

# QUADRAT Scotland Ltd

ENVIRONMENTAL IMPACT ASSESSMENT (SUMMARY)  
FOR PROPOSED WIND POWER DEVELOPMENT AT  
STRONAFIAN COMMUNITY WOODLAND

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*Cruach nam Mult*

## **SUMMARY**

This report describes the results of environmental surveys at the site of a proposed wind development scheme at Stronafian, nr Colintrave, Argyll (Grid ref: NS 017 842 centred).

The proposed scheme will include two turbines sited to the east of Cruach nam Mult, accessed via the existing forestry track from the south, with construction at the following points:

- Upgrade of the existing track;
- Extension of the track to the turbines;
- Creation of two crane pads measuring 16m x 30m each; and
- Two turbines at NS 01797 84359 and NS 01940 84276

Assessments were made of potential impacts in the following areas:

- Terrestrial habitat;
- Protected mammals and species (EPS and W&C Act 1981 et seq) and other directives; and
- Birds

Surveys were undertaken between February 2014 and May 2015 with additional information provided from previous surveys carried out during 2011/12.

## 1. TERRESTRIAL HABITAT

The habitat survey was carried out using a combination of National Vegetation Classification (NVC) and 'Phase 1' classification systems for vegetation communities. Target notes were made of particular features of conservation interest.

There are no statutory conservation designations within the site envelope. Ancient woodland (type 1a) is present alongside the proposed access track for the first few hundred metres (see Habitat Report Map 4).

Habitats listed in the EU habitats directive and as priority BAP habitats present on the site include:

- Blanket bog (M1, M17, M19) - Priority BAP habitat 'blanket bog'
- Northern Atlantic wet heath with Erica tetralix (M15) - Priority BAP habitat 'upland dwarf-shrub heath'
- Acid flush (M6) - Priority BAP habitat 'upland fen, flush and swamp'
- Marshy grassland (M23/M25) - Priority BAP habitat 'upland fen, flush and swamp'
- Dry Heath (H10) - Priority BAP habitat 'upland dwarf-shrub heath'

There is therefore a presumption in favour of conserving and restoring these habitats in their natural condition. Other habitats have become degraded by past forestry management and would benefit from measures to restore and enhance them.

### 1.1 Blanket bog and wet heath

Most of the area of search comprises blanket bog and wet heath and the vast extent of conifer plantation within Cowal means that the overall area of these habitats within this peninsula has been much reduced.

Throughout much of the site, conifers have been planted and, even where felled, have caused widespread disturbance and drainage of these habitats. To the north of Cruach nam Mult, however, is a swathe of relatively undisturbed peatland habitat that should be considered of higher quality, including an area of blanket bog with pools that are in good condition and include bog species and invertebrates of conservation importance. Elsewhere on the site the peatland habitat is of lesser quality.

Blanket bog is particularly fragile and can become degraded as a result of development through compression and drainage. Impacts to blanket bog have been minimised by siting the turbines and new access track away from the areas of higher sensitivity and taking access along existing tracks, through conifer plantation and along routes with thinner peat as far as possible (See Habitat Report Map 2).

Wet heath is a GWDTE type of lesser sensitivity but is in mosaic with blanket bog over much of this site and is in moderate condition, though extensively planted with conifers. Areas of deeper peat and flushing should be avoided.

Additional mitigation has been proposed to reduce potential changes to the hydrology, structure or vegetation of the blanket bog and wet heath habitats. This includes:

- Use of low ground-pressure vehicles;

- Minimising tracking across unprotected ground;
- Avoiding pollution and silt mobilisation across peat surfaces;
- Saving turves and peat carefully to ensure good restoration; and
- Tamping down the turves carefully at restoration to create a smooth peat surface with at least 70% cover of turves.

It is also recommended that a Peatland Management Plan be designed and implemented to ensure long-term benefits to the peatland habitat affected by the scheme. This may include actions to control sheep stocking levels and deer numbers, to limit argo-track use to accepted routes and to eradicate the invasive species *Rhododendron ponticum* before it expands out onto the open hill.

## 1.2 Flushes

There are a number of GWDTE habitats of moderate priority (2) within the site, mainly across the felled conifer plantation and alongside the burns to the south and east of the site. They may be affected by the access track along the eastern burn that runs alongside a broad strip of marshy grassland with flushes.

Impacts on the GWDTE habitat have been reduced by keeping the access route along the western edge of the habitat strip as far as possible, within the limits of gradient required by the construction traffic. Prior to construction, any particular areas of flushing should be clearly marked on the ground with a buffer of at least 10m. Where it is not possible to avoid them, additional measures to reinstate the features and their hydrology will be required (see Habitat Report, Section 5 and Appendix 3). Given that most have been avoided by an adequate margin and that mitigation will be overseen by a competent ecologist, impacts to GWDTE should be of Low significance.

The acid flushes (M6) along the track and within the felled conifer plantation are mostly of a type typical of disturbed ground, and are therefore less susceptible to further disturbance, although they are GWDTE habitats. Restoration of felled conifer areas should consider the whole habitat, since just restoring the existing man-made topography just because of secondary habitats would not be in the interests of the site. Impacts to these features may be considered of Low significance.

## 1.3 Other

Other habitats include existing and recently felled conifer plantation of Low significance. Any *Rhododendron ponticum* present in this block should be eradicated before these mature bushes can expand into the open hill.

## **2. PROTECTED MAMMALS**

Surveys of protected mammals (otter *Lutra lutra*, water vole *Arvicola amphibius*, pine marten *Martes Martes*, wildcat *Felis silvestris* and badger *Meles meles*) was completed as part of the environmental assessment for the proposed community wind-power scheme at Stronafian and bat surveys were conducted by dawn/dusk survey and the use of Anabats.

The survey area was searched for signs of target species on 18th and 20th May and 18<sup>th</sup> of June 2014 under sunny and warm conditions by walkover. The stream levels were low and there had been no significant rainfall in the week prior to the survey. The bat surveys were conducted at intervals throughout the summer of 2014.

### **2.1 Otters**

No sign of recent activity by otter, such as spraint or tracks, was noted on any of the above survey dates. A possible resting site was noted from the eastern burn (TN 10), but there was no sign of any recent activity. Otter are known to be present around the coast and in most of the rivers in this area so it should be assumed that otter use the site on a sporadic basis.

Pre-construction survey of the site envelope will be necessary before starting work as this is a mobile species. Mitigation for otter should include keeping 30m from the identified (and any other) resting site. During construction, buried pipes should be capped at night to prevent otters, badgers or other wildlife potentially becoming trapped and ramps set into any trenches greater than 50cm deep. So long as no barriers to otter are created there should be no effect on otter population, movement or dispersal within the area.

### **5.2 Pine marten**

Pine marten scat was noted from the end of the existing forestry track to the south-east of the survey area. There were always several scat in this area and they were frequently replaced suggesting that this is an important part of their territory, though no den location could be identified. There is no intention to fell the conifer plantation in this part of the site and there is a large area of adjacent plantation so, apart from short-term construction disturbance, impacts on marten foraging habitat e.g. from road construction and increased traffic, would be expected to be minimal.

### **2.3 Badger**

A single badger scat was discovered during this survey about 500m to the east of the site, at the edge of conifer plantation towards A'Cruach. No sett locations were identified within an area of search extending to 500m from all proposed structures. The scheme is therefore considered to pose a negligible threat to badgers. Standard mitigation for protection of mammals at works sites, such as capping of pipes and tunnels, will be required during construction.

### **2.4 Red squirrel**

Woodland areas were searched for signs of mammals but no evidence of red squirrel was found within the site envelope. Signs of cone predation were noted from a mature stand of conifer along the existing forestry access, c 1km from the site envelope.

## **2.5 Water voles**

Habitat suitability for water voles along each watercourse was assessed in a series of contiguous survey sections of varying length. Surveyors also searched all potentially suitable habitat for signs of water voles.

A few old burrows were noted along the eastern burn (TNs 1,2 & 8) but none showed any sign of recent activity, with several partly collapsed and all overgrown. This is probably as a result of past disturbance due to the conifer plantation. The burrows should be considered as potential habitat since voles are present in this part of Cowal and migratory. The recent removal of the conifer cover and any further clearance may enable the voles to recolonise their old sites.

## **2.6 Wildcat**

No signs of wildcat were identified during the survey. The moorland habitats that will primarily be impacted by the scheme footprint provide relatively poor foraging habitat for wildcats. Small mammal densities are likely to be highest in grassland habitats alongside gradient reaches of the watercourses or in areas of tussock grassland. The habitats will be little impacted by the proposed scheme. No den sites were identified that could be affected by scheme construction or operation.

## **2.7 Bats**

Two/three soprano pipistrelles were identified using the site for occasional foraging. No trees have been identified for felling that had features capable of supporting roosting bats. Impacts to bats as a result of this development are considered negligible.

## **2.8 Summary of mammal survey data**

- Active signs were recorded of badger, pine marten, soprano pipistrelles, large and small heath butterflies, small pearl-bordered fritillary and common lizard.
- Signs of past occupation by otter and water vole are present on the eastern burn alongside the proposed new access track, but there were no active signs. A potential otter lie-up and several water vole burrows were noted but they were overgrown and partly collapsed with no evidence of spraint, tracks, latrines or feeding signs.
- Two bats were noted foraging but no tree or building with bat features was noted within 50m of the proposed tracks or any proposed structures.
- Otter, water vole, badger, pine marten, red-squirrel, wildcat and bats are all mobile species and pre-construction survey should be carried out within 2 months of works starting onsite to ensure that there have been no material changes to this assessment.
- The otter lie-up should still be clearly marked with coloured tape or fencing to leave a 30m buffer.
- The water-vole burrows should be clearly marked with coloured tape to leave a 10m buffer.
- Standard mitigation for mammals should be applied throughout the site, i.e. during construction, buried pipes should be capped at night to prevent otters, badgers or other wildlife potentially becoming trapped and ramps set into any trenches greater than 50cm deep. Lights should not be left on overnight.
- Habitat creation/enhancement as part of reinstatement should consider habitat features appropriate for these species.

- Mitigation to reduce construction phase impacts to butterflies along the eastern burn should include routing the access track around the marshy grassland alongside the burn to avoid their habitat, culverting all watercourses and flushes across the track to retain the current level of surface water flushing and ensuring adequate, maintained silt control measures along this section.

### **3. BIRDS**

This report provides an assessment of the likely effects on the ornithological interest of a small (2 turbine) community wind-power scheme at Stronafian. Bird surveys were carried out during 2011 and from February 2014 to May 2015.

The habitat in the area was predominantly conifer plantation within a primarily upland/sub-montane setting dominated by wet heath and blanket bog. The proposed construction site was predominantly felled conifer with marshy grassland and flush habitat at the margins, along some narrow burns and in the drainage ditches throughout the site.

The surveys in 2011 and 2014/15 and other records indicate that the development is likely to overlap with or is adjacent to:

- A possible outer forage area for a pair of hen harrier (seen early 2014)
- The ranges of one raven pair, to the north and south-west of the site envelope
- 2-4 black grouse leks to the north-east, possibly becoming regular.
- A pair of peregrine holding territory in the south part of the plantation
- Crossbill throughout the plantation
- Nest territories of common sandpiper, red grouse and grey wagtail and other ground-nesting birds
- Nest territories of willow warbler, skylark, meadow pipit, grasshopper warbler, tree pipit and other song-birds
- Golden eagle and merlin flights were recorded but no sign of territory or nesting behaviour.

#### **3.1 Golden eagle and other raptors**

The nearest eagle nest territory is over 3km from the proposed development and, although they were seen flying above Cruach nam Mult, the minimal impacts of temporary displacement from this area due to construction phase disturbance are unlikely to affect breeding success.

Buzzard maintained a territory to the north-east of Cruach nam Mult, between this hill and Cnocan Sgeir'e onsite with a probable nest location.

Peregrine and hen harrier were noted overflying the site on one occasion each but did not breed within the area of search.

Other raptors noted during the surveys including a sight of a merlin. Mitigation will be required as follows:

- Surveys for breeding activity and advice from an ornithologist should be carried out throughout the breeding season. The site ornithologist should have the authority to enact further timing constraint in March to July, if observations show that any of these birds breeding attempts are being affected.

### **3.2 Raven**

Raven showed breeding behaviour at two locations to the south-west of the site, at Creag na Sgeith and to the east on the crags of A'Cruach. Mitigation will be required as follows:

- Surveys for breeding activity and advice from an ornithologist should be carried out throughout the breeding season. The site ornithologist should have the authority to enact further timing constraint in March to July, if observations show that any of these birds breeding attempts are being affected.

### **3.3 Black grouse**

This species was noted lekking to the north-east of the proposed development site during April and May 2014, with 3/4 males present.

- Checks of lekking behaviour should be made by the site ornithologist during the lekking season and appropriate buffer zones set to ensure that they are not disturbed by the construction.

### **3.4 Ground nesting birds**

Red grouse, common sandpiper and meadow pipit may experience moderate levels of disturbance during summer time construction works and from access traffic. Mitigation will be required as follows:

- In any areas where ground breaking is likely to be required during the breeding season (1st April to 15th July) dissuaders such as tatter flags should be set out at least two weeks before the start of the breeding season. If unplanned works are required during this time, the ground should be checked by an ornithologist at least two weeks before the start of works and, so long as the area is clear of nests or broods, dissuaders should be set out. This should be done on a rolling programme throughout the breeding season.
- A discretionary 30 to 200m buffer will be established from any active nests or broods observed, with all non essential activity suspended within this zone. Essential activity to be possibly permitted once the site ornithologist has made an assessment of nest vulnerability.
- This restriction to be lifted once brood absence has been confirmed. The restriction should otherwise follow the adults/brood until successful outcome or otherwise, with a rolling restriction on works.

### **3.5 Other birds**

Woodland birds utilise the conifer plantation and native trees around the development site for breeding purposes including common crossbill. Any trees to be felled should be brought down or lopped outside their breeding season. Other potential impacts of the proposals (including cumulative effects) would be minor or negligible in scale and would not result in long term adverse changes to the local or regional bird populations.

Particular care should be taken to avoid silt outwash in the vicinity of snipe and other ground nests

#### 4. SUMMARY OF ENVIRONMENTAL INFORMATION

Receptor	Potential Impact	Mitigation	Residual Impact
Habitats	- loss and/or permanent change to blanket bog and wet heath	- keep working corridor narrow - avoid deep peat and pools - avoid pollution and sediment/sub-soil on peat surface - use settlement ponds and sediment traps - use vehicles designed to spread their load - do not drive on unprotected peat	Low
	- loss and/or permanent change to flushes	-avoid creating drains by not cutting linear channels and using plugs and bunds - restore fully - avoid as far as possible leaving a 10m buffer - if not avoided, do not cross unprotected soil, retain turves separately and restore hydrology & vegetation	Low
	- damage to woodland	- retain riparian and native trees - minimise any felling - retain soil separately and replace - retain deadwood	Low
	- water pollution	- avoid pollution - install frequent sediment traps and settlement ponds - culvert using neutral pH material	Low
EPS mammals	- damage or disturbance to water vole burrows	- micrositing of pipeline routes to avoid all populations by at least 10m wherever possible - mark all burrows within 30m of the development corridor with coloured tape on the ground - carry out preconstruction survey around four weeks before starting work and update mitigation accordingly	Low
	- damage or disturbance to otter	- mark a 30m buffer around potential lie-up	Low
	- damage or	- cover the ends of pipes and	Low

	<p>disturbance to other EPS species</p> <p>- damage or disturbance to butterflies</p>	<p>put ramps in any trenches &gt; 50cm.</p> <p>- carry out pre-construction survey for mobile EPS species inc. otter, water vole, wildcat, pine-marten, red squirrel and bats</p> <p>- avoid the marshy grassland section alongside the eastern burn</p> <p>- avoid breaking ground in this area during their flying season</p>	<p>Low</p>
Birds	<p>- disturbance to breeding golden eagle</p> <p>- disturbance to breeding crossbill</p> <p>- disturbance to other breeding raptors</p> <p>- disturbance to black grouse</p> <p>- disturbance to raven</p> <p>- disturbance to breeding ground nesting birds: common sand-piper, meadow pipit and red grouse</p> <p>- disturbance to songbirds</p> <p>- disturbance to other species</p>	<p>- survey for eagles from February 2016 to assess breeding behaviour</p> <p>- survey for nests during their breeding season (Feb-June) and avoid trees supporting nests</p> <p>- survey for breeding raptors during spring/summer and before work starts. Keep 0.5km from any nest site between mid-March and end July</p> <p>- check leks within the lekking season, ensure buffer zones</p> <p>- survey nests and observe</p> <p>- set out dissuaders across ground due to be disturbed during March/April.</p> <p>- survey for any nest sites during the season and create a 30-200m buffer around any nest or broods observed, depending on species or conditions</p> <p>- do not fell trees between 15th March and end July</p> <p>- survey throughout the breeding season and update mitigation accordingly</p>	<p>Low</p> <p>Low</p> <p>Low</p> <p>Low</p> <p>Low</p> <p>Low</p> <p>Low</p>