

## 7 Ecology & Ornithology

### 7.1 Introduction

The aim of the Ecological and Ornithology Impact Assessment (EclA) is to identify, predict and evaluate the potential effects to ecological systems arising from the proposed development.

It is generally understood that wind farm developments have a low impact on ecology in terms of land take relative to the size of the development site. Impacts have been known to occur at some sites through birds avoiding turbines or birds and bats striking turbines during flight, or bats being killed by barotrauma (Baewald *et al*, 2008). The emphasis of the EclA will therefore be on the potential impact of the operational wind farm on birds and bats, particularly through blade strike and barotrauma. Potential impacts throughout the construction, operation and decommissioning phases of the proposed wind farm on other notable species will also be considered.

### 7.2 The Existing Environment

Conservation of species and habitats in the UK is governed by designation and legal protection of sensitive features. Sites designated as Special Areas of Conservation (SAC) and/or Special Protection Areas (SPA) are of European Importance and are created under the European Commission (EC) Directives 92/43/EEC (the 'Habitats Directive') and 79/409/EEC (as replaced by 2009/147/EC, the 'Birds Directive') respectively. Together, species and habitat designations made under the Birds and Habitats Directives form a network of protected sites across the European Union (EU) known as the Natura 2000 network of sites. Within the UK, sites that are considered of national importance are protected by law as Sites of Special Scientific Interest (SSSI) and Marine Nature Reserves (MNR)

In addition, the Convention on Wetlands (Ramsar, Iran, 1971, the "Ramsar Convention") resulted in an intergovernmental treaty that commits member states (of which the UK is one of 163) to *"maintain the ecological character of their Wetlands of International Importance and to plan for the "wise use", or sustainable use, of all of the wetlands in their territories"*. This is done through the designation of sensitive wetland areas as Ramsar sites

#### 7.2.1 General Site Description and Habitats

The site predominately consists of coniferous plantation woodland interspersed with upland. The upland habitat between Cruach na Naich and Loch Mor is dominated by blanket mire/wet heath with localised bog pools. There are wide woodland rides within the plantation which consist of stands of wet heath/blanket mire and marshy grassland (*Molinia caerulea* and *Juncus* sp.). The upland area provides good habitat for black grouse and hen harrier, there is good quality nesting habitat for hen harrier in the adjacent site which consists of frequent pockets of tall heather growing in woodland rides.

#### 7.2.2 Designated Sites

A Geographical Information System (GIS) database was used to undertake a search for internationally and nationally statutory designated sites within a 30km radius of the land available for turbine and associated development. There is a total of twenty nine internationally and nationally statutory designated sites, comprising:

- One Ramsar site,
- Two SACs,
- Three SPAs,
- One National Nature Reserve (NNR),
- Twenty-two SSSIs (which are designated for ecological features); and
- Three Important Bird Areas (IBA).

No international or national statutory designated sites are present within the land available for turbine and associated development (as shown in Figure 7). There are no SACs within 30km designated for bats. The details and distances of the key internationally designated sites are shown in Table 7.1a, and the nationally designated sites in Table 7.1b.

Table 7.1a: Internationally Designated Ramsar, SPA and SAC Sites within 30km			
Designated Site Name	Status	Distance from Site Boundary (km)	Description
Kintyre Goose Roosts	SPA Ramsar	3.1	<p>The site comprises five hill lochs (Loch Garasdale, Loch an Fhraoich, Loch Lussa, Tangy Loch and Black Loch (north)) and an area of grassland and heath at Rhunahaorine Point..</p> <p>This site qualifies under Article 4.1 of the Directive (79/409/EEC) as an SPA by supporting an overwintering population of European importance of Greenland white-fronted goose <i>Anser albifrons flavirostris</i> listed on Annex I of the Directive. The population size is 2,323 individuals representing at least 16.6% of the wintering population in Great Britain. The site is designated as a Ramsar site for hosting a population of Greenland white-fronted goose of international importance. The population represents an average of 8.5% of the total population.</p>
Knapdale Lochs	SPA Ramsar	23.9	<p>Knapdale Lochs comprise a group of four small oligotrophic and mesotrophic lochs in the Knapdale area of Argyll and Bute in south-west Scotland.</p> <p>This site qualifies under Article 4.1 of the Directive (79/409/EEC) as an SPA by supporting a population of European importance of black-throated diver <i>Gavia arctica</i> during the breeding season. The site supports 4 pairs representing at least 2.5% of the breeding population in Great Britain. The population is highly productive and located at the southerly limit of the breeding range of the species.</p>
Arran Moors	SPA IBA	17.8	<p>Arran Moors SPA is located on the island of Arran off the south-west coast of Scotland. The site is an extensive area of moorland and comprises most of the southern half of Arran.</p> <p>This site qualifies under Article 4.1 of the Directive (79/409/EEC) as an SPA by supporting a population of European importance of hen harrier <i>Circus cyaneus</i> during the breeding season. The site supports 24 pairs representing at least 4.8% of the breeding population in Great Britain. The site is designated as a SSSI for its breeding bird assemblage, including an important population of hen harrier and its upland assemblage.</p> <p>The upland assemblage consists of wet and dry heath; blanket bog; subalpine flushes; acid grassland; water bodies and acid grassland. Breeding birds include red-throated diver, golden eagle, peregrine and short-eared owl.</p>
South-East Islay Skerries	SAC	22.1	<p>Annex II species are the primary reason for selection of this site. The site supports common seal <i>Phoca vitulina</i> representing between 1.5% and</p>

**Table 7.1a: Internationally Designated Ramsar, SPA and SAC Sites within 30km**

Designated Site Name	Status	Distance from Site Boundary (km)	Description
			2% of the UK population.
Tarbert Woods	SAC	14.7	Annex I habitats are the primary reason for selection of this site. The site supports old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles.
Gigha Islands and Islets	IBA	4.0	Designated as an Important Bird Area for its population of black guillemot which represent more than 1% of the global; population.
Rhunahaorine Point	IBA	4.6	The site is of international importance as a roosting and feeding area for large numbers of wintering geese particularly Greenland white-fronted geese (3.81% of the world population and over 6% of the British population). The little tern colony is the largest in Kintyre, with between 9 and 25 pairs present in the four years 2006-2009.

**Table 7.1b: Nationally Designated Ramsar, SPA and SAC Sites within 30km**

Designated Site Name	Status	Distance from Site Boundary (km)	Description
Ard Bheinn	SSSI	20.6	Selected as a SSSI for breeding birds. Ard Bheinn regularly supports nesting hen harrier within the extensive mosaic of oceanic dry heaths interspersed with patches of wet heath, flushes and upland grasslands. The site also provides an additional foraging range for hen harriers nesting within the adjoining Arran Moors SSSI.
Ardmore, Kildalton and Callumkill Woodlands	SSSI	24.9	Selected as a SSSI for representing the largest remaining example of native deciduous woodland on the islands of Islay Jura and Colonsay and is representative of the former woodland cover of the Hebrides.
Ardpatrick and Dunmore Woods	SSSI	13.3	Selected as a SSSI for representing some of the best western Atlantic oakwoods within Mid Argyll.
Arran Northern Mountains	SSSI	13.8	Selected as a SSSI for habitats and species assemblages. Habitats include the most diverse upland habitat assemblage in west central Scotland and extensive areas of upland birch woodland. The site supports an important species assemblages of: <ul style="list-style-type: none"> <li>• Vascular plant; including three endemic whitebeams and the Killarney fern.</li> <li>• A diverse upland breeding bird community including ptarmigan, hen harrier and golden eagle.</li> <li>• Invertebrates including dragonfly and water beetle assemblages of interest.</li> </ul>
Arran Moors	SSSI	17.8	Designated as an SSSI for its upland habitat assemblage and for

**Table 7.1b: Nationally Designated Ramsar, SPA and SAC Sites within 30km**

Designated Site Name	Status	Distance from Site Boundary (km)	Description
			supporting breeding hen harrier and an assemblage of other upland birds.
Balnabraid Glen	SSSI	24.4	Selected as an SSSI for its wet woodland and lichen assemblage.
Benlister Glen	SSSI	26.2	Selected as a SSSI as it contains some of the best examples of tall herb ledge and wet woodland in west central Scotland.
Claonaig Wood	SSSI	15.8	Selected as a SSSI for its upland oak woodland. Claonaig Wood is significant within Kintyre because it contains the second largest area of W17 woodland, as well as important areas of W4 and W11 woodland types.
Craighouse Ravine, Jura	SSSI	29.7	Selected as a SSSI for upland oak woodland and bryophyte assemblages. The site is one of the richest and most interesting upland oak woodland sites in the southern Inner Hebrides and supports exceptionally rich bryophyte flora.
Dun Ban	SSSI	27.1	Selected as a SSSI for its subalpine calcareous grassland and tall herb ledge communities. The flora includes the nationally-rare species yellow milk-vetch <i>Astragalus boeticus</i> and the nationally-scarce mountain <i>avens</i> <i>Dryas octopetala</i> .
Ellary Woods	SSSI	28.9	Selected as a SSSI for its upland oak woodland and assemblages of bryophytes, lichens and dragonflies. The site has one of the largest remaining areas of ancient semi-natural and long established oceanic deciduous woodland in Argyll. The site hosts 212 species of bryophyte (including some rare and threatened species), 150 species of lichen and 12 species of dragonfly.
Gleann Dubh	SSSI	26.2	Selected as a SSSI for its upland habitat assemblage and breeding bird assemblage. Breeding birds include kestrel, peregrine, hen harrier, buzzard, short-eared owl, golden plover, ring ouzel, woodcock, redstart and tree creeper.
Glen Ralloch to Baravalla Woods	SSSI	22.4	Selected as a SSSI for its upland oakwood habitat and bryophyte and lichen assemblage. Lichens and bryophytes are of national and international importance.
Kilberry Coast	SSSI	17.2	Selected as a SSSI for its maritime cliffs, sand dune and shingle habitats and vascular plant assemblage.
Kintyre Goose Lochs	SSSI	3.1	The Kintyre Goose Lochs SSSI comprises a series of hill lochs (Loch Garasdale, Loch an Fhraoich, Loch Lussa and Black Loch) on the Kintyre peninsula in south-west Scotland. These sites are notified for their aggregations of Greenland white-fronted geese <i>Anser albifrons flavirostris</i> with each roost supporting nationally or internationally-important numbers over the winter months. These populations represent 9% of total world population and 16% of Great Britain population.
Machrihanish	SSSI	19.6	Site selected as a SSSI for its sand dune habitats which support a

Table 7.1b: Nationally Designated Ramsar, SPA and SAC Sites within 30km			
Designated Site Name	Status	Distance from Site Boundary (km)	Description
Dunes			diverse floral assemblage.
Rhunahaorine Point	SSSI	4.6	Selected as a SSSI for its shingle habitat and breeding and non breeding bird assemblage. The site is of international importance as a roosting and feeding area for large numbers of wintering geese particularly Greenland white-fronted geese (3.81% of the world population and over 6% of the British population). The little tern colony is the largest in Kintyre, with between 9 and 25 pairs present in the four years 2006-2009.
South Coast of Arran	SSSI	29.4	Selected as a SSSI for its shingle and maritime cliff habitats.
Tangy Loch	SSSI	11.6	Selected as a SSSI for its oligotrophic loch habitat, wintering population of Greenland white fronted goose and assemblage of vascular plants most notably slender naiad, a nationally rare plant.
Tarbert to Skipness Coast	SSSI	24.2	Site selected as a SSSI for its upland oak habitat and bryophyte assemblage. This is the largest continuous area of semi-natural woodland in Kintyre. Bryophytes include a number of nationally scarce species and an internationally important assemblage of oceanic bryophytes.
Torrisdale Cliff	SSSI	7.9	Selected as a SSSI for upland mixed ash woodland habitat, a rare habitat type in Kintyre.

### 7.2.3 Protected Species

A site-specific local biological record centre search has not yet been undertaken. Data has been gathered from freely accessible publicly available information using the National Biodiversity Network (NBN) Gateway and designated site citations. NBN identifies species records within a 10km grid squares. The High Clachaig site crosses through the 10km grid squares NR74 and NR73. Table 7.2 summaries the baseline data gathered to date.

Table 7.2: Publicly Available Baseline Data for Protected Species		
Species Groups	Data	Source
Invertebrates	NBN returned numerous records of invertebrates. No protected butterfly or moth species were recorded.	NBN (2013)
Molluscs	NBN returned no records of protected molluscs.	NBN (2013)
Fish	NBN returned no records of fish.	NBN (2013)
Amphibians	NBN returned no records of amphibians.	NBN (2013)
Reptiles	NBN returned no records of reptiles.	NBN (2013)
Birds	NBN returned numerous records of bird species, including several Annex I species. The following species, which are considered at risk from wind farms, were recorded by NBN:	NBN (2013)

Table 7.2: Publicly Available Baseline Data for Protected Species		
Species Groups	Data	Source
	<p><b>Raptors:</b></p> <ul style="list-style-type: none"> <li>• Hen harrier</li> </ul> <p><b>Geese and waders:</b></p> <ul style="list-style-type: none"> <li>• Greater white-fronted goose</li> <li>• Red-throated diver</li> <li>• Northern lapwing</li> <li>• Eurasian curlew</li> </ul> <p><b>Owls:</b></p> <ul style="list-style-type: none"> <li>• Short-eared owl</li> <li>• Barn owl</li> </ul> <p><b>Other species at risk:</b></p> <ul style="list-style-type: none"> <li>• Ptarmigan</li> <li>• Black grouse</li> </ul>	
	<p>The following species have been identified as breeding or wintering within 30km of the site based on the SPA citations: Greenland white-fronted goose, black-throated diver, hen harrier.</p> <p>SSSI citations identify breeding bird assemblages including the following species: red-throated diver, golden eagle, peregrine, ptarmigan, short-eared owl, kestrel, hen harrier, common buzzard, golden plover, ring ouzel, woodcock, redstart, treecreeper black guillemot and little tern.</p>	JNCC
Bats	NBN returned no records of bats There are no SACs within 30km designated for bats.	NBN (2013) JNCC
Pole Cat	NBN returned no records of pole cat within 30km.	NBN (2013)
Pine Marten	NBN returned no records of pine marten.	NBN (2013)
Scottish Wildcat	NBN returned records of wildcat. The Scottish Wildcat Association reported sightings of wildcat within grid square NR 73 and NR74.	NBN (2013) <a href="http://www.snh.org.uk/pdfs/publications/commissioned_reports/360.pdf">http://www.snh.org.uk/pdfs/publications/commissioned_reports/360.pdf</a>
Red Squirrel	NBN returned records of red squirrel within the 10km grid squares NR73 and NR74.	NBN (2013)
Hare	NBN returned no records of mountain hare or brown hare.	NBN (2013)
Otter	NBN returned no records of otter.	NBN (2013)
Water Vole	NBN returned no records of water vole.	NBN (2013)

Table 7.2: Publicly Available Baseline Data for Protected Species		
Species Groups	Data	Source
Badger	NBN returned no records of badger.	NBN (2013)

### 7.3 Methods

#### 7.3.1 Proposed Consultation

Consultation will be undertaken with the following organisations as a minimum:

- Scottish Natural Heritage (SNH) Species Officers and Habitats Officers;
- Argyll and Bute Council Biodiversity Officer; and
- Royal Society for the Protection of Birds (RSPB) Scotland

Third party records will be sought from the following organisations as a minimum:

- Argyll and Bute has no dedicated local biological records centre so a data request will be made to Biological Recording in Scotland (BRISC);
- Argyll Raptor Study Group;
- Scottish Biodiversity Forum Website;
- Botanical Society of the British Isles – Scotland;
- Natural History and Antiquarian Society of Mid-Argyll;
- Scottish Wildcat Association;
- Cowal Bat Group;
- Vincent Wildlife Trust;
- Scottish Badgers;
- Argyll Bird Group;
- Helensburgh Local Group RSPB bird group;
- UK Post-2010 Biodiversity Framework Website, and
- The Argyll and Bute Biodiversity Action Plan.

#### 7.3.2 Proposed Surveys

##### 7.3.2.1 Extended Desk Study

The objectives of the extended desk study are to review the existing available information to identify the following:

- Locally designated sites, up to 5km from the site,
- SPAs and Ramsar sites within 30km of the site;
- SACs designated for Bats within 30km of site, and
- Records of protected species within 30km of the site.

The County Ecologist and Biological Recording in Scotland (BRISC) will be contacted to provide a search of records of protected, notable and locally rare species within 30km of the proposed development. In accordance with Bat Conservation Trust recommendations, SACs which are designated for known bat populations will be included in a search of up to 30km.

The *Argyll and Bute Biodiversity Action Plan* will be reviewed to identify any relevant information. Information relating to nationally and internationally protected habitats has already been collated using the MAGIC website ([www.magic.gov.uk](http://www.magic.gov.uk)) and the ArcGIS 10 software package. The National Biodiversity Network ([www.searchnbn.net](http://www.searchnbn.net)) has already reviewed for recent records of notable and protected species in the local area.

#### 7.3.2.2 Species Surveys

Table 7.3 includes habitats and species being considered for surveys. Surveys for wintering bird were undertaken across the 2011/12 season and are currently being repeated in 2012/13. Surveys for breeding birds were completed in 2012 and the need to undertake additional breeding bird surveys will be determined through consultation with SNH following a review of the 2012 survey data.

Table 7.3: Proposed Species Surveys			
Survey Type		Timing	Comments
Vegetation	<ul style="list-style-type: none"> <li>Phase 1 Habitat Survey,</li> <li>National Vegetation Classification (NVC),</li> <li>Recent aerial photography and Ordnance Survey maps will be used to support the habitat survey work.</li> </ul>	May to August	The flowering season in upland areas is reduced due to climate conditions.
Invertebrates	A habitat suitability assessment will be undertaken. Targeted sampling surveys within suitable habitat, potentially including larval search, sweep netting and moth trapping, may be undertaken depending on the findings of the desktop surveys.	May to August	
Freshwater Invertebrates and molluscs	No surveys will be undertaken. However, information for the assessment will be gathered via consultation. Should this consultation and subsequent infrastructure layout have the potential for impacts upon watercourses and associated aquatic invertebrates / molluscs then further field surveys will be undertaken.	n/a	
Fish	No surveys will be undertaken. However, information for the assessment will be gathered via consultation.	n/a	
Amphibians	We do not propose to undertake any field surveys for this group.	n/a	
Reptiles	<ul style="list-style-type: none"> <li>Visual incidental recording across the site during all bird, bat and habitat surveys.</li> <li>Any reptiles will also be noted during the terrestrial mammal transects.</li> <li>Natural refugia search.</li> </ul>	May to September	
Birds	<ul style="list-style-type: none"> <li>Vantage Point Surveys (winter),</li> <li>Wintering Bird walkover surveys to include Vantage Point Surveys,</li> <li>Winter WeBS style surveys of nearby waterbodies,</li> <li>Vantage Point Surveys (summer),</li> <li>Black grouse lek surveys,</li> <li>Woodland point count surveys,</li> <li>Wader and passerine walkover surveys, and</li> <li>Raptor breeding surveys.</li> </ul>	<p>September - March</p> <p>April - August</p>	All survey work will follow relevant SNH methodologies and where possible will be agreed in advance with SNH conservation officers.
Bats	<ul style="list-style-type: none"> <li>Remote recording of static points using remote bat detectors at ground level and at height, and</li> </ul>	May to September	

Table 7.3: Proposed Species Surveys			
Survey Type		Timing	Comments
	<ul style="list-style-type: none"> <li>Walked and driven transect surveys of suitable habitat.</li> </ul> <p>Surveys will follow the Bat Survey Guidelines (BCT, 2012) and will be in accordance with the appropriate risk category that will be agreed with SNH prior to work commencing.</p>	(October)	
<p>Other Terrestrial Mammals:</p> <ul style="list-style-type: none"> <li>Pine marten,</li> <li>Red squirrel,</li> <li>Pole cat,</li> <li>Wild cat,</li> <li>Otter,</li> <li>Water vole,</li> <li>Mountain hare and Brown hare, and</li> <li>Badger.</li> </ul>	<p>Day time transect surveys to determine presence / absence. Identification of species will be based on field signs including scats, spraints, tracks, feeding remains, places of rest (dens, burrow etc) and live sightings.</p> <p>Visual incidental recording across the site during all bird, bat and habitat surveys. As we will be on site during both dusk and dawn for the bat and bird survey the chance of live sightings of the mammal species is increased.</p>	May to September	It is envisaged that pre-construction validation surveys may be required.

### 7.3.3 Assessment Methodology and Guidance

The *Guidelines for Ecological Impact Assessment in the United Kingdom* (IEEM, 2006) (the IEEM Guidelines) provide guidance on the process of identifying the value of ecological receptors, characterising impacts upon them and assessing whether these impacts are significant. An ecologically significant impact is defined in the IEEM Guidelines as “an impact (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area”. The IEEM Guidelines focus on assessment of impacts at a variety of geographic scales and set out the following process for assessment:

- Identification of the nature conservation value of each ecological receptor that is present within the land available for turbine and associated development and adjacent areas which may be affected by the development and the level of sensitivity of each of these receptors to the development;
- Identification of potential effects, based on the nature of the construction, operation and decommissioning phases of the development;
- Determining magnitude of potential effects – i.e. the scale of the change in population/number of individuals affected and the duration / reversibility of the potential effect;
- Determining the geographic level at which an effect will be significant, based on the interaction between the magnitude of the effect and the nature conservation value of the receptor likely to be affected;
- Identifying mitigation and, if required, compensation measures that are proposed to avoid, reduce or offset significant adverse effect; and
- Determining residual impacts on receptors once proposed mitigation measures have been taken into account.

### 7.3.4 Ornithological Importance and Vulnerability

A species' conservation status is considered in relation to its inclusion on:

- The EC Birds Directive (1979), the Wildlife and Countryside Act (1981) (as amended);
- The Birds of Conservation Concern (BoCC) Red and Amber Lists of Species of Conservation Concern;
- The UK Biodiversity Action Plan lists of globally threatened/declining species, and
- Local Biodiversity Action Plans (LBAPs).

See Table 7.4 for further information.

SNH guidance is widely regarded as the most thorough and practicable single piece of guidance for the assessment of the impacts of wind farms on birds. SNH consider a number of species to be particularly sensitive to possible wind farm impacts and cite three species lists that are regarded as important in assessments:

- Annex 1 of the EC Birds Directive,
- Schedule 1 of the Wildlife and Countryside Act 1981, and
- Joint Nature Conservancy Council *et al* Red List species Birds of Conservation Concern (BoCC).

The SNH guidance regards raptors and any species that are not manoeuvrable in flight to be particularly vulnerable to collision risk. Current guidance is that BoCC Red List passerines breeding in the uplands are not thought to present a significant collision risk concern, and so need not be given special consideration with respect to this potential impact in the uplands.

### 7.3.5 Determining Value

The value of ecological receptors identified is determined according to a geographical frame of reference. Value is assigned based on the conservation importance of a receptor, however in some cases social or economic factors may be taken into account. The value of receptors to be used in the EclA is defined in Table 7.4.

Table 7.4: Evaluation of Ecological Receptors	
Level of Value	Examples of Definitions
International	<p>An internationally designated site e.g. Special Protection Area (SPA), Special Area of Conservation, RAMSAR, or site considered worthy of such designation.</p> <p>Regularly occurring globally threatened species.</p> <p>A viable area of a habitat type listed in <i>Annex 1 of the Habitats Directive (92/43/EEC)</i>, or smaller area of such habitat which is essential to maintain the viability of a larger whole.</p> <p>Any regularly occurring population of internationally important species that are rare or threatened in the UK or of uncertain conservation status (including individual species listed on <i>Annex 1 of the EC Birds Directive</i>) and/or listed as a qualifying feature of an SPA, SAC or RAMSAR Site.</p>
National (UK)	<p>A nationally designated site e.g. a Special Site of Scientific Interest (SSSI), National Nature Reserve (NNR) or site that meets the criteria for such designation.</p> <p>Any individual species listed or included on a SSSI citation as a reason for designation of a SSSI.</p> <p>A regularly occurring significant population/number of any nationally important species i.e. listed on the <i>Wildlife and Countryside Act (1981)</i> (as amended).</p> <p>A viable area of priority habitat type as identified in the UK Post-2010 Biodiversity Framework, or smaller areas of such habitat which are essential to maintain the viability of the larger whole.</p> <p>A regularly occurring, substantial population of a nationally rare species i.e. a species that contributes to the integrity of an SAC or SSSI but which are not cited as species for which the site is designated (SACs) or notified (SSSIs).</p> <p>Species present in nationally important numbers (&gt;1% UK population).</p> <p>Any regularly occurring highly significant population of any bird listed on the RSPB Red List of High Conservation Concern.</p> <p>A species assemblage that includes one or more nationally important species (as defined above) that occurs regularly in significant numbers.</p>
Regional	<p>Areas of internationally or nationally important habitats which are degraded but which could be readily restored.</p> <p>A regularly occurring, substantial population of a nationally scarce species i.e. priority species in the UK Post-2010 Biodiversity Framework.</p> <p>Any regularly occurring significant population that is listed in a Local Red Data Book</p> <p>Species present in regionally important numbers (&gt;1% regional population).</p> <p>Species occurring within SACs and SSSIs locally but not crucial to the integrity of the site.</p> <p>Any regularly occurring highly significant population of any bird listed on the RSPB Amber List of Medium Conservation Concern</p>
County	<p>A site designated as a Wildlife Site or Site of Interest for Nature Conservation (SINC);</p> <p>A regularly occurring, substantial population of a regionally scarce species.</p>
District	<p>Viable areas of a Local BAP Priority habitat or small areas of such habitat which are essential to maintain the viability of the larger whole.</p> <p>Areas identified in a LBAP or as areas of conservation interest by organisations such as the local Wildlife Trust.</p> <p>A regularly occurring, substantial population of a species scarce in the county.</p>

Table 7.4: Evaluation of Ecological Receptors	
Level of Value	Examples of Definitions
	Species, habitats or features that are a key component of a Local Wildlife Site or Local Nature Reserve. Locally significant populations of Red and Amber List species.
Parish	Areas of internationally or nationally important habitats which are degraded and have little or no potential for restoration. A good example of a common or widespread habitat in the local area. Sites/features that are scarce within the locality or which appreciably enrich the local area's habitat resource. A regularly occurring, substantial population of a species scarce in the district.
Less than Parish (Site and Immediate Environs)	A degraded/impoverished example of a common or widespread habitat in the local area. Populations of common and widespread species.
Negligible	A habitat which offers little value for nature conservation e.g. arable field. A species considered to enrich the local ecological resource appreciably within the context of the Parish or Neighbourhood.

7.3.6 Identifying Effects and Determining Magnitude

Potential effects arising from the construction, operational and decommissioning phases of the proposed development will be assessed and described in the following terms:

- Duration (Short: <5 years, Medium: 5-15 years, Long-term: 15-25 years and Permanent: >30 years);
- Direct or Indirect; and
- Adverse or Beneficial.

The magnitude of the effect on the conservation status of the particular receptors and the integrity of the habitats that support them will be based on the above three factors. The magnitude refers to the extent (or size) of an effect, and wherever possible be quantifiable. Under the IEEM Guidelines, the magnitude of an effect is independent of the value of the receptor.

7.3.7 Determining Significance

To ascertain the significance of an effect, its magnitude is assessed against each valued receptor. IEEM describe significance as *'an impact (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area'* (IEEM, 2006). The value of any feature likely to be significantly affected is then used to identify the geographical scale at which the effect is significant. For example, the site may support an internationally important population of a species, but the proposals may not affect its international importance, but may reduce total numbers of the species occurring locally.

A degree of certainty will then be applied to the effect:

- Certain/Near-Certain: probability estimated at 95% or higher;
- Likely: probability estimated above 50% but below 95%;
- Unlikely: probability estimated above 5% but less than 50%; or
- Extremely Unlikely: probability estimated at less than 5%.

**7.4 Aspects to be Scoped Out**

Based on the information collated to date it is anticipated that the EclA will be focussed on those ecological receptors that are likely to be present at the site. Prior to consultation and the localised desk study and record search it is proposed that fish, freshwater invertebrates and amphibians will be scoped out. The site is outside of the range of great crested newt and it is anticipated that the effect on other amphibians will be negligible due to very minor land take. The disturbance to fish and freshwater invertebrates can be managed through construction practice, use of silt traps will result in minimal impact of the development on watercourses and therefore negligible effect on fish and freshwater invertebrates. No further protected species groups with a distribution in Scotland will be scoped out of the impact assessment at this stage. Table 7.5 summarises the aspects to be considered as part of the scope of the EclA.

**7.5 Conclusions and Summary**

EIA is an iterative process that contributes to the good design of any proposed development. It requires a system whereby the ecological specialist identifies issues, opportunities and constraints, and feeds them into the wind farm design in an ongoing process.

The ES chapters for Non-avian Ecology and Ornithology will then draw on the approach discussed above and will be presented in a logical manner, with an introduction, legislative framework, methodology, method of assessment, results, effects, mitigation and residual impacts. Formal assessment will follow best practice in this field.

Prior to preparing the ES chapters, there is a need to:

- Further assess the ecological data gathered during the Scoping Study;
- Undertake a localised desk study and ecological record data search;
- Engage in consultation with key parties; and
- Carry out any further survey work.

Table 7.5 summarises the aspects to be considered as part of the scope of the EclA.

<b>Table 7.5: Summary of the Scope of the EclA</b>	
<b>Elements to be Scoped In</b>	<b>Scope</b>
Designated Sites	An assessment of impacts upon ecological receptors will be undertaken (habitats, protected species). Consultation will be undertaken with SNH as part of the statutory scoping opinion.  Ecology ES chapter will be produced as part of the EIA.
Habitats (NVC to include bryophytes and lichens)	
Invertebrates	
Bats	
Reptiles	
Birds	

Table 7.5: Summary of the Scope of the EclA	
Elements to be Scoped In	Scope
Other Mammals: <ul style="list-style-type: none"> <li>• Pine marten</li> <li>• Red squirrel</li> <li>• Pole cat</li> <li>• Wild cat</li> <li>• Otter</li> <li>• Water vole</li> <li>• Mountain hare and brown hare</li> <li>• Badgers</li> </ul>	
Elements to be Scoped Out	
Fish - Impacts on watercourses can be managed under construction method statements resulting in negligible impacts. Therefore it is proposed to scope out this element of the EclA.	
Amphibians – The site is located outside of the range of great crested newt ( <i>Triturus cristatus</i> ) and therefore this protected species is unlikely to be impacted by development. Observations of all amphibian species will be recorded as per incidental records for terrestrial mammal species.	
Freshwater invertebrates - Impacts on watercourses can be managed under construction method statements resulting in negligible impacts. Therefore it is proposed to scope out this element of the EclA.	

## 7.6 References

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