
Millennium East Wind Farm

Environmental Impact Assessment (EIA) Report

Appendix 6.6: Deer Assessment



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1 INTRODUCTION

1.1 Background

- 1.1.1 This Technical Appendix has been prepared to accompany **Chapter 6: 'Ecology'** of the Environmental Impact Assessment (EIA) Report for Millennium East Wind Farm (hereafter the 'Proposed Development').
- 1.1.2 The Proposed Development is located on the Achlain Estate (hereafter the 'Site') as illustrated by the red-line boundary on **Figure 2.1** as presented in **Volume 2a** of the EIA Report.
- 1.1.3 This Technical Appendix presents an assessment of the potential implications of the Proposed Development on deer with reference to current NatureScot (Scottish Natural Heritage (SNH)) (2016) guidance and includes consideration of deer welfare and the indirect impacts on other interests including habitat reinstatement, neighbouring land, public roads and qualifying interests of designated sites for nature conservation.
- 1.1.4 It has been prepared in consultation with Achlain Estate and in response to the EIA Scoping Opinions received from NatureScot and The Highland Council in their respective responses dated 5th and 13th March 2024 respectively (ECU Ref: ECU0000513), as detailed in **Table 6.1** of **Chapter 6** of the EIA Report.

1.2 Objectives

- 1.2.1 The objectives of the deer assessment are to:
- outline baseline information pertaining to deer and deer management within the Site;
 - identify potential issues and impacts on deer arising from the Proposed Development; and
 - identify the requirement or otherwise for deer management measures to be implemented as part of the Proposed Development.

2 BASELINE

- 2.1.1 This section should be read with reference to the following figures presented in **Volume 2a** of the EIA Report:

- **Figure 2.1:** Site Boundary;
- **Figure 6.1:** Statutory Sites Designated for Ecological Interest; and
- **Figures 6.2 (a – e) :** Habitat Survey.

2.2 Site Overview

- 2.2.1 The Proposed Development is located within the administrative area of The Highland Council Local Planning Authority (hereafter referred to as 'the Council'). The Site's centre point is at National Grid Reference: E228745, N809613). The Site is located approximately 5.2 km west of Fort Augustus, southwest of Invermoriston, and north of Invergarry.
- 2.2.2 The Site sits within broadly undulating upland moorland, gently sloping downwards from southwest to northeast. The elevations of the Site range from 670 m Above ordnance datum (AOD) at the mid-western section of the Site, to the Site access junction by A887 at 129 m AOD.

- 2.2.3 The twenty-six wind turbines of the operational Millennium Wind Farm lie immediately to the southwest. The operational wind turbines are arranged in three arrays, at elevations ranging from 460 m AOD to 700 m AOD.

2.3 Proposed Development Overview

- 2.3.1 The Proposed Development comprises up to eight new wind turbines, and associated infrastructure. Each new turbine is likely to generate approximately 6.6 Megawatts (MW). The total installed capacity of the Proposed Development is expected to be greater than 50 MW.

2.4 Deer Species

- 2.4.1 In consultation with landowners undertaking deer management within the Site and wider area of Achlain Estate (comprising 3,900 hectares (ha)), red deer (*Cervus elaphus*) are the principal deer species occurring within the whole estate, with roe deer (*Capreolus capreolus*) and sika deer (*Cervus nippon*) concentrated within the estate's forestry (984 ha). Following review of the latest British Deer Society (BDS) Deer Distribution Survey (2023) fallow deer (*Dama dama*) are also reported in the region, however none are present within Achlain Estate itself. Fallow deer are known to have escaped from deer parks around Fort Augustus (Glenmoriston Deer Management Group, 2021).
- 2.4.2 Desk study data sourced from the Highland Biological Recording Group (HBRG) between 2013 and 2023 included four records of deer (two red deer and two sika deer) from within 2km of the Site. Of these, both red deer records (totalling 18 deer; dated 2013 and 2015) were situated within the Site's open moorland habitat, whilst sika deer (totalling 4 deer; dated 2013) were returned in woodland directly adjacent.
- 2.4.3 Further review of the National Biodiversity Network (NBN) Atlas¹ also identified red deer within the Site, with fallow deer situated directly adjacent to the Site. The search returned no roe deer or sika deer present within 2 km of the Site. The closest accepted roe deer record was identified in 2013, approximately 2.6 km north of the Site, near Dalchreichart. The closest accepted fallow deer record was identified in 2015, located within native woodland (Craig Liath) approximately 5.8 km south of the Site.
- 2.4.4 Following multiple baseline surveys of the Site to record habitat and protected species associated, as detailed in Technical **Appendix 6.2**, red deer droppings were frequently recorded throughout the Site, particularly in higher grounds. Potential impacts from grazing were noted within the *Calluna vulgaris*-*Arctostaphylos alpinus* heath habitats, whereby the vegetation was recorded to be very short (generally less than 10cm and no more than 20 cm in height).

2.5 Local Deer Populations

- 2.5.1 Achlain Estate's appointed deer managers confirm that red deer are the predominant species that utilise the whole estate (including the majority of the Site) and immediate surrounds. In March 2023 a drone count of the deer population was conducted around the estate's woodland area. The survey resulted in 540 red deer (95%), 27 sika deer (5%) and no other deer species. The density on the overall Achlain Estate (c.39 km²) is therefore considered to comprise 13.8 red deer per km² and 0.7 sika deer per km² (approximate total of 14.5 deer per km²).
- 2.5.2 Aberchalder Estate is situated directly adjacent to the southern boundary of Achlain Estate, with a section of the estate located within the Site at the southern Site boundary (i.e. north-east side of Mam a' Chroisg). Although the deer population and density on Aberchalder Estate is unknown, it is suggested by Achlain Estate that there are two distinct deer populations within Aberchalder Estate.

¹ Data with licence types CC0, CC-BY and OGL covering commercial use only. Data search from 2013 to 2024.
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Aberchalder Estate deer situated in forestry and moorland between Invergarry Road and Milch Loch Ridge (off-Site) rarely enter the Site's open moorland, whilst populations between Milch Loch Ridge to the southern Site boundary are considered to comprise deer from Achlain Estate. On-Site deer are therefore likely to belong to the same local population with those in the latter Aberchalder Estate population suggested to navigate between the Achlain forestry and fields to the open moorland.

- 2.5.3 Both Estate's entered a sporting agreement in July 2024 for deer stalking in the latter section of Aberchalder Estate (c. 15 km²), which includes the deer population considered to be present in both landownerships. With this area combined with Achlain Estate (total c. 54 km²), the density of the local deer populations, which are considered to utilise areas within the Site, are considered to comprise 10.0 red deer per km² and 0.5 sika deer per km² (approximate total of 10.5 deer per km²).
- 2.5.4 Achlain Estate established a visual red deer count in March 2024 covering both sides of Mam a' Chroisg. The north side of the hill (Achlain Estate only and the majority of the Site) resulted in 430 counted deer, which included 159 stags (mature males), 28 knobbers (yearling males), 183 hinds (mature females) and 60 calves (< 1 year old). The south side of the hill (Achlain and Aberchalder Estate) resulted in a total of 178 deer, comprising 3 stags, 6 knobbers, 130 hinds and 39 calves. It is therefore considered that in March 2024, the combined red deer population included 608 deer within the shared estate landownership. The visual count did not include any sika deer observations as the species is difficult to detect by often remaining in woodland. Visual counts within the 54 km² area therefore equates to approximately 11.3 red deer per km².
- 2.5.5 Although deer populations are suggested to vary each year, it is considered that the local red deer population is relatively stable. Sika deer numbers are however suggested to be increasing due to stalking difficulties, as the species often remains within woodland. With the overall deer population being relatively stable within the estate, the total density estimate within on-Site habitats is considered to range between 10.5 to 14.5 deer per km².
- 2.5.6 Distribution of the deer population is also considered to have seasonal differences. As deer are fed in Achlain Estate in five areas between December and March, deer are attracted to these areas and become more densely populated during this time of year. However, during the summer the deer disperse, with many travelling west (particularly during the rutting season between August and October). As the population disperses onto other stalked estates, it is considered that many stags do not return the following year. With seasonal dispersal of the population, the deer abundance (for the above counts undertaken) observed in the rutting season is therefore considered to be substantially reduced to that present in Spring. The visual deer survey is therefore considered to have counted deer density within the survey area when it will have been at its highest throughout the year.
- 2.5.7 Current NatureScot guidance (SNH,2016) suggests that deer densities of <3 to 5 deer/km² are likely to be appropriate for woodland establishment and blanket bog sites. With the average density of deer (red and sika) within the Site estimated to be between 10.5 to 14.5 deer per km², the on-Site density is considered to considerably exceed 3 to 5 deer per km².

2.6 Sources of Shelter and Grazing Opportunities within the Site

- 2.6.1 Habitats within the Site provide attractive browsing opportunities for deer; particularly red deer with sika deer locally known to utilise woodland habitats. These comprise open moorland, predominantly upland heath and mires including bog pools, on the higher ground and a mixture of rough grassland and woodland on the lower slopes.
- 2.6.2 Sheltering opportunities include sections of woodland situated within the north-western section of the Site, which span adjacent to the northern and eastern Site boundaries within Achlain Estate.

2.7 Sources of Shelter and Grazing Opportunities outwith the Site

- 2.7.1 Over the wider Achlain and adjacent Aberchalder Estates there are large amounts of shelter and grazing opportunities for deer. Open habitats such as moorland, bog and grassland offer a larger grazing opportunity for the red deer population, whilst sika are considered to remain frequently in the surrounding woodlands.
- 2.7.2 In 2024, 25% (984 ha) of Achlain Estate is dedicated to forestry. Of this forested area, approximately 52% is either open or accessible to the local deer population, whilst 48% includes young plantations enclosed by fences. The deer population navigates between the fields on the lower ground, the accessible woodland and the open moorland on the hills. Deer movements are highly influenced by season and weather, with movements to the open hills in the summer to avoid heat and midges, to the woodlands in winter and to the lower grassland fields in spring and autumn.
- 2.7.3 Achlain Estate contains approximately 410 ha of native woodland of different ages. The Estate's forestry strategy has increased native woodland over the last 10 years with over 250 ha having been restocked or planted. Such native woodland areas are fenced to prevent browsing, however they are planned to be made available to the local deer population within the next ten years once trees have become established.

2.8 Local Deer Management Group and Management Plan

- 2.8.1 Since 2016, Achlain Estate (and therefore the majority of the Site) has been part of a Deer Management Area (DMA) under the Glenmoriston Deer Management Group (DMG) (Association of Deer Management Groups, 2022).
- 2.8.2 Glenmoriston DMG consists of thirteen estates from Coire Lair in the west to Balmacaan in the East, as well as Achlain and the Forestry Commission to the south.
- 2.8.3 Glenmoriston DMG is part of the wider South Ross cluster of DMGs, which includes Affric and Kintail DMG to the immediate north of the Glenmoriston DMG boundary. Lochalsh DMG, Glen Strathfarrar DMG and Strathconon DMG are also part of South Ross but are not immediate neighbours. There is also communication with Glenelg DMG to the south-west of Glenmoriston DMG boundary.

2.9 Current Deer Control

- 2.9.1 Achlain Estate states that the deer population has fluctuated over the last 10 years due to three main factors; these being the forestry program, construction of Beinneun Wind Farm and a change in deer management in the surrounding area.
- 2.9.2 It is stated that approximately 2.5 km² of the estate's woodland (Beinneun woodland located off-Site to the west and Coire woodland located on-Site) has been harvested during this time. Such woodlands were previously open to the local deer population; however, they have since been fenced and replanted with young trees. It is therefore considered by the estate that the primary factor that decreases deer numbers is the reduced area of available woodland.
- 2.9.3 The construction of Beinneun Wind Farm is also a contributing factor to on-Site deer abundance. It is reported that the construction phase lasted over a two-year period between 2016 and 2017, with works concentrated around the west of Achlain Estate. This included areas of Beinneun woodland, which is the estate's largest forestry plantation. It is assumed in this report that the construction activity may have caused temporary deer displacement from the area.
- 2.9.4 Since 2016, it is reported that there has also been a change of deer management in the surrounding area, particularly to the east. It is suggested that there has been an increase of deer killed within the neighbouring land and that as a result the deer population has reduced between 2016 to 2021. As

deer are known to move on-Site between landownerships, it is reported that the local deer population has shifted to the west in order to avoid disturbance and increased stalking pressure in the east. The reduction is considered to be in line with the Glenmoriston DMG regime.

- 2.9.5 Achlain Estate state that in order to enhance the local deer population's viability, only old and 'poor quality' deer have been targeted for control over the last 40 years. However, deer cull numbers within Achlain Estate have been influenced by the three aforementioned factors over the last ten years. Since 2010, 904 deer have been reported to have been culled on the estate. Of these, 875 include red deer (97%), whilst 29 include sika deer (3%). Roe deer has never been targeted due to the low population size present. During this time, the average annual number of deer shot therefore includes 64.6 deer per year, with an average of 50.5 deer per year over the last ten years.
- 2.9.6 With 567 to 608 deer estimated on the estate and immediately surrounding area (see Section 2.5), it is considered that the average annual cull number over the last ten years represents approximately 8.3% to 8.9% of the overall estimated local deer population. The average annual cull number since 2010 is however estimated to be approximately 10.6% to 11.4% of the local deer population size.
- 2.9.7 Full cull numbers reported within Achlain Estate are summarised in **Table 2.1**.

Table 2.1 Recent deer cull numbers relevant to the Site.

Year	Achlain Estate
2010	108
2011	113
2012	89
2013	89
2014	91
2015	97
2016	37
2017	46
2018	50
2019	35
2020	14
2021	0
2022	26
2023	40
2024	69

2.10 Future Baseline

- 2.10.1 In the absence of the Proposed Development, deer control on the Site would continue in its current form to reduce grazing pressures on livestock fields and the forestry. Achlain Estate aims to support and control a healthy deer population at approximately 10 deer per km².
- 2.10.2 The availability of shelter opportunities within the Site would remain unchanged.
- 2.10.3 The availability of grazing opportunities provided by grassland, blanket bog and heathland habitats is expected to remain relatively unchanged.

3 POTENTIAL IMPLICATIONS OF THE PROPOSED DEVELOPMENT FOR DEER

3.1.1 Potential impacts upon deer resulting from the Proposed Development comprise the following:

- direct loss of shelter opportunities;
- direct loss of foraging habitat;
- displacement of deer onto adjacent land (incl. road networks, statutory designated sites for nature conservation and adjacent forestry compartments); and,
- impacts upon habitat restoration following the construction phase of the Proposed Development.

3.2 Loss of Shelter Opportunities

3.2.1 The Proposed Development would result in no direct loss of woodland habitats. Native broad-leaved planting (including riparian planting) would be established to create and strengthen woodland nature networks as part of the Outline Biodiversity Enhancement Management Plan (OBEMP, see **Appendix 6.7**). This would include 0.9ha of native woodland planting and 6.49ha of riparian woodland planting located in the north-western section of the Site. Locations identified for potential riparian planting have sought to extend these corridors and to link up with other areas of riparian woodland or otherwise suitable habitat, to create new areas of cover, extend movement corridors and expand nature networks. It is proposed that details of the location and design of riparian planting (including species to be used and planting density) within the estate would be identified in consultation with the landowner, additional relevant stakeholders, the local fisheries trust and NatureScot, to be included in the finalised BEMP post-consent. Native broad-leaved tree planting for enhancement would benefit deer on Site by maintaining shelter and foraging resources.

3.2.2 Given the open character of the locations of turbine placement within the Site, the extensive use of existing track for the Access Route; and proposals for woodland planting for planting and habitat creation purposes, the loss of shelter opportunities within the Site from woodland felling associated with the Proposed Development would be negligible.

3.2.3 This is considered to not result in an adverse impact upon local deer populations as the availability of similar habitats within the immediate and surrounding areas is extensive.

3.3 Loss of Foraging Habitat

3.3.1 The Proposed Development would result in the direct and permanent loss of approximately 4.1 ha of bog, heathland and grassland grazing resources for deer from within the Site. Such losses are considered to be very small relative to their remaining extent within the wider Site. The availability of similar habitats within the immediate and wider surrounding area, available for deer, is also extensive.

3.3.2 The Proposed Development does not include the inclusion of permanent deer fencing around turbines or specific habitats; however, Achlain Estate plans to include fencing around newly established plantation as part of their forestry strategy (see Section 2.7). Local deer populations would therefore continue to be able to move freely within the remainder of the Site, as well as moving freely into and out of the Site from the surrounding area.

3.3.3 Given the limited extent of potential foraging habitat loss, as well as the abundance of grazing opportunities available in the wider area, grazing resources for deer populations within the Site and local area would not be adversely affected by the Proposed Development.

3.4 Displacement

- 3.4.1 Research suggests that deer are not particularly disturbed by the presence of operational wind turbines (Helldin *et al.*, 2012 and Reksten, 2016), but do have the potential to be temporarily displaced during operational maintenance works. Such events are however unlikely to be frequent or prolonged and as such would not result in any permanent displacement pressures on adjacent land. Additionally, sika deer activity within the Site is restricted to woodland areas, and therefore this species is not considered to be substantially impacted. Although red deer are frequently present within the open moorland, activity is likely to be highest at night when deer disperse from woodland areas. Therefore, as operational maintenance activities are expected to be restricted to daylight hours in all but emergency circumstances, it is expected that this would reduce any potential disturbance.
- 3.4.2 During construction and decommissioning works, deer have the potential to be displaced from parts of the Site depending upon the location of works. This may reasonably result in the temporary/short-term relocation of some grazing activities to other parts of the Site away from construction areas, or deer seeking shelter and grazing opportunities in habitats outwith the Site. Such displacement is however likely to be highly localised to the immediate vicinity of the works.
- 3.4.3 In the absence of the Proposed Development, it would be reasonably expected that deer numbers within and adjacent to the Site would continue to be controlled by relevant land managers at levels needed to reduce grazing impacts.
- 3.4.4 The re-distribution of deer within the Site as a result of construction and operational maintenance works, may however result in additional temporary and periodic grazing pressures within alternative habitats within and adjacent to the Site, and the potential for adverse impacts upon woodland establishment and peatland restoration (see **Appendix 6.6**).
- 3.4.5 The designated sites surrounding the Site would not be negatively impacted by the displacement of deer populations. The majority of designated sites situated in proximity to the Site include freshwater areas. As the Proposed Development would primarily occupy open habitats utilised by deer for foraging it is considered that local deer populations may continue to utilise the same woodland habitats adjacent to the Site and only be displaced to alternative nocturnal foraging grounds surrounding the Site. It is therefore considered that displacement to neighbouring designated sites and alternative habitats would be limited.
- 3.4.6 The potential for the displacement of deer onto surrounding roads is considered to be limited, with the direction of deer displacement reasonably expected to occur into adjacent available woodland cover to the north-west, north and east of the Site. No anticipated change to existing deer numbers crossing the local road network and potential for Deer Vehicle Collisions (DVCs) is therefore anticipated.
- 3.4.7 The potential for adverse impacts upon woodland establishment interests within the Site and adjacent forestry compartments, in view of estimated deer population densities within the Site is considered possible as a result of disturbance during construction and operational maintenance works. However, as newly established woodlands within the forestry are stated to include existing deer fencing, impacts to commercial woodland establishment is considered to be limited.

3.5 Pressures on Habitat Reinstatement and Enhancement Measures

- 3.5.1 Following the cessation of construction and habitat reinstatement works, access for deer to the Site would be retained. Grazing pressures may therefore inhibit effective restoration of disturbed habitats within working areas (which would be outlined within a Construction Environment Management Plan (CEMP) which would be produced prior to construction works) and impede habitat creation measures outlined within the oBEMP (see **Appendix 6.7**).

- 3.5.2 Potential deer population density estimates of 10.5 to 14.5 deer per km² within the Site are higher than the density of 3 to 5 deer per km² generally considered appropriate for woodland establishment and blanket bog restoration, and which would not be obtained on the basis of existing deer management strategies (Achlain Estate target is 10 deer per km²).
- 3.5.3 In the absence of additional deer management measures, to monitor and ensure favourable deer densities, the efficacy of habitat reinstatement and enhancement proposals may be impeded. Due to the presence of black grouse, fencing would require to be kept to a minimum and so other measure to protect habitats and trees, such as tree guards, during the establishment phase would be required. Where fencing is necessary these would need to be marked to make them visible to grouse species in line with Forestry Commission (2012) guidance.

3.6 Death or Injury

- 3.6.1 Some temporary, open excavations may be created as part of the Proposed Development within suitable foraging areas. These excavations should be covered outside work hours to ensure that no animals, including deer, fall into them. If excavations are left open, boards should be positioned so that any animal can escape. A CEMP would be produced detailing these measures prior to construction works.
- 3.6.2 The potential for deer collision with plant machinery or vehicles within the site as part of construction, decommissioning and operational activities for the Proposed Development would also be avoided through adherence to on-site speed limits which would be detailed in a future CEMP.

4 RECOMMENDATIONS FOR DEER MANAGEMENT MEASURES

- 4.1.1 Adopting a precautionary approach on the basis of estimated deer densities within the Site (10.5 to 14.5 deer per km²), potentially adverse impacts upon ongoing local woodland establishment and proposed habitat reinstatement measures within the Site are identified. A Deer Management Statement (DMS) for the Site is therefore proposed to be developed and implemented as part of the Proposed Development, with details to be agreed post consent and secured by Planning Condition to avoid adverse impacts.
- 4.1.2 The DMS will include details of:
- baseline deer density estimates within the Site and/or defined deer management area;
 - required deer density estimates to be maintained during the construction, operational and decommissioning phases of the Proposed Development and implementation of the HMP;
 - additional deer management measures necessary to achieve required deer densities; and,
 - protocols for recording and monitoring.
- 4.1.3 The DMS would be prepared in consultation with relevant stakeholders and interested neighbouring landowners and would be finalised and agreed in consultation with Highland Council and NatureScot.
- 4.1.4 The DMS would prioritise stalking and/or collaborative culling as additional deer management measures to be implemented within the Site.

5 REFERENCES

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