

# **NVC survey of Gearrhoille Community Wood**

By Ruth Maier

August 2007

## **1. Introduction**

A vegetation survey was carried out for Gearrhoille community woodland. The site was visited on two days in 2007, 4<sup>th</sup> June and 2<sup>nd</sup> August. The aim of the survey was to provide National Vegetation Classification (NVC) data for the whole site.

## **2. Methods**

Homogenous stands of vegetation were identified in the field and assigned to a vegetation community or sub-community using the National Vegetation Classification (NVC) (Rodwell 1991-1995). Boundary lines were drawn on the map delineating polygons containing either homogenous stands of a single vegetation type or small-scale mosaics of several vegetation types occurring consistently over larger areas. Such mosaics were mapped as a single polygon and the relative proportion of each vegetation sub-community within was recorded. 10 – figure grid references were taken frequently with a handheld GPS to assist in the correct placing of boundaries on the map.

Target notes were written to record any other interesting floristic, faunistic or management information. 10-figure grid references were taken for all target note locations.

Quadrats were recorded for the main woodland vegetation communities in order to describe them in more detail, with four or five quadrats recorded for each of the communities found. No quadrats were recorded for the non-woodland habitats, as these have a very restricted distribution at the site.

Quadrat size was 4 x 4 metres for the fieldlayer, and 10 x 10 metres for both shrub and canopy layer. All vascular plant species, bryophytes and macro-lichens found within each quadrat were recorded and their cover was assessed using the Domin scale (Rodwell 1991-1995) (1 = < 4% cover, few individuals, 2 = < 4% cover, several individuals, 3 = < 4% cover, many individuals, 4 = 5-10% cover, 5 = 11-25% cover, 6 = 26-33% cover, 7 = 34-50% cover, 8 = 51-75% cover, 9 = 76-90% cover, 10 = 91-100% cover).

## **3. Nomenclature**

Nomenclature in this report follows Stace (1997) for vascular plants, Blockeel and Long (1998) for mosses and liverworts, and Purvis *et al.* (1992) for lichens. Trees are usually referred to by their common names. Common names used in the report are:

Birch	<i>Betula pubescens</i>
Oak	<i>Quercus petraea</i>
Aspen	<i>Populus tremula</i>
Eared willow	<i>Salix aurita</i>
Rowan	<i>Sorbus aucuparia</i>
Pine	<i>Pinus sylvestris</i>
Blackthorn	<i>Prunus spinosa</i>
Bird cherry	<i>Prunus padus</i>
Juniper	<i>Juniperus communis</i>
Honeysuckle	<i>Lonicera periclymenum</i>
Hazel	<i>Corylus avellana</i>
Bramble	<i>Rubus fruticosus</i>
Bracken	<i>Pteridium aquilinum</i>
Alder	<i>Alnus glutinosa</i>

#### 4. Site description

Gearrchoille is a broad-leaved woodland close to the community of Ardgay in north-east Scotland. The site encompasses approximately 13 hectares. The woodland is probably pre-historic in origin and it is marked on the earliest maps of the region. It contains an old drovers' road and several turf-covered earthbanks. There is also an old curling pond of more recent origin, now disused and overgrown. The woodland belongs to the community of Ardgay.

#### 5. Vegetation community descriptions

##### 5.1 Woodland

The woodland canopy is dominated by birch and oak, with locally abundant aspen, often suckering. Hazel is abundant in the south-western part of the wood and eared willow is found in wet areas close to the Alltan na Beiste, which bisects the northern part of the site. There are also some alders on the stream margin. Five woodland NVC sub-communities were identified within the woodland and they are described below.

##### W4b *Betula pubescens* – *Molinia caerulea* woodland, *Juncus effusus* sub-community

This is a species-poor vegetation type with a canopy dominated by birch, with some oak and rowan. The fieldlayer consists of dense *Molinia caerulea* tussocks, locally with some tussocks of *Deschampsia cespitosa* and scattered shoots of *Juncus effusus*, *Agrostis canina* and *Anthoxanthum odoratum*. Apart from these bulky graminoids, few other species are frequent, but there is usually some *Potentilla erecta* scrambling among the tussocks. The main bryophytes found among the tussocks are *Hylocomium splendens*, *Thuidium tamariscinum* and *Rhytidiadelphus triquetrus*, and all three are unusual for this community, suggesting a close affinity with the drier W11 woodland with which this community grows in close proximity. Very occasional records for *Trientalis europaea*, *Stellaria holostea* and *Oxalis acetosella*, common in W11 but scarce in W4, confirm this. There are usually a few wet hollows with *Sphagnum fallax* and *S. palustre*, but other

Sphagna are absent. *Polytrichum commune* is also often present in wetter parts, but not abundant.

W4b is most widespread in the northern and central part of the wood, between the earthbanks and the stream.

W7b *Alnus glutinosa* – *Fraxinus excelsior* – *Lysimachia nemorum* woodland, *Carex remota* – *Cirsium palustre* sub-community

This sub-community is restricted to the wettest part of the woodland, close to the Alltan na Beiste. The canopy consists of birch, eared willow and occasional alder, the latter most widespread close to the stream. Eared willow bushes and young birch form an open understorey with locally abundant honeysuckle. The fieldlayer is very species-rich with abundant *Lysimachia nemorum*, *Ajuga reptans*, *Valeriana officinalis*, *Holcus mollis*, *Filipendula ulmaria*, *Galium palustre*, *Ranunculus repens* and *Geum rivale*. *Cirsium palustre*, *Cirsium heterophyllum*, *Viola palustre* and *V. riviniana* are frequent, *Chrysosplenium oppositifolium* is locally abundant at stream margins. Bryophytes are frequent, with *Thuidium tamariscinum* and *Rhytidiadelphus squarrosus* in drier parts and *Plagiomnium undulatum*, *Rhizomnium punctatum*, *Eurhynchium praelongum*, *Polytrichum commune*, *Calliergonella cuspidata*, *Brachythecium rivulare* and *Chyloscyphus polyanthos* in wetter areas. *Fissidens adianthoides*, *Pellia epiphylla* and *Bryum pseudotriquetrum* are common on stream margins and *Fontinalis antipyretica* is abundant on wet rocks. There are small wet hollows with *Sphagnum palustre* and *S. fallax*, but these are most frequent in stands transitional to W4 woodland.

W11b *Quercus petraea* – *Betula pubescens* – *Oxalis acetosella* woodland, *Blechnum spicant* sub-community

This sub-community is only found in the southernmost part of the woodland. Here, the canopy consists of mature oak, birch and abundant old hazel, formerly coppiced, but now grown into mature trees. There is also frequently some aspen. The fieldlayer contains abundant *Hyacinthoides non-scripta* and *Primula vulgaris*, two species also found in other parts of the woodland, but especially abundant here. Ferns are also frequent with *Dryopteris dilatata*, *Athyrium filix-femina*, *Blechnum spicant* and some *Gymnocarpium dryopteris* all present. The fieldlayer is often quite open, with aspen suckers and birch and rowan seedlings growing between tufts and cushions of bryophytes such as *Dicranum majus*, *Thuidium tamariscinum*, *Mnium hornum* and *Eurhynchium striatum*. Bracken is locally frequent in this community, thickening to dense stands on the woodland margin.

W11c *Quercus petraea* – *Betula pubescens* – *Oxalis acetosella* woodland, *Anemone nemorosa* sub-community

This is the most widespread dry oak-birch woodland sub-community within the site. It is found throughout, often in a mosaic with W4b which will occupy wet hollows and moderately flushed slopes. The canopy in W11c consists mainly of birch and oak, with both mature trees and dense young stands present. There is often some aspen, as well as scattered rowan. An open understorey consisting mainly of young birch may be

present and there can be a few patches of bramble, as well as some climbing honeysuckle. The fieldlayer is usually grassy with abundant *Holcus mollis*, as well as frequent *Deschampsia flexuosa*, *Anthoxanthum odoratum* and *Agrostis canina*. Frequent associates are *Luzula pilosa*, *Potentilla erecta*, *Trientalis europaea*, *Oxalis acetosella*, *Blechnum spicant* and *Galium saxatile*. *Stellaria holostea*, *Succisa pratensis*, *Viola riviniana*, *Melampyrum pratense*, *Hypericum pulchrum*, *Lathyrus linifolius* and *Veronica officinalis* are much more scattered. Tree seedlings, mostly birch and rowan, but also some oak, are quite frequent and where aspen is present, aspen suckers are often abundant. The bryophyte layer contains abundant *Rhytidiadelphus triquetrus*, *Hylocomium splendens* and *Thuidium tamariscinum*, as well as some *Rhytidiadelphus squarrosus*, *Pleurozium schreberi*, *Dicranum majus*, *Scleropodium purum*, *Plagiothecium undulatum* and *Polytrichum commune*. The fieldlayer in some parts of this woodland is dominated by dense bracken during the summer, with few associated species.

The birch-oak woodland in the eastern part of the site is crossed by several small flushes and contains frequent small patches of *Sphagnum palustre* in wet hollows and *Sphagnum quinquefarium* on well-drained banks. The flushes support some *Cirsium palustre*, *Viola palustris*, *Valeriana officinalis* and *Lysimachia nemorum* and there are large patches of *Galium uliginosum* and *Myosotis secunda* as well as scattered tussocks of *Molinia caerulea*. The dry parts of this woodland clearly belong to the W11c sub-community and this area is perhaps best regarded as a small-scale mosaic of W7b and W11c.

W11d *Quercus petraea* – *Betula pubescens* – *Oxalis acetosella* woodland, *Stellaria holostea* – *Hypericum pulchrum* sub-community

Though most of the dry birch-oak woodland found at Gearrchoille belongs to the W11c sub-community, there are a few patches, especially in the northern part of the wood which show strong affinities with the W11d sub-community. Within these patches, the *Holcus mollis* – dominated fieldlayer contains abundant *Stellaria holostea*, *Veronica chamaedrys*, *V. officinalis* and scattered *Hypericum pulchrum*, all of which are W11d sub-community preferentials.

## 5.2 Mires

There are a few small patches of mire habitat in open areas within and adjacent to the woodland.

M6b *Carex echinata* – *Sphagnum recurvum/auriculatum* mire, *Carex nigra* – *Nardus stricta* sub-community

This vegetation type is found in an open area in the northern part of the woodland, close to the tree pasture area. It extends into the open area between the woodland and Ardgay, which is zoned for development. M6b consists of a mixture of grasses and sedges, mainly *Carex nigra*, *C. panicea*, *Agrostis capillaris*, *Anthoxanthum odoratum*, *Holcus lanatus* and *Molinia caerulea* over a wet bryophyte carpet dominated by *Sphagnum fallax*, with some *Polytrichum commune*, *Rhytidiadelphus squarrosus* and

*Hylocomium splendens*. There are also frequent tufts of *Deschampsia flexuosa*, *Potentilla erecta* and *Pedicularis palustris*.

#### M5 *Carex rostrata* – *Sphagnum squarrosum* mire

This community is present in the old curling pond, now totally overgrown with rushes over a wet *Sphagnum* carpet. The *Sphagnum* carpet contains *Sphagnum palustre*, *S squarrosum* and *S fallax*. There are also frequently some poor fen herbs, such as *Caltha palustris*, *Veronica scutellata*, *Galium palustre*, *Ranunculus flammula* and *Cardamine pratensis*, together with patches of *Mentha aquatica*, *Myosotis secunda* and *Ranunculus repens*. Sedges are scarce, and, unusually, there is no *Carex rostrata* and very little *Carex nigra* among the dense *Juncus effusus* which dominates the fieldlayer. This vegetation is best regarded as an unusual, rush-dominated, species-poor variant of M5.

#### M15b *Scirpus cespitosus* – *Erica tetralix* wet heath. Typical sub-community

This sub-community is found along the powerline corridor bisecting the central part of the woodland. It is usually dominated by *Molinia caerulea* and *Myrica gale*, with frequent *Erica tetralix* and *Calluna vulgaris* among the tussocks and *Myrica* bushes. It is occasionally quite dry, but usually somewhat flushed with *Sphagnum fallax* and *S. capillifolium* hummocks, *Narthecium ossifragum*, *Eriophorum angustifolium* and a few scattered sedges, mostly *Carex echinata* and *Carex panicea*.

#### M23b *Juncus effusus/acutiflorus* – *Galium palustre* rush pasture, *Juncus effusus* sub-community

A few small patches of this sub-community are present on the old curling pond, together with the M5. It is found on the margins, close to flowing water and the bryophyte carpet characteristic of the M5 community is mostly absent, though the suite of vascular plants present is similar, with *Juncus effusus*, *Holcus lanatus*, *Galium palustre*, *Caltha palustris*, *Mentha aquatica*, *Epilobium obscurum*, *Ranunculus repens*, *Myosotis secunda* and *Veronica scutellata* all widespread. Wettest parts of this sub-community contain stands of *Glyceria fluitans*.

### **5.3 Grasslands**

The north-western corner of the site contains an area of grassland, outside the woodland boundary fence. Close to the boundary there is open wood pasture with a grassy fieldlayer.

#### MG6b *Lolium perenne* – *Cynosurus cristatus* grassland, *Anthoxanthum odoratum* sub-community

This grassland is found in the north-western part of the woodland. It is quite rank and frequently weedy, with *Cirsium arvense*, *C. vulgare* and *Rumex obtusifolius*. Common

mesotrophic grassland herbs such as *Veronica chamaedrys*, *Cerastium fontanum*, *Rumex acetosa*, *Trifolium repens* and *Ranunculus repens* are frequent in the ungrazed rank sward dominated by *Holcus mollis*, *Holcus lanatus*, *Poa trivialis*, *Anthoxanthum odoratum*, *Agrostis capillaris*, *A. stolonifera* and, more locally, some *Cynosurus cristatus*. This type of grassland constitutes the fieldlayer within the area of wood pasture in the northern part of the wood, outside the old boundary fence.

#### MG10a *Holcus lanatus* – *Juncus effusus* rush pasture, Typical sub-community

This community is similar to MG6, but it is dominated by *Juncus effusus* and *Holcus lanatus*, with variable cover of other grasses such as *Poa trivialis*, *Agrostis stolonifera*, *A. capillaris* and *Anthoxanthum odoratum*. *Cynosurus cristatus* is usually absent from this community.

### **5.4 Other communities**

#### U20 *Pteridium aquilinum* – *Galium saxatile* community, Species-poor sub-community

Dense stands of bracken are present in the woodland fieldlayer and in woodland clearings. The largest stands are in the north-eastern and south-eastern corners of the wood. Dense bracken stands were not surveyed in any detail as they support few species other than a few shade-tolerant bryophytes such as *Eurhynchium praelongum*.

### **6 Management suggestions**

The woodland is quite diverse and contains a good range of different woodland vegetation types. The wet W7b is especially interesting and disturbance to the whole of the stream corridor should be kept to a minimum.

The southern part of the woodland with the old hazel coppice is also of interest and supports the most extensive stands of bluebells and primroses, though both these species are present in other parts of the site.

The dry W11c woodland is variable and locally quite species-rich. It is least interesting in the north-eastern part of the wood, between the A836 and the main access track from Ardgay. This part of the site does contain some old spreading oaks but the fieldlayer is species-poor and often dominated by bracken. The area surrounding the willow structure is very suitable for community group events and gatherings. Some bracken clearance in this area might be helpful, in order to use it all year round.

The site contains large stands of dense, young birch and some of these could be opened up with selective thinning, to create a more diverse canopy structure throughout and encourage more diversity in the fieldlayer. There are several areas suitable for thinning. One of these is the large dense area on both sides of the footpath near the car park and the eastern part of the stream corridor, where the wet woodland corridor is quite narrow. Some thinning could also be carried out in the dense area just north of the earthbank junction, though this would generate disturbance in the southern part of the site, which is presently not used by casual visitors.

The aspen stands are also of considerable interest. There are pure stands of aspen in the central and southern part of the site, as well as just north of the stream and they are suckering freely. Further survey of different clones and their distribution and flowering pattern would be interesting.

The old curling pond is now totally overgrown and contains frequent piles of brash. The brash should be removed, and either burnt or, preferably chipped and composted. It could possibly be used as mulch by gardeners. A few brash heaps could be set up as wildlife shelters in the tree pasture, on the woodland margin. Parts of the pond could be opened up, to create open standing water habitat of variable depth, though a band of marginal vegetation should be left, especially on the edge away from the footpath, where the vegetation is more species-rich.

The grassland found in the northern part of the site is quite rank, species-poor and of little conservation interest. If the grassland is to be maintained, some grazing would be beneficial to open up the sward and encourage species diversity. Tree seedlings are quite sparse in this part of the wood and if it is to be managed for tree regeneration, the dense grassy sward may need to be opened up for seedlings to germinate. Alternatively, the area could be used for more community activities. If any planting of berry shrubs and other crops is to be carried out at the site, this would be the most suitable area.

## **7. Conclusion**

In its present state, Gearrchoille Community woodland is a diverse site with a range of interesting vegetation communities. Any future management should be carried out to maintain and perhaps gently enhance the best features. While the northern part of the woodland would be suitable for different kinds of community activities, the southern part could be kept as a wildlife area with minimum disturbance.

## **References**

- Blockeel, T.L. & Long, D.G. 1998. *A checklist and census catalogue of British and Irish bryophytes*. British Bryological Society, Cardiff.
- Purvis, O.W., Coppins, B.J., Hawksworth, D.L., James, P.W. & Moore, D.M. 1992. *The Lichen Flora of Great Britain and Ireland*. The British Museum (Natural History).
- Rodwell, J.S. 1991-1995. *British Plant Communities. Volume 1-5*. Cambridge: Cambridge University Press.
- Stace, C.A. 1997. *New Flora of the British Isles. 2nd Edition*. Cambridge University Press.

## Appendix 1. Target notes

1. 259880 890052

W11 woodland with abundant *Stellaria holostea* and *Veronica chamaedrys*, probably closer to sub-community W11d. Also locally abundant bluebell.

2. 259879 889970

Alltan na Beiste. Fast-flowing stream with low wet banks with some alder and eared willow. Low wet shelves with *Lysimachia nemorum*, *Valeriana officinalis*, *Angelica sylvestris*, *Filipendula ulmaria*, *Chrysosplenium oppositifolium* and *Primula vulgaris*. Rocks in stream with abundant *Fontinalis antipyretica*.

3. 259943 889830

Large stand of aspen with frequent suckers.

4. 259931 889816

Flush with abundant *Ajuga reptans* and *Primula vulgaris*.

5. 259955 889807

Stands of old hazel coppice with patchy bluebells and wood anemone.

6. 259972 889704 Woodland margin with line of hazel, blackthorn, mature old oaks and birch.

7. 260034 889670

Margin of woodland with mature, spreading oaks, coppiced hazel and some birch.

8. 260083 889738

Several old pine trees, juniper and one whitebeam within birch-oak woodland

9. 260172 889979

Mature spreading oaks, with a sparse grassy fieldlayer, dense bracken on margins and in clearing with willow structure

10. 260095 889987

Locally abundant bluebells on margin of wet area north of stream.

11. 260028 889937

Old curling pond, overgrown with rushes over a Sphagnum carpet in an atypical M5 community. Also with piles of dead brash from past scrub clearance

12. 260089 889989

Sunken old drover's road with old spreading oaks on banks.

13. 259998 890066

Wood pasture outside main woodland boundary, fieldlayer mostly rank and grassy.

14. 260087 889758

Junction of two old earthbanks, tops dry with locally abundant *Vaccinium myrtillus* and *Calluna vulgaris*.

15. 260007 889849

Top of earthbank with *Teucrium scorodonia*.

16. 260069 889916

Ditch south of track with *Lysimachia nemorum*, *Primula vulgaris*, *Ajuga reptans*, *Cirsium palustre*, *Chrysosplenium oppositifolium*, *Valeriana officinalis* and *Geum rivale*.

17. 260164 889828

Edge of large bracken clearing between powerline and earthbank.

18. 259982 889913

W11c woodland with some juniper and one *Prunus padus* on upper slope.

19. 259951 889945

Small area of W11c woodland with old spreading oaks.

20. 259990 889754

Old juniper and pine in area with aspen and birch.

21. 259971 889727

Mature spreading oaks and old hazel coppice, fieldlayer grassy and species-poor

22. 260208 889787

W11 woodland with frequent wet hollows and small flushes. With frequent ferns including *Gymnocarpium dryopteris*, wet areas with large patches of *Galium uliginosum* and *Myosotis secunda*.

## Appendix 2. Quadrats

### W4b Quadrats

Quadrat number	7	8	9	12
NVC community	W4b	W4b	W4b	W4b
northing	260114	260014	259946	260019
easting	889829	889909	889900	890019
<i>Betula pubescens</i>	8	9	9	8
<i>Quercus petraea</i>	5			4
<i>Sorbus aucuparia</i>		4	3	4
<i>Betula pubescens</i>		3	4	4
<i>Myrica gale</i>	4	3		
<i>Deschampsia flexuosa</i>	3	4	4	4
<i>Molinia caerulea</i>	9	9	9	9
<i>Potentilla erecta</i>	4	4	3	7
<i>Hylocomium splendens</i>	4	3	3	5
<i>Polytrichum commune</i>		3	2	3
<i>Thuidium tamariscinum</i>	5	4	5	
<i>Betula pubescens</i> seedling		1		3
<i>Galium palustre</i>		2	3	
<i>Vaccinium myrtillus</i>	2		4	
<i>Sphagnum fallax</i>	4		4	
<i>Sphagnum palustre</i>		3		4
<i>Blechnum spicant</i>				3
<i>Calluna vulgaris</i>			2	
<i>Holcus mollis</i>				4
<i>Holcus lanatus</i>	3			
<i>Oxalis acetosella</i>		3		
<i>Sorbus aucuparia</i> seedling	2			
<i>Stellaria holostea</i>	2			
<i>Succisa pratensis</i>				2
<i>Trientalis europaea</i>		2		
<i>Erica tetralix</i>				3
<i>Vaccinium vitis-idaea</i>				3
<i>Mnium hornum</i>			2	
<i>Plagiomnium undulatum</i>	3			
<i>Plagiothecium undulatum</i>				2
<i>Pleurozium schreberi</i>			3	
<i>Rhytidiadelphus triquetrus</i>	4			
<i>Scleropodium purum</i>		3		
<i>Sphagnum girgensohnii</i>				7
<i>Sphagnum capillifolium</i>				4

## W7b Quadrats

Quadrat number	10	11	13	14
NVC community	W7b	W7b	W7b	W7b
northing	260183	260087	259961	259898
easting	889916	889980	889976	887973
<i>Betula pubescens</i>	9	9	7	7
<i>Quercus petraea</i>	5	4	4	4
<i>Corylus avellana</i>	4			
<i>Sorbus aucuparia</i>			5	
<i>Alnus glutinosa</i>				6
<i>Salix aurita</i>	4	3	4	5
<i>Betula pubescens</i>	5		4	4
<i>Lonicera periclymenum</i>	3	3		
<i>Sorbus aucuparia</i>				3
<i>Anthoxanthum odoratum</i>	3	2	3	3
<i>Blechnum spicant</i>	3	3	3	3
<i>Holcus mollis</i>	5	6	6	3
<i>Ajuga reptans</i>	5	6	4	4
<i>Filipendula ulmaria</i>	3	2	4	6
<i>Galium palustre</i>	3	4	3	3
<i>Lysimachia nemorum</i>	4	3	3	3
<i>Valeriana officinalis</i>	5	2	4	4
<i>Viola riviniana</i>	3	3	3	2
<i>Oxalis acetosella</i>		3	3	3
<i>Potentilla erecta</i>		2	3	3
<i>Chrysosplenium oppositifolium</i>	4	2		2
<i>Geum rivale</i>	4		7	6
<i>Veronica chamaedrys</i>	3	2	3	
<i>Thuidium tamariscinum</i>		5	5	5
<i>Agrostis canina</i>	4	4		
<i>Viola palustre</i>		3		4
<i>Cirsium palustre</i>	3	2		
<i>Molinia caerulea</i>			3	6
<i>Quercus petraea seedling</i>	1	1		
<i>Ranunculus repens</i>	3	3		
<i>Deschampsia cespitosa</i>			7	7
<i>Eurhynchium praelongum</i>			5	2
<i>Fissidens adianthoides</i>	3	1		
<i>Pellia epiphylla</i>	3	2		
<i>Plagiomnium undulatum</i>		3		3
<i>Polytrichum commune</i>	4	3		
<i>Rhizomnium punctatum</i>	3			2
<i>Rhytidiadelphus squarrosus</i>			3	3
<i>Scleropodium purum</i>	4	3		
<i>Sphagnum fallax</i>	5	5		
<i>Sphagnum palustre</i>	3	4		
<i>Cirsium heterophyllum</i>	3			
<i>Holcus lanatus</i>				3
<i>Populus tremula suckers</i>		3		
<i>Cardamine flexuosa</i>	3			
<i>Crepis paludosa</i>		1		
<i>Dryopteris dilatata</i>		2		
<i>Hyacinthoides non-scripta</i>		4		
<i>Hypericum pulchrum</i>	3			
<i>Juncus effusus</i>	2			
<i>Prunella vulgaris</i>	3			
<i>Ranunculus flammula</i>		3		

Quadrat number	10	11	13	14
NVC community	W7b	W7b	W7b	W7b
northing	260183	260087	259961	259898
easting	889916	889980	889976	887973
<i>Succisa pratensis</i>	5			
<i>Mentha aquatica</i>				3
<i>Bryum pseudotriquetrum</i>	3			
<i>Mnium hornum</i>			3	
<i>Rhytiadelphus triquetrus</i>				4
<i>Calliergonella cuspidata</i>				4
<i>Lophocolea bidentata</i>			3	
<i>Chiloscyphus polyanthos</i>				3

W11c Quadrats

Quadrat number	1	2	3	4	5
NVC community	W11c	W11c	W11c	W11c	W11c
northing	260229	260184	260141	259885	260042
easting	889863	289900	890005	889968	889835
<i>Betula pubescens</i>	9	7	7	8	7
<i>Quercus petraea</i>	4	5	6	5	6
<i>Pinus sylvestris</i>		1			4
<i>Populus tremula</i>					4
<i>Betula pubescens</i>	4	4	4	4	
<i>Lonicera periclymenum</i>	3				
<i>Salix aurita</i>				4	
<i>Quercus petraea</i>					4
<i>Sorbus aucuparia</i>					4
<i>Deschampsia flexuosa</i>	7	5	5	3	5
<i>Hylocomium splendens</i>	6	7	5	4	8
<i>Thuidium tamariscinum</i>	5	6	7	4	3
<i>Agrostis canina</i>	4	4	3	4	
<i>Anthoxanthum odoratum</i>	4		3	7	3
<i>Blechnum spicant</i>	3	3	3	4	
<i>Holcus mollis</i>		8	9	8	3
<i>Luzula pilosa</i>	3		2	2	3
<i>Potentilla erecta</i>		4	3	6	4
<i>Sorbus aucuparia seedling</i>	3	3	3		3
<i>Rhytiadelphus triquetrus</i>	6	7		4	7
<i>Galium saxatile</i>	3			2	3
<i>Oxalis acetosella</i>		4	5	3	
<i>Trientalis europaea</i>	5	2	4		
<i>Vaccinium myrtillus</i>	5	3			7
<i>Polytrichum commune</i>	4	4		3	
<i>Scleropodium purum</i>	3		3	4	
<i>Quercus petraea seedling</i>		1	3		
<i>Stellaria holostea</i>	3		1		
<i>Succisa pratensis</i>		5		2	
<i>Veronica officinalis</i>		4		3	
<i>Viola riviniana</i>		3		2	
<i>Dicranum majus</i>			2		3
<i>Populus tremula suckers</i>					4
<i>Calluna vulgaris</i>		3			
<i>Dryopteris expansa</i>			3		
<i>Hyacinthoides non-scripta</i>				2	
<i>Hypericum pulchrum</i>		3			
<i>Lathyrus linifolius</i>		3			
<i>Lonicera periclymenum</i>	3				
<i>Melampyrum pratense</i>				1	
<i>Molinia caerulea</i>					3
<i>Primula vulgaris</i>		3			
<i>Pteridium aquilinum</i>		3			
<i>Veronica chamaedrys</i>		2			
<i>Dicranum scoparium</i>					3
<i>Plagiochila asplenioides</i>				3	
<i>Plagiothecium undulatum</i>			4		
<i>Pleurozium schreberi</i>		4			
<i>Rhytiadelphus squarrosus</i>				4	
bare	3				

W11b Quadrat

Quadrat number	6
NVC community	W11c
northing	259981
easting	889701
aspen	4
hazel	9
<i>Oxalis acetosella</i>	8
<i>Hyacinthoides non-scripta</i>	7
<i>Eurhynchium striatum</i>	7
<i>Thuidium tamariscinum</i>	7
<i>Primula vulgaris</i>	4
<i>Eurhynchium praelongum</i>	4
<i>Mnium hornum</i>	4
<i>Ajuga reptans</i>	3
<i>Dryopteris dilatata</i>	3
<i>Gymnocarpium dryopteris</i>	3
<i>Veronica montana</i>	3
<i>Dicranum majus</i>	3
<i>Blechnum spicant</i>	2
<i>Geranium robertianum</i>	2
<i>Trientalis europaea</i>	2

Flushed woodland quadrat (W11c, with W7b elements)

Quadrat number	15
NVC community	W11c (W7b)
northing	260227
easting	889807
birch	9
oak	4
aspen	4
<i>Sphagnum quinquefarium</i>	7
<i>Thuidium tamariscinum</i>	6
<i>Agrostis canina</i>	5
<i>Holcus mollis</i>	5
<i>Potentilla erecta</i>	5
<i>Viola palustre</i>	5
<i>Sphagnum palustre</i>	5
<i>Anthoxanthum odoratum</i>	4
<i>Blechnum spicant</i>	4
<i>Holcus lanatus</i>	4
<i>Oxalis acetosella</i>	4
<i>Rhytidadelphus triquetrus</i>	4
<i>Agrostis capillaris</i>	3
<i>Luzula pilosa</i>	3
<i>Trientalis europaea</i>	3
<i>Rhytidadelphus squarrosus</i>	3
<i>Veronica officinalis</i>	2
<i>Cirsium heterophyllum</i>	1
<i>Lonicera periclymenum</i>	1

### Appendix 3. Species List

*Achillea millefolium*  
*Agrostis canina*  
*Agrostis capillaris*  
*Agrostis stolonifera*  
*Ajuga reptans*  
*Alnus glutinosa*  
*Alopecurus pratensis*  
*Anemone nemorosa*  
*Anthoxanthum odoratum*  
*Anthriscus sylvestris*  
*Arrhenatherum elatius*  
*Athyrium filix-femina*  
*Bellis perennis*  
*Betula pubescens*  
*Blechnum spicant*  
*Calluna vulgaris*  
*Campanula rotundifolia*  
*Cardamine flexuosa*  
*Cardamine pratensis*  
*Carex binervis*  
*Carex echinata*  
*Carex nigra*  
*Carex panicea*  
*Carex viridula oedocarpa*  
*Centaurea nigra*  
*Cerastium fontanum*  
*Chrysosplenium oppositifolium*  
*Cirsium arvense*  
*Cirsium heterophyllum*  
*Cirsium palustre*  
*Cirsium vulgare*  
*Corylus avellana*  
*Crepis paludosa*  
*Cynosurus cristatus*  
*Dactylis glomerata*  
*Dactylorrhiza maculata*  
*Deschampsia cespitosa*  
*Deschampsia flexuosa*  
*Dryopteris carthusiana*  
*Dryopteris dilatata*  
*Dryopteris expansa*  
*Epilobium obscurum*  
*Epilobium palustre*  
*Erica tetralix*  
*Eriophorum angustifolium*  
*Festuca rubra*  
*Filipendula ulmaria*  
*Galium palustre*  
*Galium saxatile*  
*Galium uliginosum*  
*Geranium dissectum*  
*Geranium robertianum*  
*Geum rivale*  
*Glyceria fluitans*  
*Gymnocarpium dryopteris*  
*Heracleum sphondylium*  
*Holcus lanatus*  
*Holcus mollis*  
*Hyacinthoides non-scripta*  
*Hypericum pulchrum*  
*Hypochaeris radicata*  
*Juncus effusus*  
*Juniperus communis*  
*Lathyrus linifolius*  
*Lonicera periclymenum*  
*Luzula campestris*  
*Luzula multiflora*  
*Luzula pilosa*  
*Lysimachia nemorum*  
*Melampyrum pratense*  
*Mentha aquatica*  
*Molinia caerulea*  
*Myosotis secunda*  
*Myrica gale*  
*Narthecium ossifragum*  
*Oxalis acetosella*  
*Pedicularis palustris*  
*Phleum pratense*  
*Pinus sylvestris*  
*Plantago lanceolata*  
*Poa pratensis*  
*Poa trivialis*  
*Populus tremula*  
*Potentilla erecta*  
*Primula vulgaris*  
*Prunella vulgaris*  
*Prunus padus*  
*Prunus spinosa*  
*Pteridium aquilinum*  
*Quercus petraea*  
*Ranunculus flammula*  
*Ranunculus repens*  
*Rubus fruticosus*  
*Rumex acetosa*  
*Rumex obtusifolius*  
*Salix aurita*

*Scrophularia nodosa*  
*Silene dioica*  
*Sorbus aria*  
*Sorbus aucuparia*  
*Stachys sylvatica*  
*Stellaria alsine*  
*Stellaria holostea*  
*Stellaria media*  
*Succisa pratensis*  
*Teucrium scorodonia*  
*Trientalis europaea*  
*Trifolium pratense*  
*Trifolium repens*

*Urtica dioica*  
*Vaccinium myrtillus*  
*Vaccinium vitis-idaea*  
*Valeriana officinalis*  
*Veronica chamaedrys*  
*Veronica montana*  
*Veronica officinalis*  
*Veronica scutellata*  
*Veronica serpyllifolia*  
*Vicia cracca*  
*Vicia sepium*  
*Viola palustre*  
*Viola riviniana*

### Bryophytes

*Bryum pseudotriquetrum*  
*Calliergonella cuspidata*  
*Chiloscyphus polyanthos*  
*Dicranum majus*  
*Dicranum scoparium*  
*Eurhynchium praelongum*  
*Eurhynchium striatum*  
*Fissidens adianthoides*  
*Hylocomium splendens*  
*Lophocolea bidentata*  
*Mnium hornum*  
*Pellia epiphylla*  
*Plagiochila asplenioides*  
*Plagiomnium undulatum*  
*Plagiothecium undulatum*

*Pleurozium schreberi*  
*Polytrichum commune*  
*Polytrichum formosum*  
*Rhizomnium punctatum*  
*Rhytidiadelphus squarrosus*  
*Rhytidiadelphus triquetrus*  
*Scleropodium purum*  
*Sphagnum capillifolium*  
*Sphagnum fallax*  
*Sphagnum girgensohnii*  
*Sphagnum palustre*  
*Sphagnum quinquefarium*  
*Sphagnum squarrosum*  
*Thuidium tamariscinum*