U15
Saxifraga aizoides-Alchemilla glabra banks

Synonymy
Saxifragetum aizoidis McVean & Ratcliffe 1962, Birks 1973; Mixed Saxifrage facies McVean & Ratcliffe 1962; *Saxifraga aizoides-Festuca-Deschampsia* nodum Huntley 1979; *Saxifraga aizoides-Tussilago farfara* nodum Huntley 1979.

Constant species
Alchemilla alpina, *A. glabra*, *Carex pulicaris*, *Deschampsia cespitosa*, *Festuca ovina/vivipara*, *F. rubra*, *Pinguicula vulgaris*, *Polygonum viviparum*, *Ranunculus acris*, *Saxifraga aizoides*, *S. oppositifolia*, *Selaginella selaginoides*, *Thalictrum alpinum*, *Bryum pseudotriquetrum*, *Ctenidium molluscum*.

Rare species
Alchemilla filicaulis ssp. *filicaulis*, *Carex capillaris*, *Cerastium alpinum*, *Cystopteris montana*, *Epilobium alsinifolium*, *Juncus biglumis*, *Oxytropis campestris*, *Poa alpina*, *P. glauca*, *Potentilla crantzii*, *Polystichum lonchitis*, *Salix lapponum*, *Sibbaldia procumbens*, *Barbilophozia quadriloba*, *Hylocomium pyrenaicum*, *Hypnum baumbergeri*, *H. callichroum*.

Physiognomy
The *Saxifraga aizoides-Alchemilla glabra* community forms highly distinctive banks of vegetation disposed over steep, rocky or earthen slopes. Typically, there is a dripping wet carpet of plants, sometimes just a decimetre or so thick, but growing very luxuriantly, in which *Saxifraga aizoides* is generally the most abundant plant, looking especially striking in summer with its bright yellow flowers. *S. oppositifolia* is constant too and, though it is usually found in small clumps, stands can be seen in which it attains co-dominance with *S. aizoides*: McVean & Ratcliffe (1962) separated these off into a 'mixed Saxifrage facies' but, with further sampling, it is not really possible to justify this. *S. hypnoides* also occurs quite commonly and *S. stellaris* very occasionally, but neither has high cover.

The other abundant element in the vegetation consists of grasses, though neither these nor the sedges of the community ever attain the prominence here that is characteristic of the flushed grasslands or mires in which *S. aizoides* is important. Nonetheless, *Deschampsia cespitosa*, *Festuca rubra* and *F. ovina/vivipara* are all very frequent, and the first two sometimes make up quite a proportion of the sward. Also common, though not so extensive, are *Anthoxanthum odoratum* and *Agrostis capillaris*, with *Nardus stricta* and *Agrostis canina* occurring occasionally. The community provides a locus, too, for the rare Arctic-Alpine grasses *Poa alpina* and the particularly handsome *P. glauca*, a taxon now subsuming *P. balfouri* (Tutin *et al.* 1980). Sedges are usually less numerous and less prominent, except in transitions to stony flushes, but *Carex pulicaris* is very frequent and there are occasional scattered shoots of *C. flacca*, *C. lepidocarpa*, *C. demissa* and *C. panicea*, with some stands having a little of the rare *C. capillaris*. *Juncus triglumis* occurs at low frequency and the much rarer *J. biglumis* has also been recorded. *Luzula multiflora* and *L. sylvatica* are both occasional, but the latter never has the abundance here that is so typical of much tall-herb ledge vegetation.

Scattered through this carpet is a variety of herbs, usually growing in fairly diminutive form, locally a little more bushy or taller. Among these, *Alchemilla glabra* and *A. alpina* are especially common and likely to become prominent, with generally more sparse individuals of *Thalictrum alpinum*, *Polygonum viviparum*, *Ranunculus acris*, *Selaginella selaginoides*, *Pinguicula vulgaris*, *Thymus praecox*, *Oxyria digyna*, *Euphrasia officinalis*, *Campanula rotundifolia*, *Geum rivale*, *Cerastium fontanum*, *Viola riviniana* and *Linum catharticum*. More occasionally, there is some *Rhodiola rosea*, *Potentilla erecta*, *Oxalis acetosella*, *Angelica sylvestris*, *Rumex acetosa*, alpine Hieracia, *Galium saxatile* and *Rhinanthus minor*. Rare plants that sometimes find a place here include *Cerastium alpinum*, *Epilobium alsinifolium*, *Alchemilla filicaulis* ssp. *filicaulis*, *Potentilla crantzii*,

Sibbaldia procumbens and the extremely local *Oxytropis campestris*, a species which seems to be largely confined to the tumbling vegetation of cliffs such as this and the surrounding flushed grasslands into which it seeds (Raven & Walters 1956, Huntley 1979). Two other rarities that occur here are the ferns *Polystichum lonchitis* and *Cystopteris montana*, the latter especially diagnostic of this community, its rhizomes spreading far through the mat of vegetation, and its large delicate fronds standing out against the rather dwarfed herbage around (Page 1982). Other more common ferns that are sometimes found here are *C. fragilis* and *Asplenium viride* and, where the community becomes fragmented over rocky exposures, it is often these plants that provide continuity with the vegetation of crevices. Woody plants such as *Dryas octopetala* and the dwarf willows, which are a prominent feature of some other kinds of ledge communities, are usually absent.

Bryophytes are numerous in the community and, though rarely as abundant as in the surrounds to springs where *S. aizoides* can be found, certain species can have locally high cover. *Ctenidium molluscum* is the most common moss and often patchily prominent among the herbs, and there is very frequently some *Bryum pseudotriquetrum*, *Blindia acuta*, *Calliergon cuspidatum*, *Philonotis fontana*, *Cratoneuron commutatum*, *Fissidens adianthoides*, *Rhytidiadelphus triquetrus* and *Hylocomium splendens*. More occasional mosses include *Campylium stellatum*, *Thuidium tamariscinum*, *Rhizomnium punctatum*, *Rhytidiadelphus squarrosus*, *Ditrichum flexicaule*, *Drepanocladus uncinatus*, *Tortella tortuosa*, *Anoectangium aestivum* and *Orthothecium fuscescens*, this last lending streaks of red to the carpet. Among hepatics, *Plagiochila asplenoides*, *Aneura pinguis*, *Pellia epiphylla* and *Preissia quadrata* are especially common, with *Tritomaria quinquedentata*, *Nardia scalaris* and *Lophocolea bidentata s.l.* less frequent. Rare bryophytes recorded here are *Hylocomium pyrenaicum*, *Hypnum callichroum*, *H. baumbergeri* and *Barbilophozia quadriloba*.

Habitat

The *Saxifraga-Alchemilla* community is confined to steep, continuously irrigated, calcareous cliff faces and earth banks at moderate to high altitudes, mostly in the Scottish Highlands.

It is a vegetation type of the sub- and low-alpine zones, occurring mostly between 300 and 800 m through those parts of the uplands where winters are harsh and summers cool. The mean annual maximum temperature almost everywhere across the range is less than 21 °C (Conolly & Dahl 1970), just a little higher for those far-flung fragments of the community found in a few localities in the Lake District, and the July mean is usually between 11 and 15 °C (Coker 1966). Although some stands towards lower altitudes, as on Beinn a'Ghlo and, even more so, on Beinn Laoigh, are of a less strikingly montane nature, much of the character of the community comes from Arctic-Alpines like *S. aizoides*, *S. oppositifolia*, *Alchemilla alpina*, *Thalictrum alpinum*, *Polygonum viviparum*, *Oxyria digyna* and *Rhodiola rosea*, and this kind of vegetation provides a locus for a number of rare plants confined to high ground in Britain.

Through these colder mountains, however, the community has a highly localised distribution, being one of the very best exclusive indicators of markedly calcareous rocks (Ferreira 1958, McVean & Ratcliffe 1962). It is strongly concentrated in the region between Breadalbane and Clova where Dalradian limestones and the more lime-rich of the schists make a very important contribution to the scenery of such peaks as Creag Mhor and Ben Heasgarnich in the west, through Meall na Samnha, Ben Lawers and Carn Gorm, to Ben Vrackie and Beinn a'Ghlo, and Glen Clova and Caenlochan in the east. A little farther towards the western Highlands, the community can be found on similar substrates on Ben Laoigh, on andesite on Bidean Nam Bian, on Moine limestone on Ben Alder, and then on very local stretches of more calcareous Moine schists on Ben Nevis and Creag Meagaidh, and far to the north on Beinn Dearg and Ben Hope (Ferreira 1959, McVean & Ratcliffe 1962, Ratcliffe 1977). On Skye, metamorphosed Jurassic limestone and calcareous Tertiary basalts support this kind of vegetation (Birks 1973) while, among the Borrowdale Volcanics of Helvellyn and Fairfield in the Lake District, stands can be found on locally more calcareous lavas, calcitic veins and impregnated shatter belts (Ratcliffe 1960).

Over such substrates, the *Saxifraga-Alchemilla* community characteristically occurs on steep ground, mostly 40–70°, out of reach of any grazing stock and growing directly on the faces of cliffs or fractured rocky banks, or on earthen slopes below and around them. Of great importance, too, as well as the intimate contact with calcareous parent material, is a copious seepage of water to keep soil and vegetation continuously wet. Rainfall is generally high through the range of the community, with over 1600 mm and more than 180 wet day yr^{-1} (*Climatological Atlas* 1952, Ratcliffe 1968) and, in addition to the run-off that drains from the slopes above, there is usually some flushing over the exposures themselves. Quite often, too, a northerly aspect is favoured where shade enhances humidity by reducing evapo-transpiration. Sometimes, where the carpet hangs down over dripping cliffs, there is next to no soil between vegetation and rock apart from the detritus washed down from above and caught among the herbage, but steep banks usually have some wet silty material, up to 30 cm thick below cliffs, with varying

amounts of humus and stones. The surface pH is between 6.8 and 7.5 in the available samples, with sometimes more than 700 mg calcium per 100 g of soil (Ratcliffe 1960, McVean & Ratcliffe 1962, Birks 1973).

These edaphic conditions find strong expression in the *Saxifraga-Alchemilla* community in the predominance of more calcicolous plants tolerant of free-draining, though very moist, soils. Among the most frequent species here, *S. oppositifolia*, *S. aizoides*, *Selaginella*, *Thalictrum alpinum*, *Polygonum viviparum*, *Carex pulicaris*, *Pinguicula vulgaris*, *Thymus praecox*, *Parnassia palustris*, *Ctenidium molluscum*, *Bryum pseudotriquetrum*, *Fissidens adianthoides*, *Preissia quadrata*, *Aneura pinguis* and *Plagiochila asplenoides* are all of this kind in varying degrees, and together they provide a virtual floristic definition of this type of vegetation. A moist, base-rich environment is also important for such rare plants as *Carex capillaris*, *Polystichum lonchitis* and, particularly, for that very diagnostic fern here *Cystopteris montana*, which is strongly calcicolous and demanding of shade, constant water percolation and gentle movement of humid air. Fertile fronds can be found on this plant, but it is possible that most colonies represent single clonal individuals (Page 1982).

As with all vegetation types of steep, rocky ground, open and more fragmentary stands of the *Saxifraga-Alchemilla* community can be found where the slopes are too precipitous or unstable to sustain a continuous cover or where, with a shift of aspect and a lessening of seepage, the ground becomes a little too dry for the characteristic assemblage here. McVean & Ratcliffe (1962) considered that an increase in *S. oppositifolia* and hypnaceous mosses was indicative of drier conditions at somewhat higher altitudes than usual for the community, though this does not seem to be borne out with further sampling. On Skye, Birks (1973) noted that on drier cliff faces, open and heterogenous mixtures of plants related to the *Saxifraga-Alchemilla* vegetation supported such species as *Dryas octopetala* and the rare *Draba incana*, *Poa alpina* and *Saxifraga nivalis*. For the moment, such stands as cannot be readily accommodated here can be considered as intermediates with other communities in transitional habitats.

Zonation and succession

The *Saxifraga-Alchemilla* community is typically found in zonations and mosaics with other kinds of calcicolous montane vegetation, where floristic variation is related mostly to differences in soils, and the intensity of grazing and trampling by stock, factors which are often compounded as topography becomes less rocky and inaccessible. It is a climax community under the very particular conditions which favour its development.

Such conditions are usually maintained over only limited areas, so *Saxifraga-Alchemilla* banks are typically of but small extent, continuous stands rarely stretching for more than 20 m^2. A common situation is for carpets of this vegetation to festoon the steep dripping faces of little rocky outcrops in tracts of grassland or parts of more extensive crags, gully sides and cliffs of corries. Often, the sheer abundance of *S. aizoides* is sufficient to mark off the community from the bare or vegetated surrounds, but gradual transitions from these banks to a variety of other vegetation types are frequent. Especially gentle are those changes which can be seen where fractured brows grade into continuous grassy swards over the surrounding slopes, vegetation which is often strongly flushed, though not kept so thoroughly wet as the rock faces, and which is also frequently grazed, particularly towards the lower altitudes. Where the ground is more or less equally calcareous over such transitions, with continuity of bedrock or with base-richness maintained by the seepage, the typical vegetation around is the *Festuca-Agrostis-Thymus* grassland, the major plagioclimax pasture of the sub-montane and sub-alpine zones. Particularly distinctive of higher altitude and more strongly flushed slopes carrying this vegetation is the *Saxifraga-Ditrichum* sub-community. This shows very strong floristic continuity with the *Saxifraga-Alchemilla* community through frequent records for *S. aizoides*, *S. oppositifolia*, *Alchemilla glabra*, *A. alpina*, *Festuca rubra*, *F. ovina/vivipara*, *Selaginella*, *Deschampsia cespitosa*, *Carex pulicaris*, *Polygonum viviparum*, *Pinguicula vulgaris*, *Thymus praecox* and *Ctenidium molluscum* and in some cases it is very hard to discern a boundary between the two vegetation types. In general, though, the pattern of dominance is different, the balance lying with grasses and small sedges in the *Festuca-Agrostis-Thymus* swards; and there are usually rather more frequent records there for mesophytic herbs like *Viola riviniana*, *Plantago lanceolata* and *Prunella vulgaris*. Rather similar flushed stands of *Festuca-Agrostis-Alchemilla* grassland can also be found in some places juxtaposed with the *Saxifraga-Alchemilla* community, but the continuity of more demanding calcicoles is much less marked there, and *S. aizoides* and *S. oppositifolia* rarely extend far into such swards.

Open, stony flushes over steeper ground among such grasslands, strongly irrigated with base-rich waters, typically support the *Carici-Saxifragetum*, a calcicolous small-sedge mire that also has much in common floristically with the *Saxifraga-Alchemilla* community. *S. aizoides* itself is a constant there and often an abundant plant, and there are frequent records, too, in the *Thalictrum-Juncus* sub-community characteristic of higher altitudes, for *Alchemilla alpina*, *A. glabra*, *Selaginella*, *Carex pulicaris*, *Pinguicula vulgaris*, *Thalictrum alpinum*, *Polygonum viviparum* and various of the basiphile bryophytes common on dripping cliffs. Where vigorous flushes emerge adjacent to rock faces and in gullies with

Saxifraga-Alchemilla vegetation, fairly gradual transitions between the communities can be seen, or confusing mosaics of open, gravelly banks and unusually lush patches of mire, a feature well seen in the samples which Huntley (1979) collected from Caenlochan. Again, however, the pattern of dominance in the two vegetation types is generally different, with sedges like *C. demissa*, *C. panicea*, *C. flacca* and *C. dioica*, as well as *C. pulicaris*, having a more important role in the *Carici-Saxifragetum*. Also, there, *Juncus triglumis* is much more common and *J. articulatus*, which is hardly ever found in the *Saxifraga-Alchemilla* community, is constant. Bryophytes like *Campylium stellatum* and *Drepanocladus revolvens* become very frequent, too, along with *Blindia acuta*, *Aneura pinguis* and *Bryum pseudotriquetrum*.

Patchworks of all these vegetation types are a common feature of many of the mountains between Beinn Laoigh and Clova, and of those localities further to the north-west where exposures of calcareous rocks provide more than just very isolated cliffs with basiphile vegetation among extensive stretches of Nardo-Galion grasslands and grass-heaths. In some places, too, as on the higher ground of Ben Lawers, and around Ben Heasgarnich, the *Saxifraga-Alchemilla* community can be seen grading to the *Festuca-Alchemilla-Silene* dwarf-herb vegetation on the skeletal mull soils which develop over drier gentler slopes or from the finer detritus that tumbles or slumps from cliffs and banks. In some senses, this is a low-alpine counterpart to the kinds of transitions to grasslands that are seen over the slopes at lesser altitudes, although here moderate snow-lie and solifluction are important additional factors in keeping the vegetation of the sheltered and less resistant ground open and rich in competition-sensitive Arctic-Alpines. Plants like *Silene acaulis*, *Sibbaldia procumbens* and *Minuartia sedoides* are thus very common in the *Festuca-Alchemilla-Silene* vegetation, along with *Luzula spicata*, *Omalotheca supina* and *Salix herbacea* and, with the virtual disappearance of *Saxifraga aizoides*, *Pinguicula vulgaris* and *Carex pulicaris*, the distinction between the communities is usually clear. However, *S. oppositifolia* remains frequent in the dwarf-herb swards and where it is this saxifrage as much as *S. aizoides* that characterises the *Saxifraga-Alchemilla* vegetation, along with prominent *Alchemilla alpina*, *Thymus praecox*, *Selaginella* and more abundant hypnaceous mosses than usual, the separation of the communities may be less easy, particularly over crumbling cliffs of mica-schist.

Even in the harsh montane environment of these higher slopes, grazing may play some part in maintaining the open character of dwarf-herb vegetation but where more inaccessible ground, often still craggy like that beneath *Saxifraga-Alchemilla* banks, but not so moist, occurs among the dripping cliffs, the *Dryas-Silene* community can be seen. This very rich and luxuriant vegetation typically has a mat of smaller herbs including *Saxifraga aizoides*, *S. oppositifolia*, *Alchemilla alpina*, *Selaginella* and *Thymus* as well as many of the grasses and bryophytes of the *Saxifraga-Alchemilla* banks, but such woody plants as *Dryas octopetala*, *Vaccinium vitis-idaea*, *V. myrtillus*, *V. uliginosum* and the Arctic-Alpine willows *Salix reticulata* and *S. arbuscula* occur as an open and uneven cover, and there is a variety of taller herbs. Transitions between these vegetation types can be seen on the cliff faces and ledges of Beinn Laoigh.

Elsewhere on damp ledges, stable but ungrazed and with calcareous to neutral soils, the *Saxifraga-Alchemilla* carpets can merge with the *Luzula-Geum* community. Again, in its finest development, this can be extraordinarily rich and luxuriant with a great abundance of tall herbs that gives an unmistakable look to the vegetation, but less distinctive stands can be found and, with frequent records for *Saxifraga aizoides*, *Alchemilla glabra*, *Pinguicula vulgaris* and *Bryum pseudotriquetrum* among a carpet of *Deschampsia cespitosa*, *Luzula sylvatica*, *Festuca ovina/vivipara* and *F. rubra* with scattered *Geum rivale* and *Rhodiola rosea*, there can be a fairly gradual transition to adjacent *Saxifraga-Alchemilla* banks.

Over more precipitous and ledge-free cliffs, each of these vegetation types can become fragmented into heterogenous and peculiar assemblages which it is difficult to characterise. However, one fairly distinct transition of this kind can be seen where more extensive carpets of *Saxifraga-Alchemilla* vegetation give way to small pockets of chasmophytes rooted in rock crevices. The composition and patterning of such assemblages is often a close reflection of the lithology and structure of the particular exposure, but harder limestones often have some form of *Asplenium-Cystopteris* vegetation. Plants such as the saxifrages, *Thymus*, *Oxyria* and *Rhodiola* can occur scattered through the fragments of this community but it is generally ferns like *Asplenium viride*, *A. trichomanis*, *A. ruta-muraria*, *Cystopteris fragilis* and *Polystichum lonchitis*, together with basiphilous bryophytes, that are the most prominent elements.

Distribution

The community is widespread but local through the mountains between Breadalbane and Clova, with much more isolated stands on suitable sites throughout the rest of the Scottish Highlands and on Skye. Fragments in the Lake District provide an important relict locality far to the south for some Arctic-Alpine plants.

Affinities

Although first described by Ferreira (1958), this kind of vegetation was characterised formally by McVean & Ratcliffe (1962) and its general composition subsequently confirmed from Skye (Birks 1973) and Caenlo-

chan (Huntley 1979). The two latter studies illustrate the kind of local variation that is to be seen among the often very isolated stands of the community and it is possible that further sampling will enable consistent subdivisions to be made within it. For the present, the *Saxifraga-Alchemilla* vegetation stands more or less as originally defined, grading on the one hand to the small-sedge Caricion davallianae mire of the *Carici-Saxifragetum*, on the other to the Cicerbition alpini assemblages grouped in the *Luzula-Geum* tall-herb community, transitions related largely to edaphic and topographic conditions. It can also be seen as part of a grazing-mediated sequence running from Nardo-Galion pasture and Salicetalia dwarf-herb vegetation to Kobresio-Dryadion heath. McVean & Ratcliffe (1962) placed their *Saxifragetum* in the Ranunculo-Anthoxanthion of Gjaerevøll (1956), which accommodates such Scandinavian equivalents as the species-rich *Saxifraga* association that Nordhagen (1928) described from Sylene and the *Oppositifolietum* of Gjaerevøll (1956), this latter dominated by *S. oppositifolia*. However, neither of these communities occurs on such steep ground as is characteristic here and both experience a deep snow cover in winter.

Floristic table U15

Saxifraga aizoides	V (1–9)	*Cratoneuron commutatum*	III (1–4)
Alchemilla glabra	V (1–4)	*Campylium stellatum*	II (1–4)
Festuca rubra	V (1–6)	*Pellia epiphylla*	II (1–3)
Alchemilla alpina	V (1–4)	*Rhodiola rosea*	II (1–4)
Selaginella selaginoides	V (1–4)	*Carex flacca*	II (1–4)
Deschampsia cespitosa	V (1–5)	*Nardus stricta*	II (1–3)
Saxifraga oppositifolia	V (1–6)	*Potentilla erecta*	II (1–3)
Thalictrum alpinum	IV (1–4)	*Cystopteris fragilis*	II (1–3)
Carex pulicaris	IV (1–4)	*Luzula sylvatica*	II (1–3)
Ranunculus acris	IV (1–4)	*Thuidium tamariscinum*	II (1–3)
Polygonum viviparum	IV (1–3)	*Rhizomnium punctatum*	II (1–3)
Ctenidium molluscum	IV (1–5)	*Hieracium* spp.	II (1–3)
Festuca ovina/vivipara	IV (1–4)	*Rhytidiadelphus squarrosus*	II (1–3)
Pinguicula vulgaris	IV (1–3)	*Ditrichum flexicaule*	II (1–3)
Bryum pseudotriquetrum	IV (1–4)	*Oxalis acetosella*	II (1–3)
Thymus praecox	III (1–4)	*Carex lepidocarpa*	II (1–4)
Euphrasia officinalis agg.	III (1–3)	*Orthothecium rufescens*	II (1–8)
Campanula rotundifolia	III (1–3)	*Anoectangium aestivum*	II (1–4)
Geum rivale	III (1–4)	*Angelica sylvestris*	II (1–4)
Anthoxanthum odoratum	III (1–4)	*Rumex acetosa*	II (1–4)
Cerastium fontanum	III (1–3)	*Taraxacum officinale* agg.	II (1–3)
Blindia acuta	III (1–4)	*Juncus triglumis*	II (1–3)
Oxyria digyna	III (1–3)	*Galium saxatile*	II (1–3)
Calliergon cuspidatum	III (1–3)	*Alchemilla filicaulis*	II (1–4)
Parnassia palustris	III (1–3)	*Drepanocladus uncinatus*	II (1–3)
Viola riviniana	III (1–3)	*Luzula multiflora*	II (1–3)
Agrostis capillaris	III (1–4)	*Rhinanthus minor*	II (1–3)
Rhytidiadelphus triquetrus	III (1–4)	*Tritomaria quinquedentata*	II (1–3)
Hylocomium splendens	III (1–4)	*Saxifraga hypnoides*	II (1–3)
Linum catharticum	III (1–3)	*Tortella tortuosa*	II (1–3)
Plagiochila asplenoides	III (1–3)	*Asplenium viride*	II (1–3)
Aneura pinguis	III (1–4)	*Nardia scalaris*	I (1–4)
Philonotis fontana	III (1–3)	*Tussilago farfara*	I (1–4)
Preissia quadrata	III (1–3)	*Lophocolea bidentata s.l.*	I (1–3)
Fissidens adianthoides	III (1–3)	*Cochlearia officinalis*	I (1–3)

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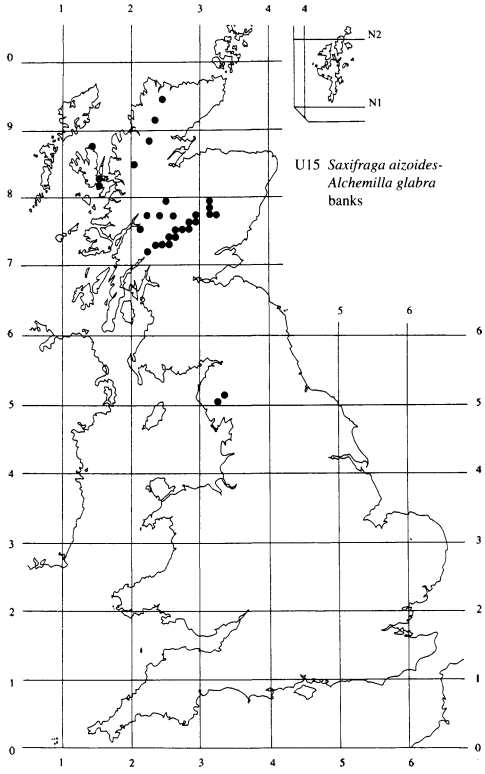
Trifolium repens	I (1–3)
Plagiomnium undulatum	I (1–3)
Silene acaulis	I (1–3)
Plantago lanceolata	I (1–3)
Campylium protensum	I (1–3)
Carex demissa	I (1–3)
Succisa pratensis	I (1–3)
Breutelia chrysocoma	I (1–3)
Juncus articulatus	I (1–3)
Atrichum undulatum	I (1–3)
Rhizomnium pseudopunctatum	I (1–3)
Scapania undulata	I (1–3)
Equisetum pratense	I (1–3)
Crepis paludosa	I (1–3)
Epilobium anagallidifolium	I (1–3)
Pellia endiviifolia	I (1–3)
Cratoneuron filicinum	I (1–3)
Agrostis canina	I (1–3)
Avenula pratensis	I (1–3)
Racomitrium canescens	I (1–3)
Lotus corniculatus	I (1–4)
Carex panicea	I (1–3)
Carex capillaris	I (1–3)
Calluna vulgaris	I (1–3)
Drepanocladus revolvens	I (1–5)
Leiocolea bantriensis	I (1–3)
Dicranum scoparium	I (1–3)
Prunella vulgaris	I (1–3)
Number of samples	24
Number of species/sample	39 (20–53)
Vegetation height (cm)	4 (3–4)
Vegetation cover (%)	92 (40–100)
Altitude (m)	587 (200–884)
Slope (°)	53 (20–80)



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