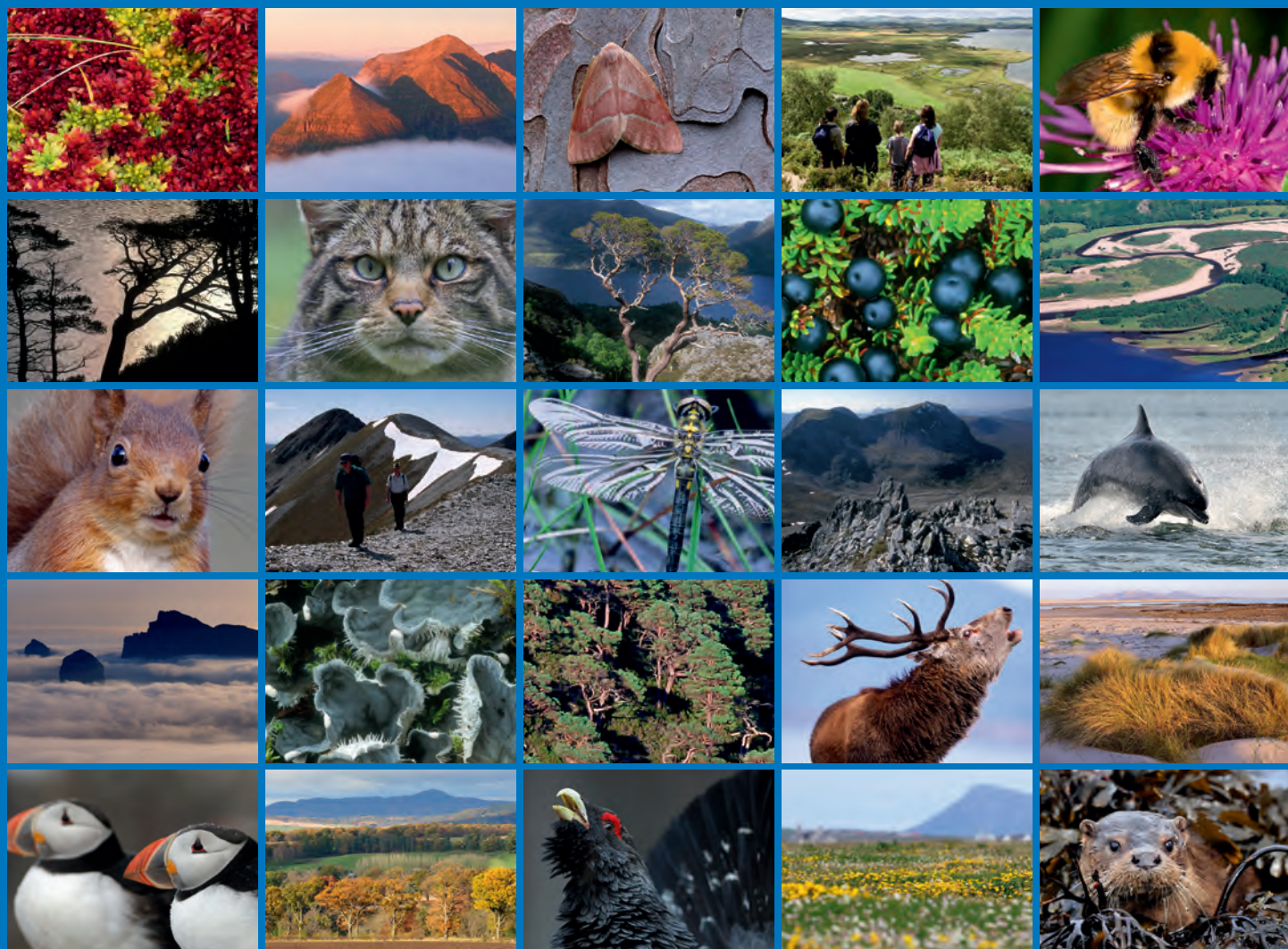


# National Vegetation Classification Survey of Rousay Site of Special Scientific Interest





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# COMMISSIONED REPORT

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**Commissioned Report No. 565**

## **National Vegetation Classification Survey of Rousay Site of Special Scientific Interest**

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## COMMISSIONED REPORT

# Summary

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## National Vegetation Classification Survey of Rousay Site of Special Scientific Interest (SSSI)

**Commissioned Report No.: 565**

**Project no: 13917**

**Contractor: J.E. Crossley**

**Year of publication: 2013**

### Background

A National Vegetation Classification was undertaken on Rousay Site of Special Scientific Interest (SSSI) which is situated on an island just north and partly west of the mainland of Orkney. The field survey was undertaken during the summer of 2012 by Mr John Crossley and Dr Theo Loizou. This NVC survey helps to address the unresolved matters concerning the composition, location, nature and extent of vegetation communities across the site. Without resolving these issues the Site Condition Monitoring of the features of interest such as wet heath, cannot be adequately addressed.

The SSSI itself covers about 2300 hectares and is diverse. The coastal areas which contain good examples of maritime heath and maritime grassland contrast markedly with inland areas that contain extensive areas of blanket bog, wet heath and dry heath. An NVC map at 1:10,000 scale has been produced for the site and this is presented on an A0 sheet.

### Main findings

A total of 56 distinct vegetation types has been described which include ten types not described in Rodwell (1991a, 1991b, 1992, 1995 and 2000).

Inland the *Calluna-Eriophorum* blanket mire (M19) is well developed and extensive and two sub-communities, M19a and M19b, are represented. Over deeper peat and in shallow basins, smaller stands of the *Erica-Sphagnum* blanket mire (M18) can be found. Various bog pools and soakways (M1, M3x and M29) are also represented but they are not extensive. Over shallower peat and poorly drained soil blanket bog is replaced by the *Trichophorum-Erica* wet heath (M15). For this widespread and extensive type all four sub-communities (M15a, M15b, M15c and M15d) and one new coastal variant (M15ai) are described. On better draining soils the *Calluna-Erica* heath (H10) is developed and is extensive. All four sub-communities (H10a, H10b, H10c and H10d) occur including a new coastal variant (H10ai). There are also smaller areas of *Calluna-Vaccinium* heath (H12) and *Calluna-Vaccinium-Sphagnum* damp heath (H21).

Acid flushes of the *Carex-Sphagnum* type (M6) are not uncommon and two sub-communities (M6b and M6c) and a new variant (M6bx) are described. The species-rich *Carex-Pinguicula* mire (M10) is well developed and a new coastal variant is described (M10x). An atypical form of *Molinia-Potentilla* mire (M25x) is locally well developed and also occurs near coastal fringes. Calcifugous grassland is represented mainly by the *Festuca-Agrostis-Galium* type (U4) but also locally by the *Nardus-Galium* type (U5) and the *Juncus-Festuca* type (U6).

Mesotrophic grassland is also developed. There is prominent stand of *Cynosurus-Centaurea* grassland (MG5) and smaller stands of the *Holcus-Deschampsia* grassland (MG9) and the *Festuca-Agrostis-Potentilla* grassland (MG11) occur locally. Patches of calcareous grassland (CG10) are common along coastal fringes but inland it is scarce.

Tall-herb, fern and scrub vegetation is locally well developed. The *Luzula-Vaccinium* community (U16) is widespread and a new fern variant (U16x) is described. Patches of bracken (U20) have developed locally but are not extensive. *Salix aurita* scrub (Sxa) is not uncommon and gorse scrub (W23) is developed locally.

Along coastal areas the *Calluna-Scilla* maritime heath is developed and three types including two new variants are described (H7d, H7di and H7dii). For maritime grassland, the *Festuca-Plantago* spp. grassland (MC10) is the main type but locally the *Festuca-Armeria* type (MC8) and the *Festuca-Holcus* type (MC9) are well developed.

203 vascular plant taxa are reported including several Nationally Scarce species. 101 bryophyte taxa are also listed.

A brief discussion on the merits of the NVC system is presented along with a section titled: Vegetation Dynamics and Management. With respect to management a list of undesirable outcomes is presented.

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## **1. INTRODUCTION**

Mr John Crossley has been commissioned by Scottish Natural Heritage (SNH) to undertake National Vegetation Classification (NVC) mapping of Rousay SSSI which is part of the Orkney Islands.

The notified features of the Rousay SSSI include blanket bog and subalpine wet heath. During the first cycle of Site Condition Monitoring (SCM) of the wet heath, in 2004, sample locations were based on a Phase 1 habitat survey derived from data collated in 1987. However, it was found that in many instances the selected sample locations did not fall within wet heath habitat.

Similar issues arose during a second cycle SCM survey of the wet heath in September 2008 by Proctor and Miller in 2009. This highlighted the fragmentary nature of the wet heath feature at this site; many of the stands monitored were only fragments of wet heath within other habitats (dry heath, blanket bog and grassland). At 11 (of 16) valid sample points the wet heath feature was judged as having failed to meet a variety of assessment targets, predominantly related to grazing levels.

This NVC survey helps to address the unresolved questions concerning the composition, location, nature and extent of vegetation communities across the site. This should enable SNH to assess the status of the notified features, including wet heath and blanket bog, their condition and future management requirements.

This report describes the methods used to survey the site (Chapter 2); a brief site description (Chapter 3); the results obtained in terms of community descriptions (Chapter 4); brief notes on vascular plants and bryophytes (Chapter 5) and a brief discussion (Chapter 6). Appendices include a list of synoptic vegetation tables (Annex 1); Target Notes (Annex 2) and species list (Annex 3). The principal author of this report is Dr T. Loizou.

A flat map at 1:10,000 scale is presented outwith this report. Full floristic tables of all quadrat samples are presented on CD. Also presented on CD are photographs of each of the individual quadrat samples.

## **2. METHODS**

### **2.1 Field Survey**

Before undertaking detailed fieldwork, a reconnaissance survey of parts of the Rousay SSSI was made in order to note the key vegetation types and to standardize methods between the surveyors.

Detailed mapping involved the delineation of homogeneous units (polygons) on the ground and classifying them into distinct vegetation types using the National Vegetation Classification (NVC) system. In many areas homogenous stands of vegetation were so small (< 1/3 ha) that it was not practical to map each stand separately. In such cases the vegetation was described and mapped in terms of a mosaic of vegetation types. For some polygons more than four distinct NVC types were recognized. This high diversity demonstrates the complexity of the area.

Copies of air photographs were taken into the field and they were an invaluable aid for mapping polygons.

Floristic data were obtained by the sampling and analysis of quadrats.

Apart from scrub and various tall-herb vegetation, all remaining vegetation types were sampled using 2m x 2m quadrats or 1m x 4m quadrats (in the case of narrow flushes). For scrub 4m x 4m quadrats were employed in all cases. For tall-herb and fern communities 2m x 2m or 4m x 4m quadrats were used depending on the scale of the vegetation.

Species occurring within each quadrat were noted and assigned a cover/abundance score based on the Domin Scale. Additional species which occurred outside the quadrat but within the sample stand were recorded using a plus (+) sign.

Besides obtaining data on species presence and abundance for each quadrat sample, information on shrub or herb height (cm) was also provided where applicable. A minimum of five samples were taken for each vegetation type, where possible, to provide a constancy score of I - V. However, vegetation types of scarce occurrence were sampled less than five times.

A total of 246 quadrat samples and 24 Target Notes was obtained.

Photographs of each quadrat and records of the location of each quadrat and other features of interest were made during the survey. A total of about 500 photographs are presented on a separate CD.

Target Notes were obtained for any interesting or rare plant species.

The survey was undertaken between 17 July and 15 September 2012. Mr John Crossley mapped all of the coastal areas including Kierfea and Dr Theo Loizou mapped the remainder of the site. A total of 29 man days was spent on site.

### **2.2 Data Analysis**

The quadrat data were manually sorted into groups that appeared to be relatively homogenous. It was unnecessary to use complex multi-variate analysis techniques such as TWINSpan because, for each vegetation type, the data set was small. The sorted quadrat data are presented on CD and synoptic tables presented in Appendix A of this report. The data is presented in the standard NVC format i.e. the constant species are listed first

followed by the preferential and differential species of the sub-communities and finally the companion species. A list of additional species (those not listed in the NVC tables) is also presented after the companion species.

Each quadrat and some groupings were classified objectively to NVC vegetation types using TABLEFIT analysis. TABLEFIT has a slight advantage over MATCH because it utilizes Domin values as well as constancy scores. Classifications derived from TABLEFIT were used critically and in conjunction with our knowledge of the site and the published descriptions of the vegetation types.

### **2.3 Nomenclature and naming of Species**

In the report, nomenclature follows Stace (2010) for vascular plants, Hill *et al* (2008) for bryophytes and Coppins (2002) for lichens.

It should be noted that for simplicity in the floristic tables a number of groups have been amalgamated, as detailed below;

Most *Euphrasia* species are listed as *Euphrasia officinalis* agg.

*Festuca filiformis*, *Festuca vivipara* and *Festuca ovina sens.strict.* are listed as *Festuca ovina* agg.

*Agrostis canina* agg. and *Agrostis vinealis* have been listed mostly (but not exclusively) as *Agrostis canina* agg. It is worth noting that most of the plants that belong to the "canina" group on Rousay are *A. vinealis*. The status of *Agrostis canina sens.strict.* is uncertain but it may be completely absent from Rousay.

*Poa humilis* and *Poa pratensis* have been amalgamated as *Poa pratensis* agg. Likewise, on Rousay much if not all of the plants belonging to the "pratensis" group are *Poa humilis*. *Poa humilis* is not uncommon in Britain but only in recent years has it started to be recorded regularly. In the past many botanists had simply placed it within *Poa pratensis*.

It should be noted that in the context of the NVC (Rodwell, 1991a, 1991b, 1992, 1995 and 2000), *Festuca filiformis* and *Poa humilis* have not been identified as distinct species. They were either overlooked by previous botanists or amalgamated.

### 3. SITE DESCRIPTION

The island of Rousay is situated to the north and west of the mainland of Orkney.

The geology of the island comprises the Rousay Flags of the Middle Old Red Sandstone. The chief rock is flagstone which is a fine-grained calcareous rock that locally gives rise to base-rich soils. However over Blotchnie Fiold, Twelve Hours Tower and the Brae of Moan the rock is largely made up of pebbly sandstone. This rock contains pebbles up to 5cm in diameter that are composed of quartz, granite and schistose rocks. This coarser rock yields poorer soils than the flagstone.

The highest point on the island is Blotchnie Fiold which reaches about 250m OD. To the east of Blotchnie Fiold is Knitchen Hill which rises to 227m OD. These hills are quite rounded and form the highest undulating plateau on the island. Although truly montane vegetation is lacking on Rousay, elements of a montane flora can be found along this plateau and in exposed areas montane plants can be found at lower altitudes. For example, *Arctostaphylos alpinus* occurs at 150m OD at Moss of Catagreen and *Salix herbacea* occurs at Faraclett at 105m OD. Another distinct top on the island is Kierfea Hill which is situated to the north of the island. This hill rises to 235m OD and has a much smaller plateau than the Blotchnie Fiold. However, the ground slopes very steeply to the north and also partly to the east and south. Further west, Ward Hill and Twelve Hours Tower are also prominent hills, the latter rising to just above 200m OD.

Terracing features are evident on many hill slopes.



Figure 1. View of terracing on Faraclett Head

Regarding the origin of the terracing, R J Berry in 'The Natural History of Orkney' (1985) writes: "The Pleistocene ice sheets modified Orkney topography in two ways. In many areas they smoothed off and partly obliterated the terrace features formed by the earlier erosion of

the flagstones when they were exposed to air, and covered the lower ground with a mantle of debris or till. In contrast, on the steeper flagstone hillsides parallel to the direction of flow, the scouring of the ice has emphasised the terraces by removing the debris that had accumulated at the foot of successive escarpments”.

Good examples of terracing include the SW slopes of Blotchnie Fiold and Ward Hill, the north and east slopes of Kierfea Hill and nearly all of Faraclett Head. This terracing gives rise to a variety of environmental conditions and vegetation communities in close proximity, arranged in more or less horizontal bands. The upper edges of steep terrace slopes may have rock outcrops or very thin peat/mineral soil covering. The soils here are usually rich and give rise to calcareous grassland and heath. On the terraces themselves base-rich irrigation continues, producing flushed wet heath and herb and sedge-rich *Molinia* grassland. The effect of underlying calcareous rock is most apparent at Faraclett, where much of the dry and wet heath excepting maritime forms is calcareous. Elsewhere on wider terraces peat accumulation is evident and locally blanket bog has developed (see Figure 2).



*Figure 2. View of Peerie Water and Muckle Water from Blotchnie Fiold. Peatland is extensive in this area and in particular blanket bog.*

However, the greatest extent of blanket bog lies within the Suso Valley running all the way up to the eastern margins and beyond of the Muckle Water and Peerie Water. Indeed this blanket bog mass reaches almost continuously to the summit of Blotchnie Fiold. On Rousay blanket bog has not only developed on shallow gentle slopes but also over quite steep terrain (up to 20 degree slopes). In the interior parts of the island this vegetation is undoubtedly the main climax type. Nevertheless dry heath and wet heath are extensive and occur over varying slopes. However, dry heath tends to occur more widely over steeper better draining slopes.

The coastal areas of Rousay are quite contrasting to inland areas and here blanket bog is absent. Exposure to salt spray is clearly evident in the development of maritime heaths and grassland.

Direct exposure to the Atlantic Ocean on the west and more especially northwest means sea spray is carried inland on these coasts, producing maritime heaths and grasslands along almost the whole coast from Quendal in the west to Faraclett in the northeast. However the distribution and extent of the maritime vegetation is uneven along the coast and is dependent on the quantity and frequency of deposition of sea spray. This will also vary depending on the type of coastal topography and on prevailing winds and storms. For example, waves striking vertical rock formations throw large quantities of spray over adjacent land but not evenly. Conversely along gently shelving shores the force of waves is dissipated and this may result in only a narrow fringe of maritime vegetation developing along the coast.

Thus at west-facing Quendal, maritime vegetation occupies a strip a few metres wide along the coastal edge, while at Brings, little more than a kilometre north and with the same aspect, it extends for up to 500 m inland. Yet the more inland types of heath and grassland found along these coasts are influenced by proximity to the sea and the species composition of some of the dry and wet heaths in particular is unusual. Indeed, one of the outstanding features of the site is the uninterrupted sequence of types of heathland from sea coast to inland hill. In places these sequences are much complicated by topography, notably at Faraclett with its north and east-facing aspects and steep slopes and terraces on both seaward and inland sides. In others a long history of human occupation and land use has left its marks.

Man's effect on the vegetation of the island cannot be underestimated. The first settlers to arrive on Rousay thousands of years ago may not have had a major impact. However, over the millennia we can see man's influence.

For example in the 20th Century and probably before, peat harvesting was undertaken on a large scale. Hundreds of hectares of peat have been cut on the island. Nevertheless despite this, good blanket bog habitat can still be found on Rousay. Not only can it be found but some of the areas of blanket bog that had been harvested are starting to recover.

Grazing is evident across the island but the scale of grazing varies from one area to another. For example, on Knitchen Hill there is very limited grazing but on Ward Hill grazing intensity appears to be quite high.

The island has no doubt had a long history of grazing going back many years (hundreds possibly thousands of years). This grazing has undoubtedly had effect on the vegetation. Fortunately, many areas show a high diversity of plants and this is no doubt partly due to grazing. Without grazing many rare and interesting plants would be threatened. However, high intensity grazing could equally threaten many species and habitats.

Finally, burning used to be carried out in the past but now no longer. In the final chapter of this report a discussion on the possible merits of burning is presented.

## 4. HABITATS AND PLANT COMMUNITIES

Rousay SSSI supports a wide range of habitats and plant communities. The coastal fringes in particular contain good stands of maritime heath and maritime grassland and this is interspersed in places by species-rich mires. Heathland is particularly extensive and is considerably varied. Nevertheless mires of varying kinds cover the largest area. In particular blanket bog is extensive and wet heath covers a large area. Grassland is not uncommon but inland is much less extensive than heathland or mires. Scrub has developed in parts of the site but not all of this is made up by native species. There are significant areas of open water and very locally swamp is developed.

All of these habitats support one or more communities and these are described below beginning with heathland and finishing with scrub.

It should be noted that in terms of plant communities, Rousay exhibits much variability. Some of this variability cannot easily be placed within the context of the NVC as described by Rodwell (1991 to 2000). However, where there are significant departures from the NVC these are described below. There are many peculiarities concerning the vegetation on Rousay which must be partly attributable to the fact that it is a relatively small island which over many years has developed its own distinctive ecology.

### 4.1 Communities of Heathland

Eleven heathland types have been described and three of them are maritime types. The *Calluna vulgaris-Erica cinerea* heath (H10) is the most widespread and extensive type. For H10 all sub-communities and a new variant have been described. The *Calluna vulgaris-Scilla verna* heath (H7) is the only maritime heathland community represented on Rousay but it is locally extensive. Nevertheless within this community three distinct types have been described. Apart from H7 and H10 there are smaller stands of H12 and H21 represented.

#### H7 *Calluna vulgaris-Scilla verna* heath

Only one sub-community occurs across the SSSI and this is the *Empetrum nigrum* type (H7d). Typical H7d is not uncommon. However two distinct variants also occur within this sub-community. They are the *Erica tetralix* variant (H7di) and the *Narthecium ossifragum* variant (H7dii). Neither of the two variants is uncommon.

*Location and Extent:* H7 is a coastal heathland community that typically occurs over freely draining slopes. Large stands of H7 heath occur along the northwest border of the site and other significant areas occur on Faraclett Head. Stands of all of the three main types (H7d, H7di and H7dii) are well represented across the site. Of the three types identified (H7d, H7di and H7dii), H7di is the most extensive.

The *Empetrum nigrum* sub-community (H7d) is generally scarce and local in occurrence, the only substantial area being on a free-draining slope at Faraclett. Elsewhere the sub-community occurs extensively on poorly drained ground and flushed slopes and in these conditions H7d is replaced by the *Erica tetralix* variant (H7di). Where drainage is severely impeded, the *Narthecium ossifragum* variant (H7dii) replaces both H7d and H7di.

*Floristics:* The constant, *Calluna vulgaris* is abundant throughout and there is frequent *Festuca ovina* and *Potentilla erecta*. The constant *Plantago maritima* is also frequent except for H7dii where it is sparse. *Scilla verna* is frequent in H7d but not as common in H7di. Like *Plantago maritima* it is virtually absent from H7dii. The constants *Holcus lanatus* and *Lotus corniculatus* are not uncommon and *Erica cinerea* and *Plantago lanceolata* are particularly well represented in H7d. The companion species, *Carex pulicaris*, is frequent throughout.

Although only the *Empetrum nigrum* sub-community (H7d) has been differentiated from this site, there are elements of the *Viola riviniana* sub-community (H7b) and *Erica tetralix* sub-community (H7c) represented. For example *Agrostis stolonifera*, *Carex flacca* and *Viola riviniana* which are characteristic of H7b are all frequent in this H7d. Also the *Erica tetralix* variant (H7di) is floristically similar to the *Erica tetralix* sub-community (H7c). For example, the differentials *Danthonia decumbens* and *Erica tetralix* are both frequent and *Nardus stricta*, *Prunella vulgaris*, *Salix repens* and *Succisa pratensis* are not uncommon. Nevertheless *Empetrum nigrum* remains frequent throughout along with *Anthoxanthum odoratum*, *Carex panicea* and *Luzula multiflora*.

Floristically the *Narthecium ossifragum* variant (H7dii) is the most unusual type. Here the constants *Plantago maritima* and *Scilla verna* are poorly represented. Nevertheless, *Empetrum nigrum* is abundant and gives the vegetation a distinctive stamp. However, there is no doubt that this variant represents a transition to maritime forms of wet heath which are not described in the NVC. For example, in H7dii, *Narthecium ossifragum* is conspicuous throughout and there is also frequent *Carex hostiana*, *Carex nigra*, *Erica tetralix*, *Eriophorum angustifolium* and *Molinia caerulea*. *Trichophorum germanicum* is also not uncommon.

The H7 heathland is certainly varied and over 70 species were recorded within it. An average of about 24 species per quadrat were recorded for H7, making this the most species-rich heathland community on Rousay.

#### **H10      *Calluna vulgaris*-*Erica cinerea* heath**

This is the most extensive heath community on Rousay and probably the most varied. All four sub-communities are represented and a new variant of H10a is also described.

*Location and Extent:* The typical sub-community (H10a) is the most extensive heathland type and it occurs throughout the site on gently to steeply sloping terrain (see Figure 3). It is prevalent on south-facing slopes but is not uncommon elsewhere. H10a also occurs in areas of eroding blanket bog or where peat has been extensively cut. Along coastal fringes H10a is replaced in places by the *Empetrum nigrum* variant (H10ai). On more exposed slopes and typically at higher altitudes H10a is replaced by the *Racomitrium lanuginosum* sub-community (H10b). H10b is widespread and is the second most extensive heathland type on Rousay. Over richer soils and perhaps in areas with a long history of grazing, the *Festuca ovina*-*Anthoxanthum odoratum* sub-community (H10c) is developed. Finally over the richest soils the *Thymus polytrichus*-*Carex pulicaris* sub-community (H10d) can be found. Good stands of H10d occur near to the coast but further inland it is much more localised (see Figure 4).

*Floristics:* Like H7 heath, *Calluna vulgaris* is the most abundant dwarf shrub and in H10a it is usually overwhelmingly dominant. *Erica cinerea* is typically frequent throughout but the cover of this dwarf shrub rarely exceeds 25%. The constant *Potentilla erecta* is also frequent.

With an average of about eight species per quadrat, H10a is the most species-poor heathland type represented on Rousay). Apart from the constants the only other frequent species is *Hypnum jutlandicum*. However, *Agrostis vinealis*, *Carex binervis*, *Deschampsia flexuosa*, *Hylocomium splendens* and *Rhytidiadelphus loreus* are occasional to frequent.



Figure 3. Quendal: H10a heath abundant in foreground.

With an average of about 11 species per quadrat the *Empetrum nigrum* variant (H10ai) is also species-poor but more diverse than H10a. As the name suggests this variant contains abundant *Empetrum nigrum*. However the cover of this dwarf shrub rarely exceeds 25%. *Anthoxanthum odoratum*, *Luzula multiflora* and *Nardus stricta* are frequent and there is occasional to frequent *Festuca ovina* and *Hypnum jutlandicum*. This type of heathland represents a transition to maritime forms of dry heath (H7d).

Like H10ai, the differential *Empetrum nigrum* is frequent in H10b but this heathland type is differentiated from H10a and H10ai by the prominence of *Racomitrium lanuginosum* which is frequent throughout. Lichens are not uncommon and *Cladonia portentosa* is frequent. There is also occasional to frequent *Cladonia uncialis*. Other reported species included: *Cladonia arbuscula*, *Cladonia floerkeana*, *Cladonia furcata* and *Cladonia tenuis*. H10b has an average of about 14 species per quadrat. It should be noted that this heathland type forms transitions to M15c wet heath and could succeed to M15c if soil conditions become wetter.

Although no variants for H10b have been delimited a few stands come close to the *Calluna vulgaris*-*Racomitrium lanuginosum* heath (H14). For example, near the summit of Knitchen hill the stand of H10b is floristically close to H14 heath (see quadrat 3). This area contained small patches of *Salix herbacea*. Along Twelve Hours Tower a small patch of H10b heath which contained *Arctostaphylos alpinus* is also similar to H14 heath (see quadrat 83). However, both *Arctostaphylos alpinus* and *Salix herbacea* are scarce on Rousay and the presence of a few individuals did not merit the inclusion of a new community.

Being somewhat "grassy" in appearance, H10c is quite contrasting to H10a and H10b. Although *Calluna* remains abundant throughout there is frequent *Anthoxanthum odoratum* and *Festuca ovina*. The moss *Hylocomium splendens* is also frequent and there is occasional to frequent *Agrostis vinealis*, *Holcus lanatus*, *Luzula multiflora* and *Viola riviniana*.

With an average of about 17 species per quadrat, H10c is considerably more diverse than H10a. However, with an average of about 22 species per quadrat H10d is the most diverse type.

Like H10c, H10d also contains many of the species reported in that sub-community. However, surprisingly, *Erica cinerea* is not frequent in H10d. Nevertheless the following species are frequent: *Agrostis vinealis*, *Anthoxanthum odoratum*, *Carex pulicaris*, *Festuca ovina*, *Hylocomium splendens* and *Viola riviniana*. There is also occasional to frequent *Holcus lanatus*, *Hypericum pulchrum*, *Lotus corniculatus*, *Plantago lanceolata*, *Rhytidadelphus triquetrus* and *Thymus polytrichus*.

For the community as a whole over 100 species were recorded.



Figure 4. Herb-rich H10d heath in foreground. View from Faraclett Head to Kierfea Hill.

## H12 *Calluna vulgaris*-*Vaccinium myrtillus* heath

No sub-communities have been delimited and this heath type is much more localised than H10 heath.

*Location and Extent:* It occurs predominantly on cool and well-draining north facing slopes (from gentle to steep).

*Floristics:* *Calluna vulgaris* is abundant throughout and unlike H10 heath, *Erica cinerea* is typically sparse. The constant *Vaccinium myrtillus* is conspicuous in most stands and helps to differentiate H10 from H12 heath. However, *Vaccinium myrtillus* itself is not widespread on Rousay and therefore its absence from some stands is not surprising. Nevertheless differentiating species-poor stands of H10a (with no *Erica cinerea*) from species-poor stands of H12 (with no *Vaccinium myrtillus*) is not straightforward.

However for the H12 community, *Luzula sylvatica* is a frequent associate, whereas for H10 it is sparse. Although Rodwell (1991b) does not list *Luzula sylvatica* for H10 or H12 heath (not even as a companion species), the high frequency of *Luzula* in stands of H12 heath suggests that possibly all of the H12 heath on Rousay may represent a distinct variant not described in the NVC. *Deschampsia flexuosa* and *Empetrum nigrum* are also frequent and these species tend to be more common in H12 than H10 heath (Rodwell, 1991b). Indeed *Deschampsia flexuosa* is a constant species of H12.

Hypnaceous mosses are typically abundant within the ground layer and *Hylocomium splendens*, *Hypnum jutlandicum* and *Rhytidiadelphus loreus* are frequent throughout. *Plagiothecium undulatum* is also frequent but surprisingly the constants *Dicranum scoparium* and *Pleurozium schreberi* are rather sparse.

On average there are about 12 species per quadrat and this is indicative of the fact that much of the vegetation probably belongs to the species-poor *Calluna vulgaris* sub-community (H12a). Although a few stands showed elements of the *Galium saxatile-Festuca ovina* sub-community (H12c) the presence of *Agrostis canina* agg., *Galium saxatile* and *Potentilla erecta* did not merit inclusion into that type. Typically, H12c has frequent *Festuca ovina* and *Nardus stricta*, but none of those species were found. Also, H12c is typically more herb-rich averaging 19 species per quadrat (Rodwell, 1991b).

#### **H21a *Calluna vulgaris-Vaccinium myrtillus-Sphagnum capillifolium* heath, *Calluna vulgaris-Pteridium aquilinum* sub-community**

Like H12 this damp heathland type is localised.

*Location and Extent:* Apart from coastal areas there are a number of scattered stands throughout the site. The community appears to favour shaded and cool north-facing steep slopes.

*Floristics:* *Calluna vulgaris* is typically the most abundant species throughout except on the north-facing slopes of Blotchnie Field. Here *Calluna vulgaris*, *Empetrum nigrum* and *Vaccinium myrtillus* have more or less equal cover (see quadrat 60). The constants *Blechnum spicant*, *Deschampsia flexuosa* and *Potentilla erecta* are not uncommon and *Vaccinium myrtillus* is conspicuous in some stands. *Agrostis canina* agg. is frequent but has low cover. *Carex nigra*, *Juncus squarrosus* and *Luzula sylvatica* are occasional to frequent. The orchid *Listera cordata* is occasional.

Bryophyte cover is typically high and the following species are frequent throughout: *Dicranum scoparium*, *Hylocomium splendens*, *Hypnum jutlandicum*, *Plagiothecium undulatum* and *Rhytidiadelphus loreus*. There is also occasional *Dicranum majus* and *Scapania gracilis*. However, it is the presence of *Sphagnum* that mainly differentiates this heathland type from all others. In most stands *Sphagnum capillifolium* is abundant but in a few, *Sphagnum quinquefarium* is conspicuous.

The abundance of *Sphagnum* here along with occasional *Eriophorum angustifolium* and *Eriophorum vaginatum* typically marks a transition between H21a damp heath and the more extensive *Calluna-Eriophorum* (M19) blanket mire.

## **4.2 Communities of Mires**

There are diverse range of mires represented on Rousay which fall into a number of habitat categories ranging from bog pools and soakways to blanket bog and base-rich flushes. There are also a number of types which do not fit easily within the context of the NVC. A total of 14 mire communities have been identified and 23 mire types are described.

### **M1 *Sphagnum denticulatum* bog pool community**

*Location and Extent:* M1 bog pools are not uncommon but in terms of overall area they are not significant (covering <0.1 % of the SSSI). This community is mostly associated with M18 and M19 blanket bog where it develops over large hollows. It is also found along soakways particularly where a peat body has become divided (either naturally or more often by peat harvesting). One of the main areas where this community is well developed is at Flanders Moss (see Figure 5).

*Floristics:* This species-poor community is typically dominated by a lawn of *Sphagnum*. Here *Sphagnum cuspidatum* is the main species but *Sphagnum denticulatum* is not uncommon. There is also occasional to frequent *Sphagnum capillifolium* and *Sphagnum papillosum* but these species seldom contribute much to cover. With respect to vascular plants only *Eriophorum angustifolium* is frequent throughout but there is occasional to frequent *Drosera rotundifolia* and *Narthecium ossifragum*.



Figure 5. Flanders Moss. M1 bog-pool community well developed

### **M3x *Eriophorum angustifolium* bog pool community, *Comarum palustre* variant**

*Location and Extent:* M3x is located in an area known as the Goukheads. It occurs within a soakway that flows northward and drains from a massive peatland body into the Suso Burn.

*Floristics:* Here *Eriophorum angustifolium* is co-dominant with *Comarum palustre*. The only other vascular plants to note are *Agrostis canina* agg., *Deschampsia cespitosa*, *Epilobium palustre* and *Luzula sylvatica*. Bryophytes are not conspicuous but there is occasional *Kindbergia praelonga* and *Sphagnum girgensohnii*. Also present is *Pellia neesiana*.

Apart from the abundance of *Eriophorum angustifolium* this vegetation is unlike that described in the NVC. Nevertheless it is worth noting that M3 is associated mainly with M19 blanket mire (which is partly eroded) and is reported from the Western Isles (Rodwell, 1991b). Also the community description in Rodwell (1991b) is only based on a limited set of samples (14 quadrats) and with further investigation it may prove that this community is more diverse than previously thought. Rodwell (1991b) clearly states that *Eriophorum angustifolium* is tolerant of quite a wide range of pH, and the community can occur among poor-fen complexes, though the available stands are from uniformly acid substrates.

## **M6      *Carex echinata-Sphagnum fallax/denticulatum* mire**

This is a variable community and in some respects is floristically poorly developed on Rousay. Two sub-communities and one provisionally new variant have been described. They are the *Carex nigra-Nardus stricta* sub-community (M6b), the *Juncus effusus* sub-community (M6c) and the *Sphagnum contortum* variant of M6b (M6bx). This variant is similar to another variant which the author described in 2011 at the Crannach RSPB Reserve in Aberdeenshire which was provisionally named the *Sphagnum teres-Sphagnum warnstorffii* variant (Loizou, 2012).

*Location and Extent:* Except along coastal fringes, M6 acid flushes are not uncommon. However in terms of area not more than 0.1 % of the SSSI is M6. Both M6b and M6c are well represented. M6bx is well developed along the lower south-facing slopes of Blotchnie Field. It also occurs sporadically elsewhere. However, it is much more localised than M6b and M6c.

*Floristics:* Of all the nine constants listed for M6 only *Potentilla erecta* is frequent throughout. However, *Agrostis canina* agg. is also frequent. In Rodwell (1991b) *Agrostis canina canina* is one of the key constants of M6 but on Rousay it is debatable whether this species even occurs on the island. Instead its counterpart *Agrostis vinealis* appears to be the main species (this species is often referred to as *Agrostis canina montana*). The constants *Carex echinata* and *Viola palustris* are only occasional but typically they are much more frequent. Furthermore *Molinia caerulea* which is also a constant for M6 is poorly represented for this community. For bryophytes, *Polytrichum commune* is frequent and there is occasional to frequent *Sphagnum denticulatum*, *Sphagnum fallax* and *Sphagnum palustre*. Nevertheless, for typical M6, all of the *Sphagnum* species (apart from *Sphagnum palustre*) have higher frequencies.

Although the constants of the community are not well represented on Rousay, the differential species of M6b and M6c are. For M6b, *Carex nigra*, *Carex panicea*, *Eriophorum angustifolium*, *Festuca ovina* agg., *Juncus squarrosus* and *Luzula multiflora* are frequent throughout and there is occasional *Nardus stricta*. For M6c, *Juncus effusus* is conspicuous throughout and there is frequent *Rumex acetosa*.

Among the companion species *Holcus lanatus* is frequent throughout and *Anthoxanthum odoratum*, *Aulacomnium palustre*, *Cirsium palustre* and *Succisa pratensis* are frequent in M6b. Among bryophytes *Sphagnum subnitens* is not uncommon in M6b.

However, possibly the most interesting type on this site is the *Sphagnum contortum* variant (M6bx). This variant contains abundant *Sphagnum contortum* and with its rich orange-brownish tinge and curled branches it is unmistakable. *Sphagnum contortum* can occur frequently in M9a but that community has frequent *Carex rostrata*, *Comarum palustre* and *Menyanthes trifoliata*. None of those species were detected in M6bx. *Sphagnum contortum* has also been recorded as a minor companion species for M8 but this community is quite different from this one.

In Rodwell *et al* (2000), a species-rich small-sedge mire called the *Carex nigra-Ranunculus flammula* mire is described which is similar to this type. This type is in many respects intermediate between true M6b and M10. However, M10 is a *Sphagnum*-poor community whereas M6 is a *Sphagnum*-rich one. Therefore on this basis M6bx is probably closer to M6 than it is to M10 (see quadrat 69).

Apart from *Sphagnum contortum*, the ground layer contains frequent *Calliergonella cuspidata* and there can be occasional *Chiloscyphus pallescens*, *Riccardia multifida* and *Scorpidium revolvens*.

For the field layer *Carex dioica*, *Carex lepidocarpa*, *Carex panicea*, *Carex pulicaris* and *Eriophorum angustifolium* are not uncommon. The following are also conspicuous: *Agrostis canina* agg., *Anagallis tenella*, *Anthoxanthum odoratum*, *Caltha palustris*, *Euphrasia officinalis* agg., *Hypericum pulchrum*, *Juncus bulbosus*, *Potentilla erecta*, *Ranunculus flammula* and *Succisa pratensis*. For a complete list see quadrat 69.

Finally with an average of 21 species per quadrat M6b is considerably more species-rich than M6c (average of 12 species). However, M6bx is richer than both (see quadrat 69)

#### **M9a *Carex rostrata-Calliergonella cuspidata/Calliergon giganteum* mire, *Campylium stellatum-Scorpidium scorpioides* sub-community**

*Location and Extent:* A small stand occurs on the boundary of the site at approximately HY 38952922. It also occurs in a small hollow along a burn in the SW corner of Quendal.

*Floristics:* Brown mosses contribute much to the vegetation and one or more can be present locally: *Calliergonella cuspidata*, *Calliergon giganteum*, *Campylium stellatum*, *Scorpidium cossonii* and *Scorpidium revolvens*. Other occasional bryophytes are *Aneura pinguis*, *Chiloscyphus polyanthos* and *Riccardia multifida*. For the field layer *Comarum palustre* and *Menyanthes trifoliata* are conspicuous but the constant *Carex rostrata* is absent from both sites. Other not uncommon species are *Carex nigra*, *Carex panicea*, *Epilobium palustre*, *Equisetum palustre*, *Festuca rubra*, *Galium palustre*, *Juncus bulbosus* and *Triglochin maritima*.

#### **Mx Unidentified Mire**

An unidentified mire (Mx) is reported in a small low-lying area at Quendal at approximately HY36723192 (Target Note 25). This is next to a hollow with a mosaic of wetland communities comprising M25x, SD17d and M9a, with many, closely-spaced drainage grips. This mire has some similarities with M9a, including conspicuous *Comarum palustre* and *Menyanthes trifoliata* and sedges comprising *Carex flacca*, *C. nigra*, *C. panicea* and *C. pulicaris*. Bryophytes occur in small amounts including *Calliergonella cuspidata*, *Plagiomnium rostratum* and *Plagiomnium undulatum*. However it is grassy, with *Agrostis capillaris*, *Anthoxanthum odoratum*, *Deschampsia cespitosa*, *Festuca rubra* and *Holcus lanatus*, and, incongruously, *Danthonia decumbens* and *Nardus stricta*. The herbs *Cirsium palustre*, *Potentilla erecta* and *Ranunculus acris* can occur in M9 but *Prunella vulgaris* and *Triglochin maritima* are atypical.

Nevertheless, it may not be that unusual to find atypical vegetation types especially in areas that have been disturbed.

#### **M10 *Carex dioica-Pinguicula vulgaris* mire**

This is a distinctive base-rich mire that has an abundance of sedges, short herbs and brown mosses. The *Carex demissa-Juncus bulbosus* sub-community (M10a) is the main type but a

variant which has been provisionally named the *Plantago maritima* variant (M10x) has been described.

*Location and Extent:* Apart from the most acidic areas M10a is widespread. The variant M10x is not uncommon along coastal parts of the site.

*Floristics:* Sedges contribute significantly and on this site the following are frequent: *Carex flacca*, *C. hostiana*, *C. nigra*, *C. panicea* and *C. pulicaris*. There is also occasional to frequent *Carex demissa*, *C. dioica* and *C. echinata*. The brown mosses *Campylium stellatum*, *Scorpidium cossonii* and *Scorpidium revolvens* are frequent to abundant. There are a number of peculiarities. For example *Carex flacca* is frequent throughout and this sedge is typically more characteristic of M10b than M10a. *Euphrasia officinalis* agg. is also more frequent here than in typical M10a and *Schoenus nigricans* is more abundant. Rodwell (1991b) describes a variant of M10a with *Schoenus nigricans*. However, this variant is characterised by the presence of *Blindia acuta*, *Drosera anglica*, *Myrica gale* and *Pinguicula lusitanica*, none of which were recorded at this site.

Such local peculiarities are well known (Rodwell *et al*, 2000) but the NVC is mostly concerned at the national scale and such local differences could not be easily classified without creating many more vegetation types.

M10x is similar to M10a except that *Plantago maritima* is frequent. *Empetrum nigrum* and *Salix repens* are also more frequent in M10x than M10a and furthermore M10x is characterised by the striking presence of *Anagallis tenella* and *Didymodon tophaceus*.

With an average of about 29 species per quadrat M10x is marginally more species-rich than M10a (average of 26 species).

### **M15      *Trichophorum germanicum-Erica tetralix* wet heath**

This is one of the most widespread and extensive communities represented on Rousay. It is also varied. All four sub-communities have been identified and a new variant for M15a has also been provisionally described and named as the *Carex flacca-Plantago maritima* variant (M15ai). One of the peculiar features of this community is that running through all the vegetation are elements of the *Vaccinium myrtillus* sub-community (M15d) and this is peculiar because *Vaccinium myrtillus* itself is absent from this vegetation and on Rousay it only features in H12 and H21 which are rather localised.

*Location and Extent:* M15 wet heath is quite extensive on Rousay (see Figure 6) and the *Cladonia* spp. sub-community (M15c) is the most extensive and widespread type (see Figure 7). However, both the Typical sub-community (M15b) and the *Vaccinium myrtillus* sub-community (M15d) are well represented. The *Carex panicea* sub-community (M15a) is also not uncommon and along coastal fringes the *Carex flacca-Plantago maritima* variant is well developed (M15ai).



Figure 6. View from Nether Bow looking northward and eastward to Kierfea. Wet heath (M15b) well developed in foreground.

*Floristics:* Three of the five key constants are frequent throughout. They are *Calluna vulgaris*, *Molinia caerulea* and *Potentilla erecta* and of these *Calluna* is usually the most abundant species. *Erica tetralix* is frequent in M15a and M15ai but only occasional to frequent in all the other types. *Trichophorum germanicum* is notably frequent in M15c but is only occasional in M15b and M15d. It is rather scarce in M15a.

With an average of about 30 species per quadrat M15ai is the most diverse form of wet heath represented on Rousay. This coastal variant has an abundance of sedges with frequent *Carex flacca*, *C. hostiana*, *C. nigra*, *C. panicea* and *C. pulicaris*. Nevertheless what gives this vegetation a distinctive stamp is the high frequency of *Plantago maritima* and *Salix repens*. Other frequent associates which are not typical of other wet heath types are *Parnassia palustris*, *Plantago lanceolata* and *Pseudoscleropodium purum*. The sedges *Carex flacca* and *C. hostiana* are also not typical of M15. One of the key peculiarities of this type is the high constancy of *Anthoxanthum odoratum*, *Festuca ovina*, *Luzula multiflora* and *Nardus stricta*. All of these species are more typical of M15d than M15a.

In many respects M15ai is floristically close to M10x. However, one key distinction is that brown mosses are not as prominent as they are in M10x. Furthermore *Sphagnum* (particularly *Sphagnum subnitens*) which is frequent here is scarce in M10.

Typical M15a has similarities to M15ai but there are key differences. Firstly, the preferential species: *Eriophorum angustifolium*, *Narthecium ossifragum* and *Sphagnum palustre* are well represented in M15a but in M15ai only *Eriophorum angustifolium* is frequent. Secondly, *Juncus bulbosus* which is a differential species for M15a is frequent here but scarce in M15ai. Thirdly, *Sphagnum denticulatum* agg. is also frequent in M15a but rather scarce in M15ai. For further differences see synoptic table in Annex 1.

Within M15a, *Hypnum jutlandicum*, *Festuca ovina* and *Juncus squarrosus* are all frequent but these species are more typical of M15d than M15a. However, the abundance of sedges and *Sphagnum* species clearly indicate that the vegetation is closer to M15a than M15d.

On Rousay, the Typical sub-community (M15b) is quite distinct from M15a. The sparseness of sedges in M15b is a key feature. Only *Carex echinata* and *Carex nigra* attain any frequency here. The preferential species *Eriophorum angustifolium*, *Narthecium ossifragum* and *Sphagnum palustre* are all frequent and these species help to delimit stands of M15b from M15d. Nevertheless both *Hypnum jutlandicum* and *Juncus squarrosus* are frequent and there is occasional to frequent *Festuca ovina* agg., *Luzula multiflora*, *Pleurozium schreberi* and *Rhytidiadelphus loreus*. All of these species are more typical of M15d than M15b. *Empetrum nigrum* and *Hylocomium splendens* are frequent companion species but typically they are not that common.

The *Cladonia* spp. sub-community (M15c) is quite distinctive from M15a and M15b. Apart from *Carex panicea* sedges are poorly represented in M15c. *Sphagnum palustre* and *Sphagnum subnitens* are also scarce here although there can be occasional to frequent *Sphagnum denticulatum* and *Sphagnum tenellum* and also occasional *Sphagnum compactum*. The dwarf shrub *Erica cinerea* is particularly distinctive and frequent throughout, whereas *Erica tetralix* is much reduced in frequency. The differential *Racomitrium lanuginosum* is also abundant. The cover of lichens in M15c is variable. For example in some stands they are very conspicuous but in others they are less abundant. Nevertheless *Cladonia portentosa* and *Cladonia uncialis* are frequent throughout and there can be occasional to frequent *Cladonia arbuscula* and *Cladonia furcata*. *Empetrum nigrum* is a frequent companion species but typically it is not that common in M15.

In many respects M15c is close to H10b (see Figure 7). However, *Sphagnum* species are never frequent in H10b and species such as *Juncus squarrosus* and *Trichophorum germanicum* are never as abundant in H10b as they are in M15c. Furthermore *Molinia caerulea* is typically not that prominent in H10b, whereas it is frequent throughout in M15c. The liverwort *Pleurozia purpurea* is occasional in M15c and its presence shows a link with the *Erica tetralix-Sphagnum compactum* wet heath, *Juncus squarrosus-Dicranum scoparium* sub-community (M16d).



Figure 7. View of *Cladonia*-rich M15c wet heath. Superficially this vegetation type closely resembles H10b.

The *Vaccinium myrtillus* sub-community (M15d) is somewhat peculiar as *Vaccinium myrtillus* itself is sparse or absent from this wet heath type. Nevertheless, the differentials *Anthoxanthum odoratum*, *Hypnum jutlandicum*, *Juncus squarrosus* and *Nardus stricta* are all frequent and there is occasional to frequent *Festuca ovina* agg., *Luzula multiflora* and *Rhytidiadelphus loreus*. Among the companion species *Empetrum nigrum* and *Hylocomium splendens* are frequent.

There can be occasional *Sphagnum* in M15d and the main species are *Sphagnum capillifolium* and *Sphagnum subnitens*. Apart from *Carex panicea*, sedges are rather sparse.

**M18b *Erica tetralix*-*Sphagnum papillosum* blanket mire, *Empetrum nigrum*-*Cladonia* spp. sub-community**

*Location and Extent:* This blanket bog type is more localised than M19 blanket mire. One of the best stands occurs just east of the Muckle Water. Two smaller stands occur to the south of Knitchen Hill (one adjacent to Loch of Knitchen). Possibly the largest stand occurs just south of the Suso Burn. Smaller patches of M18b also occur in other parts of the site. The M18 community would be much more extensive today if peat harvesting had not taken place.

*Floristics:* All of the constants apart from *Eriophorum vaginatum* are well represented. This community contains abundant *Sphagnum*. *Sphagnum capillifolium* and *Sphagnum papillosum* are the most abundant species but *Sphagnum tenellum* is frequent and there is occasional *Sphagnum subnitens*. In hollows *Sphagnum cuspidatum* is not uncommon.

The following differentials are frequent throughout: *Cladonia arbuscula*, *Cladonia portentosa*, *Cladonia uncialis*, *Empetrum nigrum*, *Racomitrium lanuginosum* and *Rhytidiadelphus loreus*.

The high frequency of *Drosera rotundifolia* and *Narthecium ossifragum* suggests that elements of the *Sphagnum magellanicum*-*Andromeda polifolia* sub-community (M18a) are certainly present at this site.

### **M19     *Calluna vulgaris*-*Eriophorum vaginatum* blanket mire**

*Location and Extent:* This is probably the most extensive community across the SSSI. However it is absent from most coastal fringes. Large areas of blanket bog occur over Blotchnie Fiold and Knitchen Hill and in the valley of the Suso Burn large stretches of M19 mire occur all the way to the eastern end of the Muckle Water. Large stands of M19 also occur over the Twelve Hours Tower and in the vicinity of the Hogsets of Catagreen. Both the *Erica tetralix* sub-community (M19a) and the *Empetrum nigrum* sub-community (M19b) are well represented. It should be noted that large areas of M19 blanket bog have been harvested for peat. Many of these areas have reverted to blanket bog but some areas have become dry heath.

*Floristics:* The constants *Calluna vulgaris* and *Eriophorum vaginatum* make up the bulk of the vascular plant cover but *Empetrum nigrum* is frequent throughout and locally can attain up to 50% cover.

M19a is differentiated on this site from M19b by the constancy of *Erica tetralix*. Nevertheless the cover of *Erica tetralix* rarely exceeds 10%. *Narthecium ossifragum* is also quite frequent in M19a and there can be occasional to frequent *Trichophorum germanicum* and occasional *Drosera rotundifolia*. The constant, *Eriophorum angustifolium* is also much more frequent in M19a than M19b.

With respect to bryophytes, *Sphagnum capillifolium* is constant throughout but is more abundant in M19a than in M19b. Indeed in some stands of M19b this species is absent altogether. Unlike M18, apart from *Sphagnum capillifolium* other *Sphagna* are only occasional here (*Sphagnum subnitens* and *Sphagnum papillosum*). The liverwort *Scapania gracilis* is frequent in M19a whereas it is rather sparse in M19b. It is unusual that *Empetrum nigrum* is prominent in M19a but this may be a peculiar feature of the island of Rousay.

However, there are stands which are very intermediate between M19a and M19b. For example the lichens *Cladonia arbuscula* and *Cladonia portentosa* can be locally abundant in M19a, whereas they are typically more frequent in M19b or M19c.

M19b is marked mainly by the absence of *Erica tetralix* and the scarcity of *Narthecium ossifragum* and *Trichophorum germanicum*. However within M19b there is much variation and some stands (particularly above 200m) come close to the *Vaccinium vitis-idaea*-*Hylocomium splendens* sub-community. Across the plateau of Blotchnie Fiold and along its northern slopes the vegetation comes close to M19c (see Figure 8). Here, *Cladonia* species are prominent and locally their cover exceeds 50%. *Cladonia arbuscula* and *Cladonia portentosa* are notably abundant but *Cladonia tenuis* is also locally frequent. *Hylocomium splendens* and *Racomitrium lanuginosum* are also frequent and there can be occasional *Vaccinium vitis-idaea*. However, despite this, the following species which are typical of M19c are sparse or absent from this site. They are *Carex bigelowii*, *Empetrum hermaphroditum* and *Rubus chamaemorus*.



Figure 8. View along plateau of Blotchnie Fiold. Here lichen-rich M19b blanket bog is similar to montane forms of M19c.

It should be noted that erosion features such as peat hags are not uncommon along the main ridge of the Blotchnie Fiold and the ridges of Twelve Hours Tower and Withamo (see Figure 9).

### **M23      *Juncus effusus/acutiflorus-Galium palustre* rush pasture**

*Location and Extent:* A few small stands occur along the valley of the Suso Burn and its tributaries. Elsewhere it is quite sparse. In terms of area much less than 0.1 % of the site is M23.

*Floristics:* The community is not floristically well developed. For example, the constants *Galium palustre* and *Lotus pedunculatus* were not detected. However, the constants *Holcus lanatus* and *Juncus effusus* are frequent and other common associates are *Agrostis canina* agg., *Anthoxanthum odoratum*, *Cirsium palustre*, *Deschampsia cespitosa*, *Epilobium palustre*, *Festuca rubra*, and *Potentilla erecta*. There is also occasional to frequent *Agrostis stolonifera*, *Caltha palustris*, *Carex nigra*, *Carex pulicaris*, *Equisetum palustre*, *Equisetum sylvaticum*, *Lathyrus pratensis*, *Luzula multiflora*, *Mentha aquatica*, *Ranunculus acris*, *Succisa pratensis* and *Trifolium repens*.

For bryophytes *Hylocomium splendens*, *Rhytidiadelphus squarrosus* and *Pseudoscleropodium purum* are frequent and there is occasional *Brachythecium rutabulum* and *Calliergonella cuspidata*.

With respect to rushes *Juncus acutiflorus* is locally abundant and there is occasional *Juncus articulatus* and *Juncus conglomeratus*.



Figure 9. Peat Hags. Not uncommon over plateau of Blotchnie Fiold

### **M25 *Molinia caerulea-Potentilla erecta* mire**

This is one of the most peculiar mires reported on this site. Although this vegetation is not uncommon on Rousay there may be very little true M25 present on the island. Two types were delimited. They are the *Anthoxanthum odoratum* sub-community (M25b) and the *Carex pulicaris* sub-community (M25x).

*Location and Extent:* M25x is locally extensive, particularly in the western half of the site. Good stands occur along the western fringes of the Muckle Water and also at Quendal. On the other hand M25b is very sparse. Only one stand along the Suso Burn was reported. However, smaller stands may also occur here.

*Floristics:* The constants *Molinia caerulea* and *Potentilla erecta* are frequent throughout much of the community. Locally the cover of *Molinia caerulea* can be high (>50 %) but in M25x it is typically much lower. In a few stands *Molinia caerulea* is absent and yet the vegetation most definitely resembles M25x<sup>1</sup>.

There is no doubt that M25x has affinities to M25b. For example all the following differentials of M25b are frequent: *Anthoxanthum odoratum*, *Carex flacca*, *Festuca rubra*, *Holcus lanatus* and *Pseudoscleropodium purum*. There is also occasional to frequent *Luzula multiflora* and *Rumex acetosa*. However, one key feature of M25x is the prominence of sedges. Here *Carex flacca*, *Carex nigra*, *Carex panicea* and *Carex pulicaris* are frequent

<sup>1</sup> The absence of a key constant is not necessarily critical in the context of the NVC. For example the author has come across stands of *Dryas octopetala-Silene acaulis* rock-ledge community (CG14) in Caenlochan where *Dryas* was absent (Loizou, 1999).

and there is also occasional to frequent *Carex echinata* and *Carex hostiana*. Other occasional to frequent species include: *Agrostis canina* agg., *Calluna vulgaris*, *Cirsium palustre*, *Eriophorum angustifolium*, *Juncus conglomeratus*, *Luzula multiflora*, *Plantago lanceolata*, *Rhytidadelphus squarrosus* and *Viola riviniana*. This species-rich form of M25 also contains occasional *Lotus corniculatus*, *Salix repens*, *Thalictrum alpinum* and *Thymus polytrichus*.

It should be noted that although M25x may be allied to M25b, elements of the *Erica tetralix* sub-community (M25a) and the *Angelica sylvestris* sub-community (M25c) were detected in a few stands. For example, areas which contain *Sphagnum* (usually *Sphagnum subnitens* or *Sphagnum denticulatum* agg.) along with *Erica tetralix*, *Eriophorum angustifolium* and *Narthecium ossifragum* resemble M25a. Conversely areas of *Molinia* mire which contain tall herbs such as *Angelica sylvestris*, *Filipendula ulmaria* and *Geum rivale* resemble M25c. With further data it may be possible to split M25x into other types but for the time being it is best to assume that M25x encompasses a broad range of variation.

This species-rich form of M25 is similar to the southern *Molinia* fen-meadows - M24 and M26. However, when one investigates the data closely it is obvious that M25x cannot be classified as either M24 or M26 mire. Furthermore, Rodwell *et al* (2000) describe a species-rich form of M25 which is very similar to the one described in this report. It is the authors' (TL and JC) opinion that M25x would merit a new sub-community of M25.

In comparison to M25x, M25b is rather dull. *Molinia caerulea* is abundant and the following conspicuous: *Agrostis canina* agg., *Anthoxanthum odoratum*, *Cirsium palustre*, *Festuca rubra*, *Holcus lanatus*, *Juncus effusus*, *Pseudoscleropodium purum*, *Ranunculus acris* and *Rumex acetosa*.

#### **M27 *Filipendula ulmaria*-*Angelica sylvestris* mire**

*Location and Extent:* There are a few small and scattered patches of M27 mire within the site but the community is not widespread.

*Floristics:* On Rousay, the community is typically dominated by *Filipendula ulmaria* with few other species to note. *Rumex acetosa* is frequent and there is occasional to frequent *Festuca rubra* and *Potentilla erecta*. With an average of only nine species per quadrat this is one of the poorest mire communities represented on this site.

#### **M28 *Iris pseudacorus*-*Filipendula ulmaria* mire**

*Location and Extent:* Like M27 there are a few small and scattered patches of M28 mire. M28 mire is probably more widespread than M27 and it is more variable.

*Floristics:* *Iris pseudacorus* is constant with high cover. *Holcus lanatus* and *Rumex acetosa* are also frequent throughout and there is occasional to frequent *Agrostis stolonifera*, *Deschampsia cespitosa*, *Festuca rubra*, *Filipendula ulmaria* and *Poa trivialis*.

In more acidic areas and where water levels are high there can be occasional *Sphagnum*, in particular *S. denticulatum*, *S. fallax* and *S. palustre*. In such areas the vegetation forms a transition to M6 mire.

#### **M29 *Hypericum elodes*-*Potamogeton polygonifolius* soakway**

*Location and Extent:* This community is scarce but a small stand occurs close to the Loch of Moan.

*Floristics:* Despite the absence of *Hypericum elodes*, the constants *Juncus bulbosus*, *Potamogeton polygonifolius* and *Sphagnum denticulatum* are well represented. Among the companion and additional species noted, the following are conspicuous: *Anagallis tenella*, *Apium inundatum*, *Carex nigra*, *Eriophorum angustifolium*, *Molinia caerulea*, *Narthecium ossifragum*, *Potentilla erecta* and *Viola palustris*. *Sphagnum subnitens* is also abundant and *Sphagnum palustre* is occasional.

### **M32 *Philonotis fontana*-*Saxifraga stellaris* spring**

*Location and Extent:* A small stand occurs in the northern part of the site in an area known as the Tower of Catagreen. It was not seen anywhere else.

*Floristics:* This spring is floristically poorly developed at the site. However, *Philonotis fontana* itself is abundant (>75 % cover). *Calliergonella cuspidata* is also abundant and there is occasional *Dichodontium palustre*. Among the vascular plants *Juncus bulbosus* is abundant and *Carex echinata*, *Epilobium palustre* and *Ranunculus flammula* are present. A number of species were also detected which are not typically associated with M32 springs. Here *Holcus lanatus* is conspicuous and *Carex flacca*, *Carex lepidocarpa*, *Cirsium palustre*, *Hydrocotyle vulgaris* and *Prunella vulgaris* are not uncommon.

## **4.3 Communities of Swamp and Seasonally flooded hollows**

### **S19 *Eleocharis palustris* swamp**

*Location and Extent:* This community has developed locally in pools in SW Quendal and at Faraclett. It also occurs along the margin of the lochan just south of Flanders Moss.

*Floristics:* This community is largely dominated by *Eleocharis palustris*. However *Caltha palustris* and *Potamogeton polygonifolius* are occasional to frequent and in one stand *Anagallis tenella* is abundant. Other associates are *Apium inundatum*, *Carex nigra*, *Eleogiton fluitans*, *Mentha aquatica* and *Ranunculus flammula*. The following bryophytes occur in one stand: *Calliergonella cuspidata*, *Calliergon cordifolium* and *Chiloscyphus polyanthos*.

### **SD17 *Potentilla anserina*-*Carex nigra* dune slack community**

The name of this community implies that it is a predominantly dune slack type. However, in Britain it can develop inland among damp hollows. Two sub-communities occur. They are the *Caltha palustris* sub-community (SD17c) and the *Hydrocotyle vulgaris*-*Ranunculus flammula* sub-community (SD17d).

*Location and Extent:* SD17 occurs at SW Quendal and also east of Faraclett Head in seasonally flooded hollows.

*Floristics:* The constants *Carex nigra* and *Potentilla anserina* are conspicuous throughout and there is occasional to frequent *Agrostis stolonifera* and *Calliergonella cuspidata*. *Festuca rubra* is frequent in SD17c but this type is characterized by the high frequency of *Caltha palustris*, *Epilobium palustre* and *Holcus lanatus*. The differential *Silene flos-cuculi* is occasional to frequent and there is occasional *Anthoxanthum odoratum*, *Poa trivialis* and *Rumex acetosa*. Nevertheless elements of SD17d are present. For example, *Eleocharis palustris*, *Galium palustre* and *Mentha aquatica* which are differential species for SD17d are also frequent in SD17c. *Hydrocotyle vulgaris* is also occasional to frequent.

For SD17d, apart from the presence of *Epilobium palustre* and *Holcus lanatus* the sub-community is mainly characterized by the abundance of *Galium palustre*, *Hydrocotyle vulgaris*, *Ranunculus flammula* and *Salix repens*.

#### **4.4 Communities of Maritime grassland and Perched saltmarsh**

The coastal fringes of Rousay have extensive areas of maritime grassland and in one area perched saltmarsh is also well developed.

##### **MC8e *Festuca rubra*-*Armeria maritima* maritime grassland, *Plantago coronopus* sub-community**

*Location and Extent:* Small stands occur along the exposed northwestern shore of Faraclett Head but it is much more localised than MC10. Among the maritime grassland types this form is the least common.

*Floristics:* There are similarities with the *Festuca rubra*-*Plantago* spp. community (MC10) but it is not as species-rich as that community and *Plantago lanceolata* is absent. Nevertheless the bulk of the cover is made up by *Festuca rubra*, *Plantago coronopus* and *Plantago maritima* with frequent *Armeria maritima* and *Agrostis stolonifera*. The Nationally Scarce *Euphrasia foulaensis* occurs here. For bryophytes, *Kindbergia praelonga* and *Trichostomum brachydontium* are not uncommon.

##### **MC9a *Festuca rubra*-*Holcus lanatus* maritime grassland, *Plantago maritima* sub-community**

*Location and Extent:* This type is also scarce. It occurs along the low-lying shore at Quendal where enrichment from sheep dung and storm-cast seaweed has undoubtedly modified the vegetation.

*Floristics:* There are similarities with MC8e but here there is a greater cover of mesophytic herbs such as *Bellis perennis*, *Cerastium fontanum*, *Holcus lanatus*, *Luzula campestris*, *Plantago lanceolata*, *Scorzoneroides autumnalis* and *Trifolium repens*. Nevertheless the bulk of the cover is made up by *Armeria maritima*, *Festuca rubra*, *Plantago lanceolata* and *Plantago maritima*.

Like MC10, *Plantago coronopus* is also frequent, the Nationally Scarce *Euphrasia foulaensis* not uncommon and the rare hybrid *Euphrasia foulaensis* x *marshallii* occurs on the margin with the rocky shore.

##### **MC10b *Festuca rubra*-*Plantago* spp. maritime grassland, *Carex panicea* sub-community**

*Location and Extent:* This is the most widespread and extensive maritime grassland type and it is especially well developed at Sacquoy Head.

*Floristics:* The constants *Festuca rubra* and *Plantago maritima* are abundant throughout and there is frequent *Agrostis stolonifera* and *Plantago lanceolata*. *Plantago coronopus* is also occasional to frequent. The differential *Carex panicea* is abundant and there is frequent *Euphrasia foulaensis* and *Scorzoneroides autumnalis*. *Bellis perennis* is also occasional to frequent and there is occasional *Lotus corniculatus*, *Luzula campestris*, *Ranunculus acris*, *Sagina procumbens* and *Thymus polytrichus*. Other not uncommon species are *Potentilla erecta*, *Prunella vulgaris* and *Scilla verna*. *Coeloglossum viride* is occasional here.

It should be noted that some of the wetter areas with base-rich flushing are intermediate with M10x. Such an area can be seen at the Brae of Moan where the Nationally Scarce *Primula scotica* is abundant.

#### **SM16b *Festuca rubra* saltmarsh, *Juncus gerardii* sub-community**

*Location and Extent:* A well developed and substantial area of perched saltmarsh occurs at Sacquoy Head, adjacent to the brackish Loch of Sacquoy, close to cliffs and 18m above sea level.

*Floristics:* The community is largely dominated by *Juncus gerardii*. Nevertheless *Agrostis stolonifera* and *Glaux maritima* are abundant and there is frequent *Festuca rubra*. Among the associates *Atriplex prostrata* agg., and *Poa trivialis* are not uncommon and there is occasional *Cerastium fontanum*, *Potentilla anserina*, *Triglochin maritima* and *Scorzoneroidea autumnalis*.

### **4.5 Communities of Grassland**

Grassland vegetation (apart from maritime forms) is mostly confined to coastal areas. As one moves inland this habitat becomes more confined and localised. Nevertheless a broad range of types have been identified from acidic to calcareous types.

#### **U4 *Festuca ovina*-*Agrostis capillaris*-*Galium saxatile* grassland**

This is a variable community with three sub-communities represented. They are the Typical sub-community (U4a), the *Holcus lanatus*-*Trifolium repens* sub-community (U4b) and the *Luzula multiflora*-*Rhytidadelphus loreus* sub-community (U4d). On Rousay, U4d physiognomically resembles the *Holcus lanatus*-*Deschampsia cespitosa* grassland (MG9).

*Location and Extent:* U4b is the most widespread and extensive type but U4a is not uncommon. U4d is developed more locally but good stands occur near the border of the SSSI just north of Trumland and it also occurs along the valley of the Suso Burn.

*Floristics:* Floristically there are a number of peculiarities with this community and probably the main one is the sparsity of one of the key constants. On Rousay, *Festuca ovina* agg., occurs mostly in U4a. Surprisingly it is absent from U4b and U4d. However, according to Rodwell (1992) *Festuca ovina* is typically less frequent in U4b than in U4a or U4d.

Nevertheless the constants *Agrostis capillaris*, *Anthoxanthum odoratum* and *Potentilla erecta* are frequent to abundant and *Galium saxatile* is not uncommon. One of the key features of this grassland is the abundance of *Holcus lanatus*. Even in stands of U4a this grass is not uncommon and indeed in the one quadrat sample obtained for U4a many elements of U4b are present. Besides, *Holcus lanatus* the differentials, *Achillea millefolium*, *Cerastium fontanum*, *Poa pratensis* agg. and *Trifolium repens* all occur in U4a. However, given the abundance of *Galium saxatile* and *Festuca ovina* the balance is in favour of U4a rather than U4b.

Among the companion species *Rhytidadelphus squarrosus* and *Rumex acetosa* are frequent throughout and there is occasional to frequent *Festuca rubra* and *Hylocomium splendens*.

Physiognomically most of the stands of U4d on Rousay resemble MG9 grassland. For example, the tall ungrazed tussocks of *Deschampsia cespitosa* growing amongst tall grasses and herbs such as *Festuca rubra*, *Holcus lanatus* and *Rumex acetosa* give this

impression. However, floristically the presence of *Galium saxatile* and *Potentilla erecta* suggests U4d rather than MG9. *Galium saxatile* is rarely recorded in MG9 and *Potentilla erecta* is usually sparse.

#### **U5      *Nardus stricta*-*Galium saxatile* grassland**

Two sub-communities were recorded. They are the species-poor sub-community (U5a) and the *Carex pulicaris*-*Viola riviniana* sub-community (U5c).

*Location and Extent:* A stand of U5a occurs on Swarta Field, elsewhere it is very sparse. U5c is developed on the western slopes of Mansemass Hill and also in the vicinity of the Tower of Catagreen. It is sparse elsewhere.

*Floristics:* Although *Nardus stricta* is frequent here it is not overwhelmingly abundant and locally cover rarely exceeds 25%. However the constants *Agrostis capillaris*, *Festuca ovina*, *Galium saxatile*, *Potentilla erecta* and *Rhytidiadelphus squarrosus* are mostly frequent.

As the name suggests U5a is a rather species-poor type and with only 14 species recorded for the one sample obtained this fact is confirmed. Apart from the constants all the following are present: *Anthoxanthum odoratum*, *Cerastium fontanum*, *Deschampsia flexuosa*, *Erica cinerea* and *Juncus squarrosus*.

With an average of 27 species per quadrat U5c is much more diverse than U5a. In fact this vegetation type comes close to the *Festuca ovina*-*Agrostis capillaris*-*Thymus polytrichus* grassland (CG10).

*Nardus* remains frequent here but in well grazed stands it can be difficult to detect and good stands of U5c could then be confused for U4 grassland or possibly CG10. The differentials *Carex panicea* and *Scorzoneroides autumnalis* are typically frequent and there is occasional to frequent *Carex pulicaris*, *Calliergonella cuspidata*, *Festuca rubra*, *Plantago lanceolata*, *Ranunculus acris*, *Thuidium tamariscinum*, *Trifolium repens* and *Viola riviniana*. Other frequent associates are *Anthoxanthum odoratum*, *Holcus lanatus* and *Pseudoscleropodium purum*.

#### **U6      *Juncus squarrosus*-*Festuca ovina* grassland**

Two sub-communities were identified. They are the *Vaccinium myrtillus* sub-community (U6c) and the *Agrostis capillaris*-*Luzula multiflora* sub-community (U6d).

*Location and Extent:* This community is mainly confined to the northern part of the site. Small stands of U6c occur just north of an area known as the Knowes of Whirlieger. Good stands of U6d occur in an area known as the Tower of Loomachun. It is likely that a few small stands (<6 sq m) of U6 could have been missed.

*Floristics:* *Juncus squarrosus* is conspicuous throughout and typically the most abundant plant. However the constants *Festuca ovina* and *Polytrichum commune* are not uncommon. For U6c the differentials *Deschampsia flexuosa* and *Rhytidiadelphus loreus* are frequent and there is occasional *Vaccinium myrtillus*. The presence of *Plagiothecium undulatum* suggests that there are elements of U6b present but the absence of *Calypogeia azurea* and *Carex nigra* points to U6c rather than U6b.

For U6d, *Deschampsia flexuosa* and *Plagiothecium undulatum* remain frequent but the differentials *Agrostis capillaris*, *Anthoxanthum odoratum*, *Hylocomium splendens*, *Luzula multiflora* and *Rhytidiadelphus squarrosus* are frequent throughout and there is occasional *Galium saxatile*, *Hypnum cupressiforme* and *Nardus stricta*.

The companion species *Potentilla erecta* is frequent.

#### **MG5 *Cynosurus cristatus-Centaurea nigra* grassland**

*Location and Extent:* One prominent stand of MG5 occurs at SE Quendal. It was not detected elsewhere.

*Floristics:* Many of the key constants are frequent to abundant. They are *Agrostis capillaris*, *Anthoxanthum odoratum*, *Cynosurus cristatus*, *Festuca rubra*, *Holcus lanatus*, *Lotus corniculatus*, *Plantago lanceolata* and *Trifolium repens*. *Centaurea nigra* is absent but this species is rather sparse on Rousay so its absence is not surprising.

No sub-community has been delimited as there are elements of all the sub-communities represented. For MG5a *Bellis perennis* is frequent and *Lathyrus pratensis* is not uncommon. For MG5b, *Carex flacca* is frequent and *Achillea millefolium* is not uncommon. For MG5c, *Luzula campestris*, *Prunella vulgaris* and *Scorzoneroidea autumnalis* are frequent and *Potentilla erecta* is not uncommon. Besides them other frequent associates are *Carex pulicaris*, *Cerastium fontanum*, *Ranunculus acris*, *Rumex acetosa* and *Viola riviniana*. *Euphrasia confusa* is abundant.

#### **MG9a *Holcus lanatus-Deschampsia cespitosa* grassland, *Poa trivialis* sub-community**

*Location and Extent:* A small stand occurs at Quendal.

*Floristics:* The bulk of the vegetation is made up by the constants *Deschampsia cespitosa* and *Holcus lanatus*. However, the companion species *Festuca rubra*, *Potentilla anserina* and *Rumex acetosa* are abundant and *Agrostis stolonifera* is not uncommon. The sub-community is characterized by the presence of *Anthoxanthum odoratum*, *Calliergonella cuspidata*, *Kindbergia praelonga*, *Poa trivialis* and *Ranunculus acris*.

#### **MG11a *Festuca rubra-Agrostis stolonifera-Potentilla anserina* grassland, *Lolium perenne* sub-community**

*Location and Extent:* It occurs in the vicinity of Quendal and in the NE section of Brings (just east of Horse Brae).

*Floristics:* *Potentilla anserina* is abundant throughout and the constants *Agrostis stolonifera* and *Festuca rubra* are prominent. The sub-community is characterized by the abundance of *Holcus lanatus* with occasional *Ranunculus repens*. The companion species *Rumex acetosa* is abundant and other associates included: *Cerastium fontanum*, *Elytrigia repens*, *Iris pseudacorus*, *Poa trivialis*, *Ranunculus acris* and *Urtica dioica*.

#### **CG10 *Festuca ovina-Agrostis capillaris-Thymus praecox* grassland**

For this species-rich grassland two sub-communities were identified. They are the *Trifolium repens-Luzula campestris* sub-community (CG10a) and the *Carex pulicaris-Carex panicea* sub-community (CG10b).

*Location and Extent:* CG10a appears to be confined to Ward Hill. However, small patches may occur elsewhere. CG10b is more widespread and is not uncommon near coastal fringes. It also occurs inland and good stands can be seen at Kierfea.

*Floristics:* Most of the constants associated with this community are frequent throughout. The most frequent and abundant species are *Festuca ovina* agg., *Festuca rubra*, *Plantago*

*lanceolata*, *Prunella vulgaris*, *Thymus polytrichus* and *Viola riviniana*. *Agrostis capillaris*, *Hylocomium splendens* and *Potentilla erecta* are occasional to frequent.

For CG10a, the differential *Rhytidiadelphus squarrosus* is abundant and the following are conspicuous: *Achillea millefolium*, *Agrostis vinealis*, *Anthoxanthum odoratum*, *Galium saxatile*, *Holcus lanatus*, *Rumex acetosa* and *Trifolium repens*.

For CG10b, many of the differentials present in CG10a are also represented in CG10b. However, the key difference is the presence of the following species: *Carex flacca*, *Carex pulicaris*, *Carex panicea* and *Succisa pratensis*. *Plantago maritima* and *Thalictrum alpinum* are also not uncommon in CG10b and *Cirsium palustre* is frequent.

There are many companion species in CG10. Here, *Calluna vulgaris* and *Rhytidiadelphus triquetrus* are frequent and there is occasional to frequent *Deschampsia cespitosa*, *Galium sternerii*, *Lotus corniculatus*, *Luzula multiflora*, *Pseudoscleropodium purum* and *Ranunculus acris*.

For CG10b *Salix repens* is remarkably frequent and *Taraxacum officinale* agg. is also occasional to frequent. None of these species are listed in the NVC tables.

#### **4.6 Communities of Tall herbs and Fern**

There are three rather contrasting communities that fall under this category on Rousay. They are the *Luzula sylvatica*-*Vaccinium myrtillus* tall-herb community (U16), the *Pteridium aquilinum*-*Galium saxatile* community (U20) and the *Chamerion angustifolium* community (OV27). Nevertheless there is a distinct variant of U16 which contains abundant ferns.

##### **U16 *Luzula sylvatica*-*Vaccinium myrtillus* tall-herb community**

This is a rather species-poor but variable community. Although no sub-communities have been identified a distinct variant occurs which has been provisionally named the *Athyrium filix-femina*-*Dryopteris dilatata* variant (U16x).

*Location and Extent:* The community is widespread except in coastal fringes. Some stands are of modest size. U16 often occurs as a mosaic with H10 heath and M19 blanket bog. Stands of U16x are notably prevalent along the southern part of the site.

*Floristics:* The constant *Luzula sylvatica* is abundant throughout and its cover frequently exceeds 35%. The constant *Deschampsia flexuosa* is also frequent and there is occasional *Galium saxatile* and *Vaccinium myrtillus*.

This rather species-poor community has few associates but *Potentilla erecta* is frequent throughout. *Calluna vulgaris* is also frequent but of low cover. In this community *Calluna* seldom attains 10 % cover.

The following associates are occasional to frequent: *Agrostis vinealis*, *Deschampsia cespitosa*, *Dryopteris dilatata*, *Rhytidiadelphus squarrosus* and *Rumex acetosa*.

Within the U16 community there are a few atypical stands. For example, *Geum rivale* is quite abundant in a few stands (see quadrat 48) with cover exceeding 50 %. According to the NVC, this plant is not typical of U16 but is typical of the *Luzula sylvatica*-*Geum rivale* tall-herb community (U17). However, U17 is a species-rich community with average numbers typically exceeding 40 species per quadrat. Only 13 species were recorded for quadrat 48 and a number of key ones including *Angelica sylvestris*, *Festuca ovina* and *Sedum rosea* were absent.

Although ferns such as *Athyrium filix-femina* and *Dryopteris dilatata* can feature in U16 their combined cover rarely exceeds 25%. However, within U16x ferns contribute significantly and the cover of them frequently exceeds 50%. There is currently no community listed within the NVC where the ferns *Athyrium filix-femina* and *Dryopteris dilatata* are the main species. However, judging by the floristic tables they probably fit closest to U16. Indeed on Rousay, one often finds occasional *Luzula sylvatica* among the dense masses of ferns. The following species are not uncommon within U16x: *Blechnum spicant*, *Calluna vulgaris*, *Deschampsia cespitosa*, *Deschampsia flexuosa*, *Hylocomium splendens*, *Pseudoscleropodium purum*, *Rhytidiadelphus squarrosus* and *Rumex acetosa*.

#### **U20b *Pteridium aquilinum*-*Galium saxatile* community, *Vaccinium myrtillus*-*Dicranum scoparium* sub-community**

*Location and Extent:* The main stands occur along the slopes above the Muckle Water. Other conspicuous stands occur on the slopes along the north side of the Suso Burn. Elsewhere U20 is sparse.

*Floristics:* *Pteridium aquilinum* is abundant throughout and *Potentilla erecta* is frequent. The constant *Galium saxatile* is occasional to frequent but *Festuca ovina* agg., was not reported.

The abundance of *Calluna vulgaris* and *Deschampsia flexuosa* suggests that the vegetation belongs to U20b despite the absence of *Dicranum scoparium* and *Vaccinium myrtillus*. Apart from them, *Hylocomium splendens* and *Rumex acetosa* are frequent throughout and there is occasional to frequent *Hypnum jutlandicum* and *Rhytidiadelphus squarrosus*.

It should be noted that the relatively low diversity of many of the stands suggests that the vegetation at this site could equally have been placed within the Species-poor sub-community (U20c).

#### **OV27 *Chamerion angustifolium* community**

*Location and Extent:* The community is mostly confined to the southern borders of the SSSI. Patches tend to be small but there can be many and it frequently occurs as a mosaic with H10 heath, U16 tall-herb community or U4 grassland.

*Floristics:* The community is dominated by *Chamerion angustifolium*. However, *Dryopteris dilatata* is also abundant and in one stand *Athyrium filix-femina* is also abundant. *Rumex acetosa* is a frequent associate.

In the context of the NVC it is not certain which sub-community or sub-communities all the vegetation belongs to. The abundance of *Dryopteris dilatata* suggests that the *Rubus fruticosus* agg.-*Dryopteris dilatata* sub-community (OV27c) might be represented. However, the abundance of *Calluna vulgaris* and *Erica cinerea* in one stand suggests that the *Holcus lanatus*-*Festuca ovina* sub-community (OV27a) could be a possibility. However, grasses tended to be rather sparse in this community.

### **4.7 Communities of Scrub**

Scrub is not that extensive on Rousay but it could be increasing. There are two semi-natural scrub types that occur on the island and one artificial community.

### **W23 *Ulex europaeus*-*Rubus fruticosus* agg. scrub**

*Location and Extent:* W23 covers a small area of the site. However, it is prominent along the south-east boundary of the site where it merges in places with *Fuchsia magellanica* scrub.

*Floristics:* *Ulex europaeus* is abundant with frequent *Rubus fruticosus* agg. Other woody shrubs are sparse but there is occasional *Fuchsia magellanica*. For the field layer the grasses *Agrostis capillaris* and *Holcus lanatus* are not uncommon and various ferns including *Athyrium filix-femina*, *Blechnum spicant* and *Dryopteris dilatata* can be found. Herbs include *Digitalis purpurea*, *Potentilla erecta* and *Rumex acetosa*. For the ground layer *Kindbergia praelonga* is not uncommon and there is occasional *Hypnum jutlandicum* and *Rhytidiadelphus squarrosus*.

### **Sxa *Salix aurita* scrub**

The shrub *Salix aurita* occurs in a number of NVC woodland/shrub types. The main ones are: W2, W3, W4 and W5. In one or two of those types *Salix aurita* can be abundant but the community which occurs on Rousay is very different to anything described in the NVC and probably merits a new community.

*Location and Extent:* Apart from coastal fringes this scrub type is fairly widespread.

*Floristics:* *Salix aurita* is dominant and forms a dense canopy up to 2.0 m in height. Cover is rarely lower than 90%. Despite the very dense cover of this shrub the field layer and ground layer can be quite diverse.

The floristics indicate that this scrub type is possibly allied to U16. For example, *Luzula sylvatica* is frequent throughout and in a few stands cover can be quite high (>10 %). Apart from *Luzula sylvatica* only *Athyrium filix-femina*, *Potentilla erecta* and *Rumex acetosa* are frequent throughout. However, there is occasional to frequent *Cirsium palustre*, *Deschampsia cespitosa*, *Dryopteris dilatata*, *Filipendula ulmaria* and *Juncus effusus*.

For bryophytes, *Kindbergia praelonga*, *Lophocolea bidentata* and *Thuidium tamariscinum* are not uncommon.

With an average of only 15 species per quadrat this is not a very rich community but by no means the poorest on Rousay.

### **Fm *Fuchsia magellanica* scrub**

*Location and Extent:* This scrub is particularly noticeable just north of Trumland. Here it occurs along the border of the site and extends inland by about 150m. It is currently not that extensive but could be spreading.

*Floristics:* No quadrat data is available. However, this particular shrub grows in dense masses with *Rubus fruticosus* agg. It is a rather colourful shrub in summer but it is non-native and most stands support few species.

## 5. VASCULAR PLANTS AND BRYOPHYTES

Rousay SSSI contains many species. With respect to higher plants and ferns a total of 203 taxa were recorded (see Annex 3). With respect to bryophytes 71 moss and 30 liverwort taxa were recorded. Among the higher plants the site supports a number of rarities. They include following Nationally Scarce plants:

*Arctostaphylos alpinus*

*Euphrasia foulaensis*

*Primula scotica*

*Pyrola rotundifolia*

*Rorippa islandica*

The *Euphrasia* hybrid *E. foulaensis* x *E. marshallii*, the latter Nationally Rare, was also identified.

A list of lichens encountered is also presented in Annex 3. The list is not exhaustive.

Non-native species are not common on Rousay but as indicated in Section 4 above, *Fuchsia magellanica* is not uncommon at the southern edge of the site near Trumland. Another non-native plant which also occurs at this site is *Rubus spectabilis*. This plant was detected along the northern shore of the Muckle Water and could spread.

## 6. DISCUSSION

There is no doubt that geology, geography and climate have played a significant role in shaping the plant communities we see on Rousay today. For centuries and possibly millennia man has also influenced the vegetation we see today.

### Vegetation Dynamics and Management

The Rousay SSSI contains a wide range of vegetation types and in this report each one has been described separately. However, these varying types are not merely isolated units. They frequently occur as mosaics and they can contract and expand depending on climatic conditions and biological and management factors.

A good example is heather dieback which is very visible at Quendal. A combination of factors may be involved with heather dieback including wind exposure, exposure to salt spray, beetle damage and aging plants. Whatever the cause, the outcome in this part of the SSSI would be the reduction of H10 heathland and a subsequent increase in grassland. The H7 maritime heath could also be adversely affected by a moderate or high intensity grazing regime. The result of this management would be the reduction of H7 across the site and an increase in maritime grassland, probably MC10.

Heathland is not only vulnerable along the coast, inland this habitat may be decreasing. For example, along the slopes above the Muckle Water and on the slopes above the Suso Burn (to the north), bracken (U20) and acid grassland (mainly U4) may be increasing. Once again grazing intensity may be the key issue. However, other management factors such as lack of burning may also be important. In many parts of the SSSI the heather has grown tall and open. Eventually many plants could die and if they are not replaced heather cover will ultimately decrease. This will give an opportunity for other plants to exploit, notably bracken. Unless appropriate action is taken, within the next 20 years the cover of bracken will probably double in this part of the SSSI.

The cessation of peat harvesting means that blanket bog habitat will no longer be lost at this site. It is also possible that certain types of blanket bog such as the *Sphagnum*-rich M18 type will increase (as the habitat recovers) but this could take centuries. Nevertheless in some parts of the site, for example along the southern slopes of Knitchen Hill, M19 blanket bog may increase. In the past, significant areas of peat have been harvested in this area and on steeper ground the vegetation has become *Calluna*-dominated with occasional to frequent *Erica cinerea*. Here H10a heathland is prominent but there are signs that the vegetation there is reverting to M19 blanket bog. For example, *Eriophorum angustifolium* is frequent there and this species is not typical of dry heath. An increase of blanket bog at the expense of dry heath could be seen as undesirable. Nevertheless, if managed appropriately, the large expanses of H10 dry heath at this site should not diminish too significantly.

Burning was carried out in the past but has since ceased from this site. Burning on a small scale could be desirable in order to maintain H10a heathland in good condition. Within this heathland the dwarf shrub *Erica cinerea* is typically prominent. However, it can be severely diminished due to the competitive nature of *Calluna*. Burning on a small scale could help prevent this.

It is worth stressing that the Rousay SSSI is quite large and it should be possible to carry out small scale trials (such as burning) to determine whether such a management tool would be useful in maintaining diversity across the site.

With respect to grazing, no single regime, (low, moderate or high intensity grazing) will benefit all of the diverse vegetation associated with the site. Grazing needs to be varied. Currently, some areas may have too little grazing, for example Knitchen Hill. In other areas grazing may be too high, for example Ward Hill.

However, in order to assess the impact of grazing at this site a thorough investigation needs to be carried out employing similar techniques to those described in the Upland Guide to Surveying Land Management Impacts (MacDonald *et al*, 1992).

Management should not only take into consideration the diverse array of plant communities but also the many rare plants that occur here. MacDonald *et al*'s guide is probably not sufficient to take this into account.

### **List of some key Undesirable Outcomes**

Significant increase of bracken: Despite any management efforts, bracken could continue to increase at this site. A milder climate would probably favour bracken.

Decrease of *Erica cinerea* in H10 heath: The concern is that without any management (such as small scale burning), *Calluna* will become dominant in many parts (particularly in the southeast part of the SSSI) of the SSSI with a subsequent decrease of this dwarf shrub.

Decrease of *Calluna* in coastal heathland. Again, despite management efforts, heather could continue to decrease along some coastal areas due to heather dieback.

Increase in non-native shrubs: *Fuchsia magellanica* is abundant along the southeast border of the site and could spread to other areas. The spread of *Fuchsia magellanica* should be preventable. *Rubus spectabilis* is also present in some parts of the site, notably the north bank of the Muckle Water.

Decrease of Nationally Scarce and Locally Rare Plants: Some of the key species have been listed in Chapter 5.

Increase use of Vehicles: Damage to pristine sub-montane lichen-rich blanket bog is evident over parts of Blotchnie Field caused by vehicle tracks. The damage is currently not too severe but if vehicles are increasingly used this is likely lead to localised damage and erosion of the blanket bog habitat.

### **Brief synopsis of the NVC and possible new vegetation types**

It should be noted that in terms of plant communities, Rousay exhibits much variability. A total of 56 vegetation types have been described (excluding *Fuchsia magellanica* scrub) which includes 11 heathland types, 23 mire types and 15 grassland types (including maritime communities). The report describes many peculiarities concerning the vegetation which are undoubtedly partly attributable to the fact that Rousay is a relatively small island which has developed its own distinctive ecology. However, part of the problem may be the current NVC classification system.

It is well known that presently the NVC does not encompass every community in Britain (Rodwell *et al*, 2000). On Rousay, there are number of vegetation types that cannot be easily placed within the current NVC system. The *Salix aurita* scrub (Sxa) described in this report is a good example.

The table below lists all the vegetation types which are reported on Rousay but are not fully described in the NVC. However, those types which have been described (at least partly) by Rodwell *et al* (2000) are marked by an asterisk.

Code	Provisional Name
H7di	<i>Calluna vulgaris-Scilla verna</i> heath, <i>Empetrum nigrum</i> sub-community, <i>Erica tetralix</i> variant
H7dii	<i>Calluna vulgaris-Scilla verna</i> heath, <i>Empetrum nigrum</i> sub-community, <i>Narthecium ossifragum</i> variant
H10ai	<i>Calluna vulgaris-Erica cinerea</i> heath, Typical sub-community, <i>Empetrum nigrum</i> variant
M3x	<i>Eriophorum angustifolium</i> bog pool community, <i>Comarum palustre</i> variant
M6bx*	<i>Carex echinata-Sphagnum fallax/denticulatum</i> mire, <i>Carex nigra-Nardus stricta</i> sub-community, <i>Sphagnum contortum</i> variant
M10x	<i>Carex dioica-Pinguicula vulgaris</i> mire, <i>Carex demissa-Juncus bulbosus</i> sub-community, <i>Plantago maritima</i> variant
M15ai	<i>Trichophorum germanicum-Erica tetralix</i> wet heath, <i>Carex panicea</i> sub-community, <i>Carex flacca-Plantago maritima</i> variant
M25x*	<i>Molinia caerulea-Potentilla erecta</i> mire, <i>Carex pulicaris</i> sub-community
U16x	<i>Luzula multiflora-Vaccinium myrtillus</i> tall-herb community, <i>Athyrium filix-femina-Dryopteris dilatata</i> variant
Sxa	<i>Salix aurita</i> scrub

There is no reason that in future the NVC could not be expanded to include some of the peculiar types described in this report. In fact some of these have already been described by Rodwell *et al* (2000).

Nevertheless despite of all the many peculiarities identified on Rousay most of the vegetation (over 40 types) could successfully be classified using the NVC system.

### Site Condition Monitoring in relation to the NVC

Most of the statutory government agencies will monitor biological SSSIs based on the types of NVC communities and sub-communities present. Rarely would variants be taken into consideration. There is no doubt that vegetation can be examined at different scales. At a smaller scale many more vegetation types (noda) could be defined for this site but one needs to draw a line as to what is practicable. In my opinion the vast majority of types described in this report have an ecological basis and are not merely variations on a theme.

However, for any future monitoring at Rousay it is vital that all surveyors are made aware of the variation that exists across this site. Furthermore, although great care has been taken to take into account all of the floristic variation across the site it is possible that something has been missed. Also floristic change (caused by climate change or other factors) could alter the make up the vegetation so that any existing map may need to be revised.

For the purposes of Site Condition Monitoring it is feasible to work at the community or sub-community level. Nevertheless the advantage of this survey/report is that one can also choose to monitor some of the variants (such as M6bx) or new sub-communities (such as M25x) which would not be possible if one had chosen to lump types into fewer categories.

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## ANNEX 1: NVC Synoptic Tables

### Layout of Tables

In order to show relationships most of the quadrat data have been tabulated in the manner of the NVC i.e. the constant species are listed first followed by the preferential and differential species of the sub-communities and finally the companion species. A list of additional species/associates is included at the end of the table. Although these species do not appear in Rodwell's Tables it must not be assumed that they are not characteristic of the community in question. This is because with respect to the NVC Rodwell has deliberately made a cut-off point, whereby species that occur with less than 5 % frequency (considered to be "noise") are not included in the floristic NVC tables. It should be noted that the 5% cut off point was also employed for this project. Thus a full list of species is not supplied in the synoptic tables below. The full species lists for individual quadrats are recorded in an Excel spreadsheet (see Annex 4 for further details).

The synoptic tables presented below are based on frequency classes with the range of Domin scales indicated. Here frequency refers to how often a plant is encountered when moving from one sample to another irrespective of its abundance. There are five frequency classes and they are denoted by Roman numerals from I to V. I = 1-20%, II = 21-40%, III = 41-60%, IV = 61-80% and V = 81-100%. For example, if a species is present in 5 out of 10 quadrat samples it will have a frequency of III. Also presented in the synoptic tables in brackets are the Domin ranges.

The Domin Scale is as follows:

Domin 1	few individuals (< 4% cover)
2	several individuals (<4% cover)
3	many individuals (<4% cover)
4	4 – 10 %
5	11 – 25%
6	26 – 33%
7	34 – 50%
8	51 – 75%
9	76 – 90%
10	91 – 100%

The tables appear in the following order:

Heath	(H7, H10, H12 & H21)
Mire	(M1, M3x, M6, M9a, M10, M15, M18b, M19, M23, M25, M27, M28, M29 & M32)
Swamp and flooded meadow	(S19 & SD17)
Maritime Grassland & Perched saltmarsh	(MC8e, MC9a, MC10b & SM16b)
Grassland	(U4, U5, U6, MG5, MG9a, MG11a & CG10)
Tall herb and fern	(U16, U20b & OV27)
Scrub	(W23 & Sxa)

Note that, an additional table for the unidentified mire is also presented after M9a. Where less than 3 samples were obtained for a rare vegetation type only the raw data is presented.

## NVC Codes and Names

The NVC Codes and names adopted for the floristic and synoptic tables and for the NVC map are listed below. Note, vegetation types marked by an asterisk are not fully described in the NVC (Rodwell, 1991 to 2000) and in the future some of them may merit individual status. It should be noted that the names ascribed to the new variants and sub-communities are only provisional.

H7	<i>Calluna vulgaris-Scilla Verna</i>
H7d	<i>Empetrum nigrum</i> sub-community
H7di*	<i>Erica tetralix</i> variant
H7dii*	<i>Narthecium ossifragum</i> variant
H10	<i>Calluna vulgaris-Erica cinerea</i> heath
H10a	Typical sub-community
H10ai*	<i>Empetrum nigrum</i> variant
H10b	<i>Racomitrium lanuginosum</i> sub-community
H10c	<i>Festuca ovina-Anthoxanthum odoratum</i> sub-community
H10d	<i>Thymus polytrichus-Carex pulicaris</i> sub-community
H12	<i>Calluna vulgaris-Vaccinium myrtillus</i> heath
H21	<i>Calluna vulgaris-Vaccinium myrtillus-Sphagnum capillifolium</i> heath
H21a	<i>Calluna vulgaris-Pteridium aquilinum</i> sub-community
M1	<i>Sphagnum denticulatum</i> bog pool community
M3x*	<i>Eriophorum angustifolium</i> bog pool community <i>Comarum palustre</i> variant
M6	<i>Carex echinata-Sphagnum fallax/denticulatum</i> mire
M6b	<i>Carex nigra-Nardus stricta</i> sub-community
M6bx*	<i>Sphagnum contortum</i> variant
M6c	<i>Juncus effusus</i> sub-community
M9	<i>Carex rostrata-Calliargonella cuspidata/Calliargon giganteum</i> mire
M9a	<i>Campylium stellatum-Scorpidium scorpioides</i> sub-community
Mx	Unidentified Mire
M10	<i>Pinguiculo-Caricetum dioica</i> mire,
M10a	<i>Carex demissa-Juncus bulbosus</i> sub-community
M10x*	<i>Plantago maritima</i> variant
M15	<i>Trichophorum germanicum-Erica tetralix</i> wet heath
M15a	<i>Carex panicea</i> sub-community
M15ai*	<i>Plantago maritima</i> variant
M15b	Typical sub-community
M15c	<i>Cladonia</i> sub-community
M15d	<i>Vaccinium myrtillus</i> sub-community
M18	<i>Erica tetralix-Sphagnum papillosum</i> blanket mire
M18b	<i>Empetrum nigrum nigrum-Cladonia</i> sub-community
M19	<i>Calluna vulgaris-Eriophorum vaginatum</i> blanket mire
M19a	<i>Erica tetralix</i> sub-community
M19b	<i>Empetrum nigrum nigrum</i> sub-community
M23	<i>Juncus effusus/acutiflorus-Galium palustre</i> rush pasture
M25	<i>Molinia caerulea-Potentilla erecta</i> mire
M25b	<i>Anthoxanthum odoratum</i> sub-community
M25x*	<i>Carex pulicaris</i> sub-community
M27	<i>Filipendula ulmaria-Angelica sylvestris</i> mire
M28	<i>Iris pseudacorus-Filipendula ulmaria</i> mire

- M29 *Hypericum elodes*-*Potamogeton polygonifolius* soakway  
M32 *Philonotis fontana*-*Saxifraga stellaris* spring
- S19 *Eleocharis palustris* swamp
- SD17 *Potentilla anserina*-*Carex anserina* dune-slack,  
SD17c *Caltha palustris* sub-community  
SD17d *Hydrocotyle vulgaris*-*Ranunculus flammula* sub-community
- MC8 *Festuca rubra*-*Armeria* maritime grassland  
MC8e *Plantago coronopus* sub-community  
MC9 *Festuca rubra*-*Holcus lanatus* maritime grassland  
MC9a *Plantago maritima* sub-community  
MC10 *Festuca rubra*-*Plantago* spp. maritime grassland  
MC10b *Carex panicea* sub-community
- U4 *Festuca ovina*-*Agrostis capillaris*-*Galium saxatile* grassland  
U4a Typical sub-community  
U4b *Holcus lanatus*-*Trifolium repens* sub-community  
U4d *Luzula multiflora*-*Rhynchospora alba* sub-community  
U5 *Nardus stricta*-*Galium saxatile* grassland  
U5a Species-poor sub-community  
U5c *Carex panicea*-*Viola riviniana* sub-community  
U6 *Juncus squarrosus*-*Festuca ovina* grassland  
U6c *Vaccinium myrtillus* sub-community  
U6d *Agrostis capillaris*-*Luzula multiflora* sub-community
- MG5 *Cynosurus cristatus*-*Centaurea nigra* grassland  
MG9a *Holcus lanatus*-*Deschampsia cespitosa* grassland, *Poa trivialis* sub-community  
MG11 *Festuca rubra*-*Agrostis stolonifera*-*Potentilla anserina* grassland  
MG11a *Lolium perenne* sub-community
- CG10 *Festuca ovina*-*Agrostis capillaris*-*Thymus praecox* grassland  
CG10a *Trifolium repens*-*Luzula campestris* sub-community  
CG10b *Carex pulicaris*-*Carex panicea* sub-community
- U16 *Luzula sylvatica*-*Vaccinium myrtillus* tall-herb community  
U16x\* *Athyrium filix-femina*-*Dryopteris dilatata* variant  
U20 *Pteridium aquilinum*-*Galium saxatile* community
- OV27 *Chamerion angustifolium* community
- W23 *Ulex europaeus*-*Rubus fruticosus* scrub  
Sxa\* *Salix aurita* scrub  
Fm\* *Fuchsia megallanica* scrub
- OW Open Water

**H7**

<b>Sub-community or variant</b>	<b>d</b>	<b>di</b>	<b>dii</b>	<b>H7</b>
<i>Calluna vulgaris</i>	V (7-8)	V (6-9)	V (7-9)	V (6-9)
<i>Potentilla erecta</i>	V (3-5)	V (3-4)	V (3-4)	V (3-5)
<i>Festuca ovina</i> agg.	V (3-5)	V (2-4)	V (2-3)	V (2-5)
<i>Calluna vulgaris</i>	V (2-4)	V (3-6)		IV (2-6)
<i>Thymus polytrichus</i>	V (1-4)	IV (2-3)	II (1)	IV (1-4)
<i>Lotus corniculatus</i>	IV (3-4)	I (1)	IV (2-3)	III (1-4)
<i>Holcus lanatus</i>	II (2)	II (1-2)	IV (1-2)	III (1-2)
<i>Plantago lanceolata</i>	IV (3-4)	II (3-4)		II (3-4)
<i>Scilla verna</i>	IV (2)	III (2-3)		II (2-3)
<i>Erica cinerea</i>	IV (3-4)	II (1)		II (1-4)
<i>Plantago coronopus</i>		I (1)		I (1)
<i>Carex flacca</i>	V (1-4)	V (1-4)	V (1-3)	V (1-4)
<i>Viola riviniana</i>	IV (2-4)	IV (1-3)	IV (1)	IV (1-4)
<i>Agrostis stolonifera</i>	IV (1-3)	V (1-3)	II (3)	IV (1-3)
<i>Erica tetralix</i>	II (1)	V (1-4)	V (2-4)	V (1-4)
<i>Succisa pratensis</i>	IV (3-4)	III (1-4)	V (1-3)	IV (1-4)
<i>Salix repens</i>	IV (1-3)	III (1-4)	V (2)	IV (1-4)
<i>Molinia caerulea</i>	II (3)	I (3)	V (3-5)	III (3-5)
<i>Nardus stricta</i>	IV (1-4)	III (1-3)	III (1-3)	III (1-4)
<i>Danthonia decumbens</i>	IV (1-3)	IV (1-3)		III (1-3)
<i>Carex nigra</i>	II (1)		V (2-3)	II (2-3)
<i>Prunella vulgaris</i>		III (1-2)		II (1-2)
<i>Selaginella selaginoides</i>		I (3)		I (3)
<i>Empetrum nigrum nigrum</i>	V (1-7)	V (4-6)	V (5-6)	V (1-7)
<i>Anthoxanthum odoratum</i>	V (2-3)	V (2-4)	V (1-2)	V (1-4)
<i>Carex panicea</i>	IV (1-3)	V (1-6)	II (1)	IV (1-6)
<i>Luzula multiflora</i>		IV (1-2)	III (1-2)	III (1-2)
<i>Trifolium repens</i>		II (1-3)		I (1-3)
<i>Agrostis capillaris</i>	II (2)	I (1)		I (1-2)
<i>Carex pulicaris</i>	V (2-3)	V (1-3)	V (1-3)	V (1-3)
<i>Luzula campestris</i>	IV (2)	IV (1-3)		III (1-3)
<i>Festuca rubra</i>	II (7)	III (1-5)	II (2)	II (1-7)
<i>Euphrasia</i> spp.	II (3)	II (2-3)		II (2-3)
<i>Scorzoneroides autumnalis</i>		I (1)		I (1)
<b>Additional species</b>				
<i>Agrostis vinealis</i>	IV (3)	I (2)	IV (1-3)	III (1-3)
<i>Nartheceum ossifragum</i>			V (2-5)	II (2-5)
<i>Pseudoscleropodium purum</i>			IV (2-3)	II (2-3)
<i>Eriophorum angustifolium</i>	II (1)		IV (2-3)	II (2-3)
<i>Pedicularis sylvatica</i>		I (2)	IV 91-2)	II (1-2)
<i>Hylocomium splendens</i>		I (1)	III (3-4)	II (1-4)
<i>Dicranum scoparium</i>			IV (1-2)	II (1-2)
<i>Carex hostiana</i>			IV (1-3)	II (1-3)
<i>Rhytidiadelphus triquetrus</i>			III (2-4)	I (2-4)

<i>Ranunculus acris</i>		II (2-3)		I (2-3)
<i>Trichophorum germanicum</i>			III (1-3)	I (1-3)
<i>Poa humilis</i>		II (1-2)		I (1-2)
<i>Rhytiadelphus squarrosus</i>	II (1)		II (2)	I (1-2)
<i>Deschampsia cespitosa</i>		II (1)		I (1)
<i>Hypericum pulchrum</i>	II (1)	I (1)		I (1)
<i>Bellis perennis</i>		I (4)		I (4)
<i>Isothecium myosuroides</i>		I (4)		I (4)
<i>Parnassia palustris</i>		I (3)		I (3)
<i>Linum catharticum</i>		I (1)		I (1)
<i>Vicia cracca</i>		I (1)		I (1)
<i>Persicaria vivipara</i>	II (1)			I (1)
<i>Galium sternerii</i>	II (1)			I (1)
<i>Antennaria dioica</i>	II (1)			I (1)
<i>Carex pilulifera</i>			I (1)	I (1)
<i>Dactylorhiza maculata ericetorum</i>			I (1)	I (1)
<i>Sphagnum subnitens</i>			I (1)	I (1)

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**H10**

**Sub-community or variant**

	<b>ai</b>	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>	<b>H10</b>
<i>Calluna vulgaris</i>	V (8-9)	V (9-10)	V (7-10)	V (6-10)	V (6-9)	V (6-10)
<i>Erica cinerea</i>	IV (3)	IV (1-5)	V (2-4)	IV (1-3)	II (3-5)	IV (1-5)
<i>Potentilla erecta</i>	III (1-3)	III (2-4)	III (1-3)	V (2-5)	V (2-4)	IV (1-5)
<i>Carex binervis</i>	II (1)	II (1-2)	II (3-4)	I (3)		II (1-4)
<i>Rhynchospora loreus</i>		III (1-5)	I (2)	I (3)		I (1-5)
<i>Juncus squarrosus</i>		I (4)	II (3-5)	I (2)		I (2-5)
<i>Scapania gracilis</i>	II (4)		II (1-4)			I (1-4)
<i>Molinia caerulea</i>	II (1)			II (1-3)	I (1)	I (1-3)
<i>Diplophyllum albicans</i>			I (3)			I (3)
<i>Sphagnum capillifolium</i>			I (1)			I (1)
<i>Cladonia floerkeana</i>			I (1)			I (1)
<i>Empetrum nigrum nigrum</i>	V (4-5)	II (2)	IV (1-4)	II (3)		III (1-5)
<i>Racomitrium lanuginosum</i>			V (1-8)		I (1)	II (1-7)
<i>Cladonia portentosa</i>			IV (1-3)		I (2)	II (1-3)
<i>Carex panicea</i>			II (3-4)	I (2)	II (2-3)	I (2-4)
<i>Cladonia uncialis</i>			III (1-3)			I (1-3)
<i>Trichophorum germanicum</i>			II (1-5)			I (1-5)
<i>Cladonia furcata</i>			II (1-3)			I (1-3)
<i>Hylocomium splendens</i>		II (4)	II (1-4)	IV (3-7)	V (2-8)	III (1-8)
<i>Anthoxanthum odoratum</i>	IV (1-3)	I (1)		V (2-4)	IV (2-5)	III (1-5)
<i>Festuca ovina</i> agg.	III (2-3)			V (2-4)	IV (2-3)	II (2-4)
<i>Luzula multiflora</i>	IV (1-2)		I (1)	III (2-3)	II (1-2)	II (1-3)
<i>Dicranum scoparium</i>	II (1)		II (1-2)	II (1-2)	I (1)	II (1-2)
<i>Festuca rubra</i>	II (1)	I (1)		II (2-3)	II (1-2)	I (1-3)
<i>Lotus corniculatus</i>				I (3)	III (1-5)	I (1-5)
<i>Pleurozium schreberi</i>		I (3)	I (2)		I (1)	I (1-3)
<i>Plantago lanceolata</i>					III (1-2)	I (1-2)
<i>Hypericum pulchrum</i>					III (1-2)	I (1-2)
<i>Luzula campestris</i>					II (2-3)	I (2-3)
<i>Plantago maritima</i>					II (1-2)	I (1-2)
<i>Galium saxatile</i>				II (1-3)	I (2)	I (1-3)
<i>Agrostis capillaris</i>				II (2-4)		I (2-4)
<i>Viola riviniana</i>				III (1-3)	V (1-4)	II (1-4)
<i>Rhynchospora triquetrus</i>	II (2)	I (1)	I (2)	II (4)	III (4-5)	II (1-5)
<i>Carex pulicaris</i>					IV (1-3)	I (1-5)
<i>Thymus polytrichus</i>					III (1-4)	I (1-4)
<i>Blechnum spicant</i>		I (3)		I (2)		I (2-3)
<i>Danthonia decumbens</i>				I (2)	I (2)	I (2)
<i>Prunella vulgaris</i>					I (1)	I (1)
<i>Hypnum jutlandicum</i>	III (2-4)	V (3-6)	V (1-7)	II (3-5)	I (2)	IV (1-7)
<i>Agrostis canina</i> agg.	II (2)	III (1-3)	III (1-3)	III (2-3)	IV (1-3)	III (1-3)
<i>Deschampsia flexuosa</i>	II (2)	III (1-3)	III (1-3)	I (5)	I (3)	II (1-5)
<i>Nardus stricta</i>	IV (1)		II (1-3)	II (3-4)	II (2-3)	II (1-4)
<i>Rhynchospora squarrosus</i>		I (1)		II (2-3)	II (2-4)	I (1-4)
<i>Vaccinium myrtillus</i>		I (1)	I (3)			I (1-3)

**Additional species***Isoethecium myosuroides* var.*brachythecioides*

I (2) III (1-3)

I (2)

II (1-5) II (1-5)

*Holcus lanatus*

II (1)

I (1)

III (1-2)

III (1-2)

II (1-3)

*Eriophorum angustifolium*

II (3)

I (1)

III (2-3)

II (1-3)

*Pseudoscleropodium purum*

I (2)

III (2-4)

II (2-4)

I (2-4)

*Salix repens*

I (1)

I (3)

II (3-5)

I (1-5)

*Carex flacca*

I (4)

II (2-4)

I (2-4)

*Euphrasia* agg.

II (2)

I (3)

II (1-3)

I (1-3)

*Taraxacum officinale* agg.

I (1)

II (1-3)

I (1-3)

*Frullania tamarisci*

II (4)

I (1)

I (3)

I (1)

I (1-4)

*Deschampsia cespitosa*

II (4-5)

I (1)

I (1-5)

*Carex nigra*

III (1-3)

I (2)

I (1-3)

*Cirsium palustre*

II (2-3)

I (1)

I (1-3)

*Luzula sylvatica*

I (3-5)

I (4)

I (3-5)

*Rumex acetosa*

II (1-4)

I (4)

I (1-4)

*Plagiothecium undulatum*

I (1)

I (1)

I (1)

*Pedicularis sylvatica*

II (1)

I (2)

I (1-2)

*Lophocolea bidentata*

I (2)

I (1)

I (1-2)

*Cladonia cornuta* (u)

I (2-3)

I (2-3)

*Cladonia* sp.

I (1)

I (1)

*Cladonia tenuis*

I (1-2)

I (1-2)

*Thuidium tamariscinum*

I (4)

I (2)

I (2-4)

*Veronica officinalis*

II (1)

I (1)

## H12

<i>Calluna vulgaris</i>	V (7-10)
<i>Hypnum jutlandicum</i>	V (3-7)
<i>Vaccinium myrtillus</i>	IV (3-4)
<i>Deschampsia flexuosa</i>	IV (3)
<i>Dicranum scoparium</i>	I (2)
<i>Pleurozium schreberi</i>	I (3)

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*Hylocomium splendens* IV (1-5)

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<i>Potentilla erecta</i>	III (1-3)
<i>Agrostis canina</i> agg.	III (1-3)
<i>Galium saxatile</i>	I (1)

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<i>Rhytidiadelphus loreus</i>	V (1-5)
<i>Blechnum spicant</i>	IV (1-4)
<i>Empetrum nigrum nigrum</i>	IV (1-4)
<i>Plagiothecium undulatum</i>	IV (1-2)
<i>Lophocolea bidentata</i>	II (2-3)
<i>Calypogeia muelleriana</i>	I (1)
<i>Eriophorum vaginatum</i>	I (1)
<i>Juncus squarrosus</i>	I (3)
<i>Lophozia ventricosa</i>	I (1)

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### **Additional species**

<i>Luzula sylvatica</i>	V (2-5)
<i>Carex binervis</i>	II (1-2)
<i>Dicranum majus</i>	II (2-4)
<i>Eriophorum angustifolium</i>	II (1-2)
<i>Carex nigra</i>	I (2)
<i>Deschampsia cespitosa</i>	I (1)
<i>Dryopteris dilatata</i>	I (1)
<i>Equisetum sylvaticum</i>	I (4)
<i>Pseudoscleropodium purum</i>	I (3)
<i>Scapania gracilis</i>	I (2)

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## H21a

<i>Calluna vulgaris</i>	V (5-9)
<i>Rhytidiadelphus loreus</i>	V (3-8)
<i>Hypnum cupressiforme</i> s.l.	V (2-5)
<i>Pleurozium schreberi</i>	V (2-3)
<i>Dicranum scoparium</i>	IV (1-2)
<i>Hylocomium splendens</i>	IV (4-8)
<i>Plagiothecium undulatum</i>	IV (1-3)
<i>Sphagnum capillifolium</i>	IV (4-9)
<i>Blechnum spicant</i>	III (1-3)
<i>Deschampsia flexuosa</i>	III (2-3)
<i>Potentilla erecta</i>	III (1)
<i>Vaccinium myrtillus</i>	II (4-5)
<hr/>	
<i>Luzula sylvatica</i>	III (2-4)
<i>Dicranum majus</i>	II (3-4)
<i>Calypogeia muelleriana</i>	I (1)
<hr/>	
<i>Diplophyllum albicans</i>	I (2)
<i>Racomitrium lanuginosum</i>	I (2)
<i>Scapania gracilis</i>	II (2-4)
<hr/>	
<i>Agrostis canina</i> agg.	V (1-3)
<i>Listera cordata</i>	II (1-3)
<i>Sphagnum quinquefarium</i>	II (5-8)
<i>Erica cinerea</i>	I (2)
<i>Carex binervis</i>	I (2)
<i>Cladonia arbuscula</i>	I (1)
<i>Cladonia portentosa</i>	I (1)
<i>Trichophorum germanicum</i>	I (1)
<hr/>	
<b>Additional species</b>	
<i>Empetrum nigrum nigrum</i>	V (3-5)
<i>Carex nigra</i>	III (1-4)
<i>Eriophorum vaginatum</i>	II (1-2)
<i>Juncus squarrosus</i>	III (1-4)
<i>Cephalozia</i> sp.	I (1)
<i>Eriophorum angustifolium</i>	II (3)
<i>Lophozia incisa</i>	I (1)
<i>Pseudoscleropodium purum</i>	I (1)
<i>Mnium hornum</i>	I (2)

**M1**

<i>Sphagnum cuspidatum</i>	V (4-9)
<i>Eriophorum angustifolium</i>	V (1-5)
<i>Sphagnum denticulatum</i>	III (2-8)

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<i>Sphagnum papillosum</i>	III (2-4)
<i>Drosera rotundifolia</i>	III (2)
<i>Narthecium ossifragum</i>	III (1-2)

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**Additional species**

<i>Sphagnum capillifolium</i>	IV (1-2)
<i>Warnstorfia fluitans</i>	II (1)
<i>Carex nigra</i>	II (2)
<i>Aulacomnium palustre</i>	III (2)
<i>Sphagnum subnitens</i>	II (1)
<i>Polytrichum commune</i>	II (1)

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**M3x**

<i>Eriophorum angustifolium</i>	9
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<i>Agrostis canina</i> agg.	2
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**Additional species**

<i>Comarum palustre</i>	8
<i>Pellia neesiana</i>	4
<i>Epilobium palustre</i>	3
<i>Deschampsia cespitosa</i>	2
<i>Kindbergia praelonga</i>	2
<i>Luzula sylvatica</i>	2
<i>Sphagnum girgensohnii</i>	2

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**M6**

<b>Sub-community or variant (bx, b or c)</b>	<b>bx</b>	<b>b</b>	<b>c</b>	<b>M6</b>
<i>Potentilla erecta</i>	3	V (3-5)	V (1-4)	V (1-5)
<i>Agrostis canina</i> agg.	3	V (3-5)	V (1-4)	IV (3-4)
<i>Polytrichum commune</i>		III (3-8)	IV (2-7)	III (2-8)
<i>Sphagnum palustre</i>		II (2-8)	IV (5-8)	III (2-8)
<i>Carex echinata</i>	+	III (2-6)	I (3)	II (2-6)
<i>Sphagnum denticulatum</i> agg.		III (1-6)	I (2)	II (1-6)
<i>Sphagnum fallax</i>		I (5)	IV (1-4)	II (1-5)
<i>Viola palustris</i>		III (2-4)	I (3)	II (1-5)
<i>Molinia caerulea</i>		II (2-5)		I (2-5)
<hr/>				
<i>Drosera rotundifolia</i>		II (1-3)		I (1-3)
<hr/>				
<i>Eriophorum angustifolium</i>	5	V (1-6)	V (2-4)	V (1-6)
<i>Festuca ovina</i> agg.		V (2-5)	II (2-4)	IV (2-5)
<i>Carex nigra</i>		V (2-7)		III (2-7)
<i>Luzula multiflora</i>		IV (1-3)	II (2)	III (1-3)
<i>Carex panicea</i>	5	IV (2-4)		II (2-5)
<i>Juncus squarrosus</i>		IV (1-6)		II (1-6)
<i>Nardus stricta</i>	2	II (1-4)	I (1)	II (1-4)
<i>Cardamine pratensis</i>		II (1-2)		I (1-2)
<i>Carex dioica</i>	2			I (2)
<i>Ranunculus flammula</i>	2			I (2)
<i>Warnstorfia exannulata</i>		1 (2)		I (2)
<hr/>				
<i>Juncus effusus</i>		I (3)	V (5-9)	III (3-9)
<i>Rumex acetosa</i>		II (1-3)	IV (2-4)	II (2-4)
<hr/>				
<i>Holcus lanatus</i>	3	V (1-4)	V (2-3)	V (1-4)
<i>Anthoxanthum odoratum</i>	4	V (1-3)	II (1-2)	IV (1-4)
<i>Succisa pratensis</i>	4	IV (3-5)		II (3-6)
<i>Aulacomnium palustre</i>		IV (1-5)		II (1-5)
<i>Cirsium palustre</i>	1	II (1-5)	I (1)	II (1-5)
<i>Juncus bulbosus</i>	3	II (2-3)	I (1)	II (1-3)
<i>Sphagnum subnitens</i>		III (5-8)		II (5-8)
<i>Galium saxatile</i>	2	I (3)	I (2)	I (2-3)
<i>Rhynchospora squarrosus</i>		II (3-4)		I (3-4)
<i>Calliergon cuspidatum</i>	4	I (6)		I (2)
<i>Epilobium palustre</i>		I (2)	I (2)	I (2)
<i>Juncus articulatus</i>		II (2-3)		I (2-3)
<i>Narthecium ossifragum</i>	+	II (1-3)		I (1-3)
<i>Carex pulicaris</i>	2			I (2)
<i>Erica tetralix</i>		I (3)		I (3)
<i>Hydrocotyle vulgaris</i>		I (3)		I (3)
<hr/>				
<b>Additional species</b>				
<i>Hylocomium splendens</i>		III (2-5)		II (2-5)
<i>Festuca rubra</i>		III (2-4)		II (2-4)
<i>Caltha palustris</i>	3	II (2-3)		I (2-3)
<i>Pedicularis sylvatica</i>		II (2-3)		I (2-3)
<i>Juncus conglomeratus</i>		II (1-4)		I (1-4)

<i>Polygala serpyllifolia</i>		II (1-3)	I (1-3)
<i>Thuidium tamariscinum</i>		II (1-2)	I (1-2)
<i>Salix repens</i>		I (4)	I (4)
<i>Scorpidium revolvens</i>	+	I (4)	I (4)
<i>Sphagnum cuspidatum</i>		I (4)	I (4)
<i>Agrostis stolonifera</i>		I (3)	II (4-5)
<i>Carex binervis</i>		I (3)	I (3)
<i>Lathyrus pratensis</i>		I (3)	I (3)
<i>Lychnis flos-cuculi</i>		I (3)	I (3)
<i>Pellia</i> sp.		I (3)	I (3)
<i>Pseudoscleropodium purum</i>		I (3)	I (3)
<i>Anagallis tenella</i>	4	I (2)	I (2-4)
<i>Empetrum nigrum</i>		I (2)	I (2)
<i>Trifolium repens</i>		I (2)	I (2)
<i>Hypnum cupressiforme</i>		I (2)	I (1)
<i>Mnium hornum</i>		I (2)	I (1)
<i>Philonotis fontana</i>	1	I (2)	I (1-2)
<i>Calluna vulgaris</i>		I (1-2)	I (1-2)
<i>Aneura pinguis</i>		I (1)	I (1)
<i>Angelica sylvestris</i>		I (1)	I (1)
<i>Campylium stellatum</i>		I (1)	I (1)
<i>Cerastium fontanum</i>		I (1)	I (1)
<i>Danthonia decumbens</i>		I (1)	I (1)
<i>Lophozia incisa</i>		I (1)	I (1)
<i>Rhizomnium pseudopunctatum</i>		I (1)	I (1)
<i>Luzula sylvatica</i>			II (2-4)
<i>Sphagnum contortum</i>	8		I (8)
<i>Sphagnum fimbriatum</i>			II (7-8)
<i>Carex lepidocarpa</i>	5		I (5)
<i>Deschampsia flexuosa</i>			I (3)
<i>Euphrasia officinalis</i> agg.	3		I (3)
<i>Hypericum pulchrum</i>	3		I (3)
<i>Carex hostiana</i>	1		I (1)
<i>Chiloscyphus pallescens</i>	1		I (1)
<i>Dryopteris dilatata</i>			I (1)
<i>Kindbergia praelonga</i>			I (1)
<i>Pleurozium schreberi</i>			I (1)
<i>Riccardia multifida</i>	1		I (1)

**M9a**

<i>Calliergonella cuspidata</i>	7
<i>Menyanthes trifoliata</i>	6
<i>Comarum palustre</i>	5
<i>Galium palustre</i>	2
<i>Eriophorum angustifolium</i>	+

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<i>Campylium stellatum</i>	6
<i>Scorpidium revolvens &amp; cossonii</i>	4
<i>Aneura pinguis</i>	3
<i>Juncus bulbosus</i>	3
<i>Dactylorhiza purpurella</i>	1
<i>Potamogeton polygonifolius</i>	1

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<i>Epilobium palustre</i>	3
<i>Mentha aquatica</i>	1
<i>Silene flos-cuculi</i>	1
<i>Holcus lanatus</i>	1
<i>Ranunculus acris</i>	1
<i>Cardamine pratensis</i>	+

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<i>Equisetum palustre</i>	3
<i>Carex nigra</i>	4
<i>Carex panicea</i>	4
<i>Succisa pratensis</i>	1
<i>Molinia caerulea</i>	+
<i>Cirsium palustre</i>	1
<i>Agrostis stolonifera</i>	+
<i>Hydrocotyle vulgaris</i>	+

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**Additional species**

<i>Triglochin maritima</i>	5
<i>Festuca rubra</i>	3
<i>Chiloscyphus polyanthos</i>	3
<i>Riccardia multifida</i>	3
<i>Sagina nodosa</i>	2
<i>Trifolium repens</i>	1

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**Mx**

<i>Menyanthes trifoliata</i>	5
<i>Carex nigra</i>	4
<i>Carex panicea</i>	4
<i>Comarum palustre</i>	4
<i>Festuca rubra</i>	4
<hr/>	
<i>Calliergonella cuspidata</i>	3
<i>Carex flacca</i>	3
<i>Carex pulicaris</i>	3
<i>Danthonia decumbens</i>	3
<i>Holcus lanatus</i>	3
<i>Plagiomnium rostratum</i>	3
<i>Potentilla erecta</i>	3
<i>Trifolium repens</i>	3
<i>Triglochin maritima</i>	3
<hr/>	
<i>Anthoxanthum odoratum</i>	2
<i>Epilobium palustre</i>	2
<i>Prunella vulgaris</i>	2
<i>Riccardia multifida</i>	2
<i>Agrostis capillaris</i>	1
<i>Caltha palustris</i>	1
<i>Cynosurus cristatus</i>	1
<i>Euphrasia</i> agg.	1
<i>Nardus stricta</i>	1
<i>Plagiomnium undulatum</i>	1
<hr/>	
<i>Cirsium palustre</i>	+
<i>Deschampsia cespitosa</i>	+
<i>Ranunculus acris</i>	+
<hr/>	

**M10**

Sub-community or variant (a or x)	a	x	M10
<i>Campyllum stellatum</i>	V (4-8)	V (2-8)	V (2-8)
<i>Carex panicea</i>	V (3-5)	V (3-6)	V (3-6)
<i>Scorpidium revolvens &amp; cossonii</i>	IV (3-4)	IV (3-7)	IV (3-7)
<i>Pinguicula vulgaris</i>	V (2-3)	II (1)	IV (1-3)
<i>Aneura pinguis</i>	IV (1-4)	II (3)	III (1-4)
<i>Selaginella selaginoides</i>	IV (1-3)	II (2)	III (1-3)
<i>Bryum pseudotriquetrum</i>	II (3)	IV (3)	III (3)
<i>Carex dioica</i>	III (1-3)		II (1-3)
<i>Juncus articulatus</i>		III (1-3)	I (1-3)
<i>Carex lepidocarpa</i>		II (2)	I (2)
<i>Carex pulicaris</i>	IV (2-4)	V (1-4)	V (1-4)
<i>Succisa pratensis</i>	V (2-4)	III (2-4)	V (2-4)
<i>Carex hostiana</i>	IV (3-5)	IV (3-5)	IV (3-5)
<i>Molinia caerulea</i>	V (3-6)	III (3-6)	IV (3-6)
<i>Eriophorum angustifolium</i>	V (1-4)	II (2)	IV (1-4)
<i>Potentilla erecta</i>	IV (1-3)	III (1-3)	IV (1-3)
<i>Carex nigra</i>	IV (1-5)	II (3)	III (1-5)
<i>Ctenidium molluscum</i>	III (1-5)	III (2-3)	III (1-5)
<i>Thalictrum alpinum</i>	III (3-4)		II (3-4)
<i>Anthoxanthum odoratum</i>	II (1)	II (1)	II (1)
<i>Fissidens adianthoides</i>	I (1)	III (1-3)	II (1-3)
<i>Hylocomium splendens</i>	I (1)		I (1)
<i>Ranunculus acris</i>	I (1)		I (1)
<i>Sphagnum subnitens</i>		I (1)	I (1)
<i>Festuca ovina</i> agg.	I (3)	IV (2-3)	II (2-3)
<i>Agrostis stolonifera</i>	I (3)	III (2-3)	II (2-3)
<i>Palustriella falcata &amp; commutata</i>	II (2-7)	II (3)	II (2-7)
<i>Taraxacum officinale</i> agg.	II (1-2)	II (1)	II (1-2)
<i>Cratoneuron filicinum</i>		III (2-3)	II (2-3)
<i>Thymus polytrichus</i>	I (1)	II (1)	I (1)
<i>Linum catharticum</i>		II (1)	I (1)
<i>Schoenus nigricans</i>	IV (1-8)		III (1-8)
<i>Scorpidium scorpioides</i>	III (1-7)	II (8)	III (1-8)
<i>Juncus bulbosus</i>	III (3)		II (3)
<i>Carex demissa</i>	II (2)	II (2)	II (2)
<i>Carex echinata</i>	II (2-3)		I (2-3)
<i>Erica tetralix</i>	I (2)	II (1)	I (1-2)
<i>Narthecium ossifragum</i>	II (1-5)		I (1-5)
<i>Blindia acuta</i>	I (3)		I (3)
<i>Carex flacca</i>	V (1-4)	IV (3-4)	V (1-4)
<i>Prunella vulgaris</i>	III (1-4)	IV (2-3)	III (1-4)
<i>Ranunculus flammula</i>	II (1-3)	II (2)	II (1-3)
<i>Scorzoneroides autumnalis</i>		IV (3)	II (3)
<i>Calliargonella cuspidata</i>	I (5)	II (2)	I (2-5)
<i>Cirsium palustre</i>	I (1-2)		I (1-2)

<i>Holcus lanatus</i>	I (1)	II (2)	I (1-2)
<i>Pedicularis sylvatica</i>	II (2)		I (2)
<i>Cardamine pratensis</i>	I (1)		I (1)
<i>Equisetum palustre</i>	I (1)		I (1)
<i>Festuca rubra</i>		II (4)	I (4)
<i>Filipendula ulmaria</i>	I (1)		I (1)
<i>Luzula multiflora</i>	I (1)		I (1)
<i>Parnassia palustris</i>		II (2)	I (2)
<i>Racomitrium lanuginosum</i>	I (1)		I (1)
<i>Thalictrum alpinum</i>		II (2)	I (2)

<i>Euphrasia officinalis</i> agg.	IV (1-3)	V (1-3)	IV (1-3)
<i>Nardus stricta</i>	III (2-3)	III (2-3)	III (2-3)

#### **Additional species**

<i>Empetrum nigrum nigrum</i>	IV (1-2)	IV (1-2)	IV (1-2)
<i>Calluna vulgaris</i>	III (1-4)	III (1-4)	III (1-4)
<i>Anagallis tenella</i>	II (3-7)	IV (6-7)	III (3-7)
<i>Plantago maritima</i>	I (1)	V (1-7)	III (1-7)
<i>Bellis perennis</i>	I (1)	IV (1-3)	II (1-3)
<i>Salix repens</i>	II (2)	III (1-2)	II (1-2)
<i>Viola riviniana</i>	II (1-2)	III (1-3)	II (1-3)
<i>Didymodon tophaceus</i>		IV (1-4)	II (1-4)
<i>Plantago lanceolata</i>	I (3)	III (3-4)	II (3-4)
<i>Danthonia decumbens</i>		III (1-2)	I (1-2)
<i>Epilobium palustre</i>	I (3)	I (1)	I (1-3)
<i>Hypericum pulchrum</i>	II (1)		I (1)
<i>Potamogeton polygonifolius</i>	I (3)	II (1)	I (1-3)
<i>Sagina nodosa</i>		III (2)	I (2)
<i>Sagina procumbens</i>		III (2-3)	I (2-3)
<i>Agrostis vinealis</i>	I (2)		I (2)
<i>Brachythecium rivulare</i>	I (2)		I (2)
<i>Carex oederi</i>		II (3)	I (3)
<i>Cerastium fontanum</i>		II (1)	I (1)
<i>Chiloscyphus polyanthos</i>		II (2)	I (2)
<i>Dactylorhiza purpurella</i>	I (1)		I (1)
<i>Erica cinerea</i>	I (1)		I (1)
<i>Frullania tamarisci</i>	I (2)		I (2)
<i>Galium sternerii</i>		II (1)	I (1)
<i>Juncus conglomeratus</i>	I (2)		I (2)
<i>Jungermannia exsertifolia</i>		II (4)	I (4)
<i>Lotus corniculatus</i>	I (3)		I (3)
<i>Mnium hornum</i>	I (3)		I (3)
<i>Pedicularis sylvatica</i>	I (2)		I (2)
<i>Primula vulgaris</i>	I (1)		I (1)
<i>Riccardia multifida</i>	I (2)		I (2)
<i>Saccogyna viticulosa</i>	I (2)		I (2)
<i>Scilla verna</i>		II (1)	I (1)
<i>Tortula subulata</i>		II (2)	I (2)
<i>Trifolium repens</i>		II (3)	I (3)

**M15**

Sub-community or variant	ai	a	b	c	d	M15
<i>Calluna vulgaris</i>	V (4-8)	V (2-7)	V (1-8)	V (5-8)	V (5-9)	V (1-9)
<i>Potentilla erecta</i>	V (2-5)	V (3)	V (3)	V (1-3)	V (2-5)	V (1-5)
<i>Molinia caerulea</i>	V (3-6)	IV (4-5)	IV (2-5)	IV (3-4)	V (1-5)	V (1-5)
<i>Erica tetralix</i>	V (3-4)	IV (4-5)	III (2-3)	II (3)	III (2-5)	III (2-5)
<i>Trichophorum germanicum</i>	I (4)		II (2)	V (1-5)	II (1-5)	III (1-5)
<i>Narthecium ossifragum</i>	V (2-5)	IV (3)	IV (2-6)	I (4)	I (2-6)	II (2-6)
<i>Eriophorum angustifolium</i>	I (1)	V (4-6)	V (1-6)	II (3-4)	II (1-6)	III (1-6)
<i>Sphagnum palustre</i>		IV (2)	V (1-4)			I (1-4)
<i>Carex panicea</i>	V (2-5)	V (2-6)		III (1-4)	III (1-3)	IV (1-6)
<i>Succisa pratensis</i>	V (2-4)	II (2)	II (2)	I (1)	III (1-3)	III (1-4)
<i>Carex pulicaris</i>	V (2-3)	IV (1-2)			II (1-3)	II (1-3)
<i>Dactylorhiza maculata ericetorum</i>	II (1)		II (1)	II (1-2)	II (1-2)	II (1-3)
<i>Euphrasia officinalis</i> agg.	V (3)	II (1)			II (3)	II (1-3)
<i>Sphagnum inundatum</i>	II (3-6)			II (1-3)	II (1-6)	II (1-6)
<i>Carex nigra</i>	IV (1-3)		III (2-3)		I (3)	II (1-3)
<i>Selaginella selaginoides</i>	III (1-3)				I (2)	I (1-3)
<i>Pinguicula vulgaris</i>	II (2)		II (3)		I (2)	I (2-3)
<i>Campylopus atrovirens</i>	I (1)			I (2)	I (1)	I (1-2)
<i>Juncus bulbosus</i>	I (3)	IV (2-3)				I (2-3)
<i>Aneura pinguis</i>	I (2)	II (3)				I (2-3)
<i>Campylium stellatum</i>		II (4)				I (4)
<i>Carex demissa</i>		II (4)				I (4)
<i>Carex echinata</i>		II (3)	III (1-2)		I (2)	I (1-3)
<i>Pleurozia purpurea</i>				II (1-2)		I (1-2)
<i>Viola palustris</i>			II (2)		I (1)	I (1-2)
<i>Sphagnum denticulatum</i> agg.	I (5)	V (2)	II (5)	II (1-4)	I (5)	II (1-5)
<i>Campylopus flexuosus</i>				II (1-3)		I (1-3)
<i>Eriophorum vaginatum</i>			II (1)			I (1)
<i>Odontoschisma sphagni</i>				I (1)		I (1)
<i>Erica cinerea</i>	I (1)		II (1)	V (1-4)	I (1-2)	II (1-4)
<i>Cladonia portentosa</i>		II (2)		IV (1-4)	II (1-4)	II (1-4)
<i>Cladonia uncialis</i>				IV (1-2)	I (2)	II (1-2)
<i>Racomitrium lanuginosum</i>			II (4)	IV (4-8)	I (4)	II (4-8)
<i>Hypnum jutlandicum</i>	II (1-2)	IV (2-5)	IV (4-5)	V (2-6)	V (2-8)	V (1-8)
<i>Juncus squarrosus</i>	I (2)	IV (1-2)	IV (2-5)	IV (3-4)	V (1-4)	IV (1-5)
<i>Festuca ovina</i> agg.	V (3-4)	IV (2-4)	III (2-3)	I (1)	III (1-4)	III (1-4)
<i>Nardus stricta</i>	V (1-4)		II (3)	II (1-3)	IV (1-5)	III (1-5)
<i>Anthoxanthum odoratum</i>	V (1-3)	II (2)			IV (1-3)	III (1-3)
<i>Luzula multiflora</i>	IV (1-3)	III (1-3)	III (2)	II (1)	III (1-3)	III (1-3)
<i>Rhynchodesporium loreus</i>		III (1-3)	III (2-3)	III (1-3)	III (2-3)	III (1-3)
<i>Dicranum scoparium</i>	II (1-2)	II (2)		I (1)	II (1-3)	II (1-3)
<i>Pleurozium schreberi</i>			III (2-4)	II (2-3)	I (2-3)	II (2-4)

<i>Deschampsia flexuosa</i>		II (2)	II (1)	I (1)	I (1-2)
<i>Plagiothecium undulatum</i>		II (2)	II (1)	I (1)	I (1-2)
<i>Carex pilulifera</i>	I (2)			I (1)	I (1-2)
<i>Polytrichum commune</i>			II (1)	I (2)	I (1-2)
<i>Galium saxatile</i>		II (2)			I (2)
<hr/>					
<i>Empetrum nigrum nigrum</i>	III (2-4)		V (3-5)	IV (2-5)	IV (2-5)
<i>Hylocomium splendens</i>	III (1-3)	II (1)	IV (4-6)	II (4-5)	V (1-8)
<i>Pedicularis sylvatica</i>	III (2-3)	II (2)		II (3)	III (1-3)
<i>Sphagnum subnitens</i>	IV (1-4)	IV (7-8)	III (4-7)		II (4-7)
<i>Cladonia arbuscula</i>		II (2)	II (4)	III (2-6)	II (1-3)
<i>Diplophyllum albicans</i>				III (1-3)	II (2-4)
<i>Sphagnum capillifolium</i>		II (5)	IV (2-8)		II (1-5)
<i>Carex binervis</i>				I (1)	II (1-2)
<i>Polygala serpyllifolia</i>			II (2)	I (1)	II (1-2)
<hr/>					
<i>Agrostis stolonifera</i>	I (2)			I (1)	I (1-2)
<i>Calypogeia fissa</i>	II (2)	I (2)			I (2)
<i>Rhytidiadelphus squarrosus</i>	III (1-3)				I (2)
<i>Danthonia decumbens</i>	II (1)	II (2)			I (1-2)
<i>Hypericum pulchrum</i>	II (1-2)				I (2)
<i>Aulacomnium palustre</i>			II (2)		I (4)
<i>Sphagnum tenellum</i>				II (4)	I (2)
<hr/>					
<b>Additional species</b>					
<i>Carex flacca</i>	V (1-3)			I (1)	II (2-3)
<i>Plantago maritima</i>	V (1-4)				I (1-4)
<i>Salix repens</i>	V (1-3)	II (4)			I (1-4)
<i>Carex hostiana</i>	IV (2-4)				I (2-4)
<i>Parnassia palustris</i>	IV (1-3)				I (1-3)
<i>Plantago lanceolata</i>	IV (3-4)	II (2-4)	II (4)	II (1)	II (4)
<i>Pseudoscleropodium purum</i>	IV (1-4)			I (4)	I (2)
<i>Agrostis canina</i> agg.	I (3)	II (2-3)	III (2-3)	II (1)	II (3)
<i>Anagallis tenella</i>	II (2-3)				I (2-3)
<i>Calliergonella cuspidata</i>	I (1)		II (4)		I (1-4)
<i>Campylopus introflexus</i>				I (3)	I (1)
<i>Cephalozia connivens</i>				I (1)	I (1)
<i>Cladonia furcata</i>				II (1-2)	I (3)
<i>Frullania tamarisci</i>	I (3)				I (4)
<i>Hydrocotyle vulgaris</i>	I (2)		II (5)		I (1-5)
<i>Isothecium myosuroides</i>	II (1-2)			II (1-3)	I (3)
<i>Mnium hornum</i>	I (1)			II (1-3)	I (1)
<i>Prunella vulgaris</i>	II (1-3)				I (1-3)
<i>Ptilidium ciliare</i>				I (2)	II (2-4)
<i>Ranunculus flammula</i>	I (1)		II (3)		I (1-3)
<i>Rhytidiadelphus triquetrus</i>	I (1)				I (2)
<i>Scapania gracilis</i>			II (1)	I (3)	I (4)
<i>Scilla verna</i>	II (1)			I (3)	I (4)
<i>Scorzoneroides autumnalis</i>	I (1)			I (2)	I (1-2)
<i>Thuidium tamariscinum</i>		I (5)			I (1)
<i>Viola riviniana</i>	II (3)	II (1)			II (3-4)

**M18b**

<i>Calluna vulgaris</i>	V (7)
<i>Eriophorum angustifolium</i>	V (4-5)
<i>Sphagnum capillifolium</i>	V (5-9)
<i>Sphagnum papillosum</i>	V (4-7)
<i>Sphagnum tenellum</i>	V (1-4)
<i>Erica tetralix</i>	IV (2-4)
<i>Odontoschisma sphagni</i>	IV (3)
<i>Eriophorum vaginatum</i>	II (4)

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<i>Narthecium ossifragum</i>	V (1-4)
<i>Drosera rotundifolia</i>	V (2-3)

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<i>Empetrum nigrum</i>	V (2-3)
<i>Racomitrium lanuginosum</i>	V (2-4)
<i>Cladonia portentosa</i>	V (2-4)
<i>Cladonia uncialis</i>	IV (1-2)
<i>Cladonia arbuscula</i>	IV (2-5)
<i>Rhytidiadelphus loreus</i>	IV (2)
<i>Pleurozium schreberi</i>	II (1)

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<i>Hypnum jutlandicum</i>	V (2-4)
<i>Mylia anomala</i>	IV (1-2)
<i>Sphagnum subnitens</i>	II (4)
<i>Trichophorum germanicum</i>	II (2)

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**Additional species**

<i>Calypogeia</i> sp.	II (1)
<i>Kurzia</i> sp.	II (3)
<i>Pinguicula vulgaris</i>	II (2)
<i>Scapania gracilis</i>	II (1)

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**M19****Sub-community (a and b)****a****b****M19**

<i>Calluna vulgaris</i>	V (6-8)	V (5-8)	V (5-8)
<i>Eriophorum vaginatum</i>	V (1-6)	V (4-7)	V (1-7)
<i>Sphagnum capillifolium</i>	V (5-8)	III (1-8)	IV (1-8)
<i>Eriophorum angustifolium</i>	V (2-4)	I (2-3)	III (2-4)
<i>Pleurozium schreberi</i>	II (1-4)	V (2-5)	IV (1-5)

<i>Hypnum jutlandicum</i>	V (2-5)	V (2-5)	V (2-5)
<i>Erica tetralix</i>	V (1-4)		III (1-4)
<i>Narthecium ossifragum</i>	III (1-3)		II (1-3)
<i>Trichophorum germanicum</i>	II (3-4)		I (3-4)
<i>Drosera rotundifolia</i>	I (2)		I (2)

<i>Empetrum nigrum nigrum</i>	V (1-7)	V (4-6)	V (1-7)
<i>Cladonia portentosa</i>	III (1-7)	IV (1-5)	IV (1-7)

<i>Racomitrium lanuginosum</i>	III (3-8)	III (2-5)	III (2-8)
<i>Hylocomium splendens</i>	I (2-5)	IV (1-9)	III (1-9)
<i>Cladonia arbuscula</i>	II (1-6)	III (1-7)	III (1-7)
<i>Juncus squarrosus</i>	I (1)	II (1)	II (1)
<i>Cladonia uncialis</i>	I (1)	I (1-3)	I (1-3)
<i>Sphagnum subnitens</i>	II (3-5)		I (3-5)
<i>Sphagnum papillosum</i>	I (1)		I (1)
<i>Vaccinium vitis-idaea</i>		I (3)	I (3)

<i>Rhytidiadelphus loreus</i>	III (2-3)	IV (2-6)	IV (2-6)
<i>Dicranum scoparium</i>	I (1)	III (1)	II (1)
<i>Potentilla erecta</i>	III (1-3)	I (1-3)	II (1-3)
<i>Luzula sylvatica</i>		III (1-5)	II (1-5)
<i>Plagiothecium undulatum</i>	II (1-2)	II (1)	II (1-2)
<i>Deschampsia flexuosa</i>	I (3)	II (1-2)	I (1-3)
<i>Vaccinium myrtillus</i>		II (1-4)	I (1-4)
<i>Aulacomnium palustre</i>		II (1-2)	I (1-2)
<i>Blechnum spicant</i>	I (1)	I (1-3)	I (1-3)
<i>Polytrichum commune</i>	I (3)	I (2-4)	I (2-4)
<i>Campylopus flexuosus</i>	I (2)	I (3)	I (2-3)

**Additional species**

<i>Scapania gracilis</i>	IV (1-2)	I (3)	III (1-3)
<i>Cladonia tenuis</i>	I (2)	I (2)	I (2)
<i>Lophozia incisa</i>	I (1)	I (1)	I (1)
<i>Rhytidiadelphus triquetrus</i>		I (1-2)	I (1-2)

**M23**

<i>Holcus lanatus</i>	V (3-4)
<i>Juncus effusus</i>	V (1-6)

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<i>Potentilla erecta</i>	IV (2-4)
<i>Equisetum palustre</i>	III (3-4)
<i>Lathyrus pratensis</i>	III (3)
<i>Ranunculus acris</i>	III (2-3)
<i>Luzula multiflora</i>	III (1-2)
<i>Juncus acutiflorus</i>	II (8)
<i>Carex panicea</i>	II (3)
<i>Taraxacum officinale</i> agg.	II (1)

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<i>Deschampsia cespitosa</i>	IV (1-6)
<i>Juncus articulatus</i>	II (3)

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<i>Festuca rubra</i>	V (2-4)
<i>Epilobium palustre</i>	V (1-3)
<i>Rumex acetosa</i>	IV (4)
<i>Agrostis canina</i> agg.	IV (3)
<i>Cirsium palustre</i>	IV (2-4)
<i>Rhynchospora squarrosa</i>	IV (2-3)
<i>Anthoxanthum odoratum</i>	IV (1-5)
<i>Carex nigra</i>	III (4-6)
<i>Caltha palustris</i>	III (4)
<i>Agrostis stolonifera</i>	III (2-3)
<i>Mentha aquatica</i>	III (2-3)
<i>Trifolium repens</i>	III (2)
<i>Succisa pratensis</i>	III (1-4)
<i>Hydrocotyle vulgaris</i>	II (5)
<i>Agrostis capillaris</i>	II (4)
<i>Juncus conglomeratus</i>	II (4)
<i>Calliergonella cuspidata</i>	II (3)
<i>Brachythecium rutabulum</i>	II (2)
<i>Cardamine pratensis</i>	II (2)
<i>Poa pratensis</i>	II (2)
<i>Angelica sylvestris</i>	II (1)
<i>Cynosurus cristatus</i>	II (1)
<i>Lychnis flos-cuculi</i>	II (1)

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**Additional species**

<i>Pseudoscleropodium purum</i>	IV (4-5)
<i>Hylocomium splendens</i>	IV (1-2)
<i>Carex pulicaris</i>	III (2-3)
<i>Equisetum sylvaticum</i>	III (1)
<i>Carex flacca</i>	II (4)
<i>Juncus squarrosus</i>	II (4)
<i>Juncus x surrejanus</i>	II (4)
<i>Luzula sylvatica</i>	II (4)
<i>Festuca vivipara</i>	II (3)
<i>Thuidium tamariscinum</i>	II (3)
<i>Deschampsia flexuosa</i>	II (2)

<i>Eriophorum angustifolium</i>	II (2)
<i>Nardus stricta</i>	II (2)
<i>Plagiomnium undulatum</i>	II (2)

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**M25**

Sub-community (b or x)	b	x	M25
<i>Molinia caerulea</i>	9	V (3-8)	V (3-9)
<i>Potentilla erecta</i>	5	V (1-5)	V (1-5)
<i>Eriophorum angustifolium</i>		III (2-6)	III (2-6)
<i>Erica tetralix</i>		II (1-4)	II (1-4)
<i>Narthecium ossifragum</i>		II (2-8)	II (2-8)
<i>Hypnum jutlandicum</i>		II (2-4)	II (2-4)
<i>Aulacomnium palustre</i>		I (1-5)	I (1-5)
<i>Sphagnum denticulatum</i> agg.		I (1-2)	I (1-2)
<i>Calypogeia fissa</i>		I (3)	I (3)
<i>Holcus lanatus</i>	3	V (1-4)	V (1-4)
<i>Anthoxanthum odoratum</i>	2	V (1-5)	V (1-5)
<i>Carex flacca</i>		IV (1-5)	IV (1-5)
<i>Festuca rubra</i>	4	IV (1-5)	IV (1-5)
<i>Pseudoscleropodium purum</i>	4	IV (3-4)	IV (3-4)
<i>Luzula multiflora</i>		III (1-3)	III (1-3)
<i>Rumex acetosa</i>	3	II (2-3)	II (2-3)
<i>Agrostis capillaris</i>		I (4)	I (4)
<i>Danthonia decumbens</i>		I (2)	I (2)
<i>Viola palustris</i>		I (2)	I (2)
<i>Cirsium palustre</i>	4	III (1-4)	III (1-4)
<i>Epilobium palustre</i>		II (2-3)	II (2-3)
<i>Cardamine pratensis</i>		II (2)	II (2)
<i>Angelica sylvestris</i>		I (1-4)	I (1-4)
<i>Filipendula ulmaria</i>		I (1-4)	I (1-4)
<i>Juncus effusus</i>	4	I (1-4)	II (1-4)
<i>Equisetum palustre</i>		I (1)	I (1)
<i>Mentha aquatica</i>		I (2)	I (2)
<i>Carex nigra</i>		IV (3-8)	III (3-8)
<i>Carex panicea</i>		IV (2-3)	III (2-3)
<i>Succisa pratensis</i>		IV (1-6)	III (1-6)
<i>Agrostis canina</i> agg.	3	III (1-4)	III (1-4)
<i>Calluna vulgaris</i>	+	III (1-4)	III (1-4)
<i>Rhynchospora squarrosus</i>		III (1-3)	III (1-3)
<i>Agrostis stolonifera</i>		II (3)	II (3)
<i>Juncus articulatus</i>		II (2-3)	II (2-3)
<i>Calliergonella cuspidata</i>		II (1-5)	II (1-5)
<i>Deschampsia cespitosa</i>		II (1-5)	II (1-5)
<i>Festuca ovina</i> agg.		II (1-4)	II (1-4)
<i>Kindbergia praelonga</i>		II (1-4)	II (1-4)
<i>Carex echinata</i>		II (1-3)	II (1-3)
<i>Nardus stricta</i>		II (1-3)	II (1-3)
<i>Ranunculus acris</i>	2	II (1-3)	III (1-3)
<i>Hypericum pulchrum</i>		II (1-2)	II (1-2)
<i>Achillea ptarmica</i>		I (3)	I (3)
<i>Dactylorhiza maculata ericetorum</i>		I (2)	I (2)
<i>Hydrocotyle vulgaris</i>		I (2)	I (2)

<i>Lophocolea bidentata</i>	2	I (2)	I (2)
<i>Pleurozium schreberi</i>		I (2)	I (2)
<i>Ranunculus flammula</i>		I (1)	I (1)
<i>Sphagnum subnitens</i>		I (1)	I (1)

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**Additional species**

<i>Carex pulicaris</i>		V (2-4)	IV (2-4)
<i>Hylocomium splendens</i>		III (3-6)	III (3-6)
<i>Juncus conglomeratus</i>		III (3-5)	III (3-5)
<i>Carex hostiana</i>		III (1-4)	III (1-4)
<i>Plantago lanceolata</i>		III (1-3)	III (1-3)
<i>Viola riviniana</i>		III (1-3)	III (1-3)
<i>Thuidium tamariscinum</i>		II (3-4)	II (3-4)
<i>Rhytiadelphus triquetrus</i>		II (1-5)	II (1-5)
<i>Empetrum nigrum nigrum</i>		II (1-4)	II (1-4)
<i>Juncus squarrosus</i>		II (1-4)	II (1-4)
<i>Trifolium repens</i>		II (1-4)	II (1-4)
<i>Caltha palustris</i>		II (1-3)	II (1-3)
<i>Lotus corniculatus</i>		II (1-3)	II (1-3)
<i>Salix repens</i>		II (1-3)	II (1-3)
<i>Taraxacum officinale</i> agg.		II (1-3)	II (1-3)
<i>Prunella vulgaris</i>		II (1-2)	II (1-2)
<i>Thalictrum alpinum</i>		I (3-4)	I (3-4)
<i>Comarum palustre</i>		I (3)	I (3)
<i>Parnassia palustris</i>		I (3)	I (3)
<i>Euphrasia officinalis</i> agg.		I (2-3)	I (2-3)
<i>Juncus bulbosus</i>		I (2-3)	I (2-3)
<i>Rhytiadelphus loreus</i>		I (2-3)	I (2-3)
<i>Carex dioica</i>		I (2)	I (2)
<i>Dicranum majus</i>		I (2)	I (2)
<i>Galium saxatile</i>		I (2)	I (2)
<i>Lychnis flos-cuculi</i>		I (2)	I (2)
<i>Pellia</i> sp.		I (2)	I (2)
<i>Philonotis fontana</i>		I (2)	I (2)
<i>Geum rivale</i>		I (1-7)	I (1-7)
<i>Primula vulgaris</i>		I (1-4)	I (1-4)
<i>Bryum pseudotriquetrum</i>		I (1-3)	I (1-3)
<i>Lathyrus pratensis</i>		I (1-3)	I (1-3)
<i>Thymus polytrichus</i>		I (1-3)	I (1-3)
<i>Blechnum spicant</i>		I (1-2)	I (1-2)
<i>Plagiomnium undulatum</i>		I (1-2)	I (1-2)
<i>Aneura pinguis</i>		I (1)	I (1)
<i>Campylium stellatum</i>		I (1)	I (1)
<i>Ctenidium molluscum</i>		I (1)	I (1)
<i>Cynosurus cristatus</i>		I (1)	I (1)
<i>Dicranum scoparium</i>		I (1)	I (1)
<i>Dryopteris dilatata</i>		I (1)	I (1)
<i>Equisetum sylvaticum</i>		I (1)	I (1)
<i>Erica cinerea</i>		I (1)	I (1)
<i>Pedicularis sylvatica</i>		I (1)	I (1)
<i>Plantago maritima</i>		I (1)	I (1)
<i>Poa pratensis</i> agg.	2	I (1)	I (1)
<i>Riccardia multifida</i>		I (1)	I (1)
<i>Scilla verna</i>		I (1)	I (1)

<i>Selaginella selaginoides</i>	I (1)	I (1)
<i>Triglochin maritima</i>	I (1)	I (1)

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**M27**

<i>Filipendula ulmaria</i>	9	10
<i>Rumex acetosa</i>	4	4
<i>Poa trivialis</i>	3	
<i>Lophocolea bidentata</i>	1	
<i>Ranunculus acris</i>	1	
<i>Holcus lanatus</i>	1	
<i>Anthoxanthum odoratum</i>	+	
<i>Festuca rubra</i>	4	1
<i>Potentilla anserina</i>	4	
<i>Epilobium palustre</i>		1
<i>Comarum palustre</i>		+
<b>Additional species</b>		
<i>Potentilla erecta</i>	1	1
<i>Deschampsia cespitosa</i>	3	
<i>Juncus conglomeratus</i>	+	
<i>Equisetum sylvaticum</i>		5
<i>Luzula sylvatica</i>		5
<i>Chamerion angustifolium</i>		2
<i>Dryopteris dilatata</i>		+

**M28**

<i>Iris pseudacorus</i>	V (7-8)
<i>Filipendula ulmaria</i>	III (5-6)
<i>Poa trivialis</i>	III (3-4)

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<i>Rumex acetosa</i>	V (4-8)
<i>Ranunculus acris</i>	II (2)
<i>Anthoxanthum odoratum</i>	II (1)
<i>Juncus acutiflorus</i>	II (7)
<i>Juncus effusus</i>	II (3)
<i>Caltha palustris</i>	II (2)
<i>Cirsium palustre</i>	II (2)
<i>Epilobium palustre</i>	II (3)
<i>Galium palustre</i>	II (1)

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<i>Holcus lanatus</i>	V (3-4)
<i>Deschampsia cespitosa</i>	IV (1-3)
<i>Agrostis stolonifera</i>	III (4-5)
<i>Festuca rubra</i>	III (2-3)

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**Additional species**

<i>Sphagnum fallax</i>	III (2)
<i>Sphagnum palustre</i>	II (4)
<i>Chiloscyphus pallescens</i>	II (2)
<i>Comarum palustre</i>	II (4)
<i>Eriophorum angustifolium</i>	II (3)
<i>Juncus bulbosus</i>	II (2)
<i>Luzula sylvatica</i>	II (2)
<i>Myosotis scorpioides</i>	II (2)
<i>Pellia</i> sp.	II (2)
<i>Ranunculus flammula</i>	II (1)
<i>Sphagnum denticulatum</i>	II (4)
<i>Stellaria alsine</i>	II (2)

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**M29**

<i>Sphagnum denticulatum</i>	5
<i>Potamogeton polygonifolius</i>	4
<i>Juncus bulbosus</i>	3
<i>Ranunculus flammula</i>	+

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<i>Anagallis tenella</i>	4
<i>Apium inundatum</i>	4
<i>Molinia caerulea</i>	3
<i>Eriophorum angustifolium</i>	3
<i>Carex nigra</i>	3
<i>Narthecium ossifragum</i>	3
<i>Viola palustris</i>	3
<i>Potentilla erecta</i>	3
<i>Erica tetralix</i>	2
<i>Succisa pratensis</i>	2
<i>Carex echinata</i>	+

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**Additional species**

<i>Sphagnum subnitens</i>	4
<i>Empetrum nigrum nigrum</i>	2
<i>Sphagnum palustre</i>	2
<i>Trichophorum germanicum</i>	2
<i>Cirsium palustre</i>	+
<i>Juncus conglomeratus</i>	+

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**M32**

<i>Philonotis fontana</i>	9
<hr/>	
<i>Juncus bulbosus</i>	5
<hr/>	
<i>Calliergonella cuspidata</i>	5
<i>Carex echinata</i>	3
<i>Epilobium palustre</i>	3
<i>Ranunculus flammula</i>	3
<i>Anthoxanthum odoratum</i>	1
<i>Cardamine pratensis</i>	1
<i>Juncus effusus</i>	+
<i>Ranunculus acris</i>	+
<hr/>	
<i>Dicranella palustris</i>	2
<hr/>	
<b>Additional species</b>	
<i>Hydrocotyle vulgaris</i>	4
<i>Cirsium palustre</i>	3
<i>Holcus lanatus</i>	3
<i>Prunella vulgaris</i>	3
<i>Carex flacca</i>	2
<i>Carex lepidocarpa</i>	2
<i>Pellia</i> sp.	1
<i>Potentilla erecta</i>	1
<hr/>	

**S19**

<i>Eleocharis palustris</i>	9	9
<i>Myosotis laxa</i>		+
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<i>Mentha aquatica</i>	+	2
<hr/>		
<i>Juncus bulbosus</i>		+
<i>Potamogeton polygonifolius</i>	1	3
<hr/>		
<i>Agrostis stolonifera</i>	1	
<i>Ranunculus flammula</i>		3
<i>Caltha palustris</i>	1	2
<i>Carex nigra</i>	5	+
<hr/>		
<b>Additional species</b>		
<i>Anagallis tenella</i>		9
<i>Apium inundatum</i>	2	
<i>Calliergon cordifolium</i>		2
<i>Calliergonella cuspidata</i>		3
<i>Carex flacca</i>		2
<i>Chiloscyphus polyanthos</i>		3
<i>Comarum palustre</i>	1	
<i>Eleogiton fluitans</i>	3	
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**SD17**

<b>Sub-community (c or d)</b>	<b>c</b>	<b>d</b>	<b>SD17</b>
<i>Carex nigra</i>	V (5-9)	8	V (5-8)
<i>Potentilla anserina</i>	V (2-5)	5	V (2-5)
<i>Agrostis stolonifera</i>	III (3-5)	2	III (2-5)
<i>Calliergonella cuspidata</i>	III (1-3)	3	III (1-3)
<i>Festuca rubra</i>	IV (1-4)	+	III (1-4)
<i>Ranunculus repens</i>	II (3)		II (3)
<i>Trifolium repens</i>	II (1)	1	II (1)
<i>Holcus lanatus</i>	V (3)	3	V (3)
<i>Epilobium palustre</i>	V (2-3)	3	V (2-3)
<i>Caltha palustris</i>	V (3-5)		IV (3-5)
<i>Silene flos-cuculi</i>	III (1)		II (1)
<i>Rumex acetosa</i>	II (4)		I (4)
<i>Poa trivialis</i>	II (2)		I (2)
<i>Anthoxanthum odoratum</i>	II (1)		I (1)
<i>Scorzoneroides autumnalis</i>		+	
<i>Galium palustre</i>	IV (3-4)	3	IV (3-4)
<i>Mentha aquatica</i>	IV (3-5)		III (3-5)
<i>Eleocharis palustris</i>	IV (3-5)		III (3-5)
<i>Hydrocotyle vulgaris</i>	III (2-4)	4	III (2-4)
<i>Ranunculus flammula</i>		3	I (3)
<i>Salix repens</i>		5	I (5)
<i>Eriophorum angustifolium</i>	III (3)	3	III (3)
<i>Comarum palustre</i>	III (1-5)	1	III (1-5)
<i>Cardamine pratensis</i>	II (2)		I (2)
<b>Additional species</b>			
<i>Ranunculus acris</i>	IV (2-3)		III (2-3)
<i>Juncus conglomeratus</i>	III (2-4)		II (2-4)
<i>Cirsium palustre</i>	III (1)		II (1)
<i>Deschampsia cespitosa</i>	III (1)		II (1)
<i>Triglochin palustris</i>	II (2)		I (2)
<i>Aneura pinguis</i>		2	I (2)
<i>Montia fontana</i>	II (2)		I (2)
<i>Kindbergia praelonga</i>	II (1)		I (1)
<i>Luzula multiflora</i>	II (1)		I (1)
<i>Potamogeton polygonifolius</i>	II (1)		I (1)

**MC8e**

<i>Festuca rubra</i>	5
<i>Armeria maritima</i>	3
<i>Agrostis stolonifera</i>	3

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<i>Plantago coronopus</i>	5
<i>Plantago maritima</i>	5
<i>Trichostomum brachyodontium</i>	3
<i>Kindbergia praelonga</i>	2

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<i>Cochlearia officinalis</i>	+
<i>Cerastium fontanum</i>	1

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**Additional species**

<i>Euphrasia foulaensis</i>	3
<i>Sagina procumbens</i>	1

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**MC9a****a**

<i>Festuca rubra</i>	6
<i>Armeria maritima</i>	5
<i>Plantago lanceolata</i>	4
<i>Holcus lanatus</i>	2

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<i>Plantago maritima</i>	4
<i>Trifolium repens</i>	3
<i>Lotus corniculatus</i>	1

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<i>Rumex acetosa</i>	+
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<i>Achillea millefolium</i>	+
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<i>Ranunculus acris</i>	3
<i>Luzula campestris</i>	2
<i>Poa humilis</i>	1

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<i>Cerastium fontanum</i>	3
<i>Scorzoneroïdes autumnalis</i>	3
<i>Bellis perennis</i>	3
<i>Carex flacca</i>	2
<i>Cochlearia officinalis</i>	1
<i>Kindbergia praelonga</i>	1
<i>Aira praecox</i>	1

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**Additional species**

<i>Euphrasia foulaensis</i>	3
<i>Euphrasia foulaensis x marshallii</i>	3
<i>Plantago coronopus</i>	3

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**MC10b**

<i>Plantago maritima</i>	V (7-8)
<i>Festuca rubra</i>	V (4-7)
<i>Plantago lanceolata</i>	V (3-5)
<i>Agrostis stolonifera</i>	V (1-3)
<i>Plantago coronopus</i>	III (1-3)

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<i>Armeria maritima</i>	II (1)
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<i>Carex panicea</i>	V (5-8)
<i>Euphrasia</i> spp.	V (2-4)
<i>Scorzonerooides autumnalis</i>	V (1-4)
<i>Bellis perennis</i>	III (1-4)
<i>Ranunculus acris</i>	II (3)
<i>Sagina procumbens</i>	II (3)
<i>Lotus corniculatus</i>	II (2)
<i>Thymus polytrichus</i>	II (1)
<i>Luzula campestris</i>	II (1)

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<i>Potentilla erecta</i>	III (1-3)
<i>Anagallis tenella</i>	II (1)

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<i>Prunella vulgaris</i>	IV (1-3)
<i>Scilla verna</i>	III (2-3)
<i>Trifolium repens</i>	II (3)
<i>Cerastium fontanum</i>	II (1)
<i>Empetrum nigrum nigrum</i>	II (1)

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**Additional species**

<i>Carex flacca</i>	IV (1-3)
<i>Carex pulicaris</i>	II (3)
<i>Coeloglossum viride</i>	II (2)
<i>Kindbergia praelonga</i>	II (2)
<i>Rhytidadelphus squarrosus</i>	II (1)

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**SM16b**

<i>Juncus gerardii</i>	9	9
<i>Glaux maritima</i>	6	3
<i>Agrostis stolonifera</i>	3	5
<i>Festuca rubra</i>	1	3
<hr/>		
<i>Triglochin maritima</i>	+	
<hr/>		
<i>Atriplex prostrata</i> agg.	1	1
<hr/>		
<i>Scorzoneroides autumnalis</i>		+
<hr/>		
<i>Cerastium fontanum</i>		1
<i>Potentilla anserina</i>	+	
<hr/>		
<b>Additional species</b>		
<i>Poa trivialis</i>	1	1
<hr/>		

**U4**

Sub-community (a, b or d)	a	b	d	U4
<i>Agrostis capillaris</i>	7	V (4-6)	V (2-6)	V (2-7)
<i>Potentilla erecta</i>	5	IV (2-5)	V (3-5)	V (2-5)
<i>Anthoxanthum odoratum</i>	4	V (4-7)	V (1-5)	V (1-7)
<i>Galium saxatile</i>	5	III (1-5)	III (4)	III (1-5)
<i>Festuca ovina</i> agg.	5			I (5)
<i>Holcus lanatus</i>	3	V (4-5)	V (4-6)	V (3-6)
<i>Cerastium fontanum</i>	1	IV (1-3)	II (1)	III (1-3)
<i>Trifolium repens</i>	3	IV (2-5)		III (2-5)
<i>Poa pratensis</i> agg.	1	III (1-3)	III (2-3)	III (1-3)
<i>Achillea millefolium</i>	1	II (1-2)		II (1-2)
<i>Prunella vulgaris</i>		I (2)		I (2)
<i>Taraxacum officinale</i> agg.		I (1)		I (1)
<i>Deschampsia cespitosa</i>			V (5-7)	II (5-7)
<i>Lotus corniculatus</i>	4	II (1-4)		II (1-4)
<i>Luzula multiflora</i>	+	II (3-4)	II (3)	II (3-4)
<i>Thuidium tamariscinum</i>			II (4)	I (4)
<i>Viola palustris</i>		I (2)		I (2)
<i>Blechnum spicant</i>			II (1)	I (1)
<i>Deschampsia flexuosa</i>		I (4)	II (2)	I (2-4)
<i>Nardus stricta</i>	1			I (1)
<i>Rhynchospora squarrosus</i>	+	V (4-8)	V (2-4)	V (2-8)
<i>Rumex acetosa</i>	3	IV (2-5)	V (5-7)	V (2-7)
<i>Festuca rubra</i>	4	II (3-6)	V (3-4)	IV (3-6)
<i>Hylocomium splendens</i>	2	II (3-5)	IV (1-7)	III (1-7)
<i>Viola riviniana</i>	3	II (3)	II (1)	II (1-3)
<i>Pseudoscleropodium purum</i>		I (3)	III (2-5)	II (2-5)
<i>Ranunculus acris</i>	+	III (2)		II (2)
<i>Luzula campestris</i>	2	II (1-2)		II (1-2)
<i>Plantago lanceolata</i>		III (2-3)		II (2-3)
<i>Juncus effusus</i>		I (2)	II (6)	I (2-6)
<i>Euphrasia officinalis</i> agg.	1	I (2)		I (1-2)
<i>Calluna vulgaris</i>	1		II (1)	I (1)
<i>Rhynchospora triquetrus</i>	2		II (6)	I (2-6)
<i>Hypnum cupressiforme</i> s.l.	6			I (6)
<i>Agrostis vinealis</i>		I (4)		I (4)
<i>Veronica officinalis</i>		I (1)		I (1)
<i>Polytrichum commune</i>			II (1)	I (1)
<b>Additional Species</b>				
<i>Cirsium palustre</i>	2	III (1-4)	II (3)	III (1-4)
<i>Epilobium palustre</i>		I (2)	IV (3)	II (2-3)
<i>Juncus conglomeratus</i>			II (3)	I (3)
<i>Carex pulicaris</i>	3			I (3)
<i>Dryopteris dilatata</i>			II (3)	I (2)
<i>Eriophorum angustifolium</i>		I (2)		I (2)

<i>Geum rivale</i>		I (1)	I (1)
<i>Dactylorhiza maculata ericetorum</i>	1		I (1)

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**U5**

<b>Sub-community (a or c)</b>	<b>a</b>	<b>c</b>	<b>c</b>	<b>U5</b>
<i>Nardus stricta</i>	5	4	5	V (4-5)
<i>Potentilla erecta</i>	2	5	3	V (2-5)
<i>Festuca ovina</i> agg.	5	5		IV (5)
<i>Agrostis capillaris</i>	4	4	5	V (4-5)
<i>Rhynchospora squarrosus</i>	8	3	4	V (3-8)
<i>Galium saxatile</i>	4		3	IV (3-4)
<hr/>				
<i>Deschampsia flexuosa</i>	4			II (4)
<hr/>				
<i>Polytrichum commune</i>			2	II (2)
<i>Luzula multiflora</i>		3		II (3)
<hr/>				
<i>Carex panicea</i>		3	2	IV (2-3)
<i>Scorzoneroides autumnalis</i>		3	2	IV (2-3)
<i>Ranunculus acris</i>		3		II (3)
<i>Calliergonella cuspidata</i>		3		II (3)
<i>Trifolium repens</i>		3		II (3)
<i>Viola riviniana</i>			3	II (3)
<i>Trifolium repens</i>			3	II (3)
<i>Plantago lanceolata</i>			3	II (3)
<i>Cerastium fontanum</i>	2			II (2)
<i>Festuca rubra</i>			2	II (2)
<i>Thuidium tamariscinum</i>			2	II (2)
<i>Carex pulicaris</i>			1	II (1)
<hr/>				
<i>Pseudoscleropodium purum</i>		3	4	IV (3-4)
<i>Calluna vulgaris</i>			2	II (2)
<i>Danthonia decumbens</i>		2		II (2)
<i>Erica tetralix</i>		1		II (1)
<hr/>				
<i>Empetrum nigrum</i>			3	II (3)
<i>Molinia caerulea</i>		1		II (1)
<hr/>				
<i>Anthoxanthum odoratum</i>	4	3	5	V (3-5)
<i>Hylocomium splendens</i>	2		7	IV (2-7)
<i>Juncus squarrosus</i>	4		4	IV (4)
<i>Carex nigra</i>		4		II (4)
<i>Erica cinerea</i>	4			II (4)
<i>Deschampsia cespitosa</i>		3		II (3)
<i>Dicranum scoparium</i>	2			II (2)
<hr/>				
<b>Additional Species</b>				
<i>Holcus lanatus</i>		3	2	IV (2-3)
<i>Juncus conglomeratus</i>		5		II (5)
<i>Cirsium palustre</i>		4		II (4)
<i>Taraxacum officinale</i> agg.		4		II (4)
<i>Cynosurus cristatus</i>		3		II (3)
<i>Dactylorhiza maculata</i>		3		II (3)
<i>Prunella vulgaris</i>		3		II (3)
<i>Euphrasia officinalis</i> agg.		3		II (3)

<i>Calypogeia fissa</i>		2		II (2)
<i>Carex echinata</i>		2		II (2)
<i>Carex flacca</i>		2		II (2)
<i>Pedicularis sylvatica</i>		2		II (2)
<i>Cirsium palustre</i>			2	II (2)
<i>Poa humilis</i>		1		II (1)
<i>Silene flos-cuculi</i>		1		II (1)
<i>Aulacomnium palustre</i>	1			II (1)
<i>Thymus polytrichus</i>			+	

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**U6**

<b>Sub-community</b>	<b>c</b>	<b>d</b>	<b>d</b>	<b>U6</b>
<i>Juncus squarrosus</i>	8	5	7	V (5-8)
<i>Polytrichum commune</i>	4		2	IV (2-4)
<i>Festuca ovina</i> agg.		5	5	IV (5)
<i>Agrostis canina</i> agg.	3		2	IV (2-3)
<i>Eriophorum angustifolium</i>	2			II (2)
<i>Eriophorum vaginatum</i>	+			
<i>Plagiothecium undulatum</i>	3	2	2	V (2-3)
<i>Deschampsia flexuosa</i>	3	3	3	V (3)
<i>Rhytidiadelphus loreus</i>	3			II (3)
<i>Vaccinium myrtillus</i>	1			II (1)
<i>Hylocomium splendens</i>		5	4	IV (4-5)
<i>Anthoxanthum odoratum</i>		5	2	IV (2-5)
<i>Agrostis capillaris</i>		4	4	IV (4)
<i>Rhytidiadelphus squarrosus</i>		4	3	IV (3-4)
<i>Luzula multiflora</i>		3	3	IV (3)
<i>Nardus stricta</i>	1	4		IV (1-4)
<i>Galium saxatile</i>	3	2		IV (2-3)
<i>Hypnum cupressiforme</i>		4		II(4)
<i>Potentilla erecta</i>	4	5	6	V (4-6)
<i>Calluna vulgaris</i>	+			
<b>Additional species</b>				
<i>Luzula sylvatica</i>	4		+	II (4)
<i>Molinia caerulea</i>		2		II (2)
<i>Blechnum spicant</i>	1			II (1)
<i>Mnium hornum</i>			1	II (1)
<i>Sphagnum inundatum</i>	1			II (1)
<i>Dryopteris dilatata</i>			+	

**MG5**

<i>Festuca rubra</i>	6	6
<i>Lotus corniculatus</i>	4	4
<i>Plantago lanceolata</i>	4	4
<i>Holcus lanatus</i>	4	4
<i>Anthoxanthum odoratum</i>	4	4
<i>Trifolium repens</i>	3	3
<i>Agrostis capillaris</i>	3	3
<i>Cynosurus cristatus</i>	4	
<hr/>		
<i>Bellis perennis</i>	4	4
<i>Lathyrus pratensis</i>		4
<hr/>		
<i>Achillea millefolium</i>	3	+
<i>Carex flacca</i>	2	2
<hr/>		
<i>Scorzoneroides autumnalis</i>	4	4
<i>Prunella vulgaris</i>	3	3
<i>Luzula campestris</i>	3	3
<i>Potentilla erecta</i>	2	
<hr/>		
<i>Ranunculus acris</i>	4	4
<i>Rumex acetosa</i>	3	1
<i>Cerastium fontanum</i>	1	2
<i>Taraxacum officinale</i> agg.	1	
<i>Rhynchospora squarrosus</i>		1
<i>Alchemilla glabra</i>		+
<hr/>		
<b>Additional species</b>		
<i>Euphrasia confusa</i>	5	6
<i>Viola riviniana</i>	3	3
<i>Carex pulicaris</i>	3	1
<i>Plantago maritima</i>	2	+
<i>Thymus polytrichus</i>	3	
<i>Linum catharticum</i>		1
<i>Cirsium palustre</i>	1	
<i>Persicaria vivipara</i>		+
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**MG9a**

<i>Deschampsia cespitosa</i>	7
<i>Holcus lanatus</i>	3

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<i>Anthoxanthum odoratum</i>	3
<i>Poa trivialis</i>	1
<i>Ranunculus acris</i>	1
<i>Kindbergia praelonga</i>	1
<i>Calliergonella cuspidata</i>	1
<i>Trifolium repens</i>	+
<i>Senecio aquaticus</i>	+

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<i>Potentilla anserina</i>	6
<i>Rumex acetosa</i>	5
<i>Festuca rubra</i>	4
<i>Agrostis stolonifera</i>	2
<i>Potentilla erecta</i>	1

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**Additional species**

<i>Mentha aquatica</i>	1
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**MG11a**

<i>Potentilla anserina</i>	8
<i>Agrostis stolonifera</i>	3
<i>Festuca rubra</i>	3

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<i>Holcus lanatus</i>	5
<i>Ranunculus repens</i>	1

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<i>Rumex acetosa</i>	5
<i>Poa trivialis</i>	3
<i>Elytrigia repens</i>	2
<i>Cerastium fontanum</i>	1
<i>Urtica dioica</i>	1
<i>Cerastium fontanum</i>	+
<i>Ranunculus acris</i>	+

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**Additional species**

<i>Iris pseudacorus</i>	3
<i>Calliergonella cuspidata</i>	1
<i>Kindbergia praelonga</i>	1

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CG10	a	b	CG10
<i>Festuca ovina</i> agg.	4	V (3-7)	V (3-7)
<i>Viola riviniana</i>	3	V (3-4)	V (3-4)
<i>Plantago lanceolata</i>	3	V (3-4)	V (3-4)
<i>Festuca rubra</i>	3	V (2-8)	V (2-8)
<i>Thymus polytrichus</i>	4	V (1-5)	V (1-5)
<i>Prunella vulgaris</i>		IV 2-3)	IV 2-3)
<i>Potentilla erecta</i>	3	III (3-5)	III (3-5)
<i>Agrostis capillaris</i>	4	III (3-4)	III (3-4)
<i>Hylocomium splendens</i>		III (1-2)	III (1-2)
<i>Holcus lanatus</i>	4	V (2-4)	V (2-4)
<i>Anthoxanthum odoratum</i>	4	V (1-5)	V (1-5)
<i>Trifolium repens</i>	4	IV (2-4)	IV (2-4)
<i>Rhynchospora squarrosa</i>	8	IV (1-8)	IV (1-8)
<i>Luzula campestris</i>		III (1-2)	III (1-2)
<i>Cerastium fontanum</i>		III (1)	III (1)
<i>Agrostis vinealis</i>	3	I (1-3)	II (1-3)
<i>Dicranum scoparium</i>		II (1-3)	II (1-3)
<i>Rumex acetosa</i>	3		I (3)
<i>Galium saxatile</i>	2		I (2)
<i>Achillea millefolium</i>	2		I (2)
<i>Carex pulicaris</i>		V (2-3)	V (2-3)
<i>Carex flacca</i>	1	V (1-4)	V (1-4)
<i>Carex panicea</i>		IV (3-4)	IV (3-4)
<i>Succisa pratensis</i>		IV (1-5)	IV (1-5)
<i>Linum catharticum</i>		I (3)	I (3)
<i>Cirsium palustre</i>	2	V (1-3)	V (1-3)
<i>Thalictrum alpinum</i>		III (3-4)	III (3-4)
<i>Plantago maritima</i>		III (1-5)	III (1-5)
<i>Primula vulgaris</i>		I (4)	I (4)
<i>Ctenidium molluscum</i>		I (1)	I (1)
<i>Calluna vulgaris</i>	1	V (1-4)	V (1-4)
<i>Rhynchospora triquetra</i>		IV (1-4)	IV (1-4)
<i>Deschampsia cespitosa</i>	4	III (4)	III (4)
<i>Galium sternerii</i>		III (2-3)	III (2-3)
<i>Ranunculus acris</i>		III (2-3)	III (2-3)
<i>Pseudoscleropodium purum</i>		III 1-5)	III 1-5)
<i>Lotus corniculatus</i>		III (1-3)	III (1-3)
<i>Luzula multiflora</i>		III (1-3)	III (1-3)
<i>Poa pratensis</i> agg.	2	II (2)	III (1-2)
<i>Empetrum nigrum nigrum</i>		II (3)	II (3)
<i>Euphrasia officinalis</i> agg.		II (2)	II (2)
<i>Cynosurus cristatus</i>	2	I (2)	II (2)
<i>Danthonia decumbens</i>		II (1-2)	II (1-2)
<i>Nardus stricta</i>		II (1-2)	II (1-2)
<i>Luzula sylvatica</i>		I (5)	I (5)
<i>Hypnum lacunosum</i>	4		I (4)
<i>Thuidium tamariscinum</i>		I (3)	I (3)

<i>Vaccinium myrtillus</i>		I (3)	I (3)
<i>Euphrasia confusa</i>		I (3)	I (3)
<i>Dactylis glomerata</i>	1		I (1)
<i>Avenula pratensis</i>	+		

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**Additional species**

<i>Salix repens</i>		IV (2-3)	IV (2-3)
<i>Taraxacum officinale</i> agg.		III (1-3)	III (1-3)
<i>Agrostis stolonifera</i>		I (4)	I (4)
<i>Carex hostiana</i>		I (4)	I (4)
<i>Dicranum majus</i>		I (3)	I (3)
<i>Avenula pubescens</i>		I (3)	I (3)
<i>Hydrocotyle vulgaris</i>		I (3)	I (3)
<i>Isoetes myosuroides</i>		I (2)	I (2)
<i>Hypnum cupressiforme</i>	4		I (2)
<i>Hypnum jutlandicum</i>	2		I (2)

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**U16**

<b>Community and variant (U16 &amp; U16x)</b>	<b>U16</b>	<b>U16x</b>	<b>U16x</b>	<b>U16</b>
<i>Luzula sylvatica</i>	V (7-10)	8	1	V (1-10)
<i>Deschampsia flexuosa</i>	IV (1-7)	2	1	V (1-7)
<i>Vaccinium myrtillus</i>	II (1-3)			II (1-3)
<i>Galium saxatile</i>		2		I (2)
<i>Deschampsia cespitosa</i>	II (1-5)	4	5	III (1-5)
<i>Dryopteris dilatata</i>	II 2-4)	5	5	III (2-5)
<i>Athyrium felix-femina</i>	II (1-4)	7	9	II (1-9)
<i>Thuidium tamariscinum</i>		2		I (2)
<i>Mnium hornum</i>	I (1)			I (1)
<i>Plagiothecium undulatum</i>	I (1)			I (1)
<i>Potentilla erecta</i>	V (2-5)	5	3	V (2-5)
<i>Calluna vulgaris</i>	III (1-4)	2	1	IV (1-4)
<i>Rhytidiadelphus squarrosus</i>	III (2-3)	2	3	III (2-3)
<i>Hylocomium splendens</i>	II (3-7)	1	2	II (1-7)
<i>Agrostis capillaris</i>	II (2-5)		3	II (2-5)
<i>Festuca ovina/vivipara</i>	I (3)			I (3)
<i>Anthoxanthum odoratum</i>	I (2)			I (2)
<i>Carex binervis</i>	I (2)			I (2)
<i>Dicranum scoparium</i>	I (2)			I (2)
<i>Juncus squarrosus</i>	I (2)			I (2)
<i>Pseudoscleropodium purum</i>		1	2	I (1-2)
<i>Rumex acetosa</i>	II (2-5)	4	4	III (2-5)
<i>Agrostis canina</i> agg.	II (3-4)	3	-	II (3-4)
<i>Blechnum spicant</i>	II (1-4)	4	2	II (1-4)
<i>Carex nigra</i>	I (1)			I (1)
<i>Festuca rubra</i>	I (2)			I (2)
<i>Rhytidiadelphus loreus</i>		1		I (1)
<b>Additional species</b>				
<i>Agrostis vinealis</i>	III (3-4)			II (3-4)
<i>Juncus conglomeratus</i>	II (1-2)	3		II (1-3)
<i>Geum rivale</i>	I (8)		2	I (2-8)
<i>Epilobium palustre</i>	I (3)			I (3)
<i>Equisetum arvense</i>	I (3)			I (3)
<i>Carex flacca</i>	I (3)			I (3)
<i>Holcus lanatus</i>	I (2)			I (2)
<i>Calypogeia fissa</i>	I (2)			I (2)
<i>Equisetum sylvaticum</i>	I (2)			I (2)
<i>Eriophorum vaginatum</i>	I (2)			I (2)
<i>Cirsium palustre</i>	I (1)	+		I (1)
<i>Juncus effusus</i>	I (1)		3	I (1)
<i>Salix aurita</i>	I (1)			I (1)
<i>Kindbergia praelonga</i>			2	I (2)

**U20b**

<i>Pteridium aquilinum</i>	V (9-10)
<i>Potentilla erecta</i>	IV (2-4)
<i>Galium saxatile</i>	II (2)

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<i>Hylocomium splendens</i>	V (1-7)
<i>Rumex acetosa</i>	V (2-5)
<i>Holcus lanatus</i>	II (2)

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<i>Deschampsia flexuosa</i>	V (3-5)
<i>Calluna vulgaris</i>	IV (4-5)

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<i>Rhytiadelphus squarrosus</i>	III (2-5)
<i>Rhytiadelphus loreus</i>	III (3)
<i>Pseudoscleropodium purum</i>	II (2)
<i>Luzula multiflora</i>	II (1)

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**Additional species**

<i>Hypnum jutlandicum</i>	III (4-5)
<i>Rhytiadelphus triquetrus</i>	II (7)
<i>Agrostis vinealis</i>	II (4)
<i>Deschampsia cespitosa</i>	II (4)
<i>Kindbergia praelonga</i>	II (2)
<i>Luzula pilosa</i>	II (2)

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**OV27**

<i>Chamerion angustifolium</i>	10	10
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<i>Dryopteris dilatata</i>	5	5
<i>Rhytiadelphus squarrosus</i>	4	3
<i>Rumex acetosa</i>	4	1
<i>Agrostis capillaris</i>	2	
<i>Athyrium felix-femina</i>		7
<i>Blechnum spicant</i>	1	
<i>Calluna vulgaris</i>	4	
<i>Deschampsia flexuosa</i>	2	
<i>Erica cinerea</i>	4	
<i>Kindbergia praelonga</i>		4
<i>Pseudoscleropodium purum</i>		2
<i>Thuidium tamariscinum</i>		5

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**W23**

<i>Ulex europaeus</i>	9
<i>Rubus fruticosus</i> agg.	5
<i>Fuchsia magellanica</i>	1
<hr/>	
<i>Agrostis capillaris</i>	3
<i>Holcus lanatus</i>	3
<i>Kindbergia praelonga</i>	5
<i>Rhynchospora squarrosa</i>	2
<hr/>	
<i>Potentilla erecta</i>	4
<hr/>	
<i>Rumex acetosa</i>	3
<i>Digitalis purpurea</i>	2
<hr/>	
<b>Additional species</b>	
<i>Dryopteris dilatata</i>	4
<i>Hypnum jutlandicum</i>	3
<i>Blechnum spicant</i>	2
<i>Urtica dioica</i>	2
<i>Athyrium filix-femina</i>	1
<hr/>	

**Sxa**

<i>Salix aurita</i>	V (10)
<hr/>	
<i>Athyrium felix-femina</i>	IV (1-4)
<i>Luzula sylvatica</i>	V (1-7)
<i>Potentilla erecta</i>	V (1-4)
<i>Rumex acetosa</i>	V (3-4)
<hr/>	
<i>Cirsium palustre</i>	III (1-2)
<i>Deschampsia cespitosa</i>	III (3-4)
<i>Dryopteris dilatata</i>	III (2-5)
<i>Filipendula ulmaria</i>	III (2-3)
<i>Holcus lanatus</i>	III (2)
<i>Juncus effusus</i>	III (3-4)
<i>Kindbergia praelonga</i>	III (4-5)
<i>Lophocolea bidentata</i>	III (3-5)
<i>Thuidium tamariscinum</i>	III (2-3)
<hr/>	
<i>Agrostis canina</i> agg.	II (2)
<i>Angelica sylvestris</i>	II (1)
<i>Anthoxanthum odoratum</i>	II (1)
<i>Blechnum spicant</i>	II (2)
<i>Calluna vulgaris</i>	II (1)
<i>Caltha palustris</i>	II (2)
<i>Cardamine pratensis</i>	II (2)
<i>Carex echinata</i>	II (1)
<i>Epilobium palustre</i>	II (1)
<i>Equisetum sylvaticum</i>	II (2)
<i>Galium palustre</i>	II (1)
<i>Geum rivale</i>	II (1)
<i>Hypnum cupressiforme</i>	II (3)
<i>Mnium hornum</i>	II (2)
<i>Polytrichum commune</i>	II (3)
<i>Pseudoscleropodium purum</i>	II (2)
<i>Pteridium aquilinum</i>	II (1)
<i>Ranunculus acris</i>	II (1)
<i>Rhytiadelphus loreus</i>	II (1)
<i>Rhytiadelphus squarrosus</i>	II (3)
<i>Riccardia</i> sp.	II (1)
<i>Viola palustris</i>	II (2)

## ANNEX 2: TARGET NOTES

The Target Notes are presented in the table below. For details of surveyor, grid reference, date and photograph number (if applicable) in Excel File (see Annex 4).

UID	Place	Note
T1	Faraclett Stinkanie Geo, nr Sacquoy	Erosion 'pans' in heath with <i>Radiola linoides</i>
T2	Head	<i>Aster tripolium</i> on cliff ledges
T3	Brings	Dried-up pool with <i>Rorippa islandica</i>
T4	Brae of Moan	<i>Primula scotica</i>
T5	Brae of Moan	<i>Primula scotica</i>
T6	Faraclett	<i>Primula scotica</i> . 44 plants, of which 6 flowering. North facing flushed slope
T7	Quendal, nr burnt mound	<i>Euphrasia foulaensis x marshallii</i> . On rocky shore/maritime grassland edge
T8	Brae of Moan	<i>Primula scotica</i> . More than 1000 plants, many flowering
T9	Quendal	<i>Gentianella campestris</i> in CG10b grassland
T10	Quendal	Heath with 90% dead <i>Calluna</i> extensive in this area. Shallow loch with poor aquatic flora but abundant <i>Anagallis tenella</i> round edge. Signs of eutrophication by geese.
T11	Loch of Moan N slope of	
T12	Kierfea	<i>Hymenophyllum wilsonii</i>
T13	NW of summit of Kierfea	<i>Arctostaphylos alpinus</i> . Occasional nearby and at 342259 1032152
T14	SW of Withamo	<i>Arctostaphylos alpinus</i> . Frequent in patch 10m x 15m
T15	Knitchen Hill	Occasional <i>Salix herbacea</i> in H10b heath Herb and fern-rich ledges with <i>Asplenium adiantum-nigrum</i> , <i>A. trichomanes</i> , <i>Polypodium vulgare</i> , <i>Armeria maritima</i> & <i>Plantago maritima</i>
T16	Ward Hill	<i>Calliergon giganteum</i> in M9 mire with <i>Potamogeton polygonifolius</i> , <i>Comarum palustre</i> , <i>Epilobium palustre</i> and <i>Galium palustre</i>
T17	Border near Hillycliff	Four patches of <i>Arctostaphylos alpinus</i> in H10b with abundant <i>Calluna</i> , <i>Empetrum nigrum</i> , <i>Racomitrium lanuginosum</i> , frequent <i>Deschampsia flexuosa</i> & <i>Erica cinerea</i> and occasional <i>Salix herbacea</i> , <i>Vaccinium myrtillus</i> and <i>V. vitis-idaea</i> .
T18	Blotchnie Field	
T19	Blotchnie Field	Vehicle tracks in fragile <i>Cladonia</i> -rich M19b blanket bog
T20	Blotchnie Field	<i>Equisetum sylvaticum</i> abundant in U16
	Lochan (no name - near	
T21	Flanders Moss)	Fringe of <i>Eleocharis palustris</i> (S19)
T22	Muckle Water	<i>Rubus spectabilis</i> scrub and bracken <i>Pyrola rotundifolia</i> in M19b blanket bog >100 rosettes in 15m x 15m area
T23	Blotchnie Field	
T24	Knitchen Hill	<i>Geum rivale</i> abundant in rush pasture (M23)
T25	Quendal	Unidentified M9-related mire community. Quadrat ref. 197

### ANNEX 3: SPECIES LIST

A species list of vascular plants, bryophytes and lichens encountered within the SSSI is provided. Those species marked by an asterisk are unconfirmed. The list of bryophytes and lichens is not exhaustive.

#### Vascular Plants

<i>Achillea millefolium</i>	Yarrow
<i>Achillea ptarmica</i>	Sneezewort
<i>Agrostis capillaris</i>	Common Bent
<i>Agrostis stolonifera</i>	Creeping Bent
<i>Agrostis vinealis</i>	Brown Bent
<i>Aira praecox</i>	Early Hair-grass
<i>Alchemilla filicaulis</i> subsp. <i>vestita</i>	Common Lady's mantle
<i>Alchemilla glabra</i>	Smooth Lady's-mantle
<i>Alopecurus geniculatus</i>	Marsh Foxtail
<i>Anagallis tenella</i>	Bog Pimpernel
<i>Angelica sylvestris</i>	Wild Angelica
<i>Antennaria dioica</i>	Mountain Everlasting
<i>Apium inundatum</i>	Lesser Marshwort
<i>Arctostaphylos alpinus</i>	Alpine Bearberry
<i>Armeria maritima</i>	Thrift
<i>Asplenium adiantum-nigrum</i>	Black spleenwort
<i>Asplenium trichomanes</i>	Maidenhair Spleenwort
<i>Aster tripolium</i>	Sea Aster
<i>Athyrium filix-femina</i>	Lady-fern
<i>Atriplex prostrata</i> agg.	
<i>Avenula pratensis</i>	Meadow Oat Grass
<i>Avenula pubescens</i>	Downy Oat-grass
<i>Bellis perennis</i>	Daisy
<i>Blechnum spicant</i>	Hard-fern
<i>Callitriche stagnalis</i>	Common Water-starwort
<i>Calluna vulgaris</i>	Heather
<i>Caltha palustris</i>	Marsh-marigold
<i>Cardamine flexuosa</i>	Wavy Bitter-cress
<i>Cardamine pratensis</i>	Cuckooflower
<i>Carex binervis</i>	Green-ribbed Sedge
<i>Carex demissa</i>	Common Yellow-sedge
<i>Carex dioica</i>	Dioecious Sedge
<i>Carex echinata</i>	Star Sedge
<i>Carex flacca</i>	Glaucous Sedge
<i>Carex hostiana</i>	Tawny Sedge
<i>Carex lepidocarpa</i>	Long-stalked Yellow-sedge
<i>Carex leporine</i>	Oval Sedge
<i>Carex nigra</i>	Common Sedge
<i>Carex oederi</i>	Small-fruited Yellow-sedge
<i>Carex panicea</i>	Carnation Sedge
<i>Carex pilulifera</i>	Pill Sedge
<i>Carex pulicaris</i>	Flea Sedge
<i>Cerastium diffusum</i>	Sea Mouse-ear
<i>Cerastium fontanum</i> subsp. <i>vulgare</i>	Common Mouse-ear
<i>Chamerion angustifolia</i>	Rosebay Willowherb
<i>Cirsium arvense</i>	Creeping Thistle

<i>Cirsium palustre</i>	Marsh Thistle
<i>Cirsium vulgare</i>	Spear Thistle
<i>Cochlearia officinalis</i>	Common Scurvygrass
<i>Coeloglossum viride</i>	Frog Orchid
<i>Comarum palustre</i>	Marsh Cinquefoil
<i>Cynosurus cristatus</i>	Crested Dog's-tail
<i>Dactylis glomerata</i>	Cock's-foot
<i>Dactylorhiza maculata</i> subsp. <i>ericetorum</i>	Heath Spotted-orchid
<i>Dactylorhiza purpurella</i>	Northern Marsh-orchid
<i>Danthonia decumbens</i>	Heath-grass
<i>Deschampsia cespitosa</i> subsp. <i>cespitosa</i>	Tufted Hair-grass
<i>Deschampsia flexuosa</i>	Wavy Hair-grass
<i>Digitalis purpurea</i>	Foxglove
<i>Drosera rotundifolia</i>	Round-leaved Sundew
<i>Dryopteris dilatata</i>	Broad Buckler-fern
<i>Dryopteris filix-mas</i>	Male-fern
<i>Eleocharis palustris</i>	Common Spike-rush
<i>Eleocharis quinqueflora</i>	Few-flowered Spike-rush
<i>Eleogiton fluitans</i>	Floating Club-rush
<i>Elytrigia repens</i>	Common Couch
<i>Empetrum nigrum</i> subsp. <i>nigrum</i>	Crowberry
<i>Epilobium palustre</i>	Marsh Willowherb
<i>Equisetum arvense</i>	Field Horsetail
<i>Equisetum fluviatile</i>	Water Horsetail
<i>Equisetum palustre</i>	Marsh Horsetail
<i>Equisetum sylvaticum</i>	Wood Horsetail
<i>Erica cinerea</i>	Bell Heather
<i>Erica tetralix</i>	Cross-leaved Heath
<i>Eriophorum angustifolium</i>	Common Cottongrass
<i>Eriophorum vaginatum</i>	Hare's-tail Cottongrass
<i>Euphrasia arctica</i>	Eyebright
<i>Euphrasia confusa</i>	Eyebright
<i>Euphrasia foulaensis</i>	Eyebright
<i>Euphrasia officinalis</i> agg.	Eyebright
<i>Euphrasia foulaensis</i> x <i>marshallii</i>	Eyebright
<i>Festuca filiformis</i>	Fine-leaved Sheep's-fescue
<i>Festuca rubra</i>	Red Fescue
<i>Festuca vivipara</i>	Viviparous Sheep's-fescue
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fuchsia magellanica</i>	Fuchsia
<i>Galium aparine</i>	Cleavers
<i>Galium palustre</i> subsp. <i>palustre</i>	Common Marsh-bedstraw
<i>Galium saxatile</i>	Heath Bedstraw
<i>Galium sternerii</i>	Limestone Bedstraw
<i>Galium verum</i>	Lady's Bedstraw
<i>Gentianella campestris</i>	Field Gentian
<i>Geum rivale</i>	Water Avens
<i>Glaux maritima</i>	Sea-milkwort
<i>Glyceria fluitans</i>	Floating Sweet-grass
<i>Gnaphalium uliginosum</i>	Marsh Cudweed
<i>Heracleum sphondylium</i>	Hogweed
<i>Hieracium</i> sp.	Hieracium
<i>Holcus lanatus</i>	Yorkshire-fog
<i>Huperzia selago</i>	Fir Clubmoss

<i>Hydrocotyle vulgaris</i>	Marsh Pennywort
<i>Hymenophyllum wilsonii</i>	Wilson's Filmy-fern
<i>Hypericum pulchrum</i>	Slender St John's-wort
<i>Hypochaeris radicata</i>	Cat's-ear
<i>Iris pseudacorus</i>	Yellow Iris
<i>Juncus acutiflorus</i>	Sharp-flowered rush
<i>Juncus articulatus</i>	Jointed Rush
<i>Juncus bufonius</i>	Toad Rush
<i>Juncus bulbosus</i>	Bulbous Rush
<i>Juncus conglomeratus</i>	Compact Rush
<i>Juncus effusus</i>	Soft-rush
<i>Juncus gerardii</i>	Saltmarsh Rush
<i>Juncus squarrosus</i>	Heath Rush
<i>Juncus x surrejanus</i>	
<i>Lathyrus pratensis</i>	Meadow Vetchling
<i>Linum catharticum</i>	Fairy Flax
<i>Listera cordata</i>	Lesser Twayblade
<i>Littorella uniflora</i>	Shoreweed
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil
<i>Luzula campestris</i>	Field Wood-rush
<i>Luzula multiflora</i>	Heath Wood-rush
<i>Luzula pilosa</i>	Hairy Wood-rush
<i>Luzula sylvatica</i>	Great Wood-rush
<i>Mentha aquatica</i>	Water Mint
<i>Menyanthes trifoliata</i>	Bogbean
<i>Molinia caerulea</i>	Purple Moor-grass
<i>Montia fontana</i>	Blinks
<i>Myosotis discolor</i>	Changing Forget-me-not
<i>Myosotis laxa</i>	Tufted Forget-me-not
<i>Myosotis scorpioides</i>	Water Forget-me-not
<i>Nardus stricta</i>	Mat-grass
<i>Narthecium ossifragum</i>	Bog Asphodel
<i>Orchis mascula</i>	Early Purple-orchid
<i>Parnassia palustris</i>	Grass-of-Parnassus
<i>Pedicularis palustris</i>	Marsh Lousewort
<i>Pedicularis sylvatica</i>	Lousewort
<i>Persicaria vivipara</i>	Alpine Bistort
<i>Phalaris arundinacea</i>	Reed Canary-grass
<i>Pinguicula vulgaris</i>	Common Butterwort
<i>Plantago coronopus</i>	Buck's-horn Plantain
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Plantago maritima</i>	Sea Plantain
<i>Poa annua</i>	Annual Meadow-grass
<i>Poa humilis</i>	Spreading Meadow-grass
<i>Poa trivialis</i>	Rough Meadow-grass
<i>Polygala serpyllifolia</i>	Heath Milkwort
<i>Polygala vulgaris</i>	Common Milkwort
<i>Polypodium vulgare</i>	Common Polypody
<i>Potamogeton polygonifolius</i>	Bog Pondweed
<i>Potentilla anserina</i>	Silverweed
<i>Potentilla erecta</i>	Tormentil
<i>Primula scotica</i>	Scottish Primrose
<i>Primula vulgaris</i>	Common Primrose
<i>Prunella vulgaris</i>	Selfheal

<i>Pteridium aquilinum</i>	Bracken
<i>Puccinellia distans</i> subsp. <i>borealis</i>	Northern Saltmarsh-grass
<i>Pyrola rotundifolia</i>	Round-leaved wintergreen
<i>Radiola linoides</i>	Allseed
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Ranunculus flammula</i>	Lesser Spearwort
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Ranunculus trichophyllus</i>	Thread-leaved Water-crowfoot
<i>Rhinanthus minor</i> subsp. <i>stenophyllus</i>	Yellow-rattle
<i>Rorippa islandica</i>	Northern Yellow-cress
<i>Rosa</i> sp.	Rose
<i>Rubus fruticosus</i> agg.	Bramble
<i>Rubus spectabilis</i>	Salmonberry
<i>Rumex acetosa</i>	Common Sorrel
<i>Rumex crispus</i> subsp. <i>crispus</i>	Curled Dock
<i>Rumex obtusifolius</i>	Broad-leaved Dock
<i>Sagina nodosa</i>	Knotted Pearlwort
<i>Sagina procumbens</i>	Procumbent Pearlwort
<i>Salix aurita</i>	Eared willow
<i>Salix herbacea</i>	Least Willow
<i>Salix repens</i>	Creeping Willow
<i>Schoenus nigricans</i>	Black Bog-rush
<i>Scilla verna</i>	Spring Squill
<i>Scorzonerooides autumnalis</i>	Autumn Hawkbit
<i>Selaginella selaginoides</i>	Lesser Clubmoss
<i>Senecio aquaticus</i>	Marsh Ragwort
<i>Silene flos-cuculi</i>	Ragged-Robin
<i>Silene uniflora</i>	Sea Campion
<i>Solidago virgaurea</i>	Goldenrod
<i>Stellaria alsine</i>	Bog Stitchwort
<i>Stellaria media</i>	Common Chickweed
<i>Succisa pratensis</i>	Devil's-bit Scabious
<i>Taraxacum</i> agg.	Dandelion
<i>Thalictrum alpinum</i>	Alpine Meadow-rue
<i>Thymus polytrichus</i> subsp. <i>britannicus</i>	Wild Thyme
<i>Trichophorum germanicum</i>	Deergrass
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Triglochin maritimum</i>	Sea Arrowgrass
<i>Triglochin palustre</i>	Marsh Arrowgrass
<i>Tripleurospermum maritimum</i>	Sea Mayweed
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Common Nettle
<i>Vaccinium myrtillus</i>	Blaeberry
<i>Vaccinium vitis-idaea</i>	Cowberry
<i>Veronica officinalis</i>	Heath Speedwell
<i>Vicia cracca</i>	Tufted Vetch
<i>Viola palustris</i>	Marsh Violet
<i>Viola riviniana</i>	Common Dog-violet

## Mosses

*Atrichum undulatum*  
*Aulacomnium androgynum\**  
*Aulacomnium palustre*  
*Blindia acuta*  
*Brachythecium rivulare*  
*Brachythecium rutabulum*  
*Breutelia chrysocoma*  
*Bryum capillare*  
*Bryum pseudotriquetrum*  
*Calliergon cordifolium*  
*Calliergon giganteum*  
*Calliergonella cuspidata*  
*Campylium stellatum*  
*Campylopus atrovirens*  
*Campylopus introflexus*  
*Campylopus paradoxus*  
*Ceratodon purpureus*  
*Cratoneuron filicinum*  
*Ctenidium molluscum*  
*Dichodontium palustre*  
*Dicranella heteromalla*  
*Dicranum majus*  
*Dicranum scoparium*  
*Didymodon tophaceus*  
*Fissidens adianthoides*  
*Homalothecium sericeum*  
*Hylocomium splendens*  
*Hypnum cupressiforme* var. *cupressiforme*  
*Hypnum cupressiforme* var. *lacunosum*  
*Hypnum jutlandicum*  
*Isothecium myosuroides* var. *brachythecioides*  
*Kindbergia praelonga*  
*Leucobryum glaucum*  
*Mnium hornum*  
*Palustriella commutata* var. *commutata*  
*Palustriella commutata* var. *falcata*  
*Philonotis fontana*  
*Plagiomnium undulatum*  
*Plagiothecium undulatum*  
*Pleurozium schreberi*  
*Pohlia nutans*  
*Polytrichum commune*  
*Polytrichum juniperinum*  
*Pseudoscleropodium purum*  
*Racomitrium canescens* agg.  
*Racomitrium lanuginosum*  
*Rhizomnium punctatum*  
*Rhytidiadelphus loreus*  
*Rhytidiadelphus squarrosus*  
*Rhytidiadelphus triquetrus*  
*Scorpidium cossonii*  
*Scorpidium scorpioides*  
*Scorpidium revolvens*  
*Sphagnum capillifolium* var. *rubellum*  
*Sphagnum compactum*  
*Sphagnum contortum*  
*Sphagnum cuspidatum*  
*Sphagnum denticulatum*  
*Sphagnum fallax*  
*Sphagnum fimbriatum*  
*Sphagnum girgensohnii*  
*Sphagnum inundatum*  
*Sphagnum palustre*  
*Sphagnum papillosum*  
*Sphagnum quinquefarium*  
*Sphagnum subnitens*  
*Sphagnum tenellum*  
*Thuidium tamariscinum*  
*Tortula subulata*  
*Trichostomum brachydontium*  
*Warnstorfia exannulata*

## Liverworts

*Aneura pinguis*  
*Calypogeia fissa*  
*Calypogeia muelleriana*  
*Calypogeia sphagnicola\**  
*Cephalozia bicuspidata*  
*Cephalozia connivens*  
*Chiloscyphus pallescens*  
*Chiloscyphus polyanthos*  
*Diplophyllum albicans*  
*Frullania tamarisci*  
*Jungermannia exsertifolia* ssp. *cordifolia*  
*Kurzia* sp.  
*Lepidozia reptans*  
*Lophocolea bidentata*  
*Lophozia incisa*

*Lophozia ventricosa*  
*Metzgeria furcata*  
*Mylia anomala*  
*Mylia taylorii*  
*Nardia scalaris*  
*Odontoschisma sphagni*  
*Pellia epiphylla*  
*Pellia neesiana*  
*Pellia* sp.  
*Pleurozia purpurea*  
*Porella* sp.  
*Ptilidium ciliare*  
*Riccardia multifida*  
*Saccogyna viticulosa*  
*Scapania gracilis*

## Lichens

*Cladonia arbuscula*  
*Cladonia cornuta\**  
*Cladonia floerkeana*  
*Cladonia furcata*  
*Cladonia portentosa*  
*Cladonia rangiferina*  
*Cladonia tenuis*  
*Cladonia uncialis*  
*Peltigera* sp.  
*Ramalina* sp.  
*Sphaerophorus globosus*

## ANNEX 4: DATA FILES HELD BY SNH

### Electronic files

File name	Description	Location
FINAL - March 2013 - Rousay quadrat data - 25Feb	Excel file listing species found in quadrats recorded under NVC community, includes grid refs, surveyor and date	eRDMS <sup>2</sup> – A862336
FINAL - March 2013 - Rousay Species list 25Feb	Excel file listing all species found during Rousay NVC fieldwork	eRDMS – A862343
FINAL - March 2013 - Rousay Target notes 25Feb	Excel file listing target notes including grid refs details of surveyor, date and photograph number	eRDMS – A862345
FINAL - Nov 2012 - MAP- Scanned Image with amendments 30Nov	Scanned image of Rousay map with inserted NVC community data where previously omitted	eRDMS – B1178150
FINAL - March 2013 - Rousay photo reference file -25Feb	References for the NVC quadrats used for SCM (see section 3.3)	eRDMS – A862337
FINAL - March 2013 - Rousay Target notes- Report version 25Feb	Excel file; Report version of Target Notes, see annex 2	eRDMS – A862344

### On 2 x CDs (2 copies kept in SNH Kirkwall office library)

Rousay Quadrat Photos Q1 to Q99 and Q222 to Q246 (CD1)	JPG photos of sample quadrats within central Rousay area
Rousay Report photos (CD1)	JPG photos included within main body of report
Rousay Target note photos (CD1)	JPG photos relating to target notes in eRDMS A862345
Rousay Report photos (CD1)	Word doc, description of report photos
Rousay Quadrat Photos Q100 to Q221	JPG photos of sample quadrats in Brings/Quendal and Faraclett area

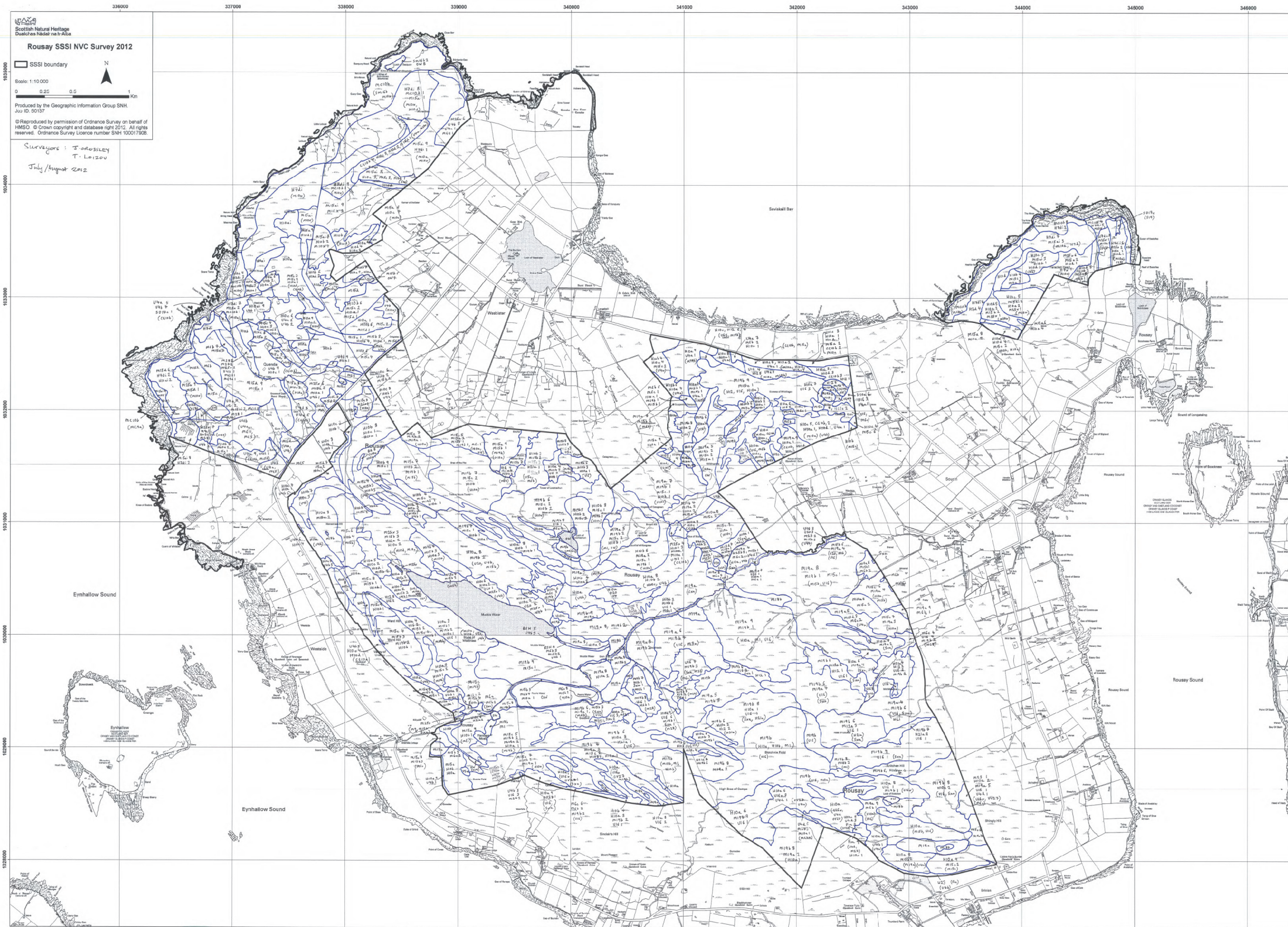
### Paper Maps (kept in SNH Kirkwall office)

Rousay NVC Map	Original A1 NVC map
Rousay Map of Quadrat & Target Note points	Original A1 map showing locations of quadrats and target notes

<sup>2</sup> eRDMS is SNH's electronic document management system

# ANNEX 5: NVC MAP

Note that this is a reduced image of the original A0 map and is included here for illustrative purposes only.



## ANNEX 6: MAP SHOWING LOCATIONS OF NVC QUADRATS AND TARGET NOTES

Note that this is a reduced image of the original A0 map and is included here for illustrative purposes only.



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