

---

## S3

### *Carex paniculata* sedge-swamp

### *Caricetum paniculatae* Wangerin 1916

#### Synonymy

*Caricetum paniculatae* Tansley 1939; Primary tussock fen Lambert 1951 *p.p.*; *Carex paniculata* swamp Poore & Walker 1959, Sinker 1962; *Carex paniculata-Angelica sylvestris* sociation Spence 1964 *p.p.*; *Caricetum paniculatae typicum* Wheeler 1980a; *Carex paniculata-Rubus fruticosus* community Ratcliffe and Hattey 1982.

#### Constant species

*Carex paniculata*.

#### Physiognomy

The *Caricetum paniculatae* is dominated by tussocks of *Carex paniculata*, the stocks of which may attain a massive size, often reaching more than 1 m in height and diameter and being crowned by spreading stems and leaves 1 m or so long. Between the tussocks, which, at one site (Sweat Mere, Shropshire: Clapham in Tansley 1939), had centres 0.75–3 m apart, there is standing water or exposed peat and silt. Here, the vegetation is characteristically sparse and species-poor. There may be a few shoots of emergent *Phragmites australis*, *Sparganium erectum*, *Typha latifolia*, *Equisetum fluviatile* or *Epilobium hirsutum* and, beneath scattered plants of *Caltha palustris*, *Viola palustris* and *Myosotis scorpioides* and sometimes *Potentilla palustris* and *Menyanthes trifoliata*; in other cases, just a few wefts of *Eurhynchium praelongum* and *Brachythecium rutabulum* and occasional plants of *Lemna minor* occur on largely bare expanses of substrate.

The tussocks themselves usually support some epiphytes, although the flora here is never as rich as that on *C. paniculata* tussocks in the *Peucedano-Phragmitetum* and the *Phragmites australis-Eupatorium cannabinum* fen. In particular, seedlings of *Salix cinerea* or, in the north, *S. atrocinerea*, and *Alnus glutinosa*, are rare. However, some of the following are generally present: *Angelica sylvestris*, *Filipendula ulmaria*, *Galium palustre*, *Rubus fruticosus* agg., *Solanum dulcamara* and, particu-

larly distinctive, *Athyrium filix-femina* and *Dryopteris dilatata*.

#### Habitat

The community is most characteristic of the shallows of lowland open-water transitions such as occur around lakes, pools and abandoned ox-bows. Less frequently, it may be found in basin, valley and flood-plain mires and in peat cuttings. *C. paniculata* is often associated with situations where there is some, at least seasonal, movement in and eutrophication of base-rich waters (e.g. Lambert 1951). Here, however, it is dominant in waters that, though often calcareous and base-rich (calcium content 71–74 mg l<sup>-1</sup>, pH 7.1–8.1: Poore & Walker 1959, Sinker 1962), have little through-put and are perhaps more mesotrophic.

Stands usually occur on a base of semi-fluid to firm but floating *P. australis* or *Typha angustifolia* peat which may become depressed as the tussocks enlarge. Although standing water may thus occur between the tussocks, the water-table in general remains fairly stable around the substrate surface.

On firmer ground, accessible stands may be grazed and battered by stock and the surface between the tussocks badly poached.

#### Zonation and succession

The *Caricetum paniculatae* may abut directly on to open water or give way to the *Phragmitetum australis* or the *Typhetum angustifoliae*. Although many stands are small and zonations fragmentary, the community is sometimes part of an intact sequence of vegetation from such deeper water swamps to carr (Clapham in Tansley 1939, Lambert 1951, Sinker 1962). In such cases, the *Caricetum paniculatae* may represent the most species-poor swamp phase of *C. paniculata* dominance and give way to woodland through types of richer fen in which the sedge is still very prominent but where there is a more advanced colonisation of older tussock tops by *Salix cinerea* or *S. atrocinerea* and *Alnus glutinosa*, as in the

communities of the *Peucedano-Phragmitetum* and the *Phragmites-Eupatorium* and *Phragmites-Urtica* fens. There is strong circumstantial, or sometimes firm stratigraphical, evidence for regarding such zonations as representing a seral development from open water to woodland in which the *Caricetum paniculatae* plays a major part (Clapham in Tansley 1939, Lambert 1951, Lambert & Jennings 1951, Sinkler 1962, Wheeler 1983).

Around pools in pasture, such sequences as those described may terminate above in an abrupt transition from the *Caricetum paniculatae* to some kind of grazed *Calthion* grassland within which tree colonisation is repeatedly set back.

Where the community occurs more patchily in response to local infiltration of calcareous, base-rich waters into basin mires, it may be surrounded by a variety of poor fens or base-poor mire communities (e.g. Poore & Walker 1959).

### Distribution

The community is widespread but local. Particularly good examples occur around the open-water transitions of the Shropshire meres (e.g. Clapham in Tansley 1939, Sinkler 1962) and in Pembrokeshire valley and flood-plain mires (Ratcliffe & Hattey 1982).

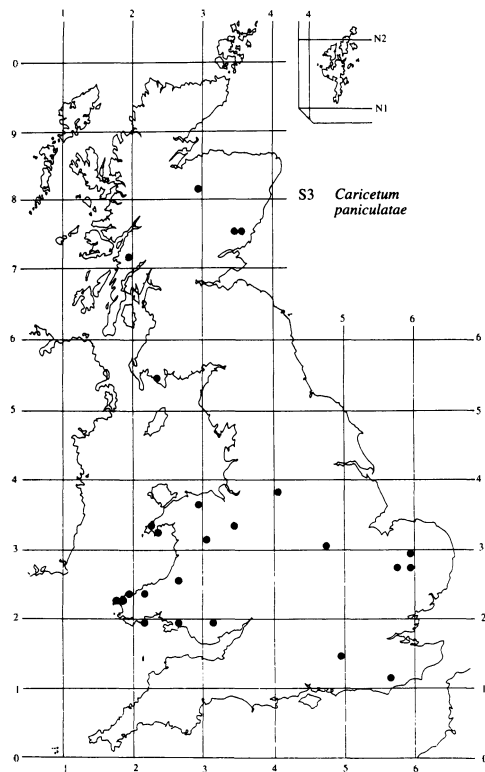
### Affinities

*C. paniculata* is a sedge of fairly widespread distribution throughout the English and Welsh lowlands and, less extensively, in Scotland (Jermy *et al.* 1982). Its most renowned occurrences are in richer fens where, though dominant, it occurs with a variety of other important swamp and fen species and a wide range of associates, as in the *Peucedano-Phragmitetum* and the *Phragmites-Eupatorium* communities and, less commonly, the *Phragmites-Urtica* fen and the *Potentillo-Caricetum rostratae*. Here, the *Caricetum paniculatae* is retained to include species-poor swamp stands in which the sedge is overwhelmingly dominant in the virtual absence of other possible swamp and fen dominants.

Some authorities have placed such vegetation within the *Caricetum acutiformo-paniculatae* VI. & van Zinderen Bakker 1942 where *Carex acutiformis* and *C. riparia* are the usual dominants. In this scheme, a distinct syntaxon in the sense of the *Caricetum paniculatae* Wangerin 1916 is preferred. This was a course adopted by Wheeler (1975, 1980a), although the community as diagnosed here includes only his *typicum* sub-community. Wheeler's *peucedanetosum* (Wheeler 1978, 1980a) is here placed alongside other very rich fens in an expanded *Peucedano-Phragmitetum*.

### Floristic table S3

<i>Carex paniculata</i>	V (6–9)
<i>Angelica sylvestris</i>	II (1–4)
<i>Athyrium filix-femina</i>	II (1–4)
<i>Filipendula ulmaria</i>	II (1–4)
<i>Galium palustre</i>	II (1–4)
<i>Rubus fruticosus</i> agg.	II (1–5)
<i>Solanum dulcamara</i>	II (3–4)
<i>Epilobium hirsutum</i>	II (4–5)
<i>Dryopteris dilatata</i>	II (2–3)
<i>Rumex acetosa</i>	II (1–3)
<i>Molinia caerulea</i>	II (3–6)
<i>Typha latifolia</i>	II (2–6)
<i>Viola palustris</i>	II (1–5)
<i>Equisetum fluviatile</i>	II (1–6)
<i>Phragmites australis</i>	II (1–7)
<i>Caltha palustris</i>	I (1–5)
<i>Oenanthe crocata</i>	I (3–5)
<i>Potentilla palustris</i>	I (5)
<i>Urtica dioica</i>	I (1–3)
<i>Eupatorium cannabinum</i>	I (1)
<i>Epilobium palustre</i>	I (2)
<i>Scutellaria galericulata</i>	I (3)
<i>Cirsium palustre</i>	I (1–3)
<i>Eurhynchium praelongum</i>	I (1–5)
<i>Brachythecium rutabulum</i>	I (1–5)
<i>Sparganium erectum</i>	I (1–3)
<i>Galium aparine</i>	I (1–3)
<i>Myosotis scorpioides</i>	I (2)
<i>Lycopus europaeus</i>	I (3)
<i>Lotus uliginosus</i>	I (2)
<i>Rumex hydrolapathum</i>	I (3)
<i>Lemna minor</i>	I (3)
<i>Cardamine pratensis</i>	I (1)
<i>Mentha aquatica</i>	I (3)
<i>Carex riparia</i>	I (2)
Number of samples	42
Number of species/sample	8 (3–13)
Vegetation height (cm)	109 (90–200)
Vegetation cover (%)	86 (70–100)



---

## *Carex appropinquata* in fens

*Carex appropinquata* is a rare sedge in Britain, occurring mainly in East Anglia with outlying stations in west Dyfed, North Yorkshire and Humberside and the Scottish borders (Jermy *et al.* 1982). Although it can be locally abundant and a dominant of fen vegetation in this country, it does not seem here to constitute the characterising species of a distinct *Caricetum appropinquatae* such as has been recognised on the Continent (e.g. Tüxen 1937, Westhoff & den Held 1969, Oberdorfer 1977).

In Britain, it usually occurs with a combination of species characteristic of rich-fen vegetation, tall herbs

such as *Phragmites australis*, *Calamagrostis canescens*, *Lysimachia vulgaris*, *Lythrum salicaria* and *Peucedanum palustre* and other, often bulky components of a subsidiary rush/sedge layer, such as *Juncus subnodulosus*, *Carex elata*, *C. diandra* and *C. lasiocarpa*. In this scheme, such vegetation has been classified in a number of communities in which *C. appropinquata* is considered as a local dominant: the *Peucedano-Phragmitetum*, *Cicuta* subcommunity, the *Potentillo-Caricetum rostratae* and the calcicolous *Carex rostrata-Calliergon* mire (see also Wheeler 1980*d*).