H3
Ulex minor-Agrostis curtisii heath

Synonymy
Callunetum arenosum Tansley 1911 *p.p.*; *Callunetum arenicolum* Tansley 1939; *Agrostis setacea-Ulex minor* heath Ivimey-Cook 1959; *Agrosto setaceae-Ulicetum minoris* Bridgewater 1970; *Calluna-Ulex minor* heaths Gimingham 1972 *p.p.*

Constant species
Agrostis curtisii, *Calluna vulgaris*, *Erica cinerea*, *E. tetralix*, *Molinia caerulea*, *Ulex minor*.

Rare species
Agrostis curtisii, *Erica ciliaris*, *Viola lactea*.

Physiognomy
The *Ulex minor-Agrostis curtisii* heath contains virtually all the sub-shrub vegetation in which these two species occur together as important components. Throughout the eastern part of its range, and particularly on some of the Surrey commons, *A. curtisii* can figure occasionally in the *Calluna-Ulex minor* heath, in which mixtures of *Calluna*, *U. minor* and *Erica cinerea* generally predominate but, in the present community, it is a consistent feature and has, as additional constant associates, *Erica tetralix* and *Molinia caerulea*. Even when there are few other companions, therefore, and this is typically not a species-rich kind of vegetation, the cover tends to be a little more diverse than in the *Calluna-Ulex minor* heath, particularly as many stands still experience some burning and grazing, treatments which affect both the floristics and structure of the community.

Often, therefore, the sub-shrub canopy in this kind of heath is fairly low, usually 2–3 dm tall, and though *Calluna* quite frequently dominates, especially in stands which have not been burned for some time, degenerate and leggy heather is not so common as in some other, more neglected, heath communities. With its growth kept in check somewhat, the other sub-shrubs maintain a more or less consistent contribution throughout, though their proportions are very variable from stand to stand. Compared with less oceanic heaths, the most unusual feature of the woody cover is the occurrence together of *Erica cinerea* and *E. tetralix*, species which, in areas of less equable climate, are fairly rigidly partitioned into dry- and wet-heath vegetation respectively. Both can grow vigorously here, although *E. cinerea* is the more abundant species overall and is especially likely to become prominent after burning or on disturbed ground where, provided the soil is reasonably dry, it can temporarily outstrip *Calluna* in its regenerative ability. But *E. tetralix* can also have high cover locally, particularly where the community extends on to somewhat more strongly-gleyed soils, where an increase in its abundance can mark the beginning of a transition to the *Ericetum tetralicis* wet heath. In such slightly wetter situations on some of the south Dorset heaths, in the area around Poole Harbour, the community also provides a locus for the nationally rare *E. ciliaris*, accompanying or sometimes replacing *E. tetralix* and hybridising with it (Chapman 1975).

Into this kind of vegetation, *U. minor* maintains its high frequency throughout, though its abundance is very variable. It can show prolific sprouting from surviving stools after burning, remaining prominent for some time before being overtaken by the ericoids, and even then being able to persist as a second tier to the vegetation by virtue of its moderate shade-tolerance; whereas, with heavy grazing, it can be much reduced or perhaps even eliminated. But its constancy overall provides an important distinction between the community and the *Ulex gallii-Agrostis curtisii* heath which replaces it to the west of Poole Harbour and which differs most obviously in the replacement of one gorse by the other. By definition, then, *U. gallii* is very scarce here and the sharp vicarism between the two species means that they can actually occur together in this type of heath only in a very few localities in south Dorset (Proctor 1965). *U. europaeus*, by contrast, can be quite frequent, though it is often obviously associated with disturbed areas, when it can show some local abundance.

In stands which have not been burned for some time, the two constant grasses of the community, *A. curtisii* and *Molinia*, are generally found as scattered tufts or tussocks among the regenerating sub-shrub canopy, thickening up locally as more extensive persistent clumps. But both species, and especially in this community, *A. curtisii*, can be much more abundant: this grass can seed prolifically on to nearby newly-burned ground or otherwise disturbed areas and rapidly form more or less continuous stretches of dense wiry tussocks among which the sub-shrubs have but a sparse representation, as in the *Agrostis* sub-community (Ivimey-Cook 1959). *Molinia*, too, can become locally prominent after fire by regrowth of surviving tussocks, but overall it tends to be the subordinate species; unlike *A. curtisii*, however, it often extends out from this community on to more consistently waterlogged ground occupied by the *Ericetum tetralicis*. In contrast to the *Calluna-Ulex minor* heath, *Deschampsia flexuosa* is very scarce here and, indeed, no other grasses occur at all frequently, though *Agrostis capillaris*, *Festuca ovina* and *Danthonia decumbens* can be found on occasion.

Other frequent vascular species, too, are very few in number. *Pteridium aquilinum* occurs occasionally but, though it is often found in close association with the community in dense stands of the *Pteridium-Galium* vegetation, it is typically of sparse cover within the heath itself. Other herbs are also usually found as scattered individuals: there is sometimes a little *Potentilla erecta*, *Polygala serpyllifolia* or *Carex pilulifera* and *Cuscuta epithymum* can occasionally be found growing parasitically on a variety of hosts (Tansley 1939). Then, in disturbed situations, where fire or trampling have opened up the cover of vegetation, a very characteristic plant is *Viola lactea*. The frequency of burning and grazing, however, means that seedlings and saplings of trees are scarce: young birch, *Quercus robur* or *Pinus sylvestris* can sometimes be found but they rarely get away.

The pattern of burning also has a major influence on the richness and diversity of the ground flora which, in general, is not very prominent here, though markedly better developed when the cover of sub-shrubs is destroyed by fire or where, with the natural degeneration of the heather in older neglected stands, the canopy opens up somewhat. Among the bryophytes, *Campylopus brevipilus* is perhaps one of the most distinctive species here and it can be accompanied by *C. paradoxus*, *Polytrichum juniperinum*, *Dicranum scoparium*, *Hypnum jutlandicum* and *Leucobryum glaucum*. Lichens, too, can become conspicuous in such situations, particularly *Cladonia impexa* and peat-encrusting species such as *C. floerkeana*, *C. coccifera* and *C. pyxidata*. Old heather stems are often colonised by *Hypogymnia physodes*.

Sub-communities

Typical sub-community. In this kind of *Ulex minor-Agrostis* heath, the sub-shrubs typically form an extensive canopy, often with *Calluna* as an overwhelming dominant, sometimes with a more mixed cover, though with the grasses usually subordinate. *Ulex europaeus* figures occasionally and *Erica ciliaris* can be found in south Dorset vegetation which is otherwise little different apart from a reduction in the vigour of *Erica cinerea*. Other species are few although *Potentilla erecta* is preferential at low frequency and there is sometimes a little *Pteridium*, *Carex pilulifera*, *Polygala serpyllifolia* or *Cuscuta epithymum*. Towards the wettest limit for this kind of vegetation, *Schoenus nigricans* has been recorded. Bryophytes and lichens are noticeably sparse, with just very occasional *Hypnum jutlandicum*, *Leucobryum* and *Cladonia* spp.

***Cladonia* spp. sub-community.** Here, the sub-shrub canopy is a little more open than in the above and, although *Calluna* is often the leading species, dominance is frequently shared between the woody plants and the grasses. *Polygala serpyllifolia* is quite strongly preferential but equally noticeable is the patchy cover of bryophytes and lichens on exposed areas of litter and mor. Among the former, *Campylopus brevipilus* and *Polytrichum juniperinum* are the most frequent species with *Cladonia impexa*, *C. floerkeana*, *C. coccifera* and *C. pyxidata* common among the latter.

***Agrostis curtisii* sub-community.** This sub-community has the most strikingly different kind of vascular cover, with *A. curtisii* very abundant and *E. cinerea* often co-dominant, but with *U. minor* and *Molinia* somewhat patchy and *Calluna* and *E. tetralix* much reduced in both frequency and cover. *U. europaeus* is strongly preferential, though not often abundant, and, although the vegetation cover is often high, the early stages of the development of this sub-community often allow opportunity for colonisation by *Viola lactea*, scattered plants of which persist as the dominants expand.

Habitat

The *Ulex minor-Agrostis* heath is the characteristic sub-shrub community of impoverished acid soils which are protected against parching by a measure of drainage impedence and a moderately oceanic climate. This combination of environmental conditions is reflected in the general floristics of the community though, within its relatively small geographical range, burning and grazing still often exert an important measure of control on its composition and structure.

This kind of heath is more or less confined to the southern parts of Hampshire and Dorset, a region which

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shows a further shift in climatic conditions, compared with the High Weald and Thames basin, towards the warm oceanic environment characteristic of the far south-west. Annual rainfall, at between 800 and 1000 mm, is very much as over the whole of central southern and south-eastern England, and fairly well distributed throughout the year, though with a distinct winter peak (*Climatological Atlas* 1952, Chandler & Gregory 1976). Annual accumulated temperatures, too, are of much the same order as through the whole of southern Britain but the winters are noticeably mild, with February minima at least 1.5 °C above freezing and, in sites close to the coast, winter accumulated temperatures (December–March) above freezing (Page 1982).

Differences in sensitivity to winter cold may play some part in determining the distribution of the two gorses, *U. minor* and *U. gallii*, over this part of Britain (Proctor 1965): the general boundary between these species, running roughly from Salisbury to Dorchester, forms the western limit to this community, beyond which it is replaced by the *Ulex gallii-Agrostis curtisii* heath. The *Ulex minor-Agrostis* heath is thus one of two sub-shrub communities, the other being the *Calluna-Ulex minor* heath, that lie between the more oceanic *U. gallii* heaths of the south-west and the continental *Calluna-Festuca* heath of East Anglia. But the really distinctive feature here is the occurrence, together with *U. minor* and the more broadly oceanic *E. cinerea*, which are found together in both these heaths, of *E. tetralix* and *Molinia* and the more localised Oceanic West European grass, *A. curtisii*: this particular characteristic is related to climatic and soil conditions working together.

E. tetralix, like *E. cinerea*, retains a measure of physiological activity in winter and shows a broadly similar national distribution, becoming markedly infrequent towards the more continental east of Britain (Bannister 1965, 1966, Gimingham 1972). And, more particularly, the drier the climate, the greater the tendency for these two species to show a sharp edaphic separation, *E. cinerea* being confined to dry heaths of free-draining acidic soils, *E. tetralix* to wet heaths on strongly-impeded profiles, a relationship which probably reflects competitive interactions between the two, and with *Calluna* an associate throughout the edaphic range (Bannister 1964*d*, Gimingham 1972). With increasing oceanicity towards south-western Britain, not only do both species become more frequent but this exclusivity tends to break down somewhat, the wetter climate helping to maintain even free-draining acid soils in a rather moister state.

But edaphic conditions themselves, and topography, contribute to the development of this intermediate kind of heath habitat. In this central southern part of Britain, the community is one of a suite of heaths developed over base-poor and oligotrophic soils, which are extensively represented through the Hampshire Basin and around Poole Harbour on Tertiary sands and gravels and superimposed Plateau Gravels. Over the range of profiles developed from these parent materials, the *Ulex minor-Agrostis* heath occupies the middle range between excessively-draining humo-ferric podzols, typically supporting the *Calluna-Ulex minor* heath, and those mineral soils which are seasonally waterlogged to the surface, which have the *Ericetum tetralicis*. Between these extremes, the soils are often kept moist above, particularly in winter, by a measure of drainage impedence due to the development of an impervious B_{Fe} pan or to the presence of much fine fraction material in an argillic B horizon. Over the typically gently undulating topography of the terraces of the Hampshire/Poole basin, such intergrade stagnogley-podzols, gley-podzols and palaeo-argillic podzols are widespread on areas with a perched water-table and over the gently-sloping surrounds to wetter hollows (*Soil Survey* 1983, Jarvis *et al.* 1984). Here, the soil surface is not so consistently wet and reducing as to prohibit germination and growth of *E. cinerea* (Bannister 1964*a*, *d*, 1965, Jones & Etherington 1970, Jones 1971*a*, *b*), but sufficiently inhibiting of its vigour, and that of *Calluna*, as to allow *E. tetralix* to maintain itself (Rutter 1955, Bannister 1966, Gimingham 1972).

The combination of reasonably high levels of soil moisture with good aeration is also important for the two characteristic grasses of the community. *Molinia* tends to follow *E. tetralix* in its transgression into somewhat drier heaths in south-west Britain, though its vigour here, as in the *Ericetum*, is often hindered by the generally poor trophic state of the soils (Loach 1966, 1968*a*, *b*, Sheikh & Rutter 1969, Sheikh 1969*a*, *b*, 1970). *A. curtisii* is a more restricted species, both geographically and ecologically, than *Molinia*, but its limits of growth seem to be partly set by a balance of soil and climatic moisture that is well met on these kinds of profile in south-west Britain (Ivimey-Cook 1959) and this type of heath represents one of its major loci, particularly towards its eastern British limit. For *Deschampsia flexuosa*, on the other hand, conditions are clearly inimical: over the sequence of soils, the appearance of this grass typically marks the transition to the *Calluna-Ulex minor* heath on free-draining podzolic profiles, and soil moisture may be a critical factor in limiting its growth here.

Climatic and edaphic conditions thus play a major role in determining the general floristics of the community and its demarcation from closely-related heaths, but the appearance of any particular tract is often affected by treatment because a large proportion of the stands occurs within the New Forest where burning and grazing of the heaths are still practised. Burning is carried out here by the Forestry Commission on rotations of

6–12 years, to effect some control on accidental fires close to the woodlands and to regenerate a palatable bite for the cattle and ponies that have access to the unenclosed parts of the Forest (Tubbs 1968). Its general effect is to curtail the mature and degenerate phases of the *Calluna* growth cycle (Watt 1955) and, with grazing, to set back repeatedly any invasion of trees and seral progression to woodland. More particularly, burning helps maintain heterogeneity among the vascular component by providing occasional opportunities for the temporary local dominance of sub-shrubs or grasses before *Calluna* once more exerts its general pre-eminence. Among the former here, both *U. minor*, whose stools often survive fires to sprout vigorously afterwards, and *E. cinerea*, which also regenerates prolifically from seed on somewhat drier soils, can outstrip *Calluna* in the early years following burning (Gimingham 1972). Of the grasses, *Molinia* tussocks often survive less intense fires and show healthy regrowth with the flush of fertilising ash, but *A. curtisii* frequently shows the more dramatic response, with its ability to seed into open ground in great profusion (Ivimey-Cook 1959). Burning also influences the contribution of the ground flora because, though it pre-empts natural collapse of the older heather bushes which exposes mor and decaying branches for colonisation by bryophytes and lichens, it repeatedly creates areas of burned litter, humus and raw mineral material for invasion. Pleurocarpous mosses, like *Hypnum cupressiforme s.l.*, tend to be less conspicuous in this kind of heath, whereas acrocarpous invaders, such as *Campylopus brevipilus* and *Polytrichum juniperinum*, and *Cladonia* spp., particularly peat-encrusters, are frequent and locally prominent, sometimes for considerable periods before regrowth of the vascular plants. Floristic differences of these kinds are what separate the Typical and *Cladonia* sub-communities and, though no heather-ageing was carried out, it is highly likely that the former, with its more consistent dominance of *Calluna* and impoverished cryptogam flora, includes older stands, the latter those more recently burned.

Grazing interacts with the effects of burning, although very little systematic information is available as to how this works in this kind of heath. The most nutritious bite in this vegetation is provided by *Molinia* and, after fires, which are almost always in March where burning is deliberate, the speedy regrowth of this grass can offer valuable herbage. *A. curtisii* sprouts a little later from surviving tussocks but, although new growth or seedlings may be eaten, the tough wiry shoots of older plants may be relatively unpalatable (Ivimey-Cook 1959). Among the sub-shrubs, *U. minor* may be the most sensitive species and its relative scarcity in some areas could be related to heavy grazing. And, of course, herbivores are of major importance in cropping any tree seedlings that get a hold on areas of open ground exposed by fires.

It is likely that the striking abundance of *A. curtisii* and *E. cinerea* in the *Agrostis* sub-community is also sometimes related to the rapid colonisation of burned areas, but this kind of *Ulex minor-Agrostis* heath is also found where there has been physical disturbance of the soils, as along trackways, roadsides and railway embankments, and over the spoil from gravel and clay workings: in some areas, the underlying deposits contain materials of considerable economic value. Disruption of the existing vegetation cover here also provides ideal conditions for the appearance of *Viola lactea*, a species very intolerant of competition for its establishment and now largely confined to disturbed, acid soils within stretches of heathland in south-west England (Moore 1958). Its seeds may be dispersed by ants, an agent of some importance, too, for *U. europaeus* which is also preferential and whose frequency perhaps denotes some modest enrichment of the soils with disturbance. By and large, the profiles under the *Ulex minor-Agrostis* heath are impoverished, though perhaps not so starkly as beneath the *Calluna-Ulex minor* heath, particularly where they are argillic below, and aeration of the surface mor and disruption of the horizons in this sub-community may release some nutrients.

Zonation and succession

The *Ulex minor-Agrostis* heath is typically found as part of soil-related sequences in which the degree of drainage impedence is the most important governing factor. Burning and grazing can modify these sequences and their intensity ultimately controls succession to woodland. Although such treatments continue in many stands, much heath vegetation of this kind has been lost by abandonment of traditional land use and soil improvement for agriculture or forestry so surviving tracts can be much fragmented and sharply delineated from their surrounds.

Over more extensive stretches of heathland vegetation in central southern England, as in the New Forest where burning and grazing still maintain suites of sub-shrub communities over mosaics of different soil types, the *Ulex minor-Agrostis* heath occupies a distinct position on ground that is too dry for the *Ericetum tetralicis* wet heath and too moist for the *Calluna-Ulex minor* dry heath. In the former direction, an increased tendency for seasonal surface waterlogging in mineral soils is marked by the virtual extinction of *U. minor*, *E. cinerea* and *A. curtisii*, except in places where slight soligenous influence ameliorates the lack of aeration. *Calluna*, *Molinia* and *E. tetralix* maintain their frequency with the passage to the *Ericetum*, the last species especially benefiting from reduced competition from other sub-shrubs. On these moister soils, too, species such as *Scirpus cespitosus* and *Narthecium ossifragum*, which are very rare in the *Ulex minor-Agrostis* heath, begin to make a frequent appearance with *Sphagnum compactum*

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and *S. tenellum* becoming common in the ground layer. Such transitions as this are best seen around the margins of the elongated hollows that have been eroded into the sands and gravels of this part of Britain, the zonation sometimes continuing downslope over permanently-waterlogged ground with accumulating peat into the *Narthecio-Sphagnetum* valley bog. This is the kind of classic sequence described by Rose (1953) and Newbould (1960) and well shown around Cranesmoor, Denny, Wilverley and Holmsley bogs in the New Forest (Ratcliffe 1977).

In the other direction, the move from gleyed podzols of various kinds on to sharply-draining humo-ferric podzols sees a disappearance from the vegetation of *E. tetralix*, *Molinia* and *A. curtisii*, with *Calluna*, *E. cinerea* and *U. minor* continuing and, together with *Deschampsia flexuosa*, making up the bulk of the cover of the *Calluna-U. minor* heath which terminates the sequence developed in relation to soil moisture. Away from the sharply-defined valley-mire hollows, the vegetation pattern may be less well ordered and incomplete or with the drier or wetter elements prevailing according to local topography and hydrology. Over the landscape of the New Forest, for example, dry heath predominates over the well-drained slopes of Tertiary sands in the higher north-west with wetter heath restricted to ill-drained fragments of Plateau Gravel terraces; in the lower southern part of the area, damp heath is more abundant though most of the terraces are here better drained and have dry heath (Lambert & Manners 1964, Fisher 1975*a*, *b*). And the pattern may be further complicated by the local pre-eminence of other edaphic factors where parent materials and soils change. Well-drained acid brown earths, for example, weathered from sandy or clay-sandy substrates, often have patches of the *Pteridium-Galium* community, and more fertile or disturbed ground, the *Ulex-Rubus* scrub, to which the *Agrostis* sub-community may grade, in the New Forest gorse 'brakes'.

Although this part of Britain is quite exceptional in the extent to which it still retains large areas of these vegetation types disposed in extensive zonations, essentially the same mixture of communities is to be seen in the other major centre for the *Ulex minor-Agrostis* heath, around Poole Harbour. Here, on the Hartland–Arne and Studland–Godlingston heaths, originally continuous stretches of sub-shrub vegetation have been much fragmented (Moore 1962, Webb 1986), though there are the additional features of the presence of *E. ciliaris* in this and other communities and the striking juxtaposition of the heaths with open fresh-water and maritime vegetation types.

In the long term, burning and grazing, which played a vital part in the development of this kind of open heath landscape, perhaps as early as the Mesolithic and certainly by the Bronze Age (e.g. Dimbleby 1962, Tubbs 1968, Haskins 1978, Webb 1986), are essential for its maintenance against succession to woodland. These treatments can confuse the soil-related boundaries between the heath types, as where burned or grazed areas cut across the major line of variation and favour the temporary expansion of some species common to more than one of the communities, such as *E. cinerea* or *Molinia*, or the more general long-term predominance of *Calluna* throughout. They can also mediate transitions to grasslands dominated by *Molinia* or *A. curtisii*, which can develop a stability of their own (e.g. Tubbs 1968). But their ultimate effect is repeatedly to set back invasion of trees, most characteristically on these soils both species of birch, *Quercus robur* and *Pinus sylvestris*, the last often abundantly represented in plantations established among stands of the community. Succession has not been followed but is likely to result in the development of drier *Betula-Molinia* woodland, usually dominated by poorly-grown birch. Under the rather open canopy typical of this community, *Molinia* persists in abundance with *A. curtisii* less shade-tolerant, and sub-shrubs usually confined to gaps.

Distribution

The *Ulex minor-Agrostis* heath is confined to south Dorset and Hampshire.

Affinities

In general terms, this community falls within the more southerly group of Böcher's (1943) eu-oceanic *E. cinerea* heaths in which one or other of the gorse species, *U. minor* or *U. gallii*, makes an important contribution. On one view, it can be placed with the *Calluna-U. minor* heath as part of the sub-shrub vegetation characteristic of the moderately oceanic area between the Poole basin and the High Weald, as in the treatments of Tansley (1911, 1939), who distinguished this kind of heath within a broadly-defined *Callunetum*, and Gimingham (1972), who recognised a more narrow vegetation type with *Calluna* and *U. minor*. Phytosociologically, such communities can be located in the Ulicion nanae Duvigneaud 1944, marked off from the Ulicion gallii Des Abbayes & Corillion 1949 at the sharply-defined line of geographical separation of the two gorse species, a vicarism maintained throughout western Europe.

In another direction, the *Ulex minor-Agrostis* heath has floristic affinities which bridge this gap. West of Poole, it is replaced by the *Ulex gallii-Agrostis* heath, but the two share the constancy of *E. tetralix* and *Molinia*, now beginning to transgress on to more free-draining soils with the increasing oceanicity of the climate, and thus bringing the vegetation a little closer to the Ericion tetralicis wet heaths, and also of the geographically and ecologically more restricted *A. curtisii* (Ivimey-Cook 1959).

Floristic table H3

	a	b	c	3
Ulex minor	V (3–7)	V (3–6)	V (1–5)	V (1–7)
Agrostis curtisii	V (3–8)	V (3–6)	V (8–9)	V (3–9)
Molinia caerulea	V (2–7)	V (1–7)	IV (1–5)	V (1–7)
Erica cinerea	V (1–8)	V (2–6)	V (5–9)	V (1–9)
Calluna vulgaris	V (2–10)	V (4–8)	II (2–4)	IV (2–10)
Erica tetralix	V (2–8)	V (1–6)	II (1–2)	IV (1–8)
Potentilla erecta	II (2–4)	I (2)	I (1)	I (1–4)
Erica ciliaris	II (5–10)	I (2)		I (2–10)
Betula spp. sapling	II (1–5)			I (1–5)
Cuscuta epithymum	I (3–5)			I (3–5)
Zygogonium ericetorum	I (2–3)			I (2–3)
Danthonia decumbens	I (2–3)			I (2–3)
Hypericum pulchrum	I (2–3)			I (2–3)
Schoenus nigricans	I (3–7)			I (3–7)
Campylopus brevipilus	I (2–3)	III (2–4)		II (2–4)
Cladonia impexa	I (1–7)	III (1–4)		II (1–7)
Cladonia floerkeana	I (2–3)	III (1–3)		II (1–3)
Polygala serpyllifolia	I (2)	III (1–3)	I (2)	II (1–3)
Polytrichum juniperinum	I (2)	II (1–2)		I (1–2)
Kurzia sp.		II (1–3)		I (1–3)
Cladonia coccifera		II (1–3)		I (1–3)
Cladonia pyxidata		II (1–2)		I (1–2)
Campylopus paradoxus		I (2–3)		I (2–3)
Cladonia crispata		I (1–3)		I (1–3)
Ulex europaeus	II (2–10)	II (1–5)	V (1–4)	III (1–10)
Viola lactea	I (3)		III (1–3)	I (1–3)
Pteridium aquilinum	I (2–3)	I (1–5)	I (1–4)	I (1–5)
Carex pilulifera	I (2–3)	I (2)	I (1)	I (1–3)
Hypnum jutlandicum	I (2–8)	I (1–7)		I (1–8)
Leucobryum glaucum	I (2–3)	I (5)		I (2–5)
Hypogymnia physodes	I (1–2)	I (2)		I (1–2)
Cladonia uncialis	I (2)	I (2–4)		I (2–4)
Cladonia arbuscula	I (2)	I (1)		I (1–2)
Quercus robur sapling	I (2)		I (1)	I (1–2)
Number of samples	26	18	9	53
Number of species/sample	9 (6–13)	11 (8–17)	7 (6–9)	9 (6–17)
Vegetation height (cm)	30 (25–40)	25 (20–35)	30	28 (20–40)
Shrub/herb cover (%)	99 (85–100)	92 (60–100)	100	96 (60–100)
Ground cover (%)	8 (0–70)	11 (1–85)	1 (0–1)	8 (0–85)
Altitude (m)	43 (5–180)	57 (25–150)	28 (25–30)	46 (5–180)
Slope (°)	4 (0–20)	6 (0–20)	0	3 (0–20)

a Typical sub-community
b *Cladonia* spp. sub-community
c *Agrostis curtisii* sub-community
3 *Ulex minor-Agrostis curtisii* heath (total)

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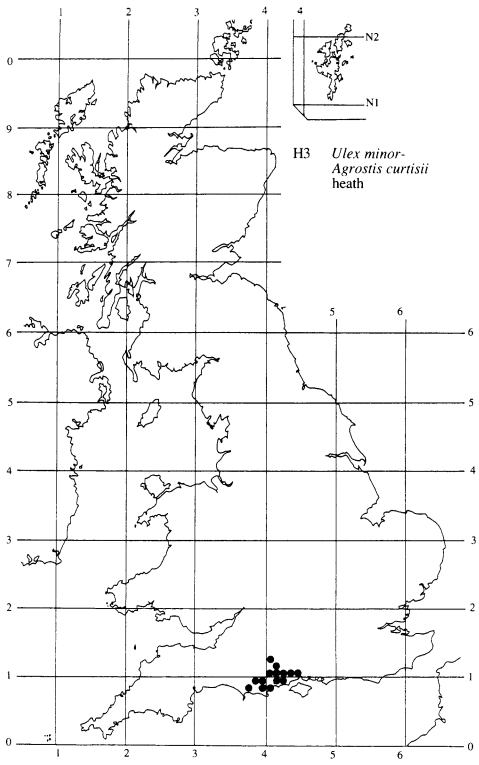

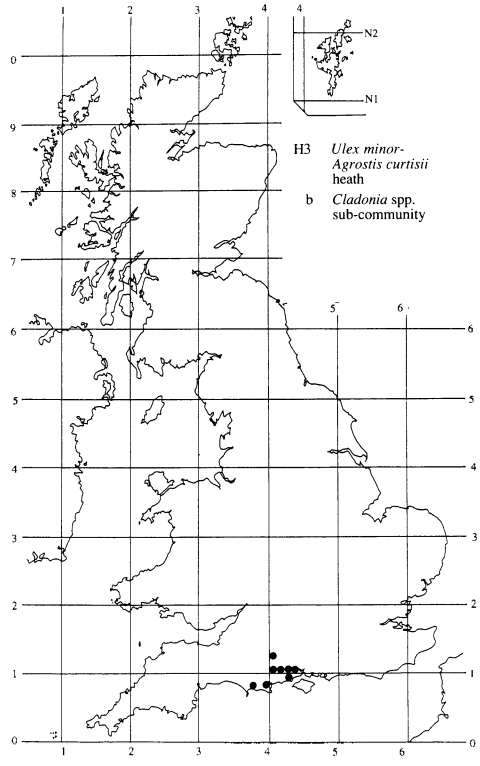

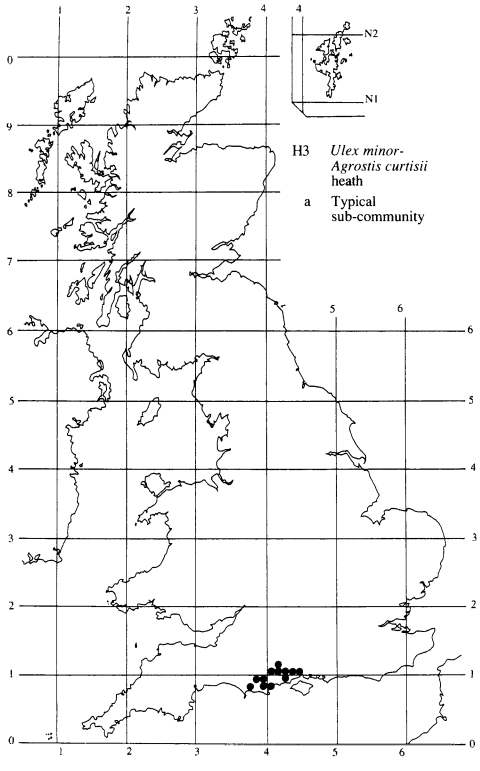

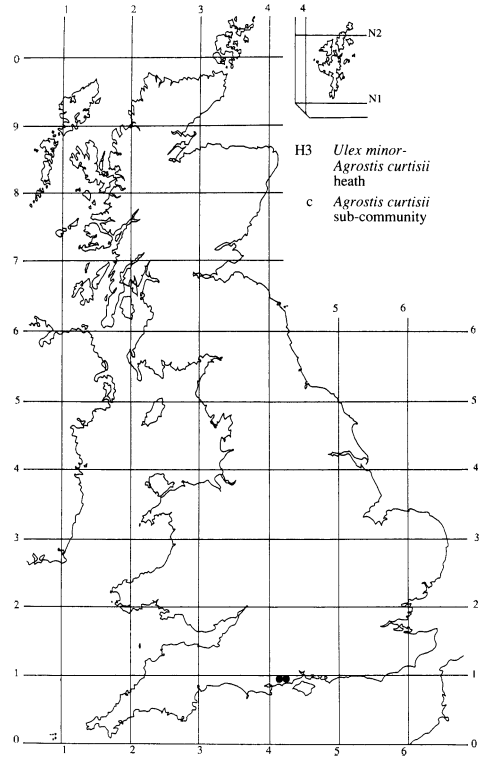

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