

TECHNICAL APPENDIX 9 – ECOLOGY (NON-AVIAN)

TA9.1:	Habitats and Protected Species Survey Update
TA9.2:	Bat Survey Report 2019 - 2020
TA9.3:	Deer Population and Habitat Impact Assessment Report 2019
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TA9.10:	Copy of 2013 ES Addendum, Volume 4, Technical Appendix A10.5 Freshwater Invertebrate Survey 2012
TA9.11:	Copy of 2013 ES Addendum, Volume 4, Technical Appendix A10.6 Strathy South Wind Farm, Report 5b: An Updated Assessment of Impacts of Access Track Construction on the Caithness and Sutherland Peatlands Special Area of Conservation 2013

TA9.1: Habitats and Protected Species Survey Update




TECHNICAL APPENDIX 9.1

Habitats and Protected Species Survey Update

REPORT

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1 INTRODUCTION

1.1 Background Information

The Strathy South Wind Farm was granted consent in 2018. A suite of ecology surveys were undertaken for the submission of the 2007 Environmental Statement (ES), the 2013 ES Addendum submission, and the submission of the 2014 Further Information Report for the Consented Scheme. Table 9.1.1 below, provides a timeline of when surveys were completed for each relevant ecological receptor in association with each stage of the EIA work for the proposed development. The Table also provides a brief summary of the results from each survey.

Table 9.1.1: Summary of ecology surveys completed during the consenting process of the Strathy South Wind Farm

Ecology Survey Summary		
Submission Stage	Survey	Summary of Results
2007 ES	Extended Phase 1 Habitat Surey	The Strathy South study area consists mainly of a large conifer plantation surrounded by high quality peatland and heathland habitats of international ecological importance. The forest itself is of low ecological interest but peatland and heathland habitats are encapsulated within it in rides, firebreaks and glades.
	Phase 2 - NVC Survey	
	Protected Species	Otter, pine marten and water vole were confirmed as present and using the study area to a greater or lesser extent for shelter and/or foraging. It was thought probable that wildcat also use the site.
	<ul style="list-style-type: none">• Otter: July and September 2005;• Pine marten and wildcat: July and September 2005;• Badger: September 2005;• Water vole: July and September 2005;• Bats: September 2005;• Deer 2006;• Macro-invertebrates¹• Fish¹.	
2013 ES Addendum	NVC	In total, 21 NVC communities were found within the survey area which were further categorised into sub-communities. The survey area is dominated by Sitka spruce planted on peat. The majority of the communities found outwith the afforested areas are either mire or heath with occasional grassland and aquatic communities.
	Protected species	Access Track Indicative signs of otter, water vole and pine marten within the 200m buffer surrounding the proposed access route. With additional indicative signs of water vole along Allt Dhonuill Ghuinne burn to the west of the access track.
	Surveys included the access track and grid connection plus a 200m buffer and the forest with a 250m buffer between June and August 2012 and covered : <ul style="list-style-type: none">• Otter;• Water vole;	

¹ No date specified in document

Ecology Survey Summary

	<ul style="list-style-type: none">• Badger;• Wildcat;• Pine marten; and,• Amphibians and reptiles.	<p>Strathy South Conifer Plantation</p> <p>Widespread otter and water vole presence was recorded during both the 2007 and 2012 survey. Pine marten signs increased between the surveys indicating increased use of the area with two potential den sites found in 2012.</p> <p>Suitable habitat for red squirrel was recorded although no evidence of their presence was identified on site.</p> <p>Suitable habitat for reptiles and amphibians was recorded including rocks and rush pasture.</p> <p>Suitable habitat for wildcat although no evidence of their presence on site.</p> <p>A stone building (Croft House) was assessed to offer roost potential although no evidence of bats was recorded.</p>
2014 Further Information Report	No additional surveys completed for habitats or terrestrial protected species as the surveys completed for the 2013 ES Addendum submission were deemed to continue to provide an accurate baseline for the site.	As per the 2013 ES Addendum.

Table Note

1.2 2019 Scoping Process

As part of the EIA process in the preparation of the 2020 EIAR to support the S36C application to vary the current 2018 consent for the Strathy South Wind Farm, a Scoping Report (Ramboll, 2019)² was submitted to The Highland Council (THC) to seek the opinion and advice of statutory and non-statutory organisations on the scope of the information which should be included in the EIA work to assess the Proposed Varied Development. In relation to ecological receptors, the Scoping Report prepared by SSE formed the basis upon which the Applicant sought to reach agreement with consultees that many repeat surveys for ecological receptors were unnecessary for the following reasons:

1. The context of the site, a conifer plantation located as a single island surrounded by open expanses of the Caithness and Sutherland Peatland Special Area of Conservation (SAC), has not altered since previous surveys were completed;
2. No felling activities have been completed in the Strathy South conifer plantation since the previous surveys were completed;
3. Further information from ecology surveys from both the Strathy North Wind Farm pre-construction surveys, and those completed for the neighbouring proposed Strathy Wood Wind Farm development were available which covered the intervening time period, and as such provide further context as to the likelihood of notable ecological receptors being present in the surrounding landscape.

The 2019 Scoping Report¹ therefore outlines that only effects associated with changes to habitat loss should be included within the assessment. This would include ground-truthing of the current habitat data (National Vegetation Classification surveys) completed for the 2013 ES Addendum submission to ensure no

² Ramboll. (2019). Strathy South Wind Farm 2019 Scoping Report

alterations to these had occurred during the intervening period, thus ensuring all assessments were based on data representative of the current baseline at the site.

Scottish Natural Heritage (SNH) in their scoping response raised no concerns regarding the proposed scope of the ecology assessment. The Energy Consents Unit (ECU), in their scoping response requested that all protected species and habitat surveys were updated prior to submission of the S36C application. Further meetings with both SNH and the ECU through September 2019 culminated in agreement of the required scope of survey to ensure a robust baseline was used to assess the potential effects of the Proposed Varied Development; these were:

- Ground-truthing of NVC surveys to ensure information held for the site remains relevant to the 2020 assessment;
- Completion of bat surveys to meet the relevant SNH Guidance (SNH, 2019)² which had altered in its requirements since the consent for the wind farm in 2018.

It should be noted that due to the requirement of bat surveys to be completed for the S36C submission, a full suite of surveys covering the three core activity periods for bats (May – October) could not be completed in 2019. The third core activity period for bat activity was captured, with surveys going over and above the requirement of the guidance³. Further surveys have been completed in 2020 to assess the utilisation of the main site by bat species during the two initial core activity periods, thus providing an assessment of the site by bats across their full activity period.

Full details and the associated assessment of the utilisation of the Strathy South conifer plantation by bat species during this period are provided in Technical Appendix 9.2 (EIAR Volume 4).

1.3 Scope of Document and Limitations

This document will detail the surveys completed to ground-truth the existing NVC survey data held for the site. This will include both the methods employed, details of the experience of the ecologist who undertook the surveys, and the results of the assessment. A desk study to update previously held records for notable or protected fauna and flora has also been completed including both local recording groups, records centres and survey information from relevant wind farm developments in proximity to the site.

No limitations were identified during the course of the desk studies or field surveys which would prove a limitation to the robustness of this report, the data collected or the conclusions drawn from these.

³ SNH (2019) Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation.

2 METHODS

2.1 Desk Study

The Highland Biological Records Group (HBRG) were consulted in November 2019 to obtain all records held within a 10 km radius of the site for the last 15 years for protected or notable fauna or flora. In addition to this, the available environmental information for the undernoted operational and proposed wind farm developments were reviewed for information relating to protected or notable fauna or flora. The locations of these wind farms in proximity to the Proposed Varied Development and the 10km HBRG search area is provided in Figure 9.1.1: Desk Study Area and Cumulative Wind Farm Locations.

- Strathly North Wind Farm (consented and operational);
- Armadale Wind Farm (in scoping);
- Strathly Wood Wind Farm (application stage);
- Limekiln Wind Farm (consented);
- Akron Wind Farm (in scoping);
- Baille Wind Farm (consented and operational);
- Bettyhill Wind Farm (consented and operational).

In addition to the information already held for the Strathly South conifer plantation and surrounding area collected for the Consented Scheme, the above was deemed suitable to provide sufficient information regarding the use or presence of protected or notable fauna or flora within the surrounding area.

2.2 National Vegetation Classification (NVC) Ground-Truthing Survey

The NVC Ground-Truthing surveys were completed on 30 April and 1 May 2019 by the same Chartered Ecologist who completed the original NVC surveys in 2011. The surveyor has an in depth knowledge of the Strathly South conifer plantation, along with peatland environments and forestry throughout the Scottish Highlands, and has completed many NVC surveys and habitat condition assessments for a suite of clients in these environs.

Eleven random locations were selected across the Strathly South conifer plantation (Figure 9.1.2a:NVC Survey Area (2011/2012) and Ground-Truthing Locations (2019)) which the surveyor visited, whilst traversing the site on foot to capture a site wide assessment of the potential differences in the community compositions recorded in 2011 versus those currently present. At each location species abundance was recorded in a 2 x 2m quadrat using the non-quantitative DAFOR scale, highlighting those key species present and those which define NVC community compositions (Rodwell, 1991 – 1995)⁴. Photographs at each quadrat were recorded of both the assessed quadrat and the surrounding area to provide additional context. The results of the assessment were compared at the time with the previously recorded NVC communities and comments made as to the accuracy of the 2011 data in the current context. Figure 9.1.3a: NVC Survey Results (2011/2012) provides the 2011 NVC survey results which were used during this ground-truthing survey. For completeness, Figure 9.1.3b:NVC Survey Results (2011/2012) provides the 2012 NVC survey results for the access track.

⁴ Rodwell, J.S ed. (1998–2000). British Plant Communities. Cambridge University Press. ISBN 0521797160.

3 RESULTS

3.1 Desk Study

Table 9.1.2 summarises the results from the November 2019 consultation with HBRG and that the results collated from information available for surrounding wind farm developments. The search returned no records within the site however 19 records were recorded within 10 km of the development.

Table 9.1.2: Desk study results from HBRG and neighbouring wind farms

Species	Designation	Date of Record	Distance and Direction from Site	Grid Reference
Limestone Waxcap	Scottish_Biodiversity_List	2001	Approximately 7km north west	NC700612
Moonwort	RedList_ENG_post2001-VU	2005	Approximately 9.7km north west	NC69846120
Hoary Whitlowgrass	Scottish_Biodiversity_List	2005	Approximately 9.7km north west	NC69676091
Baltic Rush	NS-excludes, RedList_ENG_post2001-VU	2005	Approximately 9.7km north west	NC69896118
Purple Oxytropis	NR-excludes, Scottish_Biodiversity_List	2005	Approximately 9.7km north west	NC69876116
Purple Oxytropis	NR-excludes, Scottish_Biodiversity_List	2005	Approximately 9.4km north west	NC70246117
Purple Oxytropis	NR-excludes, Scottish_Biodiversity_List	2005	Approximately 9.4km north west	NC70256115
Knotted Pearlwort	RedList_ENG_post2001-VU	2005	Approximately 9.4km north west	NC70106115
Limestone Waxcap	Scottish_Biodiversity_List	2006	Approximately 9.5km north west	NC699609
Limestone Waxcap	Scottish_Biodiversity_List	2007	Approximately 9.8 km north west	NC696610
Orange Bolete	Scottish_Biodiversity_List	2012	Approximately 4.9km north west	NC761593
Orange Bolete	Scottish_Biodiversity_List	2014	Approximately 9.6km north west	NC750612
Red Bog-moss	HabDir-A5	2014	Approximately 8.8 km south west	NC889459
Feathery Bog-moss	HabDir-A5	2014	Approximately 8.8 km south west	NC889459
Magellanic Bog-moss	HabDir-A5	2014	Approximately 8.8 km south west	NC889459
Papillose Bog-moss	HabDir-A5	2014	Approximately 8.8 km south west	NC889459
Golden Bog-moss	HabDir-A5	2014	Approximately 8.8 km south west	NC8898245974
Lustrous Bog-moss	HabDir-A5	2014	Approximately 8.8 km south west	NC889459
Slender Navel	Scottish_Biodiversity_List	2018	Approximately 8.5km east	NC895485

A review of all survey information available for wind farm developments within 20 km of the site (Figure 9.1.1: Desk Study Area and Cumulative Wind Farm Locations) found terrestrial protected species records were present for the Limekiln Wind Farm (c.17.5 km northeast) and Strathly Wood Wind Farm (c.1.8 km north) of the Proposed Varied Development. Otter, water vole, pine marten and common pipistrelle were found to be present at the Limekiln Wind Farm at the time of the 2012 surveys, with the presence of otters, water vole, pine marten and pipistrelle bat species recorded during the 2018 surveys. Pre-construction surveys for Strathly North Wind Farm (2012/13) identified a badger sett within proximity to the Proposed Varied Development's access track and grid connection routes, with a further sett identified in the 2007 ES for the Consented Scheme. No records were found for all other wind farms in the 20 km search area. For reference Figures 9.1.4a/b: Protected Species Survey Results (2007 & 2012) provides the non-confidential records of

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protected species for the Strathy South conifer plantation and the access track collated for the Consented Scheme. Confidential records (those for badgers) are detailed in Figure CA1.1 of the 2013 ES Addendum and are not replicated in this report.

3.2 National Vegetation Classification (NVC) Ground-Truthing Survey

Table 9.1.3 below provides a summary of the NVC Ground-Truthing exercise completed at the Strathy South conifer plantation. No differences were noted in the communities recorded during the 2011 surveys and during this exercise in 2019. Rides throughout the conifer plantation typically consist of modified bog and wet heath habitats with ground vegetation often dominated by either purple moor-grass (*Molina caerulea*) or deer grass (*Trichophorum germanicum*) swards. The communities present at each location were generally indicative of the water table present, the depth of peat and the size of the surrounding conifer crop, with those areas with larger trees and shallower peats tending towards a more purple moor-grass dominated sward, and rides on deeper peats containing more characteristic bog species and a deer grass sward.




A number of areas outwith the conifer plantation continue to exhibit good quality bog habitats such as those at location 8, where the watertable continues to be high and bog pools are present. However, there is evidence that the watertable is lower than in previous years (despite the surveys being completed relatively early in the survey season, and earlier in the season than the 2011 surveys), as shown at location 9 where there is obvious peat cracking in the base of the bog pools present. Whether this is through effects from the conifer plantation or from a winter of low rainfall is unknown, but in such areas there is a reduction in Sphagnum species presence compared to the typical NVC species compositions one might expect.

Table 9.1.3: NVC ground-truthing survey results





Point ⁵	Original Community	Current Community	Comments	Photo
1	M6c	M6c/M15	Ride dominated by soft rush (<i>Juncus effusus</i>) with <i>Sphagnum fallax</i> and hair-cap moss (<i>Polytrichum commune</i>) present throughout the sward. A band of purple moor-grass runs next to conifer plantation outwith the soft rush area.	
2	M17b	M17b	Cross-leaved heath (<i>Erica tetralix</i>), Cladonia species lichen, hare's tail cotton-grass (<i>Eriophorum vaginatum</i>) are dominant in this location. Ling heather (<i>Calluna vulgaris</i>), purple moor-grass and deer grass are frequent, with <i>Sphagnum capillifolium</i> occasional to frequent. <i>Pleurozium scherberi</i> and <i>Hypnum jutlandicum</i> mosses are frequent. Sitka spruce	

⁵ Refer to Figure 9.1.2 for the locations referenced in this table.



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			regeneration is occurring at this location with seedling c.20 – 100cm in height.	
3	M17b	M17b	A mosaic of habitats dominated by the M17b NVC community, however areas of M23a (soft rush dominated), U20 (bracken dominated) and M25 (purple moor-grass dominated) communities are present but are generally too small to be mapped individually.	
4	M25	M25, M15, M20, and M19 where ling heather is present	This location falls in an area dominated by hare's tail cotton-grass. Frequent purple moor-grass and hair-cap moss were recorded. Rides surrounding the area are dominated by carpet of <i>S. capillifolium</i> . Cross-leaved heath and ling heather were abundant / dense in small pockets and absent in others. A mosaic of communities is present at this location which have all been affected by the conifer planation. Significant works to drainage system appears to have been completed in recent years with cleared out peat present beside some of the larger drains.	
5	M17a	M17 – Sub community difficult to define	The areas is dominated by <i>S. capaillifolium</i> , hare's tail cotton-grass, cross-leaved heath and deer grass. Frequent <i>H. jutlandicum</i> moss, ling heather, hair-cap moss with occasional lichen species (<i>Cladonia spp.</i>) and heath rush present in patches. The area was dry under foot at the time of survey.	

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6	M17a	M17a	The area consists of relatively good quality bog although relatively dry. Signs of Sphagnum bleaching and peat cracking where the surface was bare was noted. Deer grass, <i>S. capillifolium</i> , hare's tail cotton-grass, ling heather, crossed-leaved heath were all abundant with stands of bog myrtle (<i>Myrica gale</i>) frequent across the area.	
7	M15b	M15b	The typical M15 community dominates with limited impacts from the surrounding conifer plantation . Some sections fall into M15c with some areas of M17 blanket bog communities present. The area represents some of the best quality bog within the conifer plantation.	
8	M17b	M17b	Hare's tail cotton-grass, deer grass, bog asphodel (<i>Narthecium ossifragum</i>), <i>S. palustre</i> , crossed-leaved heath, ling heather and lichen (<i>Cladonia spp.</i>) all present. Stands of bog myrtle were sporadically recorded within the area. Evidence of a lower than usual water table was apparent from the bare peat surrounding bog pools.	
9	M17a	M17a	As above, abundant bog myrtle was present throughout the area with common cotton-grass often more abundant than hare's tail cotton-grass or deer grass, although both were constantly present.	

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10	M17a	M17a	As for location 9, a significant amount of bog myrtle was present across the area. All bog myrtle recorded throughout the area showed high levels of browsing from deer. Both hare's tail cotton-grass and deer grass were abundant along with <i>S. capillifolium</i> and <i>S. palustre</i> . No lichen species were recorded and the area was consistently wet under foot. Regeneration conifer species were encroaching into the area from the forest edge.	
11	M17a	M17a	Location 11 exhibited a similar species composition as that recorded for location 10.	

4 DISCUSSION AND CONCLUSIONS

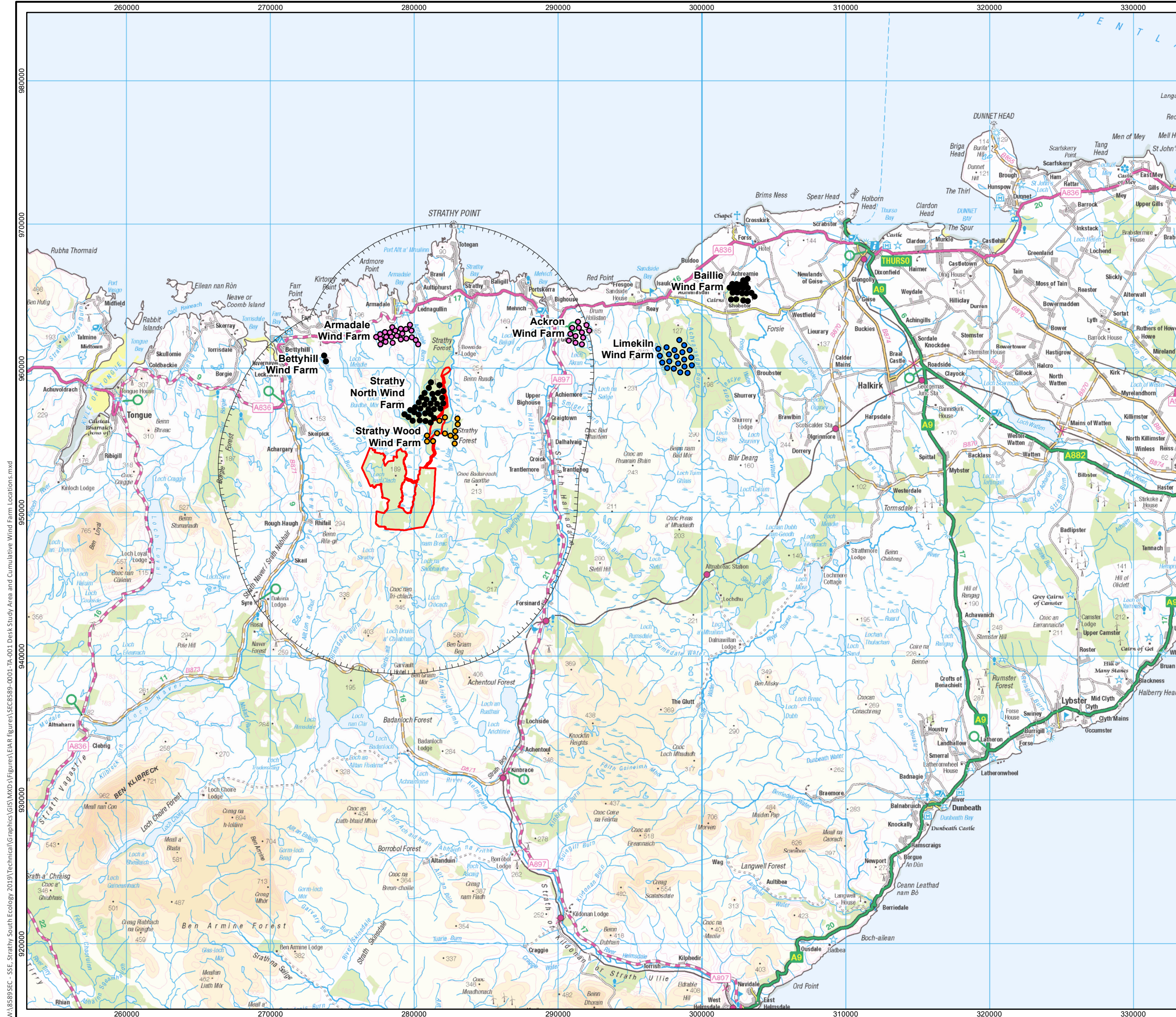
The ground-truthing surveys completed in respect of the 2011 NVC data found no change in the communities present in 2019. Species compositions remained as expected for the NVC communities listed at each of the assessed locations, and more widely across the conifer plantation when traversing the area on foot between locations. Heavy browsing of woody species such as bog myrtle, ling heather and crossed-leaved heath was noted, as were high levels of poaching within the forestry rides and glades of the conifer plantation.

Evidence of a lower watertable was similarly noted during the surveys despite these being completed in May 2019 and so prior to the drier summer months of July and August when the 2011 surveys were completed. It is not known if this lower water table is due to a drier than usual winter preceding the survey, or from effects of the surrounding conifer plantation and its associated drainage. However, evidence was noted of large forestry drains having been cleared out to increase water flow from the site.

The desk based protected species assessment found species previously associated with the Strathy South conifer plantation from surveys completed for the Consented Scheme to be present across the wider area, with wind farms (where data was available) having recorded a suite of similar protected species. No additional ad hoc signs of protected species presence were recorded during the NVC ground-truthing surveys, but based on the desk based assessment, the suite of protected species previously recorded and their utilisation of the surrounding area are deemed to remain relevant for the 2020 EIAR.

FIGURES

- Figure 9.1.1: Desk Study Area and Cumulative Wind Farm Locations
- Figure 9.1.2a/b: NVC Survey Area (2011/2012) and Ground-Truthing Locations (2019)
- Figure 9.1.3a/b: NVC Survey Results (2011/2012)
- Figure 9.1.4a/b: Protected Species Survey Results (2007 & 2012)



- Site Boundary
- Wind Farm Status *
- Constructed
 - Consented
 - In Planning
 - Scoping
- Desk Study Area 10 km

*Windfarm status source:
Ash Consultants Feb 2020

Scale 1:250,000@ A3

0 5 10 km

Figure 9.1.1
Desk Study Area and
Cumulative Wind Farm Locations

Strath South Wind Farm
EIAR 2020

