MC12
Festuca rubra-Hyacinthoides non-scripta maritime bluebell community

Synonymy
Pteridietum aquilini Goodman & Gillham 1954 *p.p.*; *Endymio-Armerietum maritimae* Malloch 1971.

Constant species
Festuca rubra, *Hyacinthoides non-scripta*, *Rumex acetosa*, *Holcus lanatus*.

Rare species
Scilla verna.

Physiognomy
The *Festuca-Hyacinthoides* community comprises a lush carpet of *F. rubra* and *H. non-scripta* with *Holcus lanatus* (sometimes abundant) and scattered plants of *Rumex acetosa*. Few other species are uniformly frequent throughout but *Daucus carota* ssp. *gummifer* occurs occasionally. *Scilla verna* and *Sedum telephium* are distinctive at low frequencies.

Sub-communities

***Armeria maritima* sub-community:** *Endymio-Armerietum maritimae*, *Cochlearia officinalis* sub-association Malloch 1971. *A. maritima* and *Silene vulgaris* ssp. *maritima* attain constancy in the grassier sward of this sub-community where *H. lanatus* and (especially) *F. rubra* tend to rival *H. non-scripta* in abundance. *Cochlearia officinalis* is differential and there are small amounts of other maritime species: *C. danica*, *Beta vulgaris* spp. *maritima* and *Spergularia rupicola.*

***Ranunculus ficaria* sub-community:** *Endymio-Armerietum maritimae*, *Ranunculus ficaria* sub-association Malloch 1971. *H. non-scripta* is much more consistently dominant here though *F. rubra*, *H. lanatus* and *Dactylis glomerata* are all constant contributors to the sward. The most distinctive feature of the vegetation, however, is the constancy in small amounts of *R. ficaria* and the preferential occurrence of *Heracleum sphondylium*, *Galium verum* and *Pteridium aquilinum* and a variety of species characteristic of scrub and woodland: *Brachypodium sylvaticum*, *Primula vulgaris*, *Viola riviniana*, *Hedera helix* and *Rubus fruticosus* agg.

Habitat
The *Festuca-Hyacinthoides* community is most characteristic of situations where deep, moist and fertile brown soils develop under moderate maritime influence and it is usually found on gentle to moderate north-facing slopes or in deep gullies fairly high on cliffs. It occurs on most rock types apart from chalk and limestones and is especially well developed on more easily weathered materials like the hornblende schists and diabases of the Lizard and Land's End where stands of the community present a very striking appearance. It is always ungrazed.

The conditions under which the community is best developed match well those which Blackman & Rutter (1950, 1954) considered optimal for the growth of *H. non-scripta* apart from the soil mineral status which is here fairly high. They suggested that a low mineral status helps prevent the growth of luxuriant grasses which might effectively compete with the *H. non-scripta*. It is possible that here even the moderate maritime influence prohibits the spread of such species as *Arrhenatherum elatius* which might otherwise be encouraged.

Zonation and succession
The community occurs at about the same level on cliffs as maritime heaths, grading below to *Festuca-Holcus* maritime grassland. Despite the representation of scrub and woodland species within the community, there is little evidence of any succession from or to such communities. It is hard to see how some stands of the *Festuca-Hyacinthoides* community could have ever carried a shrub or tree canopy; nor are they ever likely to

develop one in even the moderate exposure to salt-spray. The spread of *Pteridium aquilinum* may likewise be inhibited by maritime influence but it is possible that high levels of soil moisture also play a part in preventing its spread.

Distribution

The community is sparsely distributed from south-west England northwards to Skye.

Affinities

Apart from incidental references (e.g. Blackman & Rutter 1954, Goodman & Gillham 1954, Géhu 1960), there is no account of this kind of vegetation in the descriptive or phytosociological literature. Malloch (1970, 1971) proposed that it could be accommodated with other maritime swards within his new alliance, the Silenion maritimae, of the Asteretea.

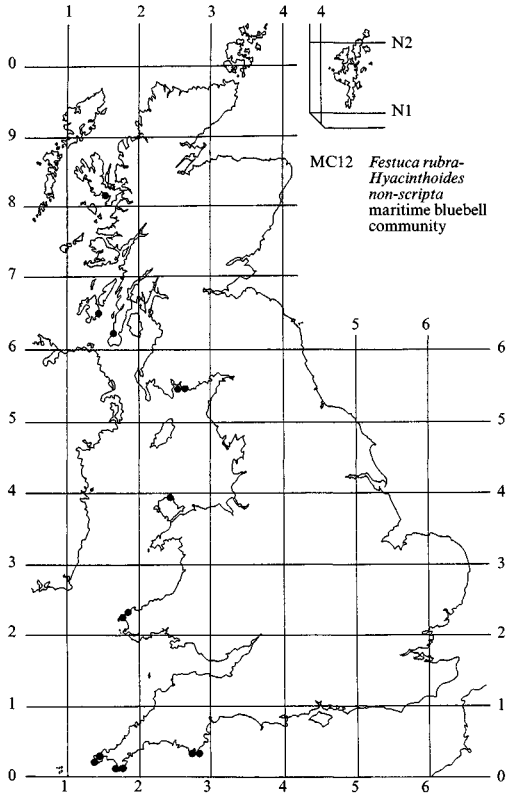
Floristic table MC12

	a	b	12
Festuca rubra	IV (2–6)	V (4–9)	V (2–9)
Hyacinthoides non-scripta	V (3–9)	V (2–9)	V (2–9)
Rumex acetosa	IV (1–4)	V (1–5)	V (1–5)
Holcus lanatus	III (1–8)	IV (2–6)	IV (1–8)
Ranunculus ficaria	V (1–5)		II (1–5)
Dactylis glomerata	V (2–6)	II (1–7)	III (1–7)
Heracleum sphondylium	III (1–3)	II (1–4)	II (1–4)
Galium verum	II (1–3)	I (2)	II (1–3)
Pteridium aquilinum	II (1–5)	I (2–5)	II (1–5)
Brachypodium sylvaticum	II (2–6)	I (4–5)	II (2–6)
Primula vulgaris	II (2–5)	I (2–5)	II (2–5)
Viola riviniana	II (2–4)	I (2–3)	I (2–4)
Hedera helix	II (1–8)		I (1–8)
Rubus fruticosus agg.	II (1–4)		I (1–4)
Vicia sativa	I (1–2)		I (1–2)
Silene vulgaris maritima	II (1–5)	IV (1–6)	III (1–6)
Armeria maritima	I (1–5)	V (1–5)	III (1–5)
Cochlearia officinalis		III (2–5)	II (2–5)
Lotus corniculatus	I (1–3)	II (2–3)	II (1–3)
Beta vulgaris maritima		I (1–4)	I (1–4)
Arrhenatherum elatius		I (5–6)	I (5–6)
Cochlearia danica		I (1)	I (1)
Spergularia rupicola		I (3)	I (3)
Lotus uliginosus		I (3)	I (3)
Daucus carota gummifer	II (1–3)	II (1–3)	II (1–3)
Achillea millefolium	I (2–4)	I (2–3)	I (2–4)
Anthoxanthum odoratum	I (4–6)	I (4)	I (4–6)
Hypochoeris radicata	I (1–2)	I (1–3)	I (1–3)
Plantago lanceolata	I (1–3)	I (1–3)	I (1–3)
Potentilla erecta	I (3)	I (2)	I (2–3)
Scilla verna	I (1–2)	I (2–3)	I (1–3)
Sedum telephium	I (3)	I (1–4)	I (1–4)
Sonchus oleraceus	I (1)	I (1)	I (1)
Cirsium vulgare	I (1)	I (1)	I (1)
Ononis repens	I (3)	I (5)	I (3–5)

Floristic table MC12 (*cont.*)

	a	b	12
Number of samples	17	21	38
Number of species/sample	11 (8–17)	10 (6–18)	10 (6–18)
Vegetation height (cm)	25 (6–40)	27 (10–50)	25 (6–50)
Total vegetation cover (%)	99 (85–100)	99 (80–100)	99 (80–100)
Altitude (m)	28 (3–50)	31 (3–48)	29 (3–50)
Slope (°)	13 (7–35)	17 (0–60)	15 (0–60)
Soil depth (cm)	29 (6–50)	30 (10–75)	30 (6–75)
Number of soil samples	5	9	14
Superficial pH	5.3 ±0.3	5.6 ±0.2	5.5 ±0.2
Water content (% soil dry weight)	157 ±45	104 ±13	123 ±18
Loss on ignition (% soil dry weight)	34 ±5	31 ±3	32 ±3
Sodium (mole g^{-1})	43 ±7	69 ±15	60 ±11
Potassium (mole g^{-1})	14 ±2	15 ±2	15 ±2
Magnesium (mole g^{-1})	59 ±18	69 ±15	65 ±11
Calcium (mole g^{-1})	15 ±3	22 ±5	20 ±3
Phosphorus (mole g^{-1})	0.65 ±0.2	4.19 ±1.7	2.9 ±1.1
Sodium/loss on ignition (mole g^{-1})	138 ±27	222 ±29	192 ±23

a *Ranunculus ficaria* sub-community
b *Armeria maritima* sub-community
12 *Festuca rubra-Hyacinthoides non-scripta* maritime bluebell community (total)



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