

# CG11

## *Festuca ovina*-*Agrostis capillaris*-*Alchemilla alpina* grass-heath

### Synonymy

Alpine pasture Smith 1900; Arctic-Alpine grassland Smith 1911 *p.p.*; *Alchemilleto-Agrosto-Festucetum* McVean & Ratcliffe 1962; Species-rich *Agrostio-Festucetum* McVean & Ratcliffe 1962 *p.p.*; *Achilleo-Festucetum tenuifoliae* Birse & Robertson 1976 *p.p.*; Montane *Festuca vivipara*-*Agrostis canina* grassland Ratcliffe 1977 *p.p.*; *Alchemilla alpina*-*Festuca-Vaccinium* nodum Huntley 1979 *p.p.*;

### Constant species

*Agrostis capillaris*, *Alchemilla alpina*, *Anthoxanthum odoratum*, *Festuca ovina*/*vivipara*, *Galium saxatile*, *Nardus stricta*, *Potentilla erecta*, *Thymus praecox*, *Vaccinium myrtillus*, *Hylocomium splendens*.

### Rare species

*Alchemilla filicaulis* spp. *filicaulis*, *A. wichurae*, *Cerastium alpinum*, *Diphasium alpinum*, *Juncus trifidus*, *Luzula spicata*, *Minuartia sedoides*, *Omalotheca supina*, *Polystichum lonchitis*, *Potentilla crantzii*, *Sibbaldia procumbens*, *Barbilophozia lycopodioides*, *Herbertus stramineus*, *Lophozia obtusa*, *Mastigophora woodsii*.

### Physiognomy

Generally speaking, it is the prominence of *Alchemilla alpina* which gives the *Festuca*-*Agrostis*-*Alchemilla* swards their distinctive stamp. It is often the most abundant species present and the low cover of leaves produced from its creeping branches makes the epithet 'grassland' somewhat inappropriate for the vegetation. A number of grasses are, however, frequent and abundant and they often comprise the bulk of the sward between and among the *A. alpina* plants. *Agrostis capillaris* and *Festuca ovina* (*F. tenuifolia* in Birse & Robertson 1976 and Birse 1980) are the commonest species throughout, though *F. vivipara* here becomes almost as frequent as the latter and sometimes as abundant. *F. rubra*, however, is less common than in the closely-related *Festuca*-*Agrostis*-*Thymus* grassland. *Anthoxan-*

*thum odoratum* and *Nardus stricta* are also very frequent, though their abundance varies between the two sub-communities. Other grasses occasionally recorded are *Deschampsia cespitosa*, *D. flexuosa* and *Agrostis canina*.

The floristic shift among the sedge component visible in moving from the lowland calcicolous swards through the *Sesleria*-*Galium* grassland into the *Festuca*-*Agrostis*-*Thymus* grassland continues here. *Carex flacca* and *C. caryophyllea* are now no more than occasional and, though *C. pulicaris* and *C. panicea* are frequent and especially distinctive of one of the sub-communities, the commonest species overall are *C. pilulifera* and, more occasionally, *C. binervis*. *C. bigelowii* is scarce but sometimes locally prominent. In general, however, sedges do not make a major contribution to the vegetation cover, occurring usually as scattered shoots within the sward.

Apart from *Thymus praecox*, which is constant and often quite abundant, the commonest dicotyledonous associates are the Nardo-Galion species *Potentilla erecta* and *Galium saxatile*. *Vaccinium myrtillus* is very common, too, though it typically occurs as scattered sprigs, only very rarely assuming local prominence in clumps. *Calluna vulgaris* is a little patchier in its occurrence and similarly sparse. Other frequent species are *Viola riviniana*, *Ranunculus acris*, *Campanula rotundifolia* and *Selaginella selaginoides*, but all these tend to be better represented in one or other of the sub-communities. *Euphrasia officinalis* agg. (including, on Skye at least (Birks 1973), *E. nemorosa*, *E. confusa*, *E. brevipila* and *E. micrantha*) and *Prunella vulgaris* are both less common here than in the *Festuca*-*Agrostis*-*Thymus* grassland. *Polygonum viviparum*, *Thalictrum alpinum*, montane *Hieracia* and *Oxalis acetosella* are occasionally encountered and some stands have such species as *Succisa pratensis*, *Trollius europaeus*, *Geum rivale* and *Geranium sylvaticum* which, in ungrazed swards, can assume prominence. Rarer montane species are not common but *Potentilla crantzii* and *Silene acaulis* have

been recorded in both sub-communities and one kind of *Festuca-Agrostis-Alchemilla* grass-heath has a number of rare species among its differentials.

Bryophytes are generally prominent. *Hylocomium splendens*, *Rhytidiadelphus squarrosus*, *R. loreus* and *Racomitrium lanuginosum* are the most frequent species and each can be abundant. Less common, though occasionally with high cover, are *Pseudoscleropodium purum*, *Rhytidiadelphus triquetrus*, *Thuidium tamariscinum*, *Ctenidium molluscum*, *Breutelia chrysocoma* and *Polytrichum alpinum*. *Dicranum scoparium* and *Pleurozium schreberi* assume prominence in one sub-community. Lichens are generally not common, though *Cladonia* spp. and *Peltigera canina* are sometimes found.

### Sub-communities

**Typical sub-community:** Lakeland *Alchemilla alpina* grassland Ratcliffe 1960; *Alchemilleto-Agrosto-Festucetum* McVean & Ratcliffe 1962 p.p.; Species-rich *Agrosto-Festucetum* McVean & Ratcliffe 1962 p.p.; *Achilleo-Festucetum tenuifoliae*, Subassociation with *Thymus drucei* Birse & Robertson 1976 p.p. Montane *Festuca vivipara-Agrostis canina* grassland Ratcliffe 1977 p.p.; *Alchemilla alpina-Festuca-Vaccinium* nodum Huntley 1979 p.p. In these swards, mixtures of *Alchemilla alpina*, *Thymus praecox*, *Festuca ovina/vivipara* and *Agrostis capillaris* generally comprise the bulk of the vegetation and *Anthoxanthum odoratum* and *Nardus stricta*, though frequent, are usually not abundant. Although *Viola riviniana* is a little commoner here than in the other sub-community, the most obvious preferentials are bryophytes. In addition to the species frequent throughout the community, *Rhytidiadelphus squarrosus* and, particularly, *Dicranum scoparium* and *Pleurozium schreberi* are very distinctive. *Ptilidium ciliare* occurs, too, though it is more occasional. Lichens are also somewhat better represented in this sub-community: there is sometimes a little *Peltigera canina* and *Cladonia uncialis* can be prominent, sometimes with a local abundance of *Racomitrium lanuginosum* and scattered *Carex bigelowii* (the *Rhacomitrium* facies of McVean & Ratcliffe 1962). Among other vascular species recorded, *Alchemilla glabra*, *A. xanthochlora* and *A. filicaulis* ssp. *vestita* sometimes join *A. alpina* and, with the sparse *Vaccinium myrtillus*, there may be some *V. vitis-idaea*. Other stands are enriched by species such as *Trollius europaeus*, *Succisa pratensis*, *Rumex acetosa*, *Primula vulgaris*, *Anemone nemorosa* and *Luzula sylvatica* which, in ungrazed vegetation, give something of the feel of a tall-herb community. Here, bryophytes may be especially abundant with *Ctenidium molluscum* and *Breutelia chrysocoma* frequently adding to the variety. It is in higher-altitude stands of this kind of vegetation that *Thalictrum alpinum* and certain montane rarities are best

represented with sparse records for *Alchemilla filicaulis* ssp. *filicaulis*, *Diphysium alpinum*, *Luzula spicata*, *Silene acaulis*, *Juncus trifidus* and *Minuartia sedoides*. At lower altitudes to the west, on Skye (Birks 1973), rarer North Atlantic hepatics such as *Anastrepta orcadensis*, *Mastigophora woodsii* and *Herbertus stramineus* can be encountered in this sub-community.

***Carex pulicaris-Carex panicea* sub-community:** *Alchemilleto-Agrosto-Festucetum* McVean & Ratcliffe 1962 p.p.; Species-rich *Agrosto-Festucetum* McVean & Ratcliffe 1962 p.p.; *Achilleo-Festucetum tenuifoliae*, Subassociation with *Thymus drucei* Birse & Robertson 1976 p.p.; *Alchemilla alpina-Festuca-Vaccinium* nodum Huntley 1979 p.p.; *Alchemilla alpina* is somewhat reduced in frequency in this sub-community and rarely as abundant as in the above vegetation. Further, although *Festuca ovina/vivipara* and *Agrostis capillaris* remain frequent, they too are less prominent and it is often *Anthoxanthum odoratum* and *Nardus stricta* which comprise the bulk of the cover. *Potentilla erecta* tends to eclipse *Thymus praecox* as the most abundant of the dicotyledonous associates, but *Vaccinium myrtillus* and *Calluna vulgaris* remain generally sparse. The preferentials are rather varied but the most obvious feature is the rather poor representation of calcicoles, a contrast to the equivalent flushed swards within the *Sesleria-Galium* and *Festuca-Agrostis-Thymus* grasslands. As there, *Selaginella selaginoides*, *Carex panicea* and the more calcicolous *C. pulicaris* have high frequencies but such species as *Carex flacca* and *Linum catharticum* are, at most, occasional and Arctic-Alpine calcicoles are absent. More obvious is a group of species with affinities with mesotrophic swards such as *Ranunculus acris*, *Plantago lanceolata*, *Campanula rotundifolia* and, less commonly, *Trifolium repens* and *Cerastium fontanum*. Although *Pinguicula vulgaris* occurs occasionally, the remaining distinctive species here are generally associated with less base-rich poor fens, wet grasslands and heaths, e.g. *Juncus squarrosus*, *Viola palustris*, *Narthecium ossifragum*, *Scirpus cespitosus*, *Erica tetralix* and *Molinia caerulea*. The most frequent bryophytes are robust pleurocarps such as *Hylocomium splendens*, *Pseudoscleropodium purum*, *Rhytidiadelphus squarrosus*, *R. triquetrus* and *R. loreus*.

### Habitat

The *Festuca-Agrostis-Alchemilla* grass-heath is most typical of free-draining, though often moist, brown earths of moderate base-status, developed over calcareous bedrocks in a generally montane climate. It is usually grazed, generally by sheep and wild herbivores, and is, for the most part, a stable plagioclimax vegetation.

The community is almost wholly confined to areas

with a cool and cloudy montane climate where the mean summer maximum temperature does not exceed 22 °C (Conolly & Dahl 1970). Although it extends to lower altitudes towards north-western Scotland, it is typically a vegetation type of the higher uplands. More particularly, though its upper altitudinal limit (between 800 and 900 m, extending on occasion to 1000 m) is not much in excess of that of the *Festuca-Agrostis-Thymus* grassland, its altitudinal range is considerably less and the mean more than 200 m higher (about 560 m as compared with 335 m). Within its range, the community experiences 1000–2500 mm annual precipitation (*Climatological Atlas* 1952) and 160 to more than 220 wet days yr<sup>-1</sup> (Ratcliffe 1968).

In this climatic region, the *Festuca-Agrostis-Alchemilla* grass-heath is generally confined to more calcareous bedrocks and these are less varied than those typical of the *Festuca-Agrostis-Thymus* grassland because of the fortuitous distribution of suitable deposits in these higher uplands. The community is most frequent on the Dalradian metasediments, especially the schists of the east-central Highlands, notably between Breadalbane and Clova (McVean & Ratcliffe 1962, Huntley 1979) but smaller stands also occur on more calcareous parts of the Moine and Lewisian gneiss in the north-west Highlands (Ratcliffe 1977). It is also well represented on the Tertiary basalts of Skye and, to a lesser extent, on the Durness Limestone there (Birks 1973). Outside Scotland, it is confined to more calcareous parts of the Borrowdale Volcanics on the Helvellyn range in the Cumbrian Lake District (Ratcliffe 1960, 1977).

In these regions, the community seems to be most characteristic of brown earths which are somewhat less calcareous and base-rich than those favoured by the *Festuca-Agrostis-Thymus* grassland. These are still typically mull soils, often with a good loamy texture and only in exceptional cases showing incipient podzolisation or accumulation of raw humus (McVean & Ratcliffe 1962, Birks 1973). Although the soils are usually quite shallow and supplies of calcium carbonate renewed by weathering of the bedrock, solifluction and flushing, the calcium status is generally only moderate and the pH usually between 5 and 6. The high rainfall, especially towards the north-west of Scotland, and the frequent irrigation means that the soils are rarely dry, though they are usually free-draining: coarse-textured colluvium and talus often provide substrates for this vegetation.

The slight shift in climatic and edaphic conditions is reflected in the floristics of the community. Nardogalion species make a substantial contribution throughout, rather than being largely confined to the drier swards, as in the *Festuca-Agrostis-Thymus* grassland. Then, the calcicolous element is weaker than in

that community, even in those swards where flushing brings some enrichment in bases to the profile. The characteristic abundance in this vegetation of *Alchemilla alpina*, though probably not a simple matter, may be in large measure related to its tolerance of less base-rich soils within the montane zone (e.g. Ratcliffe 1960).

As in the *Festuca-Agrostis-Thymus* grassland, it is probably the extent of irrigation which largely determines the floristic differences between the two sub-communities here. The Typical sub-community is characteristic of drier soils which, being free-draining, are prone to some leaching in the wet climate. The surface pH here averages 5.3 and some profiles tend towards rankers. In stands of the *Carex pulicaris-Carex panicea* sub-community, flushing is usually more frequent or pronounced but the irrigating waters seem to be less calcareous than those which flush the *Festuca-Agrostis-Thymus* grassland. Though the mean surface pH is 5.9, there is as much response in the vegetation among mesophytic, poor-fen and wet-heath species as there is among calcicoles, and lime-loving bryophytes and Arctic-Alpines are noticeably sparse, even at higher altitudes.

Like the *Festuca-Agrostis-Thymus* grassland, this community typically occurs as fairly small stands which comprise part of extensive upland grazings, largely for sheep. Deer and rabbits may be important grazers in some localities (e.g. Birks 1973). It is probably largely an anthropogenic vegetation type, even at higher altitudes (McVean & Ratcliffe 1962), having been derived originally from scrub or woodland below and, perhaps, tall-herb or *Dryas-Silene* ledge vegetation above. *Alchemilla alpina* seems to be little affected by grazing (Ratcliffe 1960) but defoliation is important in preserving the mixed character of the swards in which grasses and herbaceous dicotyledons occur in intimate mixtures.

### Zonation and succession

Most often, zonations between the *Festuca-Agrostis-Alchemilla* grass-heath and other vegetation types reflect edaphic or altitudinal/climatic gradients or differences in grazing intensity.

At some sites, the community gives way, over fragmentary lithomorphous soils developed over the same substrate, to more open vegetation, as on Skye, where it passes to scree communities on Tertiary basalt talus or pavement vegetation on Durness Limestone (Birks 1973). More usually, however, it occurs, often with the *Festuca-Agrostis-Thymus* grassland, within patchworks of other communities whose distribution reflects the occurrence of different bedrock types and the extent of overlying drift. Where calcareous deposits are well represented, stands can be more extensive, as on Ben Lawers, in Caenlochan and Beinn a'Ghlo (Ratcliffe 1977, Huntley 1979); elsewhere, typical but smaller

stands occur as islands within predominantly calcifuge grasslands and heaths over acid rocks or deep drift, as on the gneisses of the north-western Highlands (Ratcliffe 1977).

Where suitable rocks extend over a considerable range of altitude, as on the Dalradian schists, the community may be part of altitudinal sequences which reflect the increasing cold and rainfall at higher altitudes. Then, it may give way below to the *Festuca-Agrostis-Thymus* grassland and above to the *Festuca-Alchemilla-Silene* dwarf-herb community.

The occurrence of crags within stands of the *Festuca-Agrostis-Alchemilla* grass-heath is a common feature and, at higher altitudes, the community forms mosaics here with the *Dryas-Silene* vegetation which reflect the lack of grazing on the more inaccessible ledges. Good examples of this kind of pattern have been described from Beinn a'Ghlo on Dalradian limestone and from Lewisian gneiss in Ross and Sutherland (Ratcliffe 1977) and the occasional prominence of taller herbs is encountered wherever grazing is restricted.

#### Distribution

The community is restricted to Scotland and Helvellyn in Cumbria. The Typical sub-community occurs throughout the range but the *Carex pulicaris*-*Carex*

*panicea* sub-community is very much a vegetation type of the Dalradian metasediments with an outlying occurrence on Skye Tertiary basalt.

#### Affinities

As with the *Festuca-Agrostis-Thymus* grassland, the affinities of this community are somewhat problematical. If anything, it shows rather stronger similarities than that vegetation type to mainstream Nardo-Callunetea grasslands like the calcifugous swards of the *Festuca-Agrostis-Galium* grassland and it was placed within the Nardo-Galion by Birks (1973). An alternative would be to consider it as a montane Molinio-Arrhenatheretea grassland, such as those included in the Nardeto-Agrostion by Nordhagen (1943). Similar vegetation to the *Festuca-Agrostis-Alchemilla* grass-heath has been described from the Faroes by Böcher (1937) and Hansen (1967).

The community also shows floristic links with the montane grass-heaths of the Caricetea curvulae, through those stands of the Typical sub-community rich in *Racomitrium lanuginosum* and *Cladonia uncialis*, and with the ledge-vegetation of the Cicerbition alpini of the Betulo-Adenostyletea and the Kobresio-Dryadion of the Elyno-Seslerietea through less heavily grazed stands at higher altitudes.

#### Floristic table CG11

	a	b	11
<i>Anthoxanthum odoratum</i>	V (1-6)	V (1-8)	V (1-8)
<i>Hylocomium splendens</i>	V (1-7)	V (1-6)	V (1-7)
<i>Alchemilla alpina</i>	V (2-8)	IV (1-4)	V (1-8)
<i>Agrostis capillaris</i>	V (2-7)	IV (1-5)	V (1-7)
<i>Thymus praecox</i>	IV (2-6)	V (1-4)	IV (1-6)
<i>Festuca ovina</i>	IV (3-7)	IV (1-7)	IV (1-7)
<i>Galium saxatile</i>	IV (2-4)	IV (1-4)	IV (1-4)
<i>Vaccinium myrtillus</i>	IV (1-4)	IV (1-4)	IV (1-4)
<i>Nardus stricta</i>	III (1-4)	V (4-10)	IV (1-10)
<i>Potentilla erecta</i>	III (1-4)	V (1-5)	IV (1-5)
<i>Viola riviniana</i>	IV (1-4)	III (1-4)	III (1-4)
<i>Rhytiadelphus squarrosus</i>	IV (2-4)	III (1-7)	III (1-7)
<i>Dicranum scoparium</i>	III (1-2)	I (1-3)	II (1-3)
<i>Pleurozium schreberi</i>	III (1-4)	I (1-2)	II (1-4)
<i>Ptilidium ciliare</i>	II (1-3)		I (1-3)
<i>Trollius europaeus</i>	II (2)		I (2)
<i>Peltigera canina</i>	II (1-3)		I (1-3)
<i>Rumex acetosa</i>	II (2)		I (2)
<i>Cladonia uncialis</i>	II (1-3)		I (1-3)
<i>Vaccinium vitis-idaea</i>	II (2-3)		I (2-3)
<i>Blechnum spicant</i>	II (1-3)		I (1-3)

**Floristic table CG11 (cont.)**

	a	b	11
<i>Alchemilla xanthochlora</i>	I (1–3)		I (1–3)
<i>Primula vulgaris</i>	I (1)		I (1)
<i>Racomitrium canescens</i>	I (1–3)		I (1–3)
<i>Armeria maritima</i>	I (3)		I (3)
<i>Sibbaldia procumbens</i>	I (2)		I (2)
<i>Luzula spicata</i>	I (1)		I (1)
<i>Minuartia sedoides</i>	I (4)		I (4)
<i>Pogonatum urnigerum</i>	I (1–2)		I (1–2)
<i>Omalotheca supina</i>	I (1–2)		I (1–2)
<i>Nardia scalaris</i>	I (1)		I (1)
<i>Cerastium alpinum</i>	I (1–2)		I (1–2)
<i>Juncus trifidus</i>	I (2)		I (2)
<i>Salix herbacea</i>	I (1)		I (1)
<i>Alchemilla filicaulis filicaulis</i>	I (1–2)		I (1–2)
<i>Mnium hornum</i>	I (1–2)		I (1–2)
<i>Thuidium delicatulum</i>	I (2–4)		I (2–4)
<i>Saxifraga hypnoides</i>	I (1–3)		I (1–3)
<i>Diphasium alpinum</i>	I (1–3)		I (1–3)
<i>Cetraria islandica</i>	I (1–3)		I (1–3)
<i>Selaginella selaginoides</i>	III (1–3)	IV (1–4)	III (1–4)
<i>Ranunculus acris</i>	II (1–3)	IV (1–4)	III (1–4)
<i>Carex pulicaris</i>	II (1–3)	IV (1–4)	III (1–4)
<i>Campanula rotundifolia</i>	II (1–3)	IV (1–4)	III (1–4)
<i>Carex panicea</i>	I (2)	IV (1–4)	II (1–4)
<i>Plantago lanceolata</i>	I (1)	III (1–4)	II (1–4)
<i>Viola palustris</i>	I (2–4)	III (1–4)	II (1–4)
<i>Anemone nemorosa</i>	I (1)	III (1–4)	II (1–4)
<i>Veronica serpyllifolia</i>	I (1–2)	III (1–2)	II (1–2)
<i>Juncus squarrosus</i>		III (1–7)	I (1–7)
<i>Pinguicula vulgaris</i>		II (1–3)	I (1–3)
<i>Narthecium ossifragum</i>		II (1–4)	I (1–4)
<i>Viola canina</i>		II (1–4)	I (1–4)
<i>Carex flacca</i>		II (1–4)	I (1–4)
<i>Trichophorum cespitosum</i>		II (1–4)	I (1–4)
<i>Erica tetralix</i>		I (1–4)	I (1–4)
<i>Molinia caerulea</i>		I (1–8)	I (1–8)
<i>Lathyrus montanus</i>		I (1–3)	I (1–3)
<i>Thelypteris limbosperma</i>		I (1–3)	I (1–3)
<i>Carex pilulifera</i>	III (1–3)	III (1–4)	III (1–4)
<i>Festuca vivipara</i>	III (1–7)	III (1–5)	III (1–7)
<i>Calluna vulgaris</i>	III (1–2)	II (1–4)	III (1–4)
<i>Racomitrium lanuginosum</i>	III (1–8)	II (1–9)	III (1–9)
<i>Rhytidiadelphus loreus</i>	III (1–7)	II (1–7)	III (1–7)
<i>Pseudoscleropodium purum</i>	II (1–3)	III (1–4)	II (1–4)

<i>Carex binervis</i>	II (3)	III (1–4)	II (1–4)
<i>Deschampsia cespitosa</i>	II (1–5)	III (1–4)	II (1–5)
<i>Polygonum viviparum</i>	II (2–4)	III (1–4)	II (1–4)
<i>Rhytidiadelphus triquetrus</i>	II (1–4)	III (1–4)	II (1–4)
<i>Thuidium tamariscinum</i>	II (1–4)	II (1–4)	II (1–4)
<i>Euphrasia officinalis</i> agg.	II (2–3)	II (1–4)	II (1–4)
<i>Oxalis acetosella</i>	II (1–3)	II (1–3)	II (1–3)
<i>Deschampsia flexuosa</i>	II (1–3)	II (1–3)	II (1–3)
<i>Festuca rubra</i>	II (1–3)	II (1–4)	II (1–4)
<i>Hieracium</i> spp.	II (1–3)	II (1–3)	II (1–3)
<i>Hypnum cupressiforme</i>	II (1–3)	II (1–6)	II (1–6)
<i>Prunella vulgaris</i>	II (1–3)	II (1–4)	II (1–4)
<i>Agrostis canina</i>	II (2–5)	II (1–3)	II (1–5)
<i>Thalictrum alpinum</i>	II (2–3)	II (1–4)	II (1–4)
<i>Luzula multiflora</i>	II (1–3)	II (1–3)	II (1–3)
<i>Geum rivale</i>	II (1–3)	II (1–3)	II (1–3)
<i>Veronica officinalis</i>	II (1–2)	I (1–3)	II (1–3)
<i>Luzula campestris</i>	II (2–3)	I (1–2)	II (1–3)
<i>Breutelia chrysocoma</i>	II (2–4)	I (1)	I (1–4)
<i>Polytrichum alpinum</i>	II (1–5)	I (1–3)	I (1–5)
<i>Succisa pratensis</i>	II (1–2)	I (1–3)	I (1–3)
<i>Ciendium molluscum</i>	II (3–4)	I (1–3)	I (1–4)
<i>Luzula sylvatica</i>	II (1)	I (1–3)	I (1–3)
<i>Empetrum nigrum hermaphroditum</i>	II (1–4)	I (1)	I (1–4)
<i>Alchemilla filicaulis vestita</i>	II (3–4)	I (1–3)	I (1–4)
<i>Trifolium repens</i>	I (1–3)	II (1–4)	I (1–4)
<i>Danthonia decumbens</i>	I (2)	II (1–3)	I (1–3)
<i>Linum catharticum</i>	I (1–2)	II (1–3)	I (1–3)
<i>Filipendula ulmaria</i>	I (1)	II (1–4)	I (1–4)
<i>Taraxacum officinale</i> agg.	I (1–2)	II (1–3)	I (1–3)
<i>Leontodon autumnalis</i>	I (1)	II (1–3)	I (1–3)
<i>Cerastium fontanum</i>	I (2)	II (1–3)	I (1–3)
<i>Plagiomnium undulatum</i>	I (2)	I (1)	I (1–2)
<i>Carex caryophyllea</i>	I (3)	I (1)	I (1–3)
<i>Coeloglossum viride</i>	I (1)	I (1)	I (1)
<i>Antennaria dioica</i>	I (1–2)	I (1–4)	I (1–4)
<i>Carex bigelowii</i>	I (1–4)	I (1)	I (1–4)
<i>Huperzia selago</i>	I (1)	I (1)	I (1)
<i>Galium boreale</i>	I (2)	I (1–3)	I (1–3)
<i>Frullania tamarisci</i>	I (1)	I (1)	I (1)
<i>Diplophyllum albicans</i>	I (1)	I (1)	I (1)
<i>Achillea millefolium</i>	I (1–4)	I (1–3)	I (1–4)
<i>Drepanocladus uncinatus</i>	I (1–2)	I (1)	I (1–2)
<i>Botrychium lunaria</i>	I (2–3)	I (1–3)	I (1–3)
<i>Cladonia pyxidata</i>	I (1–2)	I (1)	I (1–2)
<i>Plantago maritima</i>	I (1)	I (1)	I (1)
<i>Tritomaria quinquedentata</i>	I (1)	I (1)	I (1)
<i>Saxifraga aizoides</i>	I (1–2)	I (1–3)	I (1–3)
<i>Barbilophozia lycopodiodes</i>	I (1)	I (1)	I (1)



**Floristic table CG11 (cont.)**

	a	b	11
<i>Silene acaulis</i>	I (1)	I (1)	I (1)
<i>Saxifraga oppositifolia</i>	I (3–5)	I (1)	I (1–5)
<i>Potentilla crantzii</i>	I (2–3)	I (1)	I (1–3)
Number of samples	43	20	63
Number of species/sample	30 (13–58)	35 (19–51)	32 (13–58)

a Typical sub-community

b *Carex pulicaris*-*Carex panicea* sub-community11 *Festuca ovina*-*Agrostis capillaris*-*Alchemilla alpina* grass-heath (total)

