M35
Ranunculus omiophyllus-Montia fontana rill

Constant species
Montia fontana, *Ranunculus flammula*, *R. omiophyllus*, *Sphagnum auriculatum*.

Physiognomy
Ranunculus omiophyllus-Montia fontana rills typically have a rather crowded, though not always continuous, cover of vascular plants and bryophytes, much of the growth often submerged in the shallow waters, with a floating or shortly-emergent canopy. *Ranunculus omiophyllus* is often abundant, its delicate white summer flowers set off against the dark green of the floating leaves, and there is very frequently some *Montia fontana*. Then, the bronze-coloured floating leaves of *Potamogeton polygonifolius* are commonly prominent and there can be local patches of *Agrostis stolonifera*, *Glyceria fluitans*, *Juncus bulbosus*, *J. articulatus* and *Callitriche stagnalis* and scattered plants of *Ranunculus flammula*, *Myosotis secunda* and *Stellaria alsine* with, more occasionally, *Ranunculus repens*, *Equisetum palustre*, *Hydrocotyle vulgaris*, *Galium palustre* and *Lotus uliginosus*. *Juncus bufonius* and *Scirpus setaceus* can also sometimes be seen on open patches of wet mud.

Bryophytes quite commonly make a substantial contribution to the cover, though the frequent species are very few. Often, there are red-brown clumps of *Sphagnum auriculatum* growing semi-submerged and fresh-green patches of *Philonotis fontana* but, apart from occasional *Polytrichum commune*, other species are sparse with just scattered records for such plants as *Calliergon cuspidatum*, *C. stramineum*, *Drepanocladus exannulatus*, *D. vernicosus*, *Scapania irrigua* and *Rhytidiadelphus squarrosus*.

Habitat
This community is typical of spring-heads and rills at moderate altitudes in south-western Britain, where there is irrigation with circumneutral and probably quite oligotrophic waters.

Phytogeographically, the *Ranunculus-Montia* community can be seen as an oceanic replacement for the *Philonoto-Saxifragetum*. It has been recorded only from south-western England, Wales and from around the Lake District, though further sampling may well reveal that it occurs throughout the British range of *R. omiophyllus*, an Oceanic West European plant which is found in central southern and south-west England, through much of north-west England and south-west Scotland. All known stands of the community fall within that part of the country with mild winters, where February minima are by and large more than 1 °C above freezing (*Climatological Atlas* 1952) though, apart from the presence of *R. omiophyllus* and the generally Atlantic *S. auriculatum* such conditions make themselves felt here mostly in a negative way, with the very obvious exclusion of species characteristic of montane springs, such as *Saxifraga stellaris*, *Epilobium anagallidifolium*, *E. alsinifolium*, *Pohlia ludwigii*, *P. wahlenbergii* var. *glacialis* and *Bryum weigelii*.

The continuing prominence of plants like *Montia fontana*, *Juncus bulbosus*, *Ranunculus flammula*, *Philonotis fontana* and *Sphagnum auriculatum*, strongly reflects the character of the irrigating waters here which, as in the Montion springs, are typically rather base- and nutrient-poor, with pH values ranging from 4.5 to 6.5. Throughout the south-west, springs and rills of this kind are widespread over the acidic rocks which comprise the bulk of the uplands and here the community is often seen as a component of moorland vegetation, generally between 250 and 450 m, in areas such as Dartmoor and Bodmin Moor, where granite underlies the stands, and around the lower reaches of the Welsh and Cumbrian hills, where there is a wider variety of suitable rocks and drift. Irrigation can be quite vigorous though the community can subsist in gentle trickles of water.

Zonation and succession
The *Ranunculus-Montia* community can be found among a wide variety of vegetation types on the drier peats and acidic mineral soils around its springs and

rills. A common context is provided by the *Scirpus-Eriophorum* blanket mire or *Scirpus-Erica* wet heath over thin peats, by drier heaths like the *Ulex gallii-Agrostis* heath in the south-west and the *Calluna-Erica* and *Calluna-Vaccinium* heaths in Wales, and derived Nardo-Galion swards maintained by grazing.

Quite often, the community can pass downstream, in more sluggish and impermanent rills, to the *Hyperico-Potametum*.

Distribution

Commonest in south-western England and Wales, the *Ranunculus-Montia* community may well extend into other parts of the warmer oceanic region of Britain.

Affinities

This kind of vegetation has attracted little attention in the literature, apart from rather informal descriptions of moorland streams (e.g. Tansley 1911), though it is unique in its floristics. The presence of such plants as *P. polygonifolius*, *J. bulbosus* and *R. flammula* brings the community close to the *Hyperico-Potametum*, which has a similar British distribution, and Westhoff & den Held (1969) regard *R. omiophyllus* as a character species of the Potamion graminei in the Potametea. On balance, however, it seems preferable to locate the *Ranunculus-Montia* rill in neither that alliance nor among the Hydrocotylo-Baldellion vegetation but with the other flushes of base-poor, oligotrophic waters, in the Montion. The community can then be seen as an oceanic counterpart of the *Philonoto-Saxifragetum* and *Sphagno-Anthelietum*, from which it can generally be separated by the absence of montane plants. Like those communities, it grades to species-poor stands, in this case with little more than swelling masses of *Sphagnum auriculatum* with a very few scattered herbs, which it can be very difficult to classify.

Floristic table M35

Ranunculus omiophyllus	V (3–9)	*Carex nigra*	I (1–2)
Montia fontana	IV (3–8)	*Poa annua*	I (2)
Sphagnum auriculatum	IV (2–10)	*Trifolium repens*	I (2–3)
Ranunculus flammula	IV (2–5)	*Scirpus setaceus*	I (3)
Agrostis stolonifera	III (3–5)	*Sagina procumbens*	I (3)
Juncus bulbosus	III (2–6)	*Carex panicea*	I (1–2)
Juncus articulatus	III (1–4)	*Calliergon cuspidatum*	I (1–3)
Philonotis fontana	III (1–2)	*Rhytidiadelphus squarrosus*	I (1–2)
Myosotis secunda	III (2–5)	*Nardus stricta*	I (3)
Potamogeton polygonifolius	III (4–9)	*Molinia caerulea*	I (2)
Callitriche stagnalis	II (2–7)	*Holcus mollis*	I (3)
Juncus bufonius	II (1–3)	*Chamaemelum nobile*	I (6)
Glyceria fluitans	II (2–5)	*Alopecurus geniculatus*	I (4)
Stellaria alsine	II (2–3)	*Carex echinata*	I (2)
Poa trivialis	II (2–4)	*Cardamine pratensis*	I (4)
Polytrichum commune	II (2–3)	*Scapania irrigua*	I (2)
Equisetum palustre	I (3–5)	*Drepanocladus exannulatus*	I (2)
Hydrocotyle vulgaris	I (4)	*Epilobium palustre*	I (3)
Agrostis canina	I (2–3)	*Brachythecium rivulare*	I (1)
Ranunculus repens	I (2–4)	*Calliergon stramineum*	I (1)
Galium palustre	I (2–4)	*Drepanocladus vernicosus*	I (1)
Lotus uliginosus	I (2–4)		
Juncus effusus	I (2)	Number of samples	12

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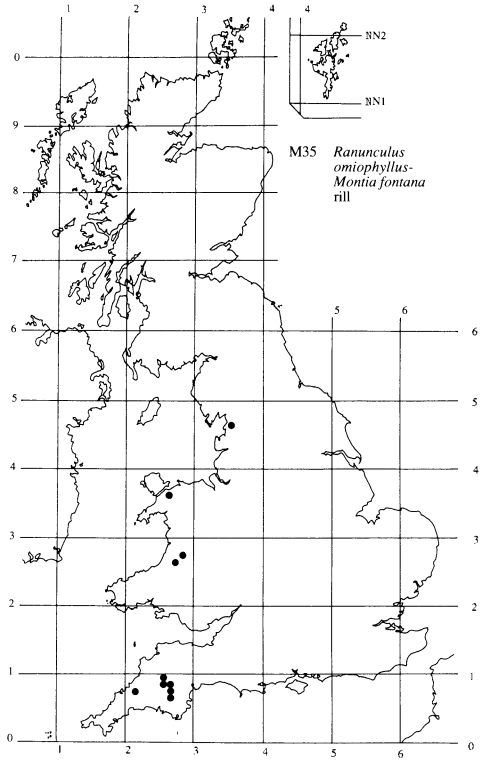

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