, Linnets, Tree Pipets, Starlings, Black Grouse, Ring Ouzels, Merlins, Kestrels, Red Kites, and Lesser Redpolls.

#### **3.5 Invertebrates**

Glenartney has a range of butterfly species including Dark-green Fritillary, Small Pearl-bordered Fritillary, Small Heath, Green-veined White, Small White, Ringlet, Small Tortoiseshell and Common Blue.

In addition, a number of Beetle species have been recorded including Ground Beetle, Red-headed Cardinal, Red-crested Carrion, Dor Beetle and Ground Beetle. Golden-ringed Dragonfly has also been recorded.

#### **3.7 Reptiles and Amphibians**

There are known to be populations of European Adder and Common Lizard.

## 4. Actions to ensure deer welfare is taken fully into account at individual animal and population level.

### 4.1 Background.

The definition of welfare in relation to wild deer is 'concern for their physical and psychological well-being. This definition can be applied to both the individual animal and population level. [Wild Deer Best Practice Guidance](#) states that with increasing intervention (e.g. fencing, feeding, culling) comes increasing responsibility for their welfare.

#### Fencing

This is a management tool that is used extensively throughout the DMG. The exclusion or prevention of deer movements to areas of natural areas of shelter in winter through the erection of enclosures or use of strategic fenced may pose a threat to welfare. Similarly, areas where fencing is no longer required and can be removed, can open up areas of natural shelter which will be attractive to deer.

#### Supplementary Feeding

Within the DMG, three properties provide some level of supplementary/diversionary winter feeding specifically for deer, and mainly for stags. This is mainly in the form of mineral blocks, sugar beet nuts and maize.

#### Winter Mortality

Members already monitor and report any significant levels of winter mortality to the Group, as well as any significant health issues encountered. It is considered that mortality within the group is approximately 6% for calves, and 2% hinds for hinds and stags. These figures are used in the current population models for the DMG, but will be varied depending on the location and practical experience.

### 4.2 Plan Objectives

DMP will promote and safeguard deer welfare through effective planning and the undertaking of training for deer managers and the carrying out of deer management activity to [Wild Deer Best Practice Guidance](#) industry standards.

### 4.3 Current Delivery.

- Members currently monitor and report on levels of winter mortality as well as any other significant health issues encountered.

#### 4.4 Targets to be delivered by 2021

<b>Actions to ensure deer welfare is taken fully into account at individual animal and population level</b>	<b>When?</b>	<b>Who?</b>	<b>How?</b>
<b>4.4.1</b> Agree and adopt welfare policy (Part 3 of plan).	Spring 2016	DMG Members	<i>Implemented through every day Best Practice in deer management.</i>
<b>4.4.2</b> Consider opportunities for CPD/Training in relation to deer welfare.	Autumn 2018	DMG Members	<i>DMG to organise a Best Practice event for DMG members.</i>
<b>4.4.3</b> Provide information on welfare indicators annually. Baseline information established in year 1 of DMP and welfare indicators reported on annually. Any resulting management actions agreed and implemented by members.	Ongoing	DMG Members	<i>Deer managers to provide information on average larder weights and annual calf recruitment.</i>
<b>4.4.4</b> Any new fencing in DMG area will consider welfare implications in design and extent and the appropriate management undertaken.	Ongoing	DMG Members	<i>New fencing proposals will be consulted with DMG.</i>
<b>4.4.5</b> Monitoring and reporting of significant levels of winter mortality.	Ongoing	DMG Members	<i>Deer managers will provide information (figures &amp; location) on winter mortality.</i>
<b>4.4.6</b> Carry out a review of fencing and wintering ground and identify opportunities to open up woodland to deer.	Year 2	DMG Members & Consultant	<i>Subject to Environmental Cooperation Action Fund (ECAF) bid, carry out as part of the delivery of the DMG Woodland Expansion Report and recommended actions.</i>

## 5. Actions to develop mechanisms to manage deer

### 5.1 Background

- To manage deer populations at a landscape scale, a collaborative approach is required and the need to negotiate and compromise may be necessary.
- This requires a Deer Management Group to be functioning effectively, to be inclusive and to operate in the spirit of openness and transparency. The Association of Deer Management Groups (ADMG) has provided some guiding principles through the [ADMG Benchmark](#).
- Glenartney Deer Management Group is made up of **4 main management units plus the recent addition of Archullarie East**. There is a deer fence which divides Ardchullarie between east and west. The west section is secure, protecting young forestry but the east section is effectively open to free movement of deer from and to the open hill, although the fence will require to be replaced at some time in the future when the forestry is felled. The Group has agreed that Archullarie East should therefore be in the core area.
- The other fenced forestry holdings in the area are considered to lie out with the management group area, but the Group maintains on-going communication with them, as they have done in the past with Forest Enterprise and the National Forest Estate.
- The Group has been in operation for 30 years and meets regularly. The Group is made up of all the properties that make up the open range for Red Deer who are regularly represented at meetings. All management units in the open deer range are privately owned but are managed for a wide range of objectives. On all properties conservation is a common objective but deer are also managed as a resource. Other objectives include farming and livestock production, forestry and tourism.
- Deer have the potential to impact (positively and negatively) on many of these objectives and collaborative deer management at a landscape level is essential. In order for the objectives of the whole Group to be met. To achieve an overall target population density that delivers sustainable deer management, it is essential to be able to estimate the current deer population. Deer counts on foot have been conducted since 1986 and annually since 2000. A more detailed description of trends in deer numbers and historic annual cull figures can be found in Section 2.
- The current spring population for 2015 is estimated to be **26 deer Km<sup>2</sup>**. The current ratio of stags to hinds is approximately 1:1.5.
- Future management will be informed through annual Deer Counts and Habitat Impact Assessment to be implemented by the Group.

### 5.2 Plan Objectives

The Deer Management Plan (DMP) will aim to identify specific actions to deliver local public interest and ownership objectives. The DMP should also ensure that representation and Membership of the Deer Management Group enables greater integration of different land-uses at a local level. The planning process should also be consultative, transparent and open.

### 5.3 Current Delivery.

- The DMG carried out a review of membership and group boundaries in March 2016 and concluded that Archullarie East should be within the DMG core area. The Group also concluded that Dundurn and Aberuchill should not be part of Glenartney DMG as they are east of the strategic fence which is well maintained. It was agreed that they lie better within South Perthshire DMG and appropriate measures have been taken by the DMG Secretary to facilitate this.
- DMG has a web site <http://glenartneydmg.deer-management.co.uk/> and a summary of DMG information can be found on the [Association of Deer Management Groups](#) web site.
- The DMG currently works in Partnership with Government Agencies (SNH & FCS) and the Local Community.
- All the main deer management units in the area are Members of the DMG, and regular communication is maintained with the fenced neighbouring properties within the wider DMGs.
- Cull targets are set and reported on annually. There is also regular dialogue between members at other times of the year and particularly at the time of the Spring Count and at the end of the stag season.
- The Group has been operational for 30 years and meets annually with open discussion at all meetings.

### 5.4 Targets to be delivered by 2021

<b>Actions to develop mechanisms to manage deer</b>	<b>When?</b>	<b>Who?</b>	<b>How?</b>
<b>5.4.1</b> Group will include future representation/communication with all management units within the DMG boundary.	By Spring 2016 and ongoing	DMG Secretary	<i>All deer management units invited to have representation at future meetings of DMG.</i>
<b>5.4.2</b> Final Plan and Minutes of Meetings will be made publicly available and published on DMG Website.	By Spring 2016 and ongoing	DMG Secretary	<i>DMG Website.</i>
<b>5.4.3</b> Repeat DMG Assessment.	By Spring 2016 and ongoing	DMG Secretary & SNH	<i>Use baseline DMG Assessment carried out in 2014.</i>
<b>5.4.4</b> Working plan will be reviewed and updated annually. Management actions will be adjusted and agreed accordingly. An annual report will be produced.	Annually	DMG Secretary and DMG Members	<i>Provision of data from DMG members in advance of and during annual meetings. Secretary will update Working Plan and produce an Annual Report to be published on the DMG Website.</i>
<b>5.4.5</b> Culls will be delivered and reported on accurately. Cull targets will set and agreed based on information relating to habitat condition, population census, deer welfare and any other relevant information (i.e. where deer are impacting negatively on the Public Interest).	Annually	DMG Members	<i>Population models will be updated annually and cull targets set, agreed and delivered for the open-range population accordingly. Fenced properties will report culls annually and highlight any issues to DMG.</i>

<b>5.4.6</b> Deer Counts on foot will be coordinated and conducted by main DMG members annually.	Spring Annually	Ardvorlich, Drumardoch, Glenample & Glenartney	<i>DMG will ensure adequate resources/communication in place for a coordinated foot count of open range.</i>
<b>5.4.7</b> Group will carry out a review of deer movements within the DMG.	Autumn 2016	DMG Members	<i>Deer count data from 2016 will be reviewed by the DMG. DMG boundaries will be reviewed and amended if necessary.</i>
<b>5.4.8</b> DMG will liaise with fenced management units to ensure that fences remain secure and protocols for break-ins agreed.	Autumn 2016	DMG Secretary	<i>DMG Secretary will consult with membership to review current fencing condition. Protocols for dealing with break-ins discussed and agreed with Group.</i>
<b>5.4.9</b> Group will encourage representation at meetings of the local community as well as any local agricultural/woodland interests within and adjacent to the DMG area.	Annually	DMG Secretary.	<i>Meeting dates and Agendas will be publicly available on DMG website and circulated to community councils in advance. Secretary will seek to ensure agricultural/woodland representation.</i>
<b>5.4.10</b> Group will consider a possible application to the Scottish Government Environmental Cooperation Action Fund (ECAAF) to support future delivery of the DMP.	Autumn 2016	DMG Secretary	<i>Group to discuss and agree a possible application for funding should this be available in 2016/17.</i>

## 6. Actions for the delivery of designated features into Favourable Condition.

### 6.1 Background

- Within the current DMG network there are around 356 designated features (15.8% of the total) where herbivores impacts are contributing to the unfavourable condition of the feature. A Scottish Government target aims to achieve 80% of features in Favourable or Unfavourable Recovering condition by 2016.
- The Glenartney area has three Site of Special Scientific Interest (SSSI) designations (Table 5).
  - Coille Criche SSSI (84.9 ha which falls in Ardvorlich and Glenample)
  - Edinample Meadows SSSI (6.89)
  - Leny Quarry SSSI (geological feature 4 ha which falls in Drumardoch).

A fourth site (Glenartney Juniper Woods SSSI/SAC) lies outwith the DMG area but is in Unfavourable Recovering Due to Management condition.

- Part of the DMG (Glenartney and Dundurn) is within the River Earn (Comrie to St Fillans) National Scenic Area.

### 6.2 Plan Objectives

The Deer Management Plan (DMP) will incorporate agreed management actions to manage deer impacts to delivering favourable condition on designated sites in the area. The DMG will monitor and review progress.

### 6.3 Current Delivery.

Of the 3 designated features within the DMG area (see Table 5) only Collie Criche SSSI is considered to be in “Unfavourable” condition. Leny Quarry SSSI is a geological feature.

- **Coille Chriche SSSI:** Glenample Estate has been implementing management to encourage regeneration of the Wet Woodland feature and to reduce deer numbers on their section of the SSSI. The Estate has previously had a Woodland Grant Scheme and Management Agreement with SNH to help with maintenance costs of the deer fence along the south side of the SSSI. Regeneration is considered to be encouraging in parts, although sheep grazing from neighbouring property may be having a negative impact. Ardvorlich Estate is currently in negotiation with SNH to manage sheep grazing within their section of woodland. The Estate is currently negotiating a possible Management Agreement to erect an enclosure of around 5ha to exclude deer and sheep.
- **Edinample Meadows SSSI:** This designated feature is managed by a property outwith the DMG. Lowland neutral grassland which is now confined to the eastern end, with a few very small fragmented stands on drier knolls in the middle of the site. Grassland is managed by mowing.

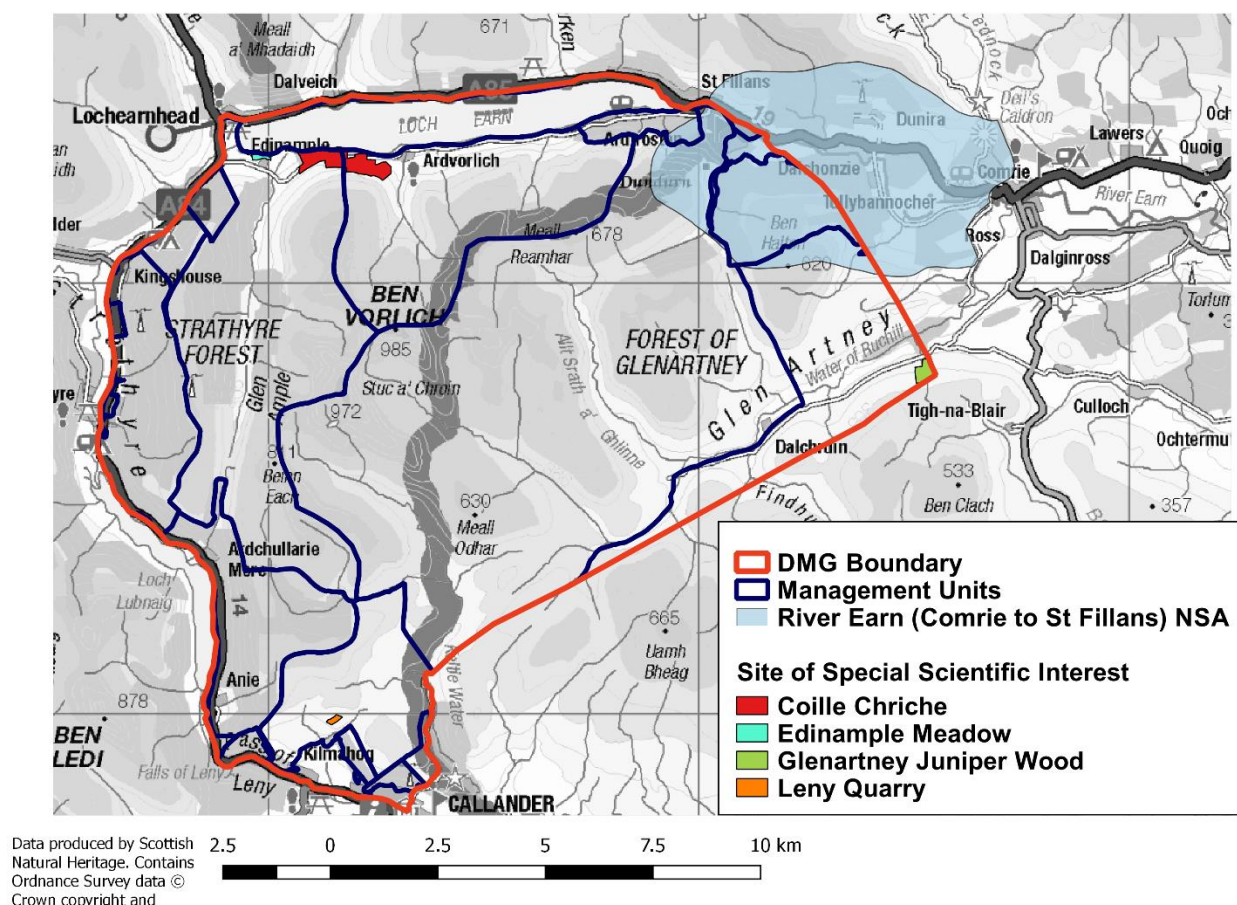
Table 5: Designated features with potential herbivore impacts

Des	Site	Feature	ReportingCondition
SSSI	Coille Chriche	Wet woodland	Unfavourable
SSSI	Edinample Meadow	Lowland neutral grassland	Unfavourable Recovering Due to Management
SSSI	Leny Quarry	Cambrian	Favourable

#### 6.4. Targets to be delivered by 2021

Actions for the delivery of designated features into Favourable Condition	When?	Who?	How?
<b>6.4.1</b> Coille Criche SSSI: Current management action required to bring condition of feature into "Unfavourable Recovering due to Management" status. Estates to liaise with SNH to agree future management actions and to secure and implement Management Agreements/SRDP Contracts where appropriate.	By 2017	Ardvorlich and Glenample Estates	<i>Glenample to continue current management action to reduce grazing impacts by sheep and deer. Ardvorlich to reduce herbivore impacts on the site and to continue to liaise with SNH on the possible erection of a fenced enclosure.</i>
<b>6.4.2</b> In areas where Designated Sites are believed to be under threat, to foster cooperation between neighbouring estates to manage deer numbers and densities as appropriate.	Ongoing	All DMG Members	<i>Deer managers will communicate on an on-going basis with regards to deer movements and identify opportunities for collaborative management.</i>
<b>6.4.3</b> Properties to continue to target deer management on sensitive areas to reduce localised impacts.	Ongoing	DMG Members	<i>Deer managers will use local knowledge to target deer management where required.</i>

Figure 9: Designated Sites (SSSI) and National Scenic Area



## 7. Actions to manage deer to retain existing native woodland cover and improve

### 7.1 Background

The Native Woodland Survey of Scotland (NWSS) was published in 2014. This maps non-designated native woodland cover, reports condition and highlights herbivore impacts which threaten medium to long term condition of these important woodlands. [Wild Deer- A National Approach \(WDNA\)](#) has set a national target that 60% of native woodlands should be considered to be in “satisfactory condition” by 2020.

- Total area of native woodland in Scotland is **311,153 ha**
- Area in satisfactory condition (%) – **143163 ha (46%)**
- Area in unsatisfactory condition (%) – **167990 ha (54%)**
- Additional area needing improvement to reach 60% - **43529 ha**

The NWSS has identified **1080 ha** of native woodland within the DMG boundary area (Figure 10 and Table 6). This represents **0.35%** of the total area of native woodland in Scotland. According to the survey, **68%** percent of the herbivore impacts from NWSS were considered to fall in the [Low to Medium impact](#) category within the DMG area.

### 7.2 Plan Objectives

- DMG Members will implement management to reduce the proportion of native woodland area identified within the ‘High’ and ‘Very High’ categories of herbivore impact in order to contribute to targets set by Scottish Government Agencies.
- The DMP will identify all existing woodland and its condition and will consider actions for the next 5 years to ensure that the long term woodland objectives can be met.

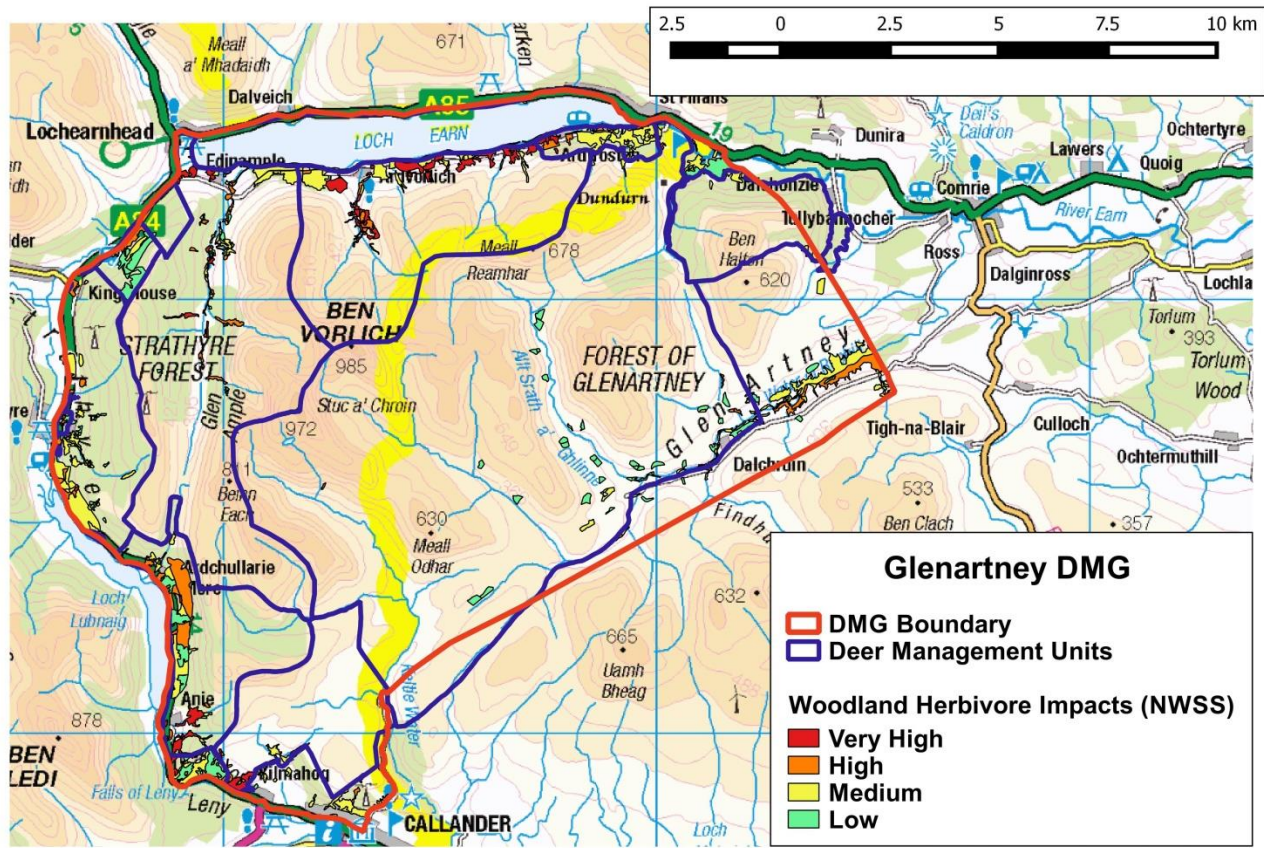
### 7.3 Current Delivery.

- Currently **566 ha (52%)** of native woodland within the DMG boundary is located on properties that are fenced off from the main red deer open range.
- Within the open range of the DMG, the area of native woodland is **514 ha** and **67%** percent of the herbivore impacts from NWSS are considered to fall in the Low to Medium impact category (Table 7).

### 7.4 Targets to be delivered by 2021

<b>Actions to manage deer to retain existing native woodland cover and improve woodland condition</b>	<b>When?</b>	<b>Who?</b>	<b>How?</b>
<b>7.4.1</b> For properties with SRDP Natural Regeneration Schemes in place, provide evidence of woodland condition in the form of an appropriate survey report if available.	Year 3	DMG Members	<i>Woodland Survey reports.</i>
<b>7.4.2</b> To use a possible ECAF bid to undertake a review of native woodland condition in the Group area, consolidating existing survey reports and implementing woodland herbivore impacts assessment monitoring protocols where required. See monitoring Schedule in Working Plan.	Year 3	DMG Members & Consultant	<i>Subject to successful ECAF bid, delivery of DMG Native Woodland Review Report and recommended actions.</i>
<b>7.4.3</b> To implement management to reduce negative impacts including use of Forestry Grant Schemes where practical and appropriate.	By 2021	DMG Members	<i>Monitoring results used to inform management actions. Entry into SRDP Schemes.</i>

Figure 10: Native Woodland Survey For Scotland Herbivore Impacts



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Table 6: Native Woodland Survey for Scotland Herbivore Impacts for DMG

	Herbivore Impacts (ha)				
	Very High	High	Medium	Low	Total
<b>DMG</b>	<b>160.2</b>	<b>181.7</b>	<b>508.7</b>	<b>229.2</b>	<b>1079.8</b>
<b>% of Total</b>	<b>14.8%</b>	<b>16.8%</b>	<b>47.1%</b>	<b>21.2%</b>	

Table 7: Native Woodland Survey for Scotland Herbivore Impacts by Property

	Herbivore Impacts (ha)				
	Very High	High	Medium	Low	Total
ARDVORLICH	81.2	11.3	128.6	0.6	<b>221.8</b>
DRUMARDOCH	18.0	6.9	16.8	1.5	<b>43.3</b>
GLENAMPLE	22.1	26.9	23.8	35.5	<b>108.3</b>
GLENARTNEY	0.0	4.3	70.1	66.6	<b>140.9</b>
<b>TOTAL</b>	<b>121.4</b>	<b>49.3</b>	<b>239.4</b>	<b>104.2</b>	<b>514.3</b>
<b>% of Total</b>	<b>23.6%</b>	<b>9.6%</b>	<b>46.5%</b>	<b>20.3%</b>	

## 8. Actions to demonstrate DMG contribution to the Scottish Government woodland expansion target of 25% woodland cover.

### 8.1 Background

Woodland and forest covers over 1.3 million ha in Scotland (around 16% of Scotland). The Scottish Government woodland expansion target of 25% woodland cover will require 10,000 ha of woodland per year to be created. The DMG network area covers some 3,249,442 Ha with significant opportunity to contribute to the delivery of this target through identifying areas for further woodland creation and managing deer impacts to allow for successful establishment of new woodland. Priority should be given to expansion opportunities where this improves habitat networks. It is expected that DMGs will be proactive in contributing to this target.

### Deer Fences

The Plan assumes that the state of deer fences remains constant. Members are encouraged to report any changes in fencing policies, particularly those which will affect the free movement of deer between estates.

### 8.2 Plan Objectives

- Plan will identify all new woodland in last 5 years and beyond (WGS) and the potential for/ any new proposals likely to be adopted during the life of the plan.
- Plan will consider future impact of woodland expansion and timetable for removal/erection of fences and possible expansion/reduction of deer range, where there may be changes in deer densities or movements as a result.
- Plan will consider need for new woodland from a DMG perspective- ie are there areas short of shelter?

### 8.3 Current Delivery.

- There is considerable woodland already present within the DMG boundary (**19%** of the total land area of the DMG) and a lot of effort has in the past has gone into establishing woodlands on a number of properties. This includes both native woodland, commercial and amenity woodland (see Table 8). The extent of boundaries of woodland schemes (**1244 ha** - Table 9 and Figure 11) represents **32%** of the total current woodland area at present and **6%** of the total land area of Glenartney DMG area.
- Drumardoch Estate has created 40 ha of new native woodland and is intending to create an additional 10 ha of woodland in the next 5 years. Plantings will be opened up to deer once sufficiently mature.
- Glenartney has a Long Term Forest Plan in place. Some additional woodland to be created in next 5 years.

Table 8: Summary of National Forest Inventory Data

National Forest Inventory -Woodland Types (ha)											
	Assumed woodland	Broadleaved	Conifer	Felled	Ground prep	Low density	Mixed mainly broadleaved	Mixed mainly conifer	Shrub	Young trees	Total
DMG	165.48	616.84	2500.68	296.46	76.27	13.89	35.43	19.46	3.93	171.19	3899.64

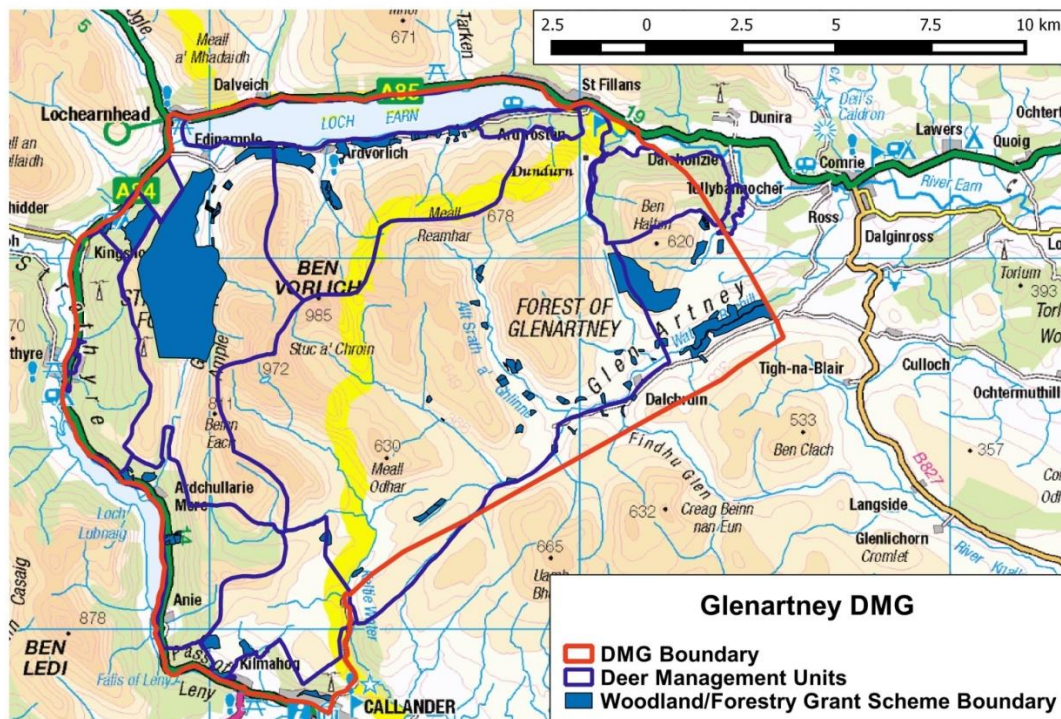
Table 9: Summary of Woodland/Forestry Grant Schemes

	Woodland/ Forestry Grant Schemes (ha)
GLENARTNEY	206.1
DRUMARDOCH	15.7
GLENAMPLE	944.8
ARDVORLICH	33.3
OTHER	43.8
<b>Total</b>	<b>1243.8</b>

## 8.4 Targets to be delivered by 2021

Actions to demonstrate DMG contribution to the Scottish Government woodland expansion target of 25% woodland cover.	When?	Who?	How?
<b>8.4.1</b> Drumardoch Estate will implement 10 ha of new woodland.	2021	Drumardoch Estate	<i>New fenced enclosure to completed by 2021.</i>
<b>8.4.2</b> To inform the DMG about any future woodland proposals and incorporate in the DMP - taking account of potential implications for deer management.	Ongoing	DMG Members	<i>Members will circulate/present proposals to DMG for discussion.</i>
<b>8.4.3</b> DMG to use ECAF bid carry out a strategic review of potential opportunities for new woodland schemes using the Scottish Government's Forestry Strategy. Review will consider need from a DMG perspective ie shelter provision for deer population at landscape scale.	Year 2	DMG Members & Consultant	<i>Subject to ECAF bid, delivery of DMG Woodland Expansion Report and recommended actions.</i>

Figure 11: Woodland/Forest Grant Scheme Boundaries



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## 9. Actions to monitor and manage deer impacts in the wider countryside

### 9.1 Background

- The DMG area has a number of Habitats with characteristics of conservation importance.
- As a part of the DMG's ongoing commitment to carrying out environmentally responsible deer management in line with the [Code on Deer Management](#), the aim is to implement a programme of herbivore impact assessment across the DMG in order to better inform future deer management.
- Peatland and Blanket Bog (where this is defined by SNH guidelines as any areas where the peat is of a depth greater than 50cm) (which covers 1818 ha) and heather moorland (dwarf shrub heath methodology) (covering approximately 2330 ha) are two of the habitats that Scottish Natural Heritage have recommended upland deer managers monitor for herbivore grazing and trampling impacts (Figure 12). The DMGs will take responsibility for the monitoring of herbivore impacts on across the deer range and seek to manage these to contribute to wider ecosystem health. See Table 10 for habitat distribution per property.

### 9.2 Plan Objectives

Plan will seek to implement a programme of monitoring to assess herbivore impacts and manage those impacts within acceptable ranges ([MacDonald et al 1998<sup>1</sup>](#)). As a guideline, on designated sites the targets set by SNH are for 90% of survey samples (overall impacts: grazing/browsing and trampling) to be in the range of Low to Moderate/Low. For woodland, a minimum of 60% of herbivore impacts to be in the Low, Moderate category.

### 9.3 Current Delivery.

- DMG has undergone a Habitat Impact Assessment training session but has yet to implement HIA across the DMG.
- Glenartney Estate conducted Habitat Monitoring in 2015 as part of the Farm Environment Assessment and will continue to monitor. A summary of the results is contained in Section 20.
- Drumardoch Estate has an SRDP management plan in place primarily for Black Grouse population enhancement which includes a grazing management plan.

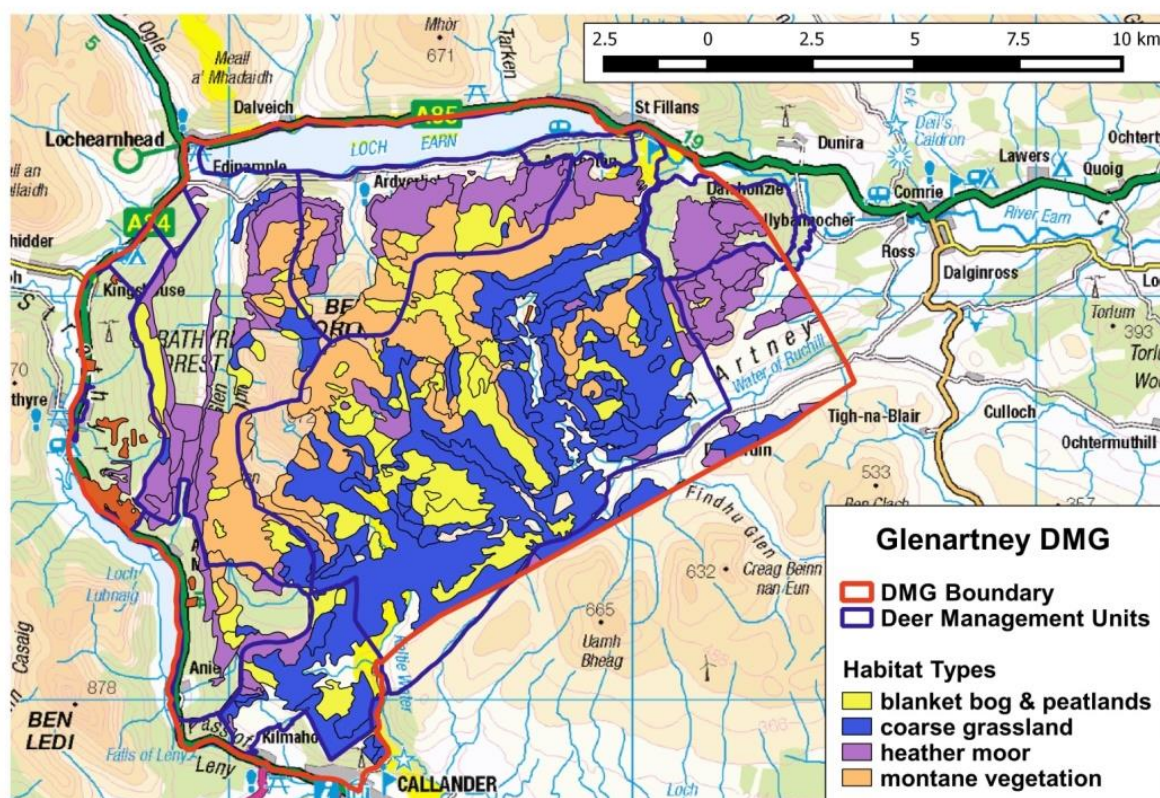
*Table 10: Summary of Blanket Bog and Heather Moor Habitat by Property*

	Habitat Type (ha)			
	blanket bog & peatlands	coarse grassland	heather moor	montane vegetation
ARDCHULLARIE	129	1931	561	339
ARDVORLICH	21	18	524	52
DRUMARDOCH	70	228	6	0
GLENAMPLE	251	147	518	248
GLENARTNEY	1343	2093	721	1991
<b>Total</b>	<b>1814</b>	<b>4417</b>	<b>2330</b>	<b>2630</b>

## 9.4 Targets to be delivered by 2021

Actions to monitor and manage deer impacts in the wider countryside	When?	Who?	How?
<b>9.4.1</b> Using revised BPG Guidance undergo refresher training, set up plots and carry out a baseline habitat impact assessment (HIA) of the current grazing and trampling impacts on blanket bog & dwarf shrub heath.	May & June 2017	DMG Members & Consultant	<i>Subject to ECAF bid, Consultant will work with DMG to set up random plots and to provide assistance with data analysis and the production of a report.</i>
<b>9.4.2</b> Members with existing habitat monitoring will share results with DMG where appropriate.	Ongoing	DMG Members	<i>Members will circulate monitoring results to DMG.</i>
<b>9.4.3</b> Summary of habitat assessment results reported to DMG. Targets and management actions to be agreed.	Ongoing	DMG Members	<i>DMG will agree management decisions based on Habitat Impact Assessment Reports.</i>
<b>9.4.4</b> Repeat HIA and management actions agreed.	May & June 2020	DMG Members & Consultant	<i>Members will collect repeat monitoring data. Consultant will provide assistance with data analysis and the production of a report. Members will use report to inform management.</i>

Figure 12: Habitat distribution across DMG



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## 10. Actions to improve Scotland's ability to store carbon by maintaining or improving ecosystem health.

### 10.1 Background

Carbon rich soils and peatland areas provide multiple benefits, e.g. good water quality, biodiversity and climate change mitigation as soil carbon stores and through [carbon sequestration](#). Soils are the main terrestrial store of carbon in Scotland and Peatlands hold most of our carbon store (53%). The depth of peat is important: the deeper the peat soil the more carbon it stores. Undisturbed, active peatlands accumulate about 0.25 tonnes of carbon per hectare per year which is broadly equivalent to around 10% of the amount of carbon accumulated over the duration of a forest crop.

[Blanket bog](#) is a type of peatland found in the uplands. Although Blanket bog is a rare habitat globally and is restricted to cool, wet, typically oceanic climates, Scotland holds a significant proportion of the European and world resource. It is one of the most extensive semi-natural habitats in Scotland, covering some 1.8 million hectares, 23 % of our land area. Blanket bog is found throughout the Scottish uplands but is most extensive in the North Highlands and Western and Northern Isles in areas with gentle slopes and poor drainage. Growing trees is another way to increase the natural carbon reservoir. There is an estimated 50 megatonnes of carbon locked in Scotland's vegetation, most of it being held in natural woodland and forest plantations. Woodland and forest currently covers over 1.3 million ha in Scotland (around 16% of Scotland).

In partnership with Government agencies, DMGs are expected to contribute to research and implement and deliver actions to deliver optimum habitat condition for carbon capture and storage.

### 10.2 Plan Objectives

The plan will aim to acknowledge all contributions to carbon storage through woodland and peatlands within the DMG and detail actions to address any negative herbivore impacts.

The plan will identify opportunities to secure carbon by quantifying areas of Blanket Bog which could be restored by drain blocking and through the re-profiling and revegetating of haggard peat.

### 10.3 Current Delivery.

- DMG manages around **3900 ha of woodland** and an area of **1818 ha of blanket bog** has been identified within the DMG Area.
- DMG has undergone Habitat Monitoring Training and Blanket bog is one of the habitats that the DMG will be including in the monitoring programme.
- The actions currently being undertaken by the DMG to retain existing native woodland and encourage woodland expansion have been detailed in Sections 7 & 8.
- The DMG has not been asked to contribute to River Basin Management Planning

#### 10.4 Targets to be delivered by 2021

Actions to improve Scotland's ability to store carbon by maintaining or improving ecosystem health.	When?	Who?	How?
<b>10.4.1</b> Using revised BPG Guidance set up plots and carry out a baseline habitat impact assessment (HIA) of the current grazing and trampling impacts on blanket bog and native woodland.	As per monitoring schedule in the Working plan	DMG Members.	<i>As per Actions relating to woodland and managing wider countryside impacts. Members to provide existing survey reports or conduct baseline monitoring and reports.</i>
<b>10.4.2</b> Potential areas for Peatland Restoration identified and options for Peatland restoration or management through the Peatland Action Fund promoted to DMG Members	By end 2016	DMG Members DMG Secretary	<i>Members to use Blanket Bog monitoring results as well as assistance from SNH to identify opportunities for Peatland Restoration.</i>
<b>10.4.3</b> Contribute to River Basin Management Planning as appropriate	By end of 2016 and ongoing	DMG Members	<i>DMG will consult with local District Salmon Fisheries Board. Subject to ECAF bid, include a review of the potential for riparian woodland improvement e.g. practicalities, landscape assessment, water quality and fisheries benefit.</i>

## 11. Actions to reduce or mitigate the risk of establishment of invasive non-native species

### 11.1 Background

- There are no Sika deer established within the immediate DMG area, although there have been the occasional Sika shot over the last ten years on Dundurn and Glenample.

### 11.2 Plan Objectives

- The plan will aim to reduce or mitigate the risk of establishment of invasive non-native species of deer (Sika and Muntjac).
- Plan to detail agreed policies and actions required by DMG to monitor situation.

### 11.3 Current Delivery.

- The DMG reports on any sightings or Sika culled currently.

### 11.4 Targets to be delivered by 2021

Actions to reduce or mitigate the risk of establishment of invasive non-native species	When?	Who?	How?
<b>11.4.1</b> Muntjac Deer managed as per the Non-native Species Policy (Part 3 of plan).	Ongoing	DMG Members	<i>Members will contact local SNH Wildlife Management Officer immediately on suspected sighting of Muntjac.</i>
<b>11.4.2</b> Sika Deer managed to prevent their establishment within the DMG area and managed as per the Non-Native Species Policy (Part 3 of plan).	Ongoing	DMG Members	<i>Where Sika Deer not currently established, Members will report sightings to DMG and will prevent their establishment by shooting (within current legal restrictions).</i>
<b>11.4.3</b> Record invasive plants species and encourage their control.	Annually	DMG Members	<i>Members will inform DMG of invasive plant species at annual meetings and will report on control undertaken.</i>

## 12. Actions to protect designated historic and cultural features from being damaged by deer e.g. by trampling.

### 12.1 Background

- Certain types of historic or culturally significant features may be impacted positively from deer and deer management activity through for example, grazing to keep sites exposed. Impacts may also be negative however, where deer may cause damage through trampling or by jumping over stone-work for example. DMGs should contribute to conserving and enhancing the cultural and historic landscape e.g. ensure that trampling of sites is avoided particularly in the case of protected designated historic features.
- Historic and cultural features within the landscape are important to the group and the group undertakes to protect these from negative impacts by deer. Red deer, because of their size and herding behaviour are the species with most potential to cause negative impacts to these sites.
- There is no scheduled monuments within DMG area. There are a range of archaeological features some of which appear on the [CANMORE](#) website. Historic features on Drumardoch include St Brides Chapel, Little Leny Graveyard and Kilmahog Graveyard.
- Most of the remaining records relate to undesignated historic sites areas around existing settlements. Grazing can have positive impacts on historic and cultural features by maintaining a low sward and preventing tree and shrub regeneration and thereby maintaining their visibility and context in the landscape. Damage to historic features by deer could possibly be associated with high concentrations of animals such as at winter feed sites. Group members will avoid providing winter feed at sites where there is evidence that this could result in negative impacts to these features.

### 12.2 Plan Objectives

- Plan to consider deer management actions which contribute or impact on delivery of conserving and enhancing the local cultural and historic landscape.

### 12.3 Current Delivery.

- Drumardoch Estate: Leny Parkland is a Historic Designated Landscape.
- The DMG is currently unaware of any cultural or historic features that are being impacted on by deer.
- Any woodland creation projects are currently required by Forestry Commission Scotland to carry out this assessment.

### 12.4 Targets to be delivered by 2021

<b>Actions to protect designated historic and cultural features from being damaged by deer e.g. by trampling.</b>	<b>When?</b>	<b>Who?</b>	<b>How?</b>
<b>12.4.1</b> Identify any features within DMG area that may be impacted on by deer.	By end of 2016	DMG Members	<i>DMG members to report at Autumn DMG meeting on features identified.</i>
<b>12.4.2</b> If features identified, ensure the appropriate management is implemented and report to DMG.	Ongoing	DMG Members	<i>Verbal report/update to DMG.</i>

## 13. Actions to contribute to delivering higher standards of competence in deer management.

### 13.1 Background

The DMG recognises the importance of delivering higher standards of competence in deer management through:

- promoting and offering opportunities for Members to take up formal training opportunities;
- facilitating continuous professional development activities;
- and ensuring Wild Deer Best Practice guidance is adopted in deer management activities throughout the DMG.

### 13.2 Plan Objectives

- DMP to ascertain training levels among Group Members and to develop a training policy and programme.

### 13.3 Current Delivery

- Currently 86% of individuals involved in practical Deer Management have DSC Level 1 and 28% Level 2.

### 13.4 Targets to be delivered by 2021

<b>Actions to contribute to delivering higher standards of competence in deer management.</b>	<b>When?</b>	<b>Who?</b>	<b>How?</b>
<b>13.4.1</b> DMG will adopt the training policy statement (Part 3 of plan).	Spring 2016	DMG Members	<i>Adopted as part of DMP.</i>
<b>13.4.2</b> Ascertain training levels among DMG Members and report on progress on an annual basis.	By Autumn 2016 & Annually	DMG Secretary and Members	<i>All members asked to provide an initial summary of staff qualifications to DMG Secretary. Verbal report at Spring meeting.</i>
<b>13.4.3</b> Develop and implement a training programme to assist in the provision of training for DMG Members who lack the necessary qualification or for individuals who wish to enhance their skills.	Annually	DMG Secretary	<i>Annual training programme to be agreed at meetings. Secretary to organise courses/events. Opportunities for CPD events to be explored by members.</i>

## 14. Actions to Identify and promote opportunities contributing to public health and wellbeing.

### 14.1 Background

- Deer are of great social and cultural value to Scotland. As one of Scotland's top iconic wildlife species they provide a range of benefits, for example through their contribution to tourism and people's enjoyment of the outdoors. Venison is also a healthy meat enjoyed by many. Deer can, however, also lead to health and safety risks e.g. road traffic accidents and such as Lyme disease. Actions relating to venison production are included in Section 15 and road traffic accident actions are covered in Section 16.
- The Glenartney area is a popular tourist destination, and wildlife tourism and provision of accommodation in particular are important to the DMG properties as well as the local economy as a whole. Deer, as one of Scotland's top iconic species, are an important element of this.
- There are two Munros Ben Vorlich (985m) and Stuc a' Chroin (972m), one Corbett: Beinn Each (811m) and 2 Grahams: Meall Odhar (847m) and Meall Reamhar (678m). Ben Vorlich is listed in Table 7 on the [Heading For The Scottish Hills website](#). The main access is from south Loch Earn.
- Responsible access is encouraged and welcomed by all properties within the DMG.

### 14.2 Plan Objectives

The aim of the plan is to:

- Identify and promote opportunities contributing to public health and wellbeing benefits associated with deer and deer management;
- Identify, raise awareness and where possible minimise the local health and safety risks;
- Identify and increase the opportunities for people to enjoy and benefit from deer;
- DMG should raise awareness of road safety issues associated with deer to reduce the risks of road traffic accidents (covered in Section 16);
- Co-ordinate action to minimise deer-related human disease risks;
- Promote responsible Access and the following of the Scottish Outdoor Access Code.

### 14.3 Current Delivery.

- Access is promoted across DMG and up to date information is provided in the Table 7 of the Heading For The Scottish Hills website.
- Core paths to Loch Lubnaig and Callander Craggs on Drumardoch are heavily used.
- Tick awareness already discussed with estates and staff on all estates. Tick information provided for holiday cottage visitors and by Loch Lomond and Trossachs National Park (LLTNP) at car parks.
- DMG collectively signed up to principles of Best Practice which provides guidance on safeguarding public safety and food safety.
- DMG currently actively promotes positive deer management throughout the area. Glenample provides talks to local visitors and hosts schools visits as well as providing wildlife viewing opportunities.
- Estates regularly host Duke of Edinburgh Gold award participants who pass through and camp.
- Ardvorlich Estate is in discussion with LLTNP Authority to investigate opportunities for better access infrastructure. Currently visitors park along the lochside road.

#### 14.4 Targets to be delivered by 2021

<b>Actions to Identify and promote opportunities contributing to public health and wellbeing.</b>	<b>When?</b>	<b>Who?</b>	<b>How?</b>
<b>14.4.1</b> Provide information on access, CWD and health information about tick awareness to visitors/clients.	By end of 2016 and ongoing	DMG Secretary	<i>Secretary to circulate leaflets/literature at Spring/Autumn meetings for members to distribute. Information made available on DMG website.</i>
<b>14.4.2</b> Complete relevant Access information for the Heading For the Scottish Hills initiative.	By end 2016	Secretary & Relevant DMG Members	<i>Secretary to liaise with DMG members to coordinate information to SNH and ensure information is kept up to date. Information on Access to be made available on DMG website.</i>
<b>14.4.3</b> Raise awareness of threats relating to Chronic Wasting Disease and sign up to CWD Biosecurity Policy (Part 3 of plan).	By end of 2016 and ongoing	DMG Members	<i>Members to raise awareness of CWD with Clients and Visitors from USA and Canada.</i>
<b>14.4.4</b> Investigate opportunities for awareness raising/educational events for the local community.	Ongoing	DMG Members	<i>Members to discuss opportunities at Spring meeting. Open events to be advertised on DMG website.</i>
<b>14.4.5</b> Provide opportunities for any concerns from the local community to be addressed. Ensure Community Council representation at meetings.	Ongoing	DMG Secretary	<i>Meeting dates and Agendas will be publically available on DMG website and circulated to community councils in advance. DMG Chair and Secretary contact details will be available on website. DMG to consider holding an annual public meeting.</i>
<b>14.5.6</b> Explore opportunities for greater liaison/collaboration with Organisations such as Mountaineering Council for Scotland/Ramblers Association/Scottish Mountaineering Club.	By autumn 2016	DMG Secretary	<i>DMG and organisations to work together to improve information provision through social-networks.</i>

## 15. Actions to maximise economic benefits associated with deer

### 15.1 Background

- Wild deer are considered a resource and can play an important role in promoting and sustaining economic activity, especially in rural areas where they can contribute to businesses, particularly stalking, tourism and food production.
- The properties within the DMG have a range of land management objectives. Common to all, is the need to balance strong conservation objectives whilst maximising the potential value of deer as a resource – through stalking, tourism and venison production.
- Collectively, some 170 stags are ideally required by the group to be harvested annually (Ardvorlich 20 stags, Glenample 50 stags and Glenartney 100 stags). The average stag cull for the last 5 years has been around 232. In order to achieve a sustainable harvest of 170 mature stags, a total population of 2933 deer (1275 stags, 1275 hinds and 383 calves) is required – a density of **24 deer per km<sup>2</sup>**.

### 15.2 Plan Objectives

- DMP to identify the economic interests of DMG ownership and identify opportunities to maximise these including employment, stalking, tourism, venison.

### 15.3 Current Delivery

- Currently 170 stags are let for stalking providing an income in the region of **£68,000** annually.
- An average of 583 adult venison carcasses are produced annually from the open-range population providing an additional further income of around **£61,500** annually.
- There are **7 full-time** deer management employees with an additional **21 employees** associated with estate management activities.
- As a tourism provider Drumardoch provides 100 bed nights.
- Letting of stalking provides **225 bed nights** locally through Glenample and Glenartney Estates.
- Glenartney attracts tourists through Drummond Castle and letting of stalking also supports local accommodation providers.
- All properties use local services in the surrounding area - such as shops, fuel, hotels and B&Bs, local tradesmen.
- All properties have access to larders. Drumardoch has a new larder and chill facility.

## 15.4 Targets to be delivered by 2021

Actions to maximise economic benefits associated with deer	When?	Who?	How?
<b>15.4.1</b> Investigate opportunities for membership of SQWV Quality Assurance Scheme.	By 2021	DMG Members	<i>On-going discussion at DMG meetings.</i>
<b>15.4.2</b> Investigate opportunities for more effective collection of carcasses and negotiation of prices. Members to seek opportunities to market venison locally.	Annually	DMG Members	<i>Discussion at meetings. Secretary to negotiate with Game Dealers on DMG behalf. DMG to discuss opportunities for development of venison processing facilities with FCS.</i>
<b>15.4.3</b> DMG Members to continue to monitor sustainable harvest of stags for let stalking and to investigate opportunities for cross-property letting of stalking. Opportunities to collectively market stalking also explored.	Spring 2016 and Annually.	DMG Secretary & Members	<i>Population model used to monitor sustainable harvest of stags. Members discuss stalking requirements at meetings. Discussions following annual deer counts used to monitor stag movements/distribution across the Group.</i>

## **16. Actions to minimise the economic costs of deer, and ensure deer management is cost-effective**

### **16.1 Background**

- Wild deer are considered a resource and can play an important role in promoting and sustaining economic activity. However they can also create costs to other land-use objectives and have a negative impact on other economic activities including agriculture and forestry. Deer Vehicle Collisions may also incur an economic as well as social cost.
- Deer fencing has been used extensively throughout the DMG, to prevent damage to woodland (both commercial and native) and agricultural interests.

### **16.2 Plan Objectives**

- The DMP will seek to minimise the economic cost of deer through identifying issues and implementing management to reduce or mitigate deer impacts where this results in an economic cost.
- The plan will aim to identify where deer are having an economic cost particularly with regard to forestry and agricultural impacts. Incidents of Deer Vehicle Collisions (DVCs) will be monitored. Opportunities to work collaboratively to reduce these costs will be identified and actioned.

### **16.3 Current Delivery**

- As the main open-range Red Deer population is largely fenced in, this largely prevents DVCs on the A84.
- The A84 runs through Drumardoch estate for approximately 10 km but there are minimal road collisions with deer (only one incident known of in 20 years).
- On Glenample, there are issues with DVCs close to Lochearnhead but this is as a result of deer crossing the road from neighbouring unmanaged woodlands.
- Deer are shot out of season to control deer within enclosed woodlands but is unlikely to have any impact on the open range population.

#### 16.4 Targets to be delivered by 2021

<b>Actions to minimise the economic costs of deer, and ensure deer management is cost-effective</b>	<b>When?</b>	<b>Who?</b>	<b>How?</b>
<b>16.4.1</b> DMG to consider the future costs of maintaining fences and financial provision for repairs.	By end of 2016	DMG Members	<i>Those responsible for fences report on current condition and likely repair timetable.</i>
<b>16.4.2</b> Ensure local agricultural/ forestry interests are consulted on DMP and invited to/represented at DMG meetings.	Spring 2016	DMG Secretary	<i>DMG Secretary will correspond with relevant parties.</i>
<b>16.4.3</b> Set up monitoring and reporting of DVCs through website, DMG meetings and local Police contact.	Spring 2016 and ongoing	DMG Secretary	<i>Members of the public asked to report DVCs to DMG Secretary on website. Members record and report DVCs to meetings.</i>
<b>16.4.4</b> Implement actions to mitigate against DVC hotspots including localised deer management, use of signage, fencing etc.	Ongoing	DMG Members	<i>Where hot-spots occur, DMG to discuss appropriate actions at meetings.</i>
<b>16.4.5</b> Report on out of season and night shooting authorisations.	Annually	DMG Members	<i>Members to inform DMG Secretary in advance of intention to apply for authorisations. Members to report numbers of deer culled under authorisation at meetings.</i>

## 17. Actions to ensure effective communication on deer management issues.

### 17.1 Background

Effective collaborative deer management requires effective communication on deer management issues both within the DMG and throughout the wider community in order to promote better awareness and education of deer and deer management.

### 17.2 Plan Objectives

To ensure that the DMG is inclusive, open, transparent and that local issues have been addressed. DMP will include a Communications policy to encourage participation and collaboration and to communicate the public benefits being delivered through local deer management activity. DMG Constitution will set out methods for resolving disagreements.

### 17.3 Current Delivery.

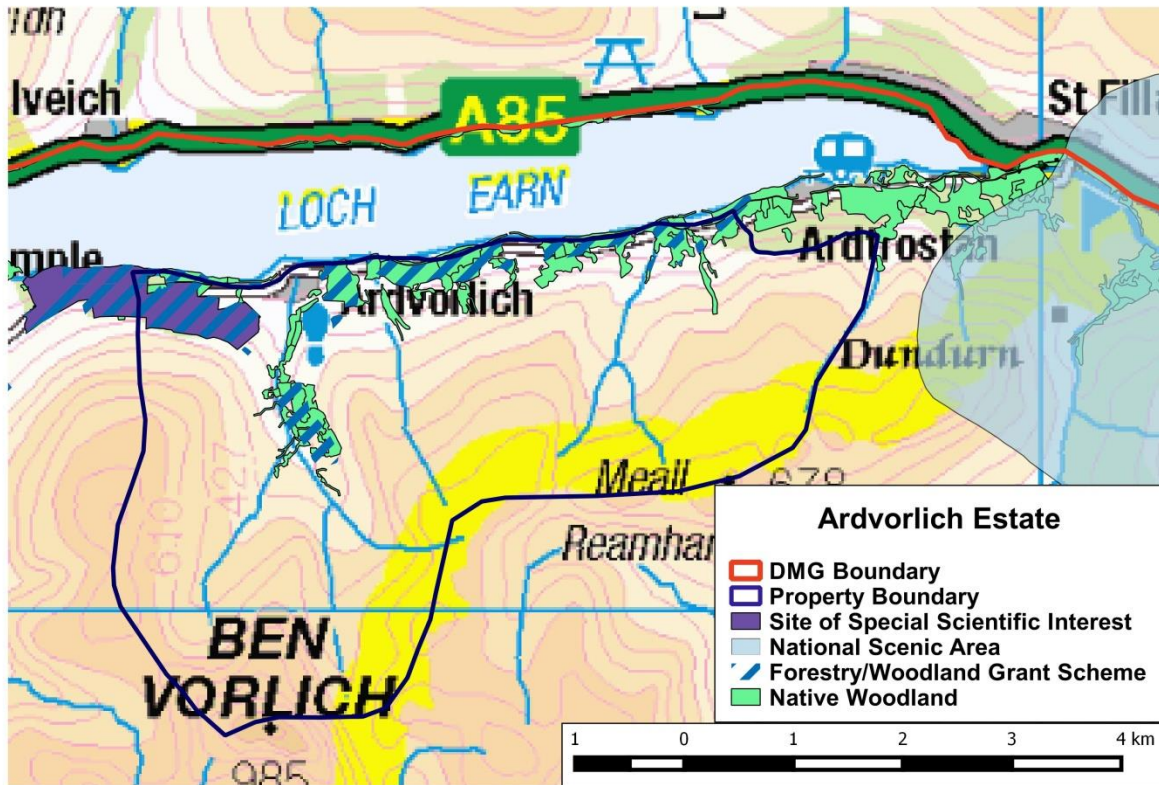
- DMG has a [web site](#).
- The DMG works in partnership with SNH, FCS, Loch Lomond and Trossachs National Park, the Local Community and visitors.
- The DMG has signed up to a Constitution (2016).

### 17.4 Targets to be delivered by 2021

Actions to ensure effective communication on deer management issues	When?	Who?	How?
17.4.1 Stakeholders consulted on draft plan.	Spring 2016	DMG Secretary	<i>Draft DMP made available on public website. Relevant stakeholders identified and invited to consult. Local Community Councils of Callander, Comrie, St Fillans, Balquhiddar and Lochearnhead will also be consulted.</i>
17.4.2 Final Plan and Minutes of Meetings will published on DMG Website.	Spring 2016	DMG Secretary	<i>DMG Website.</i>
17.4.3 DMG Constitution and ADMG Principles of Collaboration adopted (Part 3)	Spring 2016	DMG Members	<i>Adopted as part of DMP.</i>
17.4.4 Agree and adopt a DMG Communications Policy	Spring 2016	DMG Members	<i>Adopted as part of DMP.</i>

## 18. Management Units: Ardvorlich Estate

Property	Ardvorlich Estate
Area	1935 ha
Owner	Sandy Stewart
Deer Management Contact	Raymond Baynes



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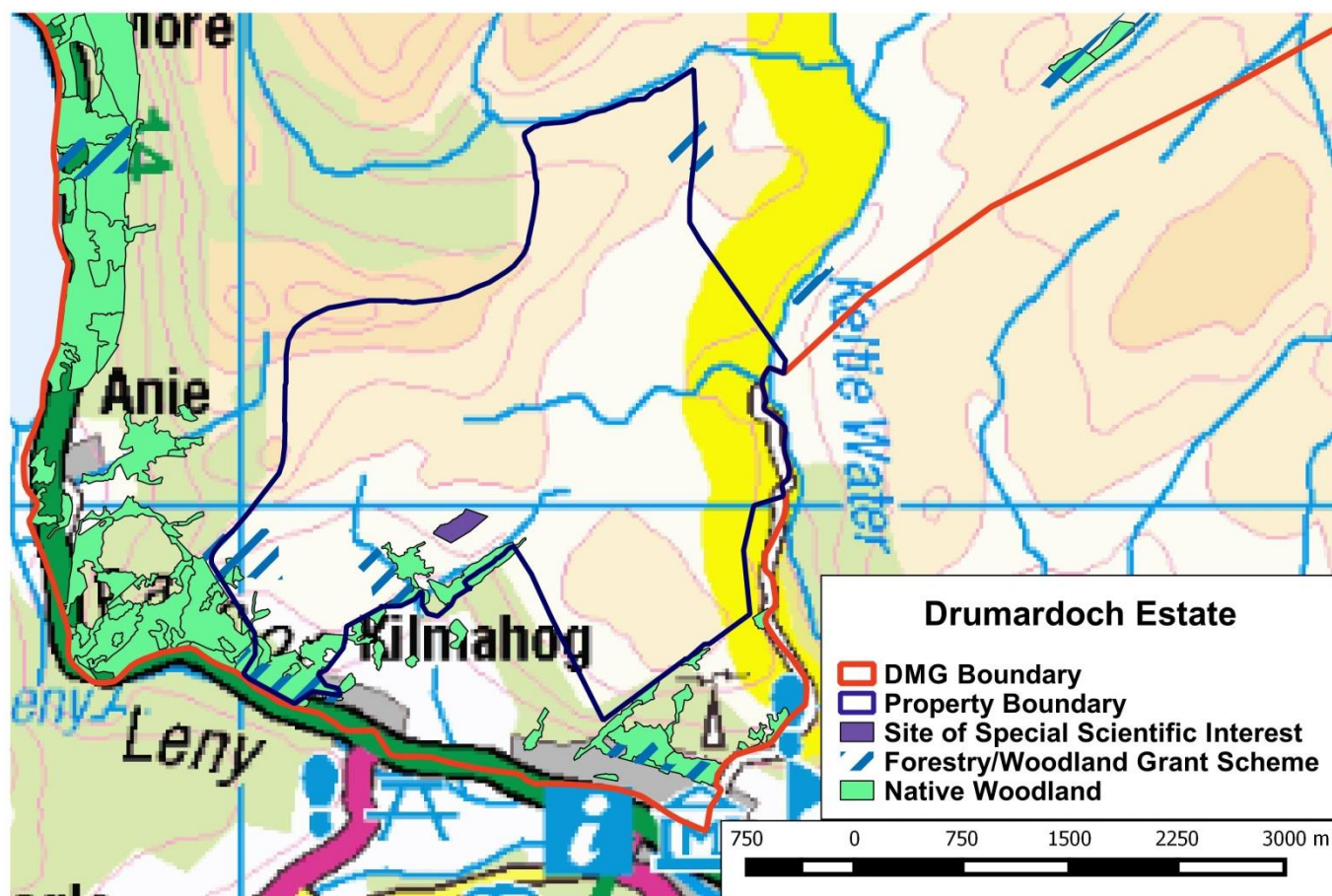
Deer Counts (Foot)					
Year	Stags	Hinds	Calves	Total	Density
2013	127	199	111	437	24
2014	57	90	37	184	10
2015	80	189	47	316	18

Deer Culls				
Year	Stags	Hinds	Calves	Total
2005 -2006	58	51	12	121
2006 -2007	42	49	14	105
2007 -2008	47	42	11	100
2008 -2009	53	55	16	124
2009 -2010	59	70	21	150
2010 -2011	40	51	17	108
2011 - 2012	54	70	12	136
2012 -2013	55	80	15	150
2013 -2014	56	71	33	160
2014 -2015	59	70	12	141
2015- 2016				

<b>Background</b>	<ul style="list-style-type: none"> <li>The Estate combines conservation objectives with agriculture and the sustainable harvest of deer and some grouse.</li> <li>Red and Roe deer species present. No resident Sika.</li> </ul>
<b>Designated sites</b>	<ul style="list-style-type: none"> <li>Part (10 ha) of Coille Criche SSSI lies within the Estate. Estate has agreed in principal to enter in to a MA with SNH (or SRDP in 2017 once existing Scheme expires) to erect a 5 ha enclosure to exclude deer and sheep.</li> <li>Part of the property falls within the River Earn (Comrie to St Fillans) National Scenic Area.</li> </ul>
<b>Deer Management Objectives</b>	<ul style="list-style-type: none"> <li>To manage the resident population of deer in balance with other objectives.</li> </ul>
<b>Future Management Objectives</b>	<ul style="list-style-type: none"> <li>To optimise the conservation and economic opportunities on the estate whilst delivering wider public interest.</li> </ul>
<b>Woodland</b>	<ul style="list-style-type: none"> <li>4 fenced native woodland Woodland Grant Schemes (24.02 ha, 1.02 ha, 4.85 ha, 3.14 ha).</li> <li>221.8 ha native woodland (58% with low/medium herbivore impacts).</li> <li>13.7 ha conifer woodland.</li> </ul>
<b>Land management</b>	<ul style="list-style-type: none"> <li>In the 80s, the Estate experienced issues with stocking densities and reduced the impact of grazing through sheep reductions and increased deer culls.</li> <li>Around 2000, sheep numbers were reduced from about 1400 to 800. The Estate currently has just under 900 sheep. The Estate also has 16 cows with followers, which are on the open hill during June, July and August.</li> <li>Moorland Management Scheme in place (due to finish 2017).</li> <li>Estate has had issues with significant heather beetle damage.</li> <li>Estate has been involved in bracken spraying programme in 2014/15 (500 acres).</li> <li>Estate undertakes Muirburn.</li> </ul>
<b>Deer Impacts</b>	<ul style="list-style-type: none"> <li>Some shielings in Glen Vorlich but not being impacted by deer.</li> </ul>
<b>Deer Distribution &amp; Movements</b>	<ul style="list-style-type: none"> <li>Estate conducts a deer count annually.</li> <li>The east end of the Estate winters around 200 stags.</li> </ul>
<b>Supplementary Feeding</b>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Access</b>	<ul style="list-style-type: none"> <li>Positive access with provision of marked trails and paths No access issues.</li> <li>One Munros on Estate march main: Ben Vorlich (985m). 12,000 visitors annually. Main path on Ben Vorlich put in by SNH. Path is maintained by the Loch Lomond and Trossachs National Park.</li> <li>One Graham: Meall Reamhar (678m).</li> <li>Estate is a member of HFTSH and information is available on the website. <i>Stalking takes place between 1<sup>st</sup> Sept and 15<sup>th</sup> February. If further information is needed please phone Raymond Baynes 01764 685260.</i></li> <li>Possible provision of a car park. Currently cars parked all along Loch shore by those seeking access/camping.</li> </ul>
<b>Socio-Economics</b>	<ul style="list-style-type: none"> <li>1 full-time employee plus seasonal pony-man involved with deer management.</li> <li>1 full-time employee used for estate maintenance, fencing and forestry.</li> <li>Annual harvest of 20 stags (let).</li> <li>Estate has a larder and chill.</li> </ul>

## 19. Management Units: Drumardoch Estate

<b>Property</b>	<b>Drumardoch Estate</b>
<b>Area</b>	2200 ha
<b>Owner</b>	G A (Tony) Cameron
<b>Deer Management Contact</b>	Neil C Cameron and Willie Jenkins



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	<b>Deer Counts (Foot)</b>				
<b>Year</b>	<b>Stags</b>	<b>Hinds</b>	<b>Calves</b>	<b>Total</b>	<b>Density</b>
2013	20	22	9	51	6
2014	25	138	24	187	21
2015	40	64	29	133	15

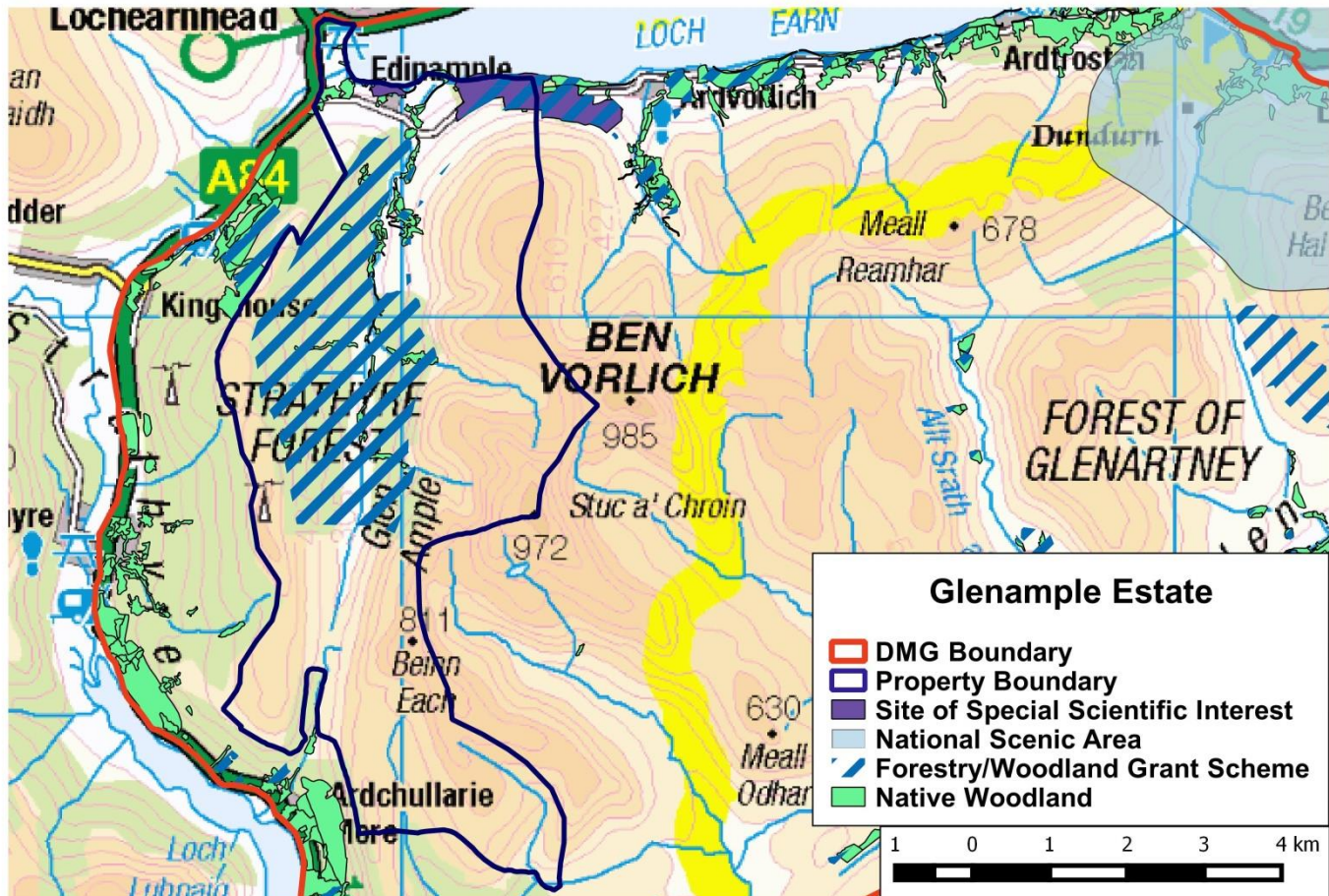
	<b>Deer Culls</b>			
<b>Year</b>	<b>Stags</b>	<b>Hinds</b>	<b>Calves</b>	<b>Total</b>
2005 -2006	15	13	2	30
2006 -2007	25	15	0	40
2007 -2008	16	14	0	30
2008 -2009	14	10	0	24
2009 -2010	11	26	0	37
2010 -2011	30	16	0	46
2011 - 2012	30	42	7	79
2012 -2013	12	0	1	13
2013 -2014	10	2	1	13
2014 -2015	10	0	1	11
2015- 2016				

<b>Background</b>	<ul style="list-style-type: none"> <li>• The property combines conservation objectives with farming, forestry, tourism, Renewable Energy (Hydro) and shooting.</li> <li>• Red, Roe and occasional Fallow Deer present. Sika Deer not established.</li> </ul>
<b>Designated sites</b>	<ul style="list-style-type: none"> <li>• Leny Quarry SSSI (Geological feature).</li> <li>• River Teith SAC.</li> <li>• Leny parkland – Historic Designated Landscape.</li> <li>• Property falls within Loch Lomond &amp; Trossachs National Park</li> </ul>
<b>Deer Management Objectives</b>	<ul style="list-style-type: none"> <li>• To balance deer management to deliver conservation and economic objectives in unfenced forestry and on open hill ground.</li> <li>• To maintain zero deer population in fenced forestry (including new plantings for Black Grouse) and enclosed agricultural areas.</li> </ul>
<b>Future Management Objectives</b>	<ul style="list-style-type: none"> <li>• To maintain current cooperative approach to deer management across the group and to demonstrate good practice in land/deer management.</li> <li>• To improve the age and diversity of existing native woodland and encourage more regeneration.</li> </ul>
<b>Woodland</b>	<ul style="list-style-type: none"> <li>• Woodland restructuring will require areas to be deer-fenced once the felling-cycle begins but this is unlikely to start within 10 years.</li> <li>• 3 exclosures with planted woodland (40 ha).</li> <li>• Total of 43.3 ha of native woodland. 1 exclosure with native regeneration (15.7 ha).</li> <li>• 10 ha of fenced woodland creation in next 5 years. No requirement for compensatory cull.</li> <li>• Out with fencing, limited regeneration in presence of deer.</li> </ul>
<b>Land management</b>	<ul style="list-style-type: none"> <li>• SRDP Management Plan in place for primarily for Black Grouse population enhancement.</li> <li>• Includes grazing management plan with hogs and some ewes removed from the hill in winter and in some areas, all agricultural grazing excluded in winter.</li> <li>• 700 Blackface ewes on hill, 400 Mule ewes on lower ground.</li> <li>• 50 suckler cows (increased from 20), few Wild Goats, Brown Hares and Mountain Hares.</li> <li>• No muirburn undertaken.</li> <li>• Some habitat monitoring is carried out for SRDP Scheme.</li> <li>• Estate will consider opportunities for Peatland Restoration.</li> <li>• Estate has three historic features: St Brides Chapel, Little Leny Graveyard and Kilmahog Graveyard – not considered to be impacted by deer.</li> </ul>
<b>Deer Impacts</b>	<ul style="list-style-type: none"> <li>• Habitat monitoring conducted informally as part of SRDP Scheme.</li> <li>• A84 runs through Estate for approximately 10km. Minimal numbers of Deer Vehicle Collisions (only one recorded in 20 years).</li> <li>• Some deer shot out of season.</li> </ul>
<b>Deer Distribution &amp; Movements</b>	<ul style="list-style-type: none"> <li>• Resident Red Deer population in Ardchullarie Woodlands and small resident population on Drumardoch Hill. In hard weather, significant numbers of deer come onto Drumardoch Hill from higher surrounding ground.</li> <li>• Smaller Roe Deer population in areas of woodland with lower Red population.</li> </ul>
<b>Supplementary Feeding</b>	<ul style="list-style-type: none"> <li>• Some mineral blocks provided.</li> </ul>
<b>Access</b>	<ul style="list-style-type: none"> <li>• Access encouraged. No access issues.</li> <li>• Core paths to access Loch Lubnaig &amp; Callander Craggs heavily used.</li> </ul>

<b>Invasive non-native species</b>	<ul style="list-style-type: none"> <li>• No sika established.</li> </ul>
<b>Socio-economics</b>	<ul style="list-style-type: none"> <li>• 1 Full-Time Employee associated with deer management plus occasional assistance.</li> <li>• 1 Full-Time agricultural worker, Part-Time cleaner for holiday lets, regular agricultural contract work (equivalent to 1 FTE) and family involvement equivalent to 1.5 FTE.</li> <li>• Local tradesmen (plumbers, electricians, builders etc), business, shops, agricultural &amp; forestry contractors used where possible.</li> <li>• 2 holiday lets (100 stalking bed-nights provided). Associated business runs a lochside café.</li> <li>• Estate has new improved larder and chill facilities.</li> <li>• Annual harvest of 20 stags (let).</li> </ul>

## 20. Management Units: Glenample Estate

Property	Glenample Estate
Area	3200 ha
Owner	Maria Jose Lleo
Deer management Contact	Mike Holliday



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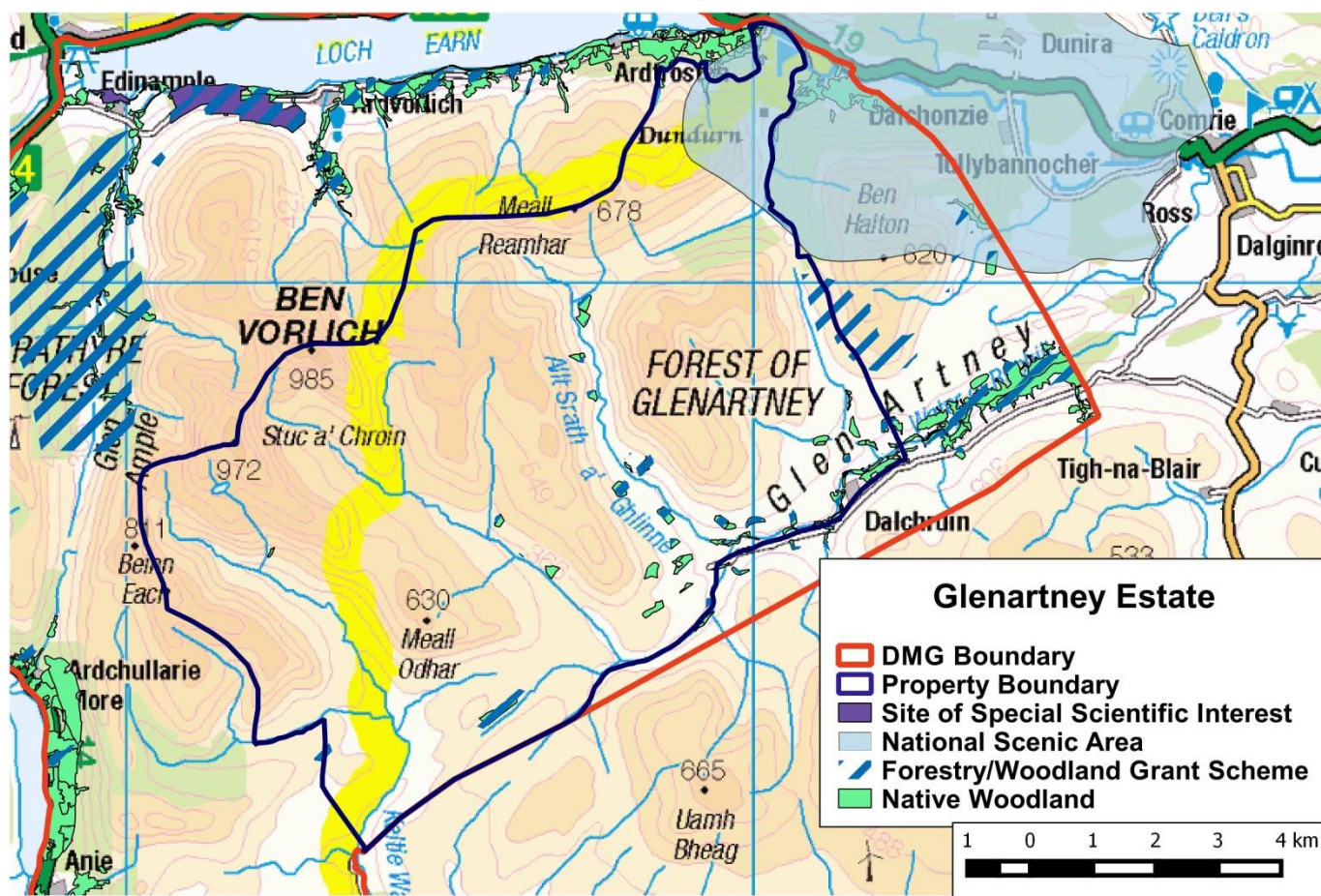
	Deer Counts (Foot)				
Year	Stags	Hinds	Calves	Total	Density
2013	116	142	63	321	16
2014	187	221	64	472	24
2015	131	79	22	232	12

	Deer Culls			
Year	Stags	Hinds	Calves	Total
2005 -2006	53	50	20	123
2006 -2007	50	54	18	122
2007 -2008	53	50	20	123
2008 -2009	53	60	22	135
2009 -2010	57	79	38	174
2010 -2011	47	58	27	132
2011 - 2012	46	64	31	141
2012 -2013	52	80	36	168
2013 -2014	49	91	49	189
2014 -2015	53	68	35	156
2015- 2016				

<b>Background</b>	<ul style="list-style-type: none"> <li>The property combines conservation objectives with forestry, farming and stalking.</li> <li>Red, Roe and occasional Fallow Deer present. Sika Deer not established.</li> </ul>
<b>Designated sites</b>	<ul style="list-style-type: none"> <li>Part of Coille Criche SSSI lies within the Estate (SSSI was partially covered by a Woodland Grant Scheme).</li> </ul>
<b>Deer Management Objectives</b>	<ul style="list-style-type: none"> <li>To balance deer management to deliver all land management objectives of the Estate.</li> <li>To maintain present populations on the open hill and reduce impacts of deer within replanted exclosures.</li> </ul>
<b>Future Management Objectives</b>	<ul style="list-style-type: none"> <li>To continue to work collaboratively with neighbours and the DMG to manage deer sustainably to benefit the local community.</li> </ul>
<b>Woodland</b>	<ul style="list-style-type: none"> <li>Native woodland 108.3 ha.</li> <li>1785.8 ha conifer woodland (Woodland Grant Scheme -woodland creation).</li> </ul>
<b>Land management</b>	<ul style="list-style-type: none"> <li>Some muirburn undertaken.</li> <li>475 breeding ewes and 18 summer heifers. Numbers of herbivores have remained static.</li> </ul>
<b>Deer Impacts</b>	<ul style="list-style-type: none"> <li>81.5% of impacts on native woodland considered low/medium.</li> <li>Occasional stag shot out of season in woodland.</li> </ul>
<b>Deer Distribution &amp; Movements</b>	<ul style="list-style-type: none"> <li>Glenample has two main stag wintering areas - one to the SE corner which has remained steady for many years with stags feeding on the improved pasture close to the farm and then returning to the central high ground towards the end of June. The second group at the SW corner of the area which has been increasing over the last 10 years to about a 200 at its peak during winter into early spring and leaving about mid-April/early May, possibly into Archullarie woods.</li> <li>The main groups of hinds are permanent in the SE corner in the quiet south facing slopes where calving tends to take place. The other permanent group is in and above Glenample Forest on the western edge.</li> <li>Transient groups tend to come out of Glenartney most afternoons to feed on the west facing slopes, these deer become more permanent in the winter and spring especially in snow conditions.</li> </ul>
<b>Supplementary Feeding</b>	<ul style="list-style-type: none"> <li>Winter/Spring feeding of stags on sugar beet nuts on in-bye ground.</li> </ul>
<b>Access</b>	<ul style="list-style-type: none"> <li>Positive access with no issues.</li> <li>One Munros on Estate march main: Stuc a' Chroin (972m).</li> <li>One Corbett: Beinn Each (811m).</li> <li>Routes waymarked and core tracks maintained.</li> </ul>
<b>Invasive non-native species</b>	<ul style="list-style-type: none"> <li>Occasional sika passing through.</li> </ul>
<b>Socio-economics</b>	<ul style="list-style-type: none"> <li>1 Full-Time Employee associated with deer management.</li> <li>1 Full-Time Employee associated with other land management practices.</li> <li>125 bed nights provided to local accommodation providers through let stalking.</li> <li>Additional wildlife tourism opportunities provided.</li> <li>Approximately 7000 kg venison sold to game-dealer.</li> <li>Estate has larder and chill.</li> <li>Deer management actively promoted through talks to local visitors and hosting local schools visits.</li> </ul>

## 21. Management Units: Glenartney Estate

<b>Property</b>	<b>Glenartney Estate (part of Drummond Estate)</b>
<b>Area</b>	24700 ha whole Estate, deer forest 7798 ha
<b>Owner</b>	Lady Willoughby de Eresby
<b>Deer Management Contact</b>	Michael Aldridge (Factor) & Peter Cramb (Head Stalker).



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	Deer Counts (Foot)				
Year	Stags	Hinds	Calves	Total	Density
2013	709	1208	533	2450	33
2014	802	1116	509	2427	32
2015	809	1237	451	2497	33

	Deer Culls			
Year	Stags	Hinds	Calves	Total
2005 -2006	161	267	70	498
2006 -2007	117	177	50	344
2007 -2008	130	172	61	363
2008 -2009	134	245	56	435
2009 -2010	137	191	38	266
2010 -2011	90	152	31	273
2011 - 2012	98	181	34	313
2012 -2013	105	181	58	344
2013 -2014	110	238	81	429
2014 -2015	110	190	37	337
2015- 2016				

<b>Background</b>	<ul style="list-style-type: none"> <li>The Estate combines conservation objectives with shooting, and some forestry.</li> <li>Mainly Red Deer with some Roe deer.</li> </ul>
<b>Designated sites</b>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Deer Management Objectives</b>	<ul style="list-style-type: none"> <li>To continue to balance deer management to deliver conservation objectives with economic opportunities on the open ground.</li> </ul>
<b>Future Management Objectives</b>	<ul style="list-style-type: none"> <li>To ensure sustainable management of deer including the implementation of habitat monitoring and long term employment of deer managers.</li> </ul>
<b>Woodland</b>	<ul style="list-style-type: none"> <li>Long Term Forest Plan in place.</li> <li>Small woodlands planted for shelter. Still too early to remove fences.</li> <li>Ardtrostan wood on South shore of Loch Earn.</li> <li>140.9 ha native woodland.</li> <li>170 ha of conifer woodland (to be restocked in future).</li> <li>Some additional woodland is being considered but not significant areas.</li> </ul>
<b>Land management</b>	<ul style="list-style-type: none"> <li>Sheep have been removed from the open hill although there are occasional incursions of up to 300 sheep from neighbouring properties.</li> <li>Peatland project on let farm.</li> <li>Estate may consider some peatland restoration work in next 5 years.</li> <li>No Muirburn undertaken.</li> </ul>
<b>Deer Impacts</b>	<ul style="list-style-type: none"> <li>Areas of Blanket Bog mainly located on the high ground above 400-450 metres, and the tops around Sron na Maoile, Stuc Garbh and Sron nam Broighleag. There are also areas of Blanket Bog in Gleann a Chroin and Gleann an Dubh Choirein. Within the blanket bog areas, the vegetation is for the most part consistent with acid grassland habitat.</li> <li>Acid grassland is the more widespread habitat type on the Estate but there are areas of dwarf shrub heath along the ridge which runs East/West towards Beinn Fuath/Am Bioran, along the former deer/boundary fence, and around Black Craig. There are also small areas of Dwarf Shrub Heath in the corries between Ben Vorlich and Stuc a' Chroin.</li> <li><b>Blanket Bog Grazing Impact Analysis:</b> Percentage Browsing of Heather Shoots of the 30 blanket bog plots surveyed, 43% showed browsing on less than 33% of the previous year's heather shoots, while the remaining 57% of plots contained little enough heather so as to make such an assessment impossible. Overall Bare Ground Frequency of the 30 blanket bog habitat plots surveyed, 14% showed evidence of bare ground present. Overall Bog Moss Frequency of the 30 blanket bog plots, 38% contained bog moss species. Overall Red Deer Dung Frequency Deer dung was present in 33% of the surveyed blanket bog habitat plots. Overall Sheep/Hare Dung Frequency Sheep Dung was present in 16% of the blanket bog habitat plots, and Hare dung was not present in any of the 30 plots. Given the dung frequency across these three mammals, it is reasonable to suggest that of the survey plots which evinced a moderate to high level of grazing, the principle grazing animal on these plots has been Red Deer.</li> <li><b>Acid Grassland (Tussock) Grazing Impact Analysis:</b> Overall Signs of Grazing across Plant Species For the 30 habitat plots, the signs of grazing were measured on various plant species associated with tussock grassland. Across the 30 plots, and across all associated species, 77% showed a medium level of grazing, where this represents a variable but obvious level of grazing across species, 17% of plots showed a low level of grazing, and 6% showed high levels of grazing, where ungrazed leaves were difficult to find, across all species.</li> <li>Inter-tussock Sward Height In measuring the average inter-tussock sward height across the 30 habitat plots, 63% of plots exhibited a sward height of 3cm – 6cm,</li> </ul>

	<p>30% exhibited an inter-tussock sward height of less than 3cm, and 7% showed an inter-tussock sward height of greater than 6cm. Accumulation of Dead Plant Litter Across the 30 tussock grass habitat plots measured, 43% of plots showed a thin mat less than 3cm deep in the inter-tussock vegetation (plus obvious standing dead material in tussocks themselves), 37% showed a mat, often mixed with mosses, of between 3cm and 6cm deep among the inter-tussock vegetation along with obvious and abundant standing dead material in the tussocks themselves, and 20% showed a deep, potentially loose layer greater than 6cm, where the standing dead material was very obvious, even among the inter-tussock vegetation. Amount of Bare Ground across the 30 plots measured, 100% of the plots demonstrated either no bare ground, or sparse, not easily observed levels of bare ground. Coverage of mosses, particularly Polytrichum commune and 'feather' mosses such as Pleurozium schreberi and Hylocomium splendens In the 30 surveyed plots, 80% showed a relatively easily observed level of the above mosses, but without these species being a dominant or immediately obvious feature of the vegetation, and 20% demonstrated a very high coverage of these moss species, where they comprised a dominant and easily observed component of the vegetation.</p> <ul style="list-style-type: none"> <li>• 97% of herbivore impacts in native woodland considered to be low/medium (NWSS).</li> <li>• Woodland grazed with no active management.</li> <li>• Some deer (approx. 10) shot annually out of season/at night.</li> </ul>
<b>Supplementary Feeding</b>	<ul style="list-style-type: none"> <li>• Some maize fed to feeders stags to improve antler quality.</li> </ul>
<b>Deer Distribution &amp; Movements</b>	<ul style="list-style-type: none"> <li>• Some stags tend to winter on Ardvorlich.</li> <li>• In the past there have been breakouts over the South fence leading to stags going into Callander or getting shot on Cambusmore (out with the DMG). Less of a problem now but issue monitored by the Estate.</li> </ul>
<b>Access</b>	<ul style="list-style-type: none"> <li>• Two Munros on Estate march main: Ben Vorlich (985m) and Stuc a' Chroin (972m).</li> <li>• One Corbett: Beinn Each (811m) and 2 Grahams: Meall Odhar (847m) and Meall Reamhar (678m).</li> <li>• No access issues.</li> </ul>
<b>Socio-Economics</b>	<ul style="list-style-type: none"> <li>• 4 full-time deer managers (1 DSC Assessor).</li> <li>• 4 full-time deer managers employed elsewhere on Drummond Estate, 12 full-time employees associated with other Estate activities plus 1 full-time employee in the Estate Office.</li> <li>• Estate Factor is involved in the administration of 2 DMGs.</li> <li>• Drummond Estate supplies fishing and boat hire on Loch Earn. Drummond Castle is a visitor attraction.</li> <li>• Use of local businesses/services including property maintenance and local shops.</li> <li>• Good larder/ chill facilities.</li> </ul>

