M4
Carex rostrata-Sphagnum recurvum mire

Synonymy
Sphagneto-Juncetum effusi, *Carex rostrata* facies Eddy *et al.* 1969; *Carex lasiocarpa-Menyanthes trifoliata* Association Birks 1973 *p.p.*; *Carex rostrata-Carex limosa* nodum Birks 1973 *p.p.*; *Sphagno-Caricetum curtae* Passarge 1964 *sensu* Birse 1980; *Caricetum chordorrhizae* Paul & Lutz 1941 *sensu* Birse 1980; *Caricetum rostratae* Dierssen 1982 *p.p.*; *Caricetum limosae* Dierssen 1982 *p.p.*; *Caricetum lasiocarpae* Dierssen 1982 *p.p.*

Constant species
Carex rostrata, *Polytrichum commune*, *Sphagnum cuspidatum*, *S. recurvum*.

Rare species
Carex chordorrhiza, *Lysimachia thyrsiflora*.

Physiognomy
The *Carex rostrata-Sphagnum recurvum* mire typically has a cover of sedges over a carpet of semi-aquatic Sphagna, with generally a very small contribution from vascular associates. *Carex rostrata* is the commonest sedge throughout, forming a usually rather open cover of shoots a few decimetres tall, but it can be accompanied by *C. curta*, *C. lasiocarpa*, *C. limosa* or *C. nigra* and the first two especially can be locally prominent, as in some stands in Birks' (1973) *Carex lasiocarpa-Menyanthes* Association and the *Sphagno-Caricetum curtae* (Passarge 1964) of Birse (1980). The kind of vegetation in which the very rare *C. chordorrhiza* occurs in Sutherland is also probably best considered as part of this community (Birse 1980, who placed it in a distinct *Caricetum chordorrhizae* Paul & Lutz 1941). Occasionally, this taller element is enriched by *Eriophorum angustifolium*, though this is typically less frequent here than in the Rhynchosporion bog pools, or by *Juncus effusus* or *J. acutiflorus*, though these do not show the regular pattern of dominance that they can exhibit in the *Carex echinata-Sphagnum* mire.

Beneath this cover, there is a generally extensive soft wet carpet of Sphagna, among which *Sphagnum recurvum* and *S. cuspidatum* are the most frequent and usually the most abundant. *S. auriculatum* (including var. *inundatum*) occurs quite commonly, too, and there is the suggestion among the available samples that it shows the same increase towards more oceanic regions that can be seen in the Rhynchosporion (e.g. Birks 1973, Birse 1980). *S. palustre* is occasional and there are sparse records for *S. subnitens* and *S. papillosum*, but more base-tolerant *S. squarrosum* and *S. teres* are characteristically rare, a good contrast with the *Carex rostrata-Sphagnum squarrosum* mire. Other bryophytes are few, but *Polytrichum commune* is very frequent and it can be abundant in the carpet as scattered patches. *Aulacomnium palustre* and *Calliergon stramineum* occur very sparsely, a further distinction between this community and the *Carex-Sphagnum squarrosum* and *Carex-Sphagnum warnstorfii* mires.

Scattered through this ground cover are individuals of a rather impoverished poor-fen herb flora. The commonest species throughout are *Agrostis canina* ssp. *canina* and *A. stolonifera*, which can be locally quite abundant as stoloniferous mats, *Molinia caerulea*, *Potentilla erecta*, *Galium palustre*, *Rumex acetosa*, *Viola palustris*, *Succisa pratensis* and *Stellaria alsine*, though usually only one or two of these are present in any particular stand. *Potentilla palustris*, *Menyanthes trifoliata* and *Equisetum fluviatile* occur occasionally and locally can be found together with the consistency typical of other *Carex rostrata*-dominated communities. In some stands there may be such Littorelletea species as *Potamogeton polygonifolius* and *Juncus bulbosus* (e.g. Birse's (1980) *Caricetum chordorrhizae*) and *Hypericum elodes* has been recorded from this vegetation.

Habitat
The *Carex rostrata-Sphagnum recurvum* mire is characteristic of pools and seepage areas on the raw peat soils of topogenous and soligenous mires where the waters

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are fairly acid and only slightly enriched. The habitat is typically a little less oligotrophic than that of the Rhynchosporion communities, a feature reflected in the prominence of *Sphagnum recurvum* and *S. palustre* and the sparse occurrence of poor-fen herbs. However, though the community can occur in bog pools on the surface of basin (and sometimes raised) mires, it is more common in obviously soligenous areas, as in mire laggs and in the very wettest parts of water-tracks. Even here, however, the enrichment is only modest: the drainage is generally from acid soils or ombrogenous peat and the surface pH is typically around 4. No data are available on the calcium content of the irrigating waters but it is likely to be less than even the fairly small amounts characteristic of the *Carex rostrata-Sphagnum squarrosum* mire where *Carex nigra*, more base-tolerant Sphagna, *Aulacomnium palustre*, *Calliergon stramineum* and the poor-fen dicotyledons begin their ascendancy.

Zonation and succession

The community is typically found within or alongside Erico-Sphagnion mires, such as the *Erica-Sphagnum papillosum* raised or basin mire, or Ericion wet heaths, notably the *Scirpus-Erica* wet heath, either alone in fairly well-defined bog pools and soakways or in more complex mosaics with other poor-fen communities in more extensive soligenous areas. Most often, it marks out the wettest areas in the latter where water movement is quite diffuse, commonly passing to a fringe or water-track of the *Carex echinata-Sphagnum* mire on shallower and firmer peats where the throughput is more pronounced. In some places, Littorelletea communities occur alongside the *Carex rostrata-Sphagnum recurvum* mire in such complexes.

The place of the community in terrestrialising successions is obscure. As with the Rhynchosporion bog pools, this kind of vegetation may be very stable provided the high water-table and modest irrigation are maintained. The most common changes encountered now are probably those caused by drainage which produces a demise of the more aquatic Sphagna and perhaps a transition to the *Carex echinata-Sphagnum* mire with, where there is grazing, a spread of *Juncus* dominance.

Distribution

The community is of widespread but local occurrence throughout the north-west of Britain and probably remains as remnants in drained mire systems in the lowlands.

Affinities

The *Carex rostrata-Sphagnum recurvum* mire takes in stands dominated by various less common sedges (e.g. *C. lasiocarpa*: Birks 1973, Birse 1980, Dierssen 1982) but which are nevertheless similar in overall species composition and physiognomy. The community lies very close to the floristic boundary between the Caricion nigrae and the Rhynchosporion and on balance, it is probably best placed in the former as the most impoverished of the suite of poor fens.

Floristic table M4

Carex rostrata	V (3–9)	*Rumex acetosa*	I (1)
Sphagnum recurvum	IV (6–9)	*Menyanthes trifoliata*	I (5)
Polytrichum commune	IV (2–8)	*Galium uliginosum*	I (3)
Sphagnum cuspidatum	IV (3–10)	*Deschampsia flexuosa*	I (4)
Agrostis canina canina	III (2–8)	*Aulacomnium palustre*	I (3)
Carex nigra	II (2–5)	*Viola palustris*	I (2–3)
Carex curta	II (2–9)	*Stellaria alsine*	I (1)
Eriophorum angustifolium	II (2–4)	*Succisa pratensis*	I (4)
Juncus effusus	II (2–7)	*Galium saxatile*	I (4)
Sphagnum palustre	II (4–10)	*Calliergon stramineum*	I (4)
Agrostis stolonifera	II (2–4)	*Lophocolea bidentata s.l.*	I (3)
Sphagnum auriculatum	II (1–9)	*Sphagnum subnitens*	I (4)
Potentilla erecta	II (1–4)	*Equisetum fluviatile*	I (2)
Juncus acutiflorus	II (4–5)	*Potamogeton polygonifolius*	I (5)
Molinia caerulea	II (3–5)	*Drepanocladus exannulatus*	I (5)
Potentilla palustris	I (4–5)	*Cardamine pratensis*	I (2)
Hydrocotyle vulgaris	I (4)	*Juncus bulbosus/kochii*	I (2–3)
Galium palustre	I (3)	*Carex echinata*	I (2–3)
Sphagnum squarrosum	I (4–5)	*Drosera rotundifolia*	I (2)

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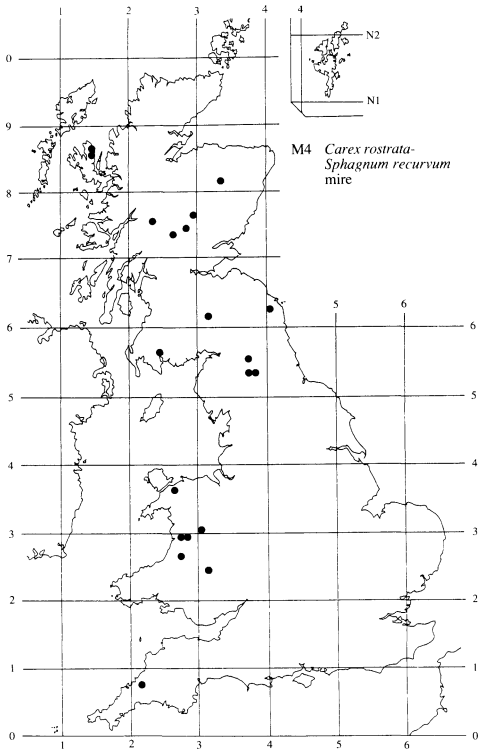
Floristic table M4 *(cont.)*

Anthoxanthum odoratum	I (1–3)
Hypnum jutlandicum	I (4)
Iris pseudacorus	I (6)
Epilobium anagallidifolium	I (2)
Montia fontana	I (1)
Saxifraga stellaris	I (1)
Carex limosa	I (4)
Lysimachia thyrsiflora	I (5)
Hypericum elodes	I (1)
Glyceria fluitans	I (1)
Sphagnum papillosum	I (7)
Eriophorum vaginatum	I (4)
Number of samples	25
Number of species/sample	10 (2–15)
Herb height (cm)	33 (12–50)
Herb cover (%)	67 (15–100)
Bryophyte height (mm)	40 (5–120)
Bryophyte cover (%)	88 (30–100)
Altitude (m)	365 (107–730)
Soil pH	4.5 (3.5–5.8)



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