# Stronelairg Wind Farm
# Deer Management Plan

## Version 2.0
## 16/09/16

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# 1. Introduction

This Deer Management Plan is provided as part of the planning condition requirements for the Stronelairg Wind Farm planning condition 32 in relation to Stronelairg wind farm deemed planning permission 06/06/14 as follow;

(1) No development shall commence until a Deer Management Plan, developed in consultation with SNH, has been submitted to, and approved in writing to, the Planning Authority.
(2) The Deer Management Plan shall draw upon Wild Deer Best Practice standards and Chapter 4 of the code of Practice on Deer Management, and ensure that appropriate monitoring and deer control measures are carried out to mitigate any deer-related impacts on the Monadhliath SAC and SSSI.
(3) Thereafter, the Deer Management Plan shall be implemented as approved.

This Stronelairg Wind Farm deer management plan is therefore intended to cover the potential impacts of the Development. The wider estate and neighbouring lands are encompassed in the Monadhliath Deer Management Group (MDMG). With 40 members and covering an area of around 150,000 ha, the MDMG is the largest in the country and, in partnership with Scottish Natural Heritage (SNH), has recently adopted a new Strategic Deer Management Plan (SDMP).

## *1.1 Windfarm factors*

The Stronelairg Environmental Statement included consideration of deer management and how the Development may affect deer movements and their use of the site.

*"The arrangements for deer management in Scotland reflect the fact that deer can roam freely across boundaries between estates, farms, forests and landholdings. For red deer, the main open hill species in the study area, a collaborative approach to their management has developed. Consequently, deer in the study area cannot be considered in isolation from those on adjacent sites and estates*

*SNH publish a list of current research projects on wild deer issues in Scotland (SNH, 2011). A list of past research on deer issues were also provided by their deer management predecessors, the Deer Commission for Scotland. From these lists and the recently published Scottish Government strategy 'Scotland's Wild Deer: A National Approach' (2008), it appears that deer and wind farm interactions have not, and are not, seen as a significant deer management issue. Therefore, with little/no published information, when considering possible interactions between deer and wind farms lessons need to be drawn from knowledge of deer ecology and their general management.*

*Deer have some basic requirements, which can be summarised simply as food and shelter. So long as these are provided then deer are relatively predictable in terms of their needs. If a wind farm is developed in a manner that prevents deer from gaining access to traditional sources of food or shelter, then deer are likely to move elsewhere in search of them. Garrogie and Glendoe Estates manage their red deer population and therefore have knowledge of where the deer seek food and shelter throughout the year. The Development would not prevent deer gaining access to their favoured sources of food or shelter. Consequently, there is no evidence to suggest that deer behaviour would change in the long-term if the Development is built.*

*Practical experience from other developments suggests that localised, temporary displacement of deer can sometimes occur around construction sites whilst work commences, dependent upon how habituated or scared of humans the deer are. For example, Robbie Rowantree, the stalker on Gordonbush Estate, has been monitoring deer movements in relation to the SSE 35 turbine Gordonbush Wind Farm in Sutherland. He reports some localised displacement of red deer during construction, but not more than 1km from the construction work (pers. comm.). Where construction work has been completed, deer quickly return. This suggests that a temporary localised displacement effect is likely to be associated with wind farm construction, but that it disappears as soon as construction work is finished in an area.*

*At Glendoe, red deer do not appear to have changed their behaviour in relation to hydroelectric scheme construction work at all. For example, Willie Fraser, who conducts annual red deer counts by helicopter on Garrogie and Glendoe Estates for SSE reported in 2009 that "what was notable in the count was the proximity of deer to the (Glendoe) dam area and other ongoing works. Deer were observed grazing within 100m of ongoing works" (William Fraser letter of 23/11/2009 to Kirsty Frost, SSE). Dr Mary Elliott (pers. comm.), who has been monitoring and implementing the Glendoe Habitat Management Plan, provides similar reports saying that "during construction and since, deer are seen all around the plateau in small numbers".*

*The results of the SSE funded Garrogie and Glendoe Estates red deer monitoring suggests that numbers of deer have fluctuated, but remained relatively stable during years when construction has taken place (Table 11.7). There is no evidence to suggest deer have changed their behaviour in relation to construction or operational disturbance associated with Glendoe Hydro.*

***Table 11.7: Annual Helicopter Red Deer Count Data from Garrogie and Glendoe Estates.***

| ***Year*** | ***Garrogie Estate*** | | | ***Glendoe Estate*** | | |
|---|---|---|---|---|---|---|
| *Deer* | *Stags* | *Hinds/calves* | *Total* | *Stags* | *Hinds/calves* | *Total* |
| *2004** | *176* | *697* | *873* | *163* | *307* | *470* |
| *2005* | *323* | *583* | *906* | *211* | *636* | *847* |
| *2006* | *163* | *564* | *727* | *220* | *618* | *838* |

| | | | | | | |
|---|---|---|---|---|---|---|
| *2007* | *258* | *708* | *966* | *205* | *956* | *1,161* |
| *2008*** | *117* | *998* | *1,115* | *252* | *742* | *994* |
| *2009* | *129* | *516* | *645* | *230* | *816* | *1,046* |
| *2010* | *108* | *675* | *783* | *184* | *590* | *774* |

***Count later than previous years and during period of heavy snow, resulting in deer abandoning higher ground.*

*Monitoring of restoration techniques and successes at Glendoe Hydro would inform habitat restoration work on the Development. It is possible that planned habitat restoration work (e.g. hydro-seeding along track edges) might result in localised concentrations of preferred food and hence deer grazing. However, to date, habitat restoration work along Glendoe tracks has been successful in terms of reseeded areas responding quickly (refer to Appendix 11.7).*

*In conclusion, there is some weak anecdotal evidence that construction work may cause very localised and temporary displacement of red deer – this ceases immediately when construction ends. There is no evidence that large scale upland construction projects affect deer movements and behaviour in the short, medium or long-term. Therefore, there is no evidence to suggest the Development is likely to cause any substantial or significant changes in deer movements and behaviour on Garrogie and Glendoe Estates.*

Key dates in the wind farm development;

| | |
|---|---|
| Expected construction start date | October 2016 |
| Planned Operational wind farm | June 2019 |

## 2. Background Information

### 2.1. Ownerships and contacts

| | |
|---|---|
| **Tenant:** | SSE Generation Ltd. |
| **Contact:** | [redacted], SSE Estates Manager |
| **Deer Mgt Group:** | Monadhliath Deer Management Group |
| **Plan written by:** | SSE |

### 2.2. Location

| | |
|---|---|
| **Nearest town, village, or feature** | Fort Augustus, Highland |
| **Grid reference** | NH 524029 |
| **Total area of wind farm boundary** | 3,300 ha |

| | |
|---|---|
| **Total area of *Monadhliath Deer Management Group*** | 150,000 ha |

### *2.3. Description of land occupied by the wind farm development*

This plan refers to the area affected by the Stronelairg Wind Farm which sits within the larger land ownership of Garrogie and Stronelairg within the Monadhliath Deer Management Group area.

Stronelairg Wind Farm development

The development site extends to some 33km.sq. of rolling uplands within the Garrogie Estate, Fort Augustus, which is itself located within the wider Monadhliath range. The proposed windfarm lies to the east of the recently constructed Glendoe Hydro-scheme dam and stops approximately 2km in advance of the Cairngorms National Park boundary.

Characterised on the whole by a large bowl-like feature some 3km (north/south) by 8km (west/east) wide, and surrounded by a ring of hills, some craggy, some more rotund, the site is pepper-potted with a variety of burns, lochans and, in its lower sections, areas of peat bog (incl. some blanket bog). Many of the burns have been tapped by intake structures relating to the new Glendoe hydro-electric scheme.

Varying levels of peat can be found across much of the application site, approximately 80% of which is 1.4m or less in depth, with only a very small percentage thought to exceed 2.4m. Some bedrock is exposed at the surface of a number of higher points and the banks of burns suggesting the presence of mainly hard rock beneath areas of little or no peat, while Groundwater-dependant Terrestrial Ecosystems (e.g. springs) are distributed throughout the site and a Chalybeate Spring is located near its eastern boundary.

The core of the proposed windfarm is located within the aforementioned bowl feature which runs from Meall Caca Beag at the west of the site to Carn Donnachaidh Beag at the east; the turbines within this area are distributed amongst a mixture of lower lying peatland and small ridges, interspersed with a network of burns and lochans. A number of turbines do, however, lie outwith this concave feature on the flanks of Meall Caca, Sìdhean Dubh na Cloiche Bàine, Carn Fraoich and Meallan Odhar. The lowest turbine elevation is approximately 640m above sea-level, while the uppermost turbine is located at approximately 800m.

Reports relevant to the management of deer within the SAC

1. *SNH Commissioned Report 527: A deer population and habitat-impact assessment of the Monadhliath SAC, Inverness-shire (2013).* In the summer of 2011, a survey was carried out to investigate the spatial and temporal relationships between deer population parameters and blanket bog habitat condition at the Monadhliath Special Area of Conservation. This report presents the survey methods and results, together with recommendations for future management and research.

2. *SNH Commissioned Report 165: An assessment and evaluation of herbivore impacts on blanket bog habitat in the Monadhliath Special Area of Conservation (2006*). The survey aimed to assess the impacts on blanket bog due to trampling and grazing across the SAC, to draw conclusions as

to the nature and source of impacts observed and to provide a prognosis for the vegetation. To this end, 197 plots were located from random points spread across the seven land-ownership units and appropriate indicators assessed at each one.

3. *Philip R Ratcliffe Ecological Land Use Consultancy Report on inspection of blanket bog at Garrogie Estate 2006*

### *a. History of Land Management*

An active sporting estate with renewable energy interests in the form of both hydroelectric and the new wind farm development.

### *b. Designations*

| Designated Areas | Within development site | Adjacent to development site | Not Present | Map |
|---|---|---|---|---|
| Site of Special Scientific Interest (SSSI) | | X | | |
| Special Area of Conservation | | X | | X |

**Details**

Areas within the Monadhliath have been designated as 'Special Areas of Conservation' ( SAC) and as an SSSI under the Wildlife and Countryside Act (1981)

| Site Name | Designation | Size (ha) | Feature of Interest |
|---|---|---|---|
| Monadhliath Special Area of Conservation | SAC | 10671.11 | Blanket bog |
| Monadhliath Site of Special Scientific Interest | SSSI | 10671.11 | Breeding dotterel (*Charadrius morinellus*)<br>Breeding bird assemblage<br>Blanket bog<br>Mosaic of upland plant assemblage<br>Vascular plant assemblage<br>Black mountain moth (*Glacies coracina*) |

## *3. Wild Deer - The Current Situation*

c. ***What is the history of deer in the area?*** (E.g. native red herd, long standing fallow population)

Red deer are the predominant species of deer and the stated purpose of land management within the estate includes stags for sporting.

**Red deer ranges and movements**;

Stronelairg hinds and calves are considered to be hefted stock and do not range widely.

Red stags move between Stronelairg and Glensherro as 'shared' territory

It is considered that Coignafearn estate, on the eastern march above Glen Markie, has carried out heavier culls and created a vacuum drawing in deer to that area.

Deer population within the wind farm area is monitored through annual deer counts which is showing a reduction in numbers to 60% of the initial 2008 count.

| ***Stronelairg Counts by SSE*** | | | | |
|---|---|---|---|---|
| ***Date*** | ***Stags*** | ***Hinds and Calves*** | ***Totals*** | ***%*** |
| ***28.10.2008*** | *117* | *998* | *1115* | *100%* |
| ***22.10.2009*** | *129* | *516* | *645* | |
| ***16.11.2010*** | *108* | *675* | *783* | |
| ***04.11.2011*** | *54* | *325* | *379* | |
| ***03.11.2012*** | *75* | *626* | *701* | |
| ***06.11.2014*** | *77* | *579* | *666* | *60%* |

### *d. Annual cull data for recent years (whole Estate)*

| | | | |
|---|---|---|---|
| ***Year*** | ***Stags shot*** | ***Hinds shot*** | ***Calves shot*** |
| *1987* | | | |
| *1990* | | | |
| *1994* | | | |
| *1998* | | | |
| *1999* | *54* | *133* | *28* |
| *2000* | *67* | *125* | *27* |
| *2001* | *52* | *82* | *29* |
| *2002* | *65* | *114* | *24* |
| *2003* | *68* | *111* | *25* |
| *2004* | *61* | *85* | *35* |
| *2005* | *58+1 o/s* | *62* | *27* |
| *2006* | *31* | *62* | *19* |
| *2007* | *42* | *50* | *17* |
| *2008* | *43* | *129* | *49* |
| *5 yr avg.* | *46* | *62* | |

| | | | |
|---|---|---|---|
| *2009* | *52* | *92* | *58* |
| *2010* | *45* | *80* | *21* |
| *2011* | *34* | *63* | *22* |
| *2012* | *37* | *120* | *22* |
| *4 yr avg.* | *43* | *88* | *30* |
| *2013* | *44* | *59* | *10* |
| *2014* | *45* | *112* | *41* |
| | | | |

## *4. Future Management*

e. ***Long Term Vision or Policy*** (e.g. "maintain deer populations in balance with woodland and sporting interests")

To maintain a healthy red deer population as part of the overall estate management and providing sporting opportunities for both the owners and paying guests while maintaining open moorland and bog in good condition.

Within the windfarm boundary the primary management is with wind energy production while allowing the free movement of wild deer as was the situation before the development was present.

To address the concerns of SNH that the wind farm development will not cause adverse effects on the Monadhliath SAC through displacement of deer.

### *f. What are perceived obstacles to achieving objectives?*

- Short term

Initial wind farm construction disturbance may cause a short term behavioural change within deer using the high ground.

- Medium term

The management and maintenance of the operational wind farm.

- Longer term

The decommissioning activities through dismantling and removal of turbines and reinstatement operations.

### *g. Identify actions for removing obstacles*

The risk of dispersal of deer through the construction of developments within open deer ranges has, to date, been largely unfounded as described earlier.

- The planning conditions as to working hours generally allow deer to settle and return to the site when the workforce retires for the day.
- Experience has shown how quickly deer adapt to an activity which poses no threat.

However the scale of Stronelairg wind farm and its proximity to the Monadhliath SAC requires special consideration.

The monitoring of deer movement will be carried out, by estate staff, as part of their overall duties.
Engagement with neighbours through the Monadhliath Deer Management Group will continue to be paramount.

### *h. Identify potential collaboration with neighbours*

Stronelairg Estate is presently a member of the Monadhliath Deer Management Group and is supporting the Deer Management Plan revision currently underway through the engagement of Strath Caulaidh Ltd.

## 5. *Cull plan*

### i. *Identify cull requirement by species*

| Species | Target | | | Actual | | |
|---|---|---|---|---|---|---|
| | F | M | J | F | M | J |
| **2015** | 80 | 45 | 40 | | | |
| **2016** | 80 | 45 | 40 | | | |
| **2017** | 80 | 45 | 40 | | | |
| **2018** | 80 | 45 | 40 | | | |
| **2019** | 80 | 45 | 40 | | | |

The above information is supplied by the Monadhliath Deer Management Group . Further information in relation to the formulation of these targets can be made available upon request.

## *6. Monitoring*

### *j. How will achievement of the objectives be measured?*

| Objective or issue | Method of assessment | Monitoring period and frequency | Who is responsible | Use of information |
|---|---|---|---|---|
| **Deer numbers/ Density** | Helicopter count | Annual | SSE | Managing cull levels |

| | | | | |
|---|---|---|---|---|
| **SAC Impacts*** | Appropriate vegetation monitoring as part of DMG | 5 years | DMG | Determining balance of objectives |
| **Cull figures** | Game book | Annual | Stronelairg Estate | Ensuring cull figures are met |
| **Other cull data** | | | | |

### 6.1 SAC Monitoring and Reporting

In order to establish if there are any impacts on the Monadhliath Special Area of Conservation at the eastern end of the Stronelairg Wind Farm site during construction, from deer displacement, pre-construction surveys are being completed during September 2016, to establish the baseline from which an assessment can be made during construction. This work is being carried out by Applied Ecology Limited.

The methodology being adopted is a stratified sampling system is, recording 4x4 m quadrats (as used in JNCC Site Condition Monitoring) on a 250 m grid. Within each quadrat the following parameters shall be recorded:

- vegetation composition, using the Domin scale, for higher and lower plants;
- Domin scale for bare ground;
- vegetation height (10 sampling points within the quadrat, using a standard drop disk);
- number of hoof prints;
- number of dung pellet groups.

A total of 66 sampling points across the 250 m grid across the study area are identified (see Appendix 1 - SAC Baseline Survey map) .
This is sufficient to allow statistically significant trends to be identified, and will cover both of the key NVC communities within that part of the SAC (M19b/c and M19c). A report of the baseline findings will be made available to The Highland Council and Scottish Natural Heritage once completed in the later part of 2016.

During construction, surveys will be completed by independent Ecologist professionals within, the identified survey area and the same 66 sampling vegetation points will be monitored annually in early September.
A follow up report will be produced at the end of each monitoring year and sent to The Highland Council and Scottish Natural Heritage.

Should a significant impact on the SAC vegetation within the study area compared to the baseline results be identified by independent ecologist specialist, arising from deer dispersal, actions will be agreed between the Developer, Estate and other statutory parties. To this effect this may result in action being taken by the estate to reduce numbers via increased culling activities.

Following the completion of construction, it is envisaged that less frequent monitoring will be required, and will therefore this will be reduced to a frequency of every 5 years.

## 7. Health & Safety issues

- Wind Farm Construction and Operation. Induction, liaison and controls from specific risk assessment. Two way dialogue between construction staff and estate staff.

## 8. Appendices

**Appendix 1 – SAC Baseline Survey Map**