8. Deer Management Plan

8.1 Introduction

8.1.1 The Proposed Development has potential connectivity with the Caithness & Sutherland Peatlands Special Area of Conservation (SAC), specifically the Site of Special Scientific Interest (SSSI) components (Grudie Peatlands SSSI and Strath an Loin SSSI). Impacts could involve the temporary displacement of red deer (*Cervus elephus*) from the Proposed Development into these designated nature conservation sites. In addition to which, proposed habitat management units (both on and off-site) as outlined in **Technical Appendix 8.10 (Outline Habitat Management Plan)** are also likely to be subject to deer presence and associated impacts.

8.1.2 This Deer Management Plan (DMP) includes measures to mitigate adverse impacts on the Grudie Peatlands SSSI and Strath an Loin SSSI, as well as proposed habitat management units and takes into account deer management on neighbouring land to ensure the objectives are complementary, particularly with the East Sub-Group Deer Management Plan (ESG DMP).

Proposed Development

8.1.3 The Proposed Development is located on Glencassley and Glenrossal Estates, approximately 4.5km north of the village of Rosehall and approximately 11km west-north-west of Lairg within the Highland region of Scotland. The Proposed Development will consist of 20 wind turbines. The Site lies on the east side of Glen Cassley, approximately 1.5km from the River Cassley which runs parallel to the south-western part of the Site. The ground cover of the Site is predominantly upland heath and blanket bog, which forms part of a Highland Sporting estate. A minor road runs through Glen Cassley close to the operational Achany and Rosehall wind farms. Access to the Proposed Development would be taken through the Achany Wind Farm site.

Objectives

8.1.4 This DMP has been completed following best practice guidance from Scottish Natural Heritage (now NatureScot) (SNH, 2019; and SNH, 2016). The purpose of the plan is:

- to summarise the potential impacts upon the blanket bog feature of the Grudie Peatlands SSSI from the temporary displacement of deer, as well as potential impacts to habitat management units associated with the Proposed Development;
- to outline the mitigation measures proposed to manage the potential impacts of the Proposed Development on the blanket bog feature of the Grudie Peatlands SSSI and proposed habitat management units; and
- to reduce and maintain lower deer densities across the Estate in order to allow for blanket bog recovery and recolonisation of bare peatland within the proposed habitat management units and the maintenance of open moorland and blanket bog in good condition.

8.2 Baseline Information

Caithness & Sutherland Peatlands SAC (Grudie Peatlands SSSI and Strath an Loin SSSI)

8.2.1 The Caithness & Sutherland Peatlands SAC is an extensive area of open moorland and blanket bog habitat comprising numerous parcels of land across northern Scotland which cover a vast combined area of c.143,561Ha. These peatlands, and the surrounding moorland and open water, are of international importance for conservation because they support a diverse range habitats, plants and breeding birds (further details are provided in **Technical Appendix 8.8 – Habitat Regulations Appraisal**).

8.2.2 Strath an Loin SSSI is situated approximately 3km to the north of the Proposed Development and deer displacement effects were scoped out within the EIA Report (**Chapter 8 - Ecology**) based on the distance from the Site and core areas of foraging and shelter which are located to the west of the Site. However, the Grudie Peatlands SSSI component is located along the eastern boundary of the Proposed Development site and is considered further given its proximity to the Site and potential for displacement effects.

8.2.3 The Grudie Peatlands SSSI occupies the southern part of the extensive watershed between Glen Cassley and Loch Shin. The main peatland expanse occurs at 250-350m altitude. The SSSI contains a number of different blanket bog types, including valleyside, terrace and saddle mires. These various bog types have developed on summits, slopes and in hollows and combine to form an extensive peatland habitat. Bog pools and small lochans add to the diversity. The SSSI also supports a range of moorland birds, including breeding populations of greenshank (*Tringa nebularia*), golden plover (*Pluvialis apricaria*) and dunlin (*Calidris alpina schinzii*).

8.2.4 The blanket bog was last monitored in June 2002[1] and was considered to be 'favourable, maintained' condition. The monitoring showed that the extent of the peatland habitat had been maintained and good examples of moss hummocks and pool systems were found. No evidence of peat cutting, recent drainage or muirburn were found. One of the core objectives for management is to maintain the condition, extent and distribution of the peatland habitats. On this basis, deer stocks should be maintained at levels at which there is no obvious damage to this vegetation from grazing or trampling by animals.

8.2.5 The latest SSSI management statement[1] from 2010 shows that of the SSSI's interest features, only golden plover is in unfavourable/declining condition, the reasons for which are not known. However, the latest assessed condition of the blanket bog feature for Caithness and Sutherland Peatlands SAC is currently 'Unfavourable No Change'.

8.2.6 Grudie Peatlands SSSI is monitored annually as part of Sallachy Estate habitat monitoring programme. The most recent available records from the Habitat Assessment (ESG DMP, Appendix III) indicate that results from 2018 across all the monitoring plots were consistent with the previous three years (2015 – 2017) results and showed light herbivore (deer) impacts across the whole land parcel.

Local Deer Management Plan

8.2.7 The ESG DMP (2019a, 2019b) covers the area of the Proposed Development, including the wider Glencassley Estate and neighbouring lands[2], which covers an open hill area of

[1] https://sitelink.nature.scot/site/750 (accessed 21/04/21)

[2] Glenrossal Estate which comprises the eastern extent of the Proposed Development is not currently a member of the ESG.

36,157ha (See Figure 8.9.1). The main land uses by area in the sub-group are open hill deer range and commercial forestry. The ESG DMP applies an integrated approach to managing deer that maintains population numbers for sporting activities while ensuring long-term sustainability. Deer management objectives for Glencassley Estate include:

- To have a red deer population to sustain a viable sporting cull and maintain designated sites and wider habitat in favourable condition;
- Gradual increase in herd to get to target density (the ESG DMP presents a target density of 20/100Ha, however discussion with the Estate suggests a current target density of 15/100Ha is more realistic); and
- To protect woodlands while maintaining a sika population to sustain woodland stalking business.

Deer Species and Numbers

8.2.8 The deer species and number present within Glencassley Estate (and the wider ESG area) are based on the data provided within the ESG DMP, which covers the period 2016 until 2021. This plan is primarily concerned with the open hill red deer population. Whilst sika and roe deer are present in the enclosed woodlands, individual estates have their own plans for managing these populations.

8.2.9 Deer count figures are based on helicopter surveys carried out by SNH in 2016. Helicopter surveys were undertaken again on 18th March 2019.

8.2.10 The 2019 red deer density over the open range area of the sub-group is 9.5 deer/100Ha a decrease from 11.8/100Ha from the 2016 count. Table 8.9.1 presents deer numbers by management unit within the ESG Group from 2019. Within Glencassley Estate, the 2019 open range deer density was 14.8/100 Ha, a reduction of 15.7% from 2016.

Table 8.9.1: ESG Red Deer Count (2019)

Management Unit	Stags	Hinds	Calves	Total	Density (deer/100Ha)		Change
					2019	2016	
Benmore Assynt	201	506	76	783	10.6	10.7	-1.1%
Duchally/Invercassley	255	311	57	623	6.2	6.6	-5%
Sallachy	38	279	43	360	4.4	2.0	115.6%
Glencassley[3]	84	467	54	605	14.8	17.6	-15.7%
Inchnadamph	459	609	196	1264	14.6	20.1	-27.1%
Total	1037	2172	426	3635	9.5	11.8	-19.9%

8.2.11 Table 8.9.2 presents deer numbers by count area across Glencassley Estate from 2019; and illustrated in Figure 8.9.2.

[3] The ESG DMP recorded higher than expected densities at Glencassley and Inchnadamph in 2016. The count was carried out when there was still snow on the hills which pushed deer down on to lower ground, and it was thought that hinds would return to their calving grounds and the population would consequently move east thereby reducing density at Glencassley at Inchnadamph.

Table 8.9.2: Deer numbers within Glencassley Estate (2019)

Glencassley Estate Count Area	Stags	Hinds	Calves	Unconfirmed
20		2	2	
21	1	24	6	
22				32
23		12	3	
24				86
25		16	9	45
26	1	1	1	40
27		2	2	
28			1	
29		13	5	31
		13		
30		3	2	
31	21	5	2	

8.2.12 According to the Glencassley Estate gamekeeper, deer densities towards the northern end of the estate (count areas 28 and 30) are considerably lower than other parts of the Estate. This is reflected in the deer count numbers illustrated in Figure 8.9.2.

Deer Movement and Distribution

8.2.13 According to ESG DMP (2019b), there are two main populations within the Sub-group area:

- Cassley/Shin population; and
- Inchnadamph/Benmore population further to the west.

8.2.14 Deer within the Glencassley Estate are part of the Cassley/Shin population, comprising a hefted red hind herd with resident stags that generally move east to west between Sallachy, Glencassley and Invercassley Estates. Consequently, deer in the Study Area cannot be seen in isolation from those on adjacent sites and estates.

8.2.15 According to the Glencassley gamekeeper, deer tend to move into and out of the hill, spending evenings and night down in the fields around River Cassley on the western side of the Estate (See Figure 8.9.2), before moving up into the hill through the day. Heavier grazing and trampling are generally found along the routes in and out of the hill rather than widespread in nature across the Estate. Within the Estate, the biggest concentration of deer is generally found on lower ground between Badintagairt and the woodland around Glencassley Castle where the best quality grassland is found. [Pers. Comm. Glencassley Estate Gamekeeper].

Planned Cull (Glencassley Estate)

8.2.16 As detailed in the ESG DMP (2019a,b), a cull is currently set (See Table 8.9.2) to maintain the current sporting business and help to maintain designated sites in favourable condition. The cull is re-assessed annually based on deer observations and habitat monitoring and after the next scheduled helicopter count in 2021.

Table 8.9.3: Glencassley Estate Planned and Actual Red Deer Cull 2016-2021

Year	Stags	Hinds	Calves	Total
2016/17 Planned	30	40	10	80
Actual	30	40	19	89
2017/18 Planned	30	30	3	63
Actual	30	60	3	93
2018/19 Planned	30	30	10	70
Actual	30	25	5	60
2019/20 Planned	30	30	10	70
Actual	30	40	14	84
2020/21 Planned	30	30	10	70
Actual	30	52	33	115

New Native Woodland Planting

8.2.17 Glencassley Estate completed new native planting in 2017 and 2019 at two locations – Badintagairt and Langwell Hill. The area planted is 135Ha with 165Ha fenced off and taken out of the deer range.

8.2.18 Glencassley Estate combined with Duchally/ Invercassley and Sallachy have planted almost 4,000 ha of new woodland over the past 20 years. According to the ESG DMP (2019a) there is considered to be limited scope for any further planting on these properties.

Habitat Monitoring[4] within Glencassley Estate

8.2.19 In June 2016 habitat monitoring was carried out over blanket bog and dwarf shrub heath (the two main habitat types) within Glencassley Estate. This was undertaken to provide a baseline to allow changes in deer impacts over time to be measured within the Estate.

8.2.20 Habitat monitoring is conducted following methodology set out in the "Best Practice Guide to Habitat Impact Assessment"[5]. Random plots were generated by NatureScot and 60 plots were assessed in the two main habitat types – 30 plots in blanket bog and 30 plots in dwarf shrub heath. The data are recorded on data sheets and entered into data summary workbooks, both of which are provided by NatureScot.

8.2.21 Results comprised:

- Blanket Bog: Habitat had light browsing pressure, light crossed leaved heath browsing pressure and very little signs of slots (hoof prints) (6%) or pellet groups (dung) (17%) and an average vegetation height of 14cm; and
- Dwarf Shrub heath: Heather was present over 100% of squares sampled with light to moderate trampling and light browsing pressure and an average vegetation height of 14cm.

[4] West Sutherland Deer Management Group East Sub Group Deer Management Plan: 2016-2021Appendix III Habitat Assessment
[5] https://www.bestpracticeguides.org.uk/impacts/blanket-bog/

8.2.22 The results across all the plots in each habitat were found to be consistent and showed light browsing and trampling across both habitat types within the Estate management areas (illustrated in Figure 8.9.2).

8.3 Potential Impacts

8.3.1 Any potential issues that could arise due to changes in deer numbers and movement as a consequence of the Proposed Development are outlined below, as well as any potential effects on the deer themselves.

Deer Populations

8.3.2 According to Edwards (2019), evidence suggests that impacts on open habitats (heaths and blanket bogs) can become moderate or high on at least some habitats above densities of above 8 per km^2. Where red deer densities exceed 8 per km^2 across large areas, there is likely to be ongoing damage to some peatlands within that area, and the success of peatland restoration work may be compromised by deer impacts if deer densities remain above that level. Deer densities in this report are categorised as low <5 per km^2; moderate 5-10 per km^2; high 10-15 per km^2 and very high >15 per km^2.

8.3.3 As previously noted, the deer density on Glencassley Estate was 17.6 deer/km^2 in 2016, reduced to 14.8 deer/km^2 in 2019. According to the Glencassley gamekeeper, the deer density around the western extent of the estate was more likely to be around 10-11 deer/km^2. In which case, a broad deer density range between 10 – 14.8 deer/km^2 would mean that the deer density is considered high, particularly when considering appropriate densities for blanket bog sites.

Habitat Modification

Caithness & Sutherland SAC [Grudie Peatlands SSSI]

8.3.4 As there are potentially high densities of deer within the Glencassley Estate and the Proposed Development site, there is a chance that displaced deer could move into adjacent blanket bog associated with Caithness & Sutherland SAC [Grudie Peatlands SSSI] which borders the eastern site boundary, which could be adversely impacted by increased deer trampling pressures.

8.3.5 Construction of the Proposed Development may lead to the localised, short-term and temporary displacement of red deer into the SAC and SSSI, which would cease following the completion of construction. Importantly however, the Proposed Development would not prevent deer gaining access to favoured sources of food or shelter on low-lying areas around River Cassley. Consequently, there is no evidence to suggest that deer behaviour would change in the long-term if the Proposed Development is built.

8.3.6 Based on a proposed phased approach to construction (See **Chapter 3: Description of Development**), working areas would be localised rather than comprising the entirety of the Proposed Development area, further limiting the potential for wider dispersal. There is no evidence that large scale construction projects in the uplands affect deer movements and behaviour in the short, medium or long-term. Therefore, there is no evidence to suggest the Proposed Development is likely to cause any substantial or significant changes in deer movements and behaviour on Glencassley or adjacent estates during the construction period.

8.3.7 Displacement impacts are unlikely to continue into the operational phase of the Proposed Development, as maintenance activities, and therefore disturbance, would be greatly reduced. Studies in Norway (Reksten, 2016) have suggested that red deer may avoid wind farm areas during construction but show no apparent avoidance during operation. Management and maintenance of the operational wind farm in the medium-term is not considered to lead to significant deer displacement as personnel activity would be low and vehicle speed limits would be controlled. Deer quickly adapt to activities that pose no threat and are likely to remain in the study area during operation. In the longer-term, decommissioning of the Proposed Development, through dismantling and removal of turbines and other infrastructure and habitat reinstatement, is likely to lead to a similar displacement effect as that experienced during construction activities.

Candidate Management Units

8.3.8 As there are potentially high densities of deer (10 – 14.8 deer/km^2) within the Glencassley Estate and the Proposed Development site, the success of proposed peatland restoration work could be adversely impacted by increased deer trampling pressures.

8.3.9 Fencing of the proposed management units has not been considered a suitable measure given the potential knock-on effects to the unfenced habitats of the adjacent Grudie Peatlands SSSI and Strath an Loin SSSI. Consequently, the approach to deer management will focus on a reduction in deer density.

Deer Welfare

8.3.10 As discussed, there is the possibility that the construction work carried out on the proposed development site could have an adverse impact on the deer populations through disturbance or fragmentation of their grazing habitat. However, it is likely that this impact would be low and displacement impacts are unlikely to continue into the operational phase of the Proposed Development. Nevertheless, construction activities could cause localised displacement of deer and there are potential collision risks with construction vehicles, machinery and equipment during construction.

8.4 Mitigation and Enhancement Measures

8.4.1 Specific measures to reduce the potential damage to habitats within and around the Estate and the potential disturbance and mortality of the deer are provided below.

Cull Plan

8.4.2 As detailed in the ESG DMP, current annual cull targets for Glencassely Estate are set at 30 hinds, 30 stags and 10 calves for the Glencassley Estate. The cull is currently set to maintain the current sporting business and help to maintain designated sites in favourable condition. However, based on the current densities recorded on Glencassley Estate, which are considered to range between 10 – 14.8 deer/100 Ha, in order to reduce potential further deer impacts and improve the condition of habitats both within proposed management units and adjacent designated sites, there would need to be a reduction of hind densities to the lower end of this range (no greater than 10 deer/100 HA) in order to allow for initial habitat establishment as well as the longer term maintenance of these habitats. This would be reviewed on an ongoing basis based on the habitat condition monitoring of the restoration areas.

8.4.3 The monitoring of deer movement and counts would continue to be undertaken by Glencassley Estate staff as part of their overall duties and the information provided would

be used to manage cull levels. Engagement with neighbours on the surrounding estates (notably Sallachy Estate) through the ESG DMP would also continue to ensure deer management measures are complementary and collaborative. Final annual cull targets would need to be agreed between The Applicant, Glencassley Estate and NatureScot.

Habitat Condition Monitoring

8.4.4 Pre-construction vegetation surveys will be required in order to establish a baseline from which the condition of the Grudie Peatlands SSSI (within Glencassley Estate) could be monitored following construction of the Proposed Development. It is anticipated that the monitoring protocol would follow the annual monitoring of blanket bog and dwarf shrub heath within Glencassley Estate. These surveys would also be extended for the proposed habitat management units (as detailed in **Technical Appendix 8.10 – oHMP**).

8.4.5 Baseline habitat condition would be established at sampling points within each of the proposed management units and the condition of the sampling points would then continue to be monitored annually during construction of the Proposed Development. The requirement for further monitoring outside the construction period would be subject to survey findings. Survey methodologies would be agreed with NatureScot. Reports would be produced at the end of each monitoring year and provided to The Highland Council (THC) and NatureScot.

8.4.6 Should a deterioration in condition of the vegetation from deer dispersal in the Grudie Peatlands SSSI or proposed habitat management units be identified during these monitoring surveys, further actions may be agreed between the Applicant, Glencassley Estate and NatureScot.

Deer Welfare

8.4.7 Measures to reduce the disturbance and potential mortality of deer would also be undertaken during construction of the Proposed Development. Deer welfare would be ensured at individual and population level as per the ESG DMP and would include the following measures:

- Follow general guidance and specific objectives for Glencassley Estate in the ESG DMP;
  - Deer managers within the ESG have achieved DSC Level 2 and are on the NatureScot Fit and Competent register and follow Best Practice in all deer management activities;
  - Deer managers carry out visual inspections of the deer population at every opportunity and individual estates retain larder weight records which may be brought into this plan at a later date to look at individual culled weights over time;
  - All deer managers are aware of the dangers and issues surrounding Chronic Wasting Disease (CWD) and guests arriving from areas where CWD is prevalent are made aware of the need to disinfect clothing and equipment – especially boots; and
  - ESG supports West Sutherland Deer Management Group (WSDMG) Operations Document.
- Restrict construction traffic to the construction Site boundary; and

- Minimise deer vehicle collisions and disturbance by maintaining speed limits to 15mph within the Proposed Development.

Amendments

8.4.8 This DMP is a live document and would be updated following monitoring results, unexpected events or changes in guidance. Approval by THC, NatureScot and the ESG should be sought for any amendments before revised measures are implemented.

References

East Sub-Group Deer Management Plan (2019a). East Sub-Group Management Plan: Part 1. Deer Management Planning Information (last update April 2019).

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SNH (2016). Planning for development: What to consider and include in deer assessments and management at development sites.

SNH (2019). Assessing Progress in Deer Management - report to Scottish Government from Scottish Natural Heritage. September 2019

sse Renewables

wood.

Key

- Site Boundary
- Scheme layout
- Glencassley Estate Land boundary
- Other Land Ownership Boundaries

Figure 8.9.1
Land ownership boundaries within East Sub Group

Achany Extension Wind Farm
EIA Report - Technical Appendix 8.10: Outline Habitat Management Plan

Scale 1:70,120 @ A3
0 0.5 1 Km

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Key

- Site Boundary
- Scheme layout
- Candidate Habitat Management Units
- Glencassley Estate Land boundary
- Other Land Ownership Boundaries

Deer Category

- Stags
- Hinds
- Calves
- Unconfirmed

Deer Count (2019)

Deer Count Area **(4 - 57)**

- 1 - 5
- 6 - 10
- 11 - 20
- 21 - 30
- 31 - 50
- 51 - 100

Daily deer movements from fields

Figure 8.9.2
Deer numbers within Glencassley Estate (2019)

Achany Extension Wind Farm
EIA Report - Technical Appendix 8.10: Outline Habitat Management Plan

Scale 1:50,000 @ A3
0 0.5 1 Km

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