Appendix 6A – Phase 1 Habitat Update – December 2008

Introduction

6A.1 RPS was asked by E.ON to undertake an extended Phase 1 Habitat Survey of the proposed Corriemoillie wind farm, Easter Ross.

6A.2 The purpose of the 2008 survey was to:
- Visit areas of important habitat previously identified and assess their current extent and condition;
- Assess distribution and abundance of the two Nationally Scarce plant species; and
- Record sightings or signs of protected mammals.

Previous work

6A.3 A comprehensive ecological survey had been carried out on the site in 2002\(^1\). The survey had identified and mapped:
- Three habitat types of European importance\(^2\): blanket bog, wet heath, dry heath;
- Two Nationally Scarce plant species: Alpine bearberry \(Arctostaphylos alpinus\) and dwarf birch \(Betula nana\); and
- Four protected mammal species: badger, otter, pine marten, water vole (prints/spraints).

Methods

6A.4 Fieldwork was undertaken on 29\(^\text{th}\) and 30\(^\text{th}\) September 2008, in showery weather but good visibility. The survey followed the methodology included in JNCC\(^3\). A description of the features of interest follows, with illustrative photographs. Target notes are detailed in Appendix 1 and their locations shown on Figure 1. Any signs of protected mammals were also noted, including notes on suitable habitat for these species.

Results

Phase 1

Blanket bog

6A.5 Active blanket bog is a priority category within Annex 1 of the EC Habitats Directive. It overlies deep peat, defined as being greater than 0.5m in depth, which occurs on level or gently-sloping ground. Characteristic species of deep peat are cotton-grass \(Eriophorum angustifolium\) and \(E. vaginatum\) and bog moss \(Sphagnum\) spp. On the site, blanket bog occurs in three main areas:
- The northwest around Loch a Mheallain-chaorainn;
- The east side on a saddle between hills; and
- The south part beside the Allt Coire Mhuilidh.

6A.6 The largest and most intact area of blanket bog lies to the east of Loch a Mheallain-chaorainn; here there is a natural pattern of hummocks and hollows with a well-developed pool system.

6A.7 The northern darter dragonfly \(Sympetrum scoticum\) was recorded on site. Pools within bog systems are an important larval habitat for this and other dragonfly and damselfly species. Although conifer planting and ground preparation will have affected the bogs in this part of the site, the habitat appeared in good condition, with little erosion or drying. Alongside the Allt Coire Mhuilidh, blanket bog habitat is less intact and lacks a system of pools; however it shows little sign of erosion or drying. The extent and condition of blanket bog appears similar to that recorded during the 2002 survey.

Wet heath

6A.8 Northern Atlantic wet heaths with \(Erica tetralix\) occur on peat up to 0.5m deep. Characteristic species are cross-leaved heath \(Erica tetralix\), deer-grass \(Trichophorum caespitosum\) and purple moor-grass \(Molinia caerulea\). On the site, wet heath occurs on sloping ground at the transition point from blanket bog or dry heath onto shallow peat, beside watercourses and lochans and discontinuously along forestry rides throughout the site. The extent of wet heath appears similar to that recorded during the 2002 survey. The condition of wet heath within some of the forestry rides is deteriorating due to trampling-induced erosion by red and sika deer. Southwest of Lochan Dubh Mor, an area approximately 20m x 20m in extent has been burned in recent years, vegetation is recovering but bare peat is apparent.

Dry heath

6A.9 European dry heaths occur on mineral soil on well-drained ground. These conditions are limited on the site, with dry heath being found only on steep, northwest facing slopes in the northeast.
part, and in a narrow band on northeast facing slopes in the south part of the site. Characteristic species are heather *Calluna vulgaris*, bell heather *Erica cinerea* and tormentil *Potentilla erecta*. The extent and condition of dry heath appears similar to that recorded during the 2002 survey.

Nationally Scarce plant species:

**Alpine bearberry (Arctostaphylos alpinus)**

6A.10 This low-growing deciduous woody perennial was recorded and photographed in open stony ground on hummocks around the east side of the main bog area in the northwest of the site. In September the leaves turn scarlet and are highly visible. *Arctostaphylos alpinus* was also recorded at the north end of this bog, and in wet heath vegetation within a forestry ride at NH 3383 6741, and in the northeast of the site on open moorland. Although several small populations of the plant occur on the site it is not frequent or plentiful at any location. It is possible that browsing by deer or hares is having an effect on the size or vigour of individual plants. The plant occurs at Corriemoillie between 350m and 400m altitude, which is at the lower edge of its range in the Highlands; generally it favours locations around 600m. Alpine bearberry cannot tolerate shading, and is out-competed by tall vegetation and never occurs under tree canopies.
**Dwarf birch** (*Betula nana*)

6A.11 This shrub was recorded in some quantity in blanket bog and wet heath vegetation along most of the forestry rides, as indicated during the 2002 survey. Several additional locations were found, and are marked by target notes on Figure 1. Most plants appeared young and vigorous, but low-growing and without catkins. Only a small amount of this season's growth has been browsed, with the exception of some taller plants in visible locations, whose stems had been heavily and repeatedly browsed.

![Plate 5 - heavily browsed Betula nana at NH3439 6808](image)

6A.12 This is a sub-montane plant which cannot tolerate shading, and although presumably occurs over much of the site prior to planting, will have been shaded out below the conifer canopy. Deer browsing is seriously affecting some plants and the lack of seed production may be of longer-term concern.

**Other Species**

6A.13 No signs of badger, otter or pine marten were observed at the time of survey, although the habitats on the site could support these species. Cattle graze adjacent ground which may increase the suitability of the area for badger foraging. Signs of water vole were not detected. Suitable habitat occurs alongside the burns, where the gradient is slight and the water slow-moving, and there are low banks with rushes *Juncus* spp for cover and areas of grass for feeding.

6A.14 A sika deer stag and two red deer stags were observed at the south end of Lochan a Mheallaidh-Chaorainn. Trampling and grazing by deer is evident throughout the site. The young conifers are dense with poor foraging in the understorey, resulting in heavy pressure on the semi-natural habitats along many of the forestry rides.

**Discussion**

6A.15 The survey has highlighted that the habitats present at Corriemoillie have not changed since 2002. Their extent is also largely the same, apart from a small area at NH 3455 6735 (Target note 1, Appendix 1, Figure 1) which has been heavily used by vehicles therefore degrading the local habitats. The majority of the site is covered by coniferous plantation, a habitat not considered of conservation importance, although it can still support notable fauna. Blanket bog, acid dry and wet dwarf shrub heath are present mainly along the forestry plantation rides. These are Annex 1 Habitats (Habitat’s Directive) and careful consideration should be given during the wind farm design layout in order to avoid or decrease potential impacts on these habitats.

6A.16 Two nationally scarce plant species (alpine bearberry and dwarf birch) have been recorded during the 2002 and 2008 surveys. These species are present within small localised areas. The alpine bearberry was recorded largely in the same locations as in 2002, with dwarf birch recorded at more locations during the present survey. The potential impact on these species should be minimised as much as possible, and translocation should be considered if potential impacts on these species can not be avoided through the design layout (as specified in the 2002 report).

6A.17 No signs of protected mammals have been recorded during the habitat surveys, although no specific species surveys have been carried out at this stage. Suitable habitat for otter, water vole, pine marten and badger was recorded on site.

**Conclusion**

6A.18 In conclusion:

- The overall quality and extent of the habitats at Corriemoillie have not changed since 2002, apart from a small degraded area;
- Blanket bog, wet dwarf shrub heath and acid dry dwarf shrub heath are European Protected Habitats and consideration should be given to avoid or minimise potential impacts on these habitats;
- Two nationally rare species (alpine bearberry and dwarf birch) are present and consideration should be taken to avoid or minimise potential impacts on these species;
- No signs of protected mammals were recorded, although the site supports suitable habitat for otter, water vole, pine marten and badger.
## Appendix 1 – Phase 1 Target Notes

### Table A1 – Extended Phase 1 Habitat Target Notes

<table>
<thead>
<tr>
<th>Target Note</th>
<th>Grid Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NH 3455 6735</td>
<td>Turning area; disturbed by vehicles; not possible to detect prints</td>
</tr>
<tr>
<td>2</td>
<td>NH 3455 6764</td>
<td>Main ride disturbed by tracked vehicles, resulting in deterioration of wet heath</td>
</tr>
<tr>
<td>3</td>
<td>NH 3439 6811</td>
<td><em>Betula nana</em> on west side of burn, non-continuous but locally frequent. Occasional plant heavily browsed, but most with this season’s leaders intact</td>
</tr>
<tr>
<td>4</td>
<td>NH 3432 6776</td>
<td><em>Betula nana</em> east of Lochan Dubh Mor</td>
</tr>
<tr>
<td>5</td>
<td>NH 3431 6781</td>
<td>Burned area of wet heath, heavily trampled and grazed by deer</td>
</tr>
<tr>
<td>6</td>
<td>NH 3337 6761</td>
<td><em>Betula nana</em> in wet heath</td>
</tr>
<tr>
<td>7</td>
<td>NH 3363 6783</td>
<td><em>Arctostaphylos alpinus</em> on small hummocks along east side of bog; where the ride leaves the bog, and 10m to the north, and also 50m to the north of that</td>
</tr>
<tr>
<td>8</td>
<td>NH 3354 6782</td>
<td>Blanket bog with pool system intact</td>
</tr>
<tr>
<td>9</td>
<td>NH 3356 6794</td>
<td><em>Betula nana</em> near east side of bog</td>
</tr>
<tr>
<td>10</td>
<td>NH 3322 6806</td>
<td><em>Betula nana</em> north of loch</td>
</tr>
<tr>
<td>11</td>
<td>NH 3322 6806</td>
<td>Shallow loch with emergent vegetation, dominated by bottle sedge <em>Carex rostrata</em>; potentially important for invertebrates (photo looking south from NH3322 6806)</td>
</tr>
<tr>
<td>12</td>
<td>NH 3333 6741</td>
<td><em>Arctostaphylos alpinus</em> in wet heath</td>
</tr>
<tr>
<td>13</td>
<td>NH 3456 6620</td>
<td>Small stand of few-flowered sedge <em>Carex pauciflora</em> (in Britain more or less restricted to the Highlands) near burn. <em>Betula nana</em> sparse.</td>
</tr>
<tr>
<td>14</td>
<td>NH 3485 6587</td>
<td>Gradient increases, blanket bog is replaced by wet heath on sloping ground, with dry heath on steep knolls.</td>
</tr>
<tr>
<td>15</td>
<td>NH 3471 6704</td>
<td><em>Betula nana</em> on ride starting beside road @ NH 3473 6706 and extending along ride to NH 3479 6714 and area of wet heath.</td>
</tr>
<tr>
<td>16</td>
<td>NH 3481 6718</td>
<td><em>Betula nana</em> in dense patches @ NH 3488 6721 continuing along ride to NH3497 6734.</td>
</tr>
<tr>
<td>17</td>
<td>NH 3493 6749</td>
<td>Blanket bog with pool system intact, <em>Betula nana</em> present</td>
</tr>
<tr>
<td>18</td>
<td>NH 3450 6765</td>
<td><em>Betula nana</em>. No further <em>Betula</em> was encountered north and east of this point.</td>
</tr>
<tr>
<td>19</td>
<td>NH 3493 6818</td>
<td><em>Arctostaphylos alpinus</em> on knoll in wet heath. Same location as last survey (2002).</td>
</tr>
<tr>
<td>20</td>
<td>NH 3387 6691</td>
<td><em>Betula nana</em>. Patches from Loch along ride east to main burn.</td>
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</tbody>
</table>
PHASE 1 HABITAT SURVEY

Corriemoillie Windfarm