

EDINBANE WIND FARM

Confidential Annex

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CONFIDENTIAL RAPTOR ANNEX

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Vantage Point watches Edinbane windfarm proposal, Isle of Skye

Methods

The activity patterns of raptors and evidence for breeding activity in the wider study area were assessed using the technique of Madders (2002 unpubl.) and the guidelines of (Whitfield 2001 unpubl. SNH). In 2002 four observation points were selected from which the observers could see the development site within a 180° field of view (Table 1). Each observation point was selected so that the sector of the development site was within 2km distance. Visibility conditions varied on each occasion and watches were suspended/resumed to account for a lowered cloud base and or rain. Two observers undertook simultaneous watches from vantage points that overlooked the northern and the southern sectors of the wind farm proposal area at NG338 465 & NG354 367; NG371 456 & NG364 495 (Table 1; Fig. 1). The observers remained at these locations and undertook 3h of observations using x10 magnification binoculars and a x30 spotting telescope. Records of bird activity within the field of view were recorded onto maps in the field and these data focused on raptors that included Schedule 1 listed and non listed species. Estimates of the height above ground level for those birds seen was recorded and based on the height of known landmarks in the terrain that included the 10m high anemometry masts on the Beinn a Chearcaill ridge. A sample of 10 dual observations were made between 27.01.02 and 09.05.02 and these started between 09.00 and 13.45 GMT. The limitations on these data are (i) that the ten observations were not assigned at random with respect to the days within the month or time of day and therefore are not all statistically independent, (ii) the observers may have altered the activity of the birds of prey in the area by their presence, (iii) the data are restricted to periods of moderate to good visibility, (iv) the observation periods may have missed breeding attempts that subsequently failed through natural or man-influenced factors and (v) the 2002 breeding season may be unrepresentative of 'typical'* raptor breeding seasons or settlement patterns. [* the definition of "typical" is problematic with nomadic, semi-nomadic or prey-dependent species such as Hen Harrier or Short-eared Owl when the surrounding habitat is undergoing significant changes in vegetation cover].

Table 1. Vantage point watches: Edinbane 2002

Watch No.	Date	Time BST	Observation point	NGR
1 & 2	27.01.02	09.45	Cruachan Beinn a Chearcaill & Ben Sca SE	NG338 465 & NG354 367
3 & 4	30.01.02	12.35	Sithean Beinn a Mhorrainn & Cruachan Glen Vic Askill S	NG371 456 & NG364 495
5 & 6	24.02.02	09.30	Cruachan Beinn a Chearcaill & Aite Maol	NG338 465 & NG343490
7 & 8	26.02.02	11.15	Beinn Uilleim & Glen Vic Askill E	NG371482 & NG368 447
9 & 10	12.03.02	11.45	Cruachan Beinn a Chearcaill & Aite Maol	NG338 465 & NG343490
11 & 12	13.03.02	10.15	Beinn Uilleim & Glen Vic Askill E	NG371482 & NG368 447
13 & 14	15.04.02	09.00	Beinn Uilleim & Glen Vic Askill E	NG371482 & NG368 447
15 & 16	19.04.02	13.45	Cruachan Beinn a Chearcaill & Aite Maol	NG338 465 & NG343490
17 & 18	07.05.02	09.00	Beinn Uilleim & Glen Vic Askill E	NG371482 & NG368 447
19 & 20	09.05.02	13.00	Cruachan Beinn a Chearcaill & Aite Maol	NG338 465 & NG343490

Golden Eagle.

Frequency of activity.

During the accumulated 60h observations there were 55 flights recorded (this includes repeat flights or take off /landings by the same individual) Fig. 2. On average this is equivalent to 0.9 flights/h. The observers in March and May 2002 detected the lowest frequency of activity (2 to 3 sightings per 6 h accumulated day's watch) and approximately four times the activity occurred during January and February.

Thirty percent of the observed flight activity took place within 300m distance of the proposed wind turbine locations. The minimum zone of detection from the vantage points covers 38km². Based on a 300m boundary around the edge of the proposal the wind farm envelope occupies approximately 5km² (Fig. 1).

During the sixty hours observations the level of flight line activity across a km grid square varied from zero to 12 to 14/km grid square (e.g. latter NG33 44 & NG 33 45 An Cleireach and Ben Aketil southern slopes) Fig. 2. The average accumulated number of flight lines across the grid squares that encompass the wind farm proposal is 5/km grid square.

Duration of activity.

A total duration of 301 minutes of flight activity were recorded during the accumulated 3600 minutes observations that on average accounts for c. 11% of the diurnal period.

Activity type, habitat use and context.

During the contact time with Golden Eagles there were no instances of successful or attempted predation on live prey.

There were five records that refer to presence and/or feeding at carrion.

There was one occasion when an individual rested on a ledge for the majority of the 3 h period, but otherwise there was no evidence of prolonged use of perching sites within the full zone of detection. There were 20 occasions when an individual landed (and this includes repeat/successive landing/take off by the same bird during the 3h observations). The more frequently used landing locations (with number of occasions in parentheses) were:

An Cleireach (9)
Ben Aketil lower slopes (4)
Glen Vic Askill hill park (2)
Cruachan Beinn a Chearcaill (2)
Cruachan Glen Vic Askill (1)
Ben Uigshader (1)
Na Biodachan (1)

There were approximately 24 soaring locations of which seven occurred within 300m of the proposed location of a wind turbine.

Twenty-five contacts refer to interaction with other eagles that accounts for approximately 50% of the records for this species. The remainder of flights refer to solitary activity either spatially or temporarily.

Age class present.

Sixty one percent of Golden Eagle sightings refer to juvenile or immature/sub adults, 27% refer to adults and 12% were of an unidentified age class. There are too few data to identify whether there are strong trends in the presence of different age class individuals, but there were no adults present during the January observations, the last observation in March, both April records and the last observation in

May 2002. There were two observation periods when adults were recorded and juveniles or sub adults were absent.

Flight height.

The average duration that Golden Eagles flew 20m or less above ground level was 114s. They spent on average 237 s at heights between 20-100m and on average 788s at heights greater than 100m above ground level. In terms of the total accumulated time Golden Eagles spent 25%, 35% and 40% at heights <20m, between 20-100m and >100m respectively.

Conclusions/ assessment

As recorded in the environmental statement, the Edinbane to upper Glen Colbost area provides habitat for immature or sub-adult Golden Eagles that more frequently interact with other individuals when present. Over the observation period of January to May, the terrain does not appear to be defended exclusively by immature or adult Golden Eagles.

Over these accumulated observations individual Golden Eagles spent relatively minor accumulated time perched and overall approximately 10% of the time in flight. Some sectors of the study area were the focus for flight activity that included soaring and these were equally likely to occur within the development envelope as they were to occur off site.

From behavioural observations of broad wing raptors in general it is predicted that Golden Eagles will show a non preference for the immediate area c. 50m to 150m around individual wind turbines. On a maximum case scenario this would account for c. 200ha that represents <10% of the local moorland resource within the wider study area of the vantage point watches. From the accumulated data of the vantage point watches not all the moorland is crossed by flight lines or general Golden Eagle activity to the same extent. At the local scale the wind farm site design occupies moorland that contains an average or below average frequency of flight lines, soaring locations or perching locations for this species. Thus there is predicted to be no significant habitat displacement during the operational life span of the project (based on no medium/long term changes to the underlying moorland habitat). The area within this study between Edinbane to upper Glen Colbost is predicted to provide a similar resource for non-breeding Golden Eagles during the project life span as shown during the baseline situation. Ongoing changes to the surrounding afforested habitat over the life span of the project (e.g. canopy closure, live prey and carrion resource) may change the suitability of the adjacent moorland regardless of the wind farm proposal.

Based on the avoidance rate of wind turbine rotors for birds in general and broad wing birds of prey in particular the level of aerial activity through the terrain of the current proposal is not predicted to present a collision risk of an order of magnitude greater than that predicted for the existing wind farms in Golden Eagle territories in Argyll. Of the 1 flight per h of the diurnal period when Golden Eagles are active, approximately 65% of their flight activity over the Edinbane study area took place at a range of heights above ground level out with the proposed swept area of the wind turbine rotors. The project is therefore not predicted to result in a significant decline in the non-breeding Golden Eagle population in Scotland via direct loss of individuals.

White-tailed Sea Eagle.

Frequency of activity.

During the accumulated 60h observations there were 12 flights recorded (this includes repeat flights by the same individual). On average this is equivalent to 0.2 flights/h. The observers detected the first activity in April followed by records in May 2002.

Forty percent of the observed flight activity took place within 300m distance of the proposed wind turbine locations.

During the sixty hours observations the level of flight line activity across a km grid square varied from zero to 5/km grid square (Fig. 3). The average accumulated number of flight lines across the grid squares that encompass the wind farm proposal was 2.3/km grid square.

Duration of activity.

A total duration of 81 minutes of flight activity were recorded during the accumulated 3600 minutes observations that on average accounts for c. 2% of the diurnal period.

Activity type, habitat use and context.

During the contact time with White-tailed Sea Eagles there were no instances of successful or attempted predation on live prey.

Non of the records refer to presence and/or feeding at carrion.

There was one occasion when a pair were flushed from [REDACTED] with an unknown residence time, but otherwise there was no evidence of perching sites within the full zone of detection.

All but three of the contacts involved White-tailed Sea Eagles soaring.

There were two occasions when contacts refer to solitary activity either spatially or temporarily and the rest refer to interaction with other eagles of either species that accounts for approximately 90% of the records for this species.

Age class present.

There were three sightings of adult White-tailed Sea Eagles, one of an immature and three undetermined.

Flight height.

The average duration that White-tailed Sea Eagles flew 20m or less above ground level was 27s. They spent on average 234 s at heights between 20-100m and on average 480s at heights greater than 100m above ground level. In terms of the total accumulated time White-tailed Sea Eagles spent 2%, 48% and 50% at heights <20m, between 20-100m and >100m respectively.

Conclusions/ assessment

There is no comparable vantage point data in Scotland with which to compare the results of this survey directly. Therefore there is no benchmark information to categorise the moorland between Edinbane and upper Glen Colbost in terms of the importance of non-breeding habitat for this species. The Edinbane to upper Glen Colbost area provides habitat for immature/non breeding White-tailed Sea Eagles that more frequently interact with other individuals when present.

Over these accumulated observations individual White-tailed Sea Eagles spent relatively minor accumulated time perched and overall approximately 2% of the time in flight. The southern half of the Cruachan Glen Vic Askill ridge was the focus for flight activity that included soaring. Approximately 50% of their flight activity took place at a range of heights above ground level out with the proposed swept area of the wind turbine rotors.

At the local scale the wind farm site design occupies moorland that contains an average or below average frequency of flight lines for this species. There is predicted to be no significant habitat displacement during the operational life span of the project. The area within this study between Edinbane to upper Glen Colbost is predicted to provide a similar resource for non-breeding White-tailed Sea Eagles during the project life span as shown during the baseline situation.

Based on the frequency of flight line records the level of aerial activity through the terrain of the current proposal is predicted to present a collision risk lower than that predicted for the existing wind farms in Golden Eagle territories in Argyll. Of the 1 flight per 5h of the diurnal period when White-tailed Sea

Eagles are active, approximately 50% of their flight activity over the Edinbane study area took place at a range of heights above ground level out with the proposed swept area of the wind turbine rotors. The project is therefore not predicted to result in a significant decline in the non-breeding White-tailed Sea Eagle population in Scotland via direct loss of individuals.

Hen Harrier

Frequency of activity.

During the accumulated 60h observations there were 12 flights recorded (Fig. 4). On average this is equivalent to 0.2 flights/h. A greater frequency of activity took place during the observations in April and May.

The majority of the observed flight activity (at some point along the flight routes) came within 300m distance of the proposed wind turbine locations.

During the sixty hours observations the level of flight line activity across a km grid square varied from zero to 6/km grid square (e.g. latter NG36 47 -forestry between Beinn a Chearcaill and Beinn Uilleim; Fig. 4). The average accumulated number of flight lines across the grid squares that encompass the wind farm proposal was c. 2/km grid square.

Duration of activity.

A total duration of 58 minutes of flight activity were recorded during the accumulated 3600 minutes observations that on average accounts for c. 1.6% of the diurnal period.

Activity type, habitat use and context.

During the contact time with Hen Harriers there were no instances of successful or attempted predation on their prey, although a significant proportion of the flight activity involved typical hunting activity for this species.

There was no evidence of prolonged use of perching sites within the visible zone of detection.

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Age class/sex present.

There were an equal number of contacts with male Hen Harriers as there were with females or "ringtails".

Flight height.

The average duration that Hen Harriers flew 20m or less above ground level was 154s. They spent on average 62 s at heights between 20-100m and on average 282s at heights greater than 100m above ground level. Two of the longest flights of more than 3 min. included periods of territorial display. In terms of the total accumulated time Hen Harriers spent 57%, 10% and 33% at heights <20m, between 20-100m and >100m respectively.

Conclusions/ assessment

As recorded in the environmental statement, the Edinbane to upper Glen Colbost area provides potential habitat for foraging and nesting by Hen Harriers. Over the observation period of January to May there was one location in a forestry plantation that represented an unconfirmed breeding area for this species.

Over these accumulated observations individual Hen Harriers spent overall approximately 2% of the time in flight. [REDACTED] there was no indication that particular sectors of the study area were the focus for flight and foraging activity. Approximately 90% of their flight activity took place at a range of heights above ground level out with the proposed swept area of the wind turbine rotors.

The development site does not coincide with key habitat features that support the local population of Hen Harrier on Skye or that represent a key resource for the national population. The frequency and altitude of the flights observed during the records from January to May indicate that there will be a minimal probability of collisions with the wind turbine rotors. There is no evidence from wind farm in upland habitats that Hen Harriers or other species of birds of prey become excluded from the moorland habitat following construction of wind turbines.

Merlin & Short-eared Owl

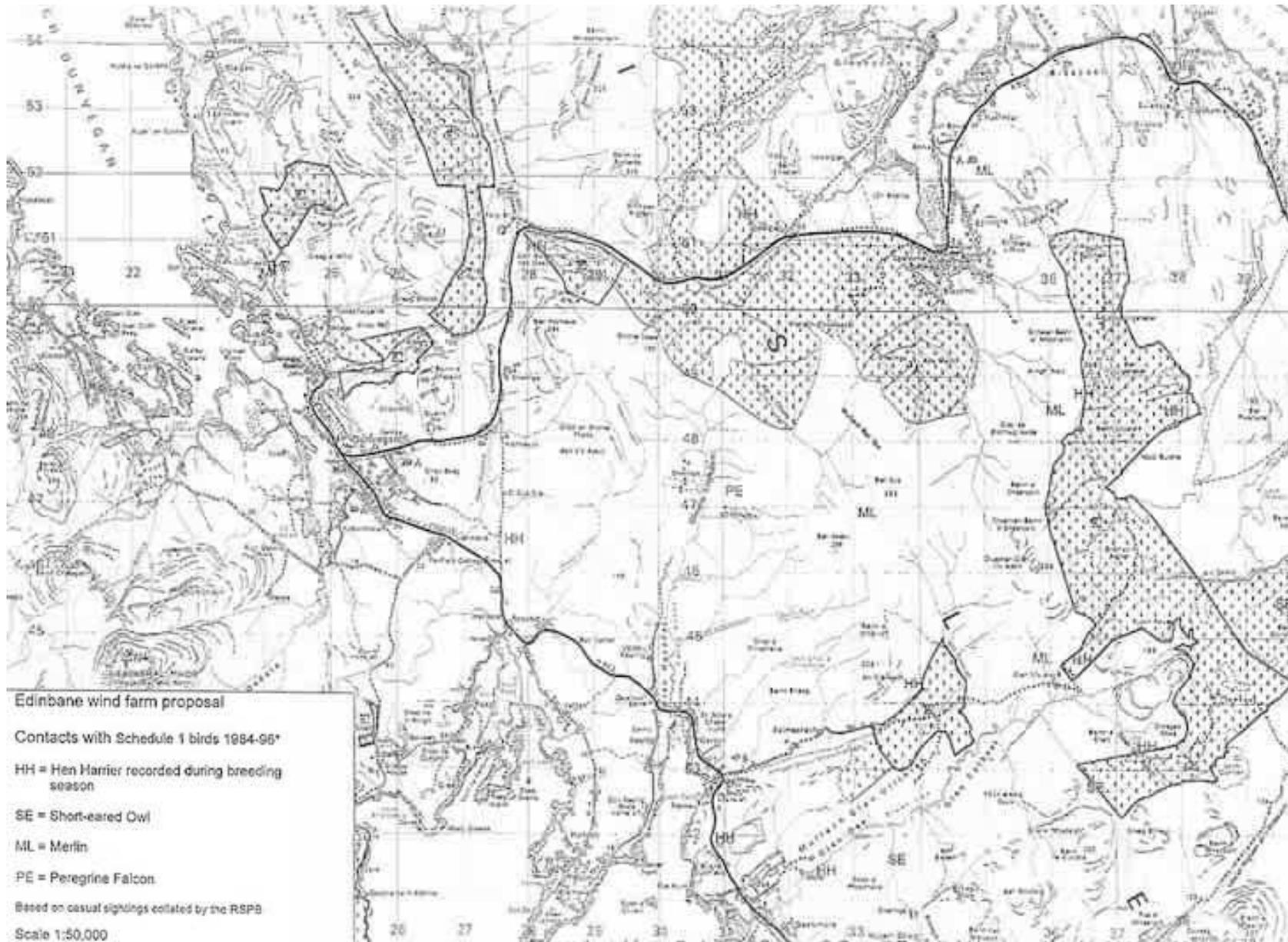
During the 60 h observations there were no records of Merlin or Short-eared Owl in the wider study area. There is no comparable vantage point data in Scotland with which to compare the results of this survey directly and therefore it is not known whether other sites with confirmed nest sites for Merlin or Short-eared Owl also show zero contacts over 60h. The most probable interpretation is that their absence from the proposed development area confirms the previous ornithological surveys and the area is assessed as below average in terms of a resource for the local or national population of this species.

Other raptor species

Buzzard and kestrel were recorded during the 60 h vantage point watches at low to moderate frequency. Neither species is listed under Schedule 1 of the Wildlife and Countryside Act 1981 and neither species is regionally or nationally scarce or undergoing significant population decline. There is no evidence of either habitat displacement or a significant collision frequency with wind turbines for these species of raptor and the current proposal is predicted not to have an impact on their local or national populations.

Golden Eagle breeding sites, Edinbane wind farm proposal

Table removed on the advice of Scottish Natural Heritage



Scanner's Note:

This document appears as it was supplied to the Highland Council, Scottish Natural Heritage (SNH), and the Royal Society for the Protection of Birds (RSPB).

Figures 1, 2, 3, and 4, referred to in the text, were not supplied with the original document.