S6
Carex riparia swamp
Caricetum repariae Soó 1928

Synonymy
Caricetum acutiformo-repariae Soó (1927) 1930 *p.p.*; *Caricetum acutiformo-paniculatae* Vl. & Van Zinderen Bakker 1942 *p.p.*; *Angelico-Phragmitetum caricetosum repariae* Ratcliffe & Hattey 1982.

Constant species
Carex riparia.

Physiognomy
The *Caricetum repariae* is generally dominated by *Carex riparia*, the large tufts of which carry erect leaves forming a sometimes dense canopy usually more than 1 m tall. The vegetation is typically rather species-poor and pure stands are not uncommon. Frequently, however, the community is marked by the patchy abundance of other swamp emergents and/or tall herbs. Among these, *Phragmites australis*, *Equisetum fluviatile*, *E. palustre*, *Epilobium hirsutum*, *Phalaris arundinacea* and *Filipendula ulmaria* are the most frequent and there is occasionally prominent *Galium palustre* and *Mentha aquatica.* Less frequent, though sometimes conspicuous, are *Sparganium erectum*, *Typha latifolia*, *Juncus effusus*, *Lycopus europaeus*, *Oenanthe crocata*, *Solanum dulcamara* and *Carex acuta.*

Habitat
The community seems to be most characteristic of wet or waterlogged, mesotrophic to eutrophic, circumneutral mineral soils alongside standing or slow-moving waters. It occurs, sometimes as large stands, by sluggish rivers and streams, in drainage ditches, around ponds and lakes and in clearings within fen woodlands, always in the lowlands.

The *Caricetum repariae* has been observed growing as emergent vegetation in up to 20 cm of water but, even where the water-table falls below the surface, the substrate very typically has an upper layer of very sloppy sapropelic silt. pH values of 5.8–7.0 have been recorded.

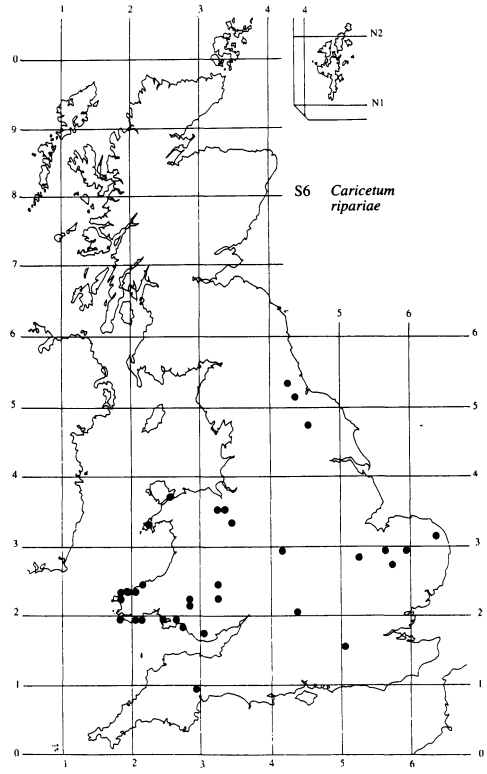
Zonation and succession
The community often forms part of riparian sequences which frequently terminate abruptly above in agricultural boundaries. Stands within wet woodlands may pass gradually to the surrounding vegetation with the *C. riparia* remaining a prominent component of the field layer.

Distribution
The *Caricetum repariae* is typically a community of the agricultural lowlands of England and Wales but, although *C. riparia* retains an extensive distribution over much of this ground (Jermy *et al.* 1982), extensive stands seem to be declining in the Midlands and East Anglia (C. D. Pigott, personal communication). In Wales, the community remains quite widespread in the southern coastal lowlands and is especially distinctive of the valley and flood-plain mires of Pembrokeshire (Ratcliffe & Hattey 1982).

Affinities
Swamp dominated by *C. riparia* has rarely been referred to in the British literature but the community as defined here corresponds to the *Caricetum repariae* described from elsewhere in Europe (Soó 1928, Westhoff & den Held 1969). *C. riparia* is also a locally abundant constituent of certain kinds of fen vegetation, for example, the *Glyceria* sub-community of the *Peucedano-Phragmitetum* and the *Phragmites-Urtica* community, in both of which it occurs with some tall-fen herbs, as here, but with other bulky monocotyledons more prominent.

Floristic table S6

Carex riparia	V (6–10)
Epilobium hirsutum	II (1–7)
Phalaris arundinacea	II (1–7)
Equisetum palustre	II (1–3)
Filipendula ulmaria	II (1–7)
Phragmites australis	II (1–6)
Galium palustre	II (1–7)
Equisetum fluviatile	II (1–7)
Mentha aquatica	II (1–5)
Lycopus europaeus	I (3–7)
Sparganium erectum	I (6–7)
Juncus effusus	I (1–5)
Urtica dioica	I (1–7)
Oenanthe crocata	I (1–7)
Typha latifolia	I (1–7)
Solanum dulcamara	I (1–7)
Carex acuta	I (1–7)
Juncus acutiflorus	I (1–5)
Galium aparine	I (1–7)
Agrostis stolonifera	I (1–7)
Callitriche stagnalis	I (1–5)
Calystegia sepium	I (6)
Eupatorium cannabinum	I (1–4)
Polygonum amphibium	I (1–3)
Angelica sylvestris	I (1–3)
Calliergon giganteum	I (1–3)
Poa trivialis	I (3)
Scutellaria galericulata	I (1–3)
Rubus fruticosus agg.	I (2)
Myosotis scorpioides	I (5)
Rumex hydrolapathum	I (4)
Nymphaea alba	I (5)
Typha angustifolia	I (4)
Cirsium palustre	I (1–3)
Rumex crispus	I (2)
Nasturtium officinale	I (2)
Carex elata	I (3)
Valeriana officinalis	I (3)
Cardamine pratensis	I (1)
Epilobium palustre	I (1)
Dryopteris dilatata	I (1)
Cirsium arvense	I (1)
Polygonum hydropiper	I (1)
Number of samples	113
Number of species/sample	5 (1–17)
Vegetation height (cm)	128 (100–200)
Vegetation cover (%)	90 (40–100)



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Carex acuta in swamps and fens

Carex acuta is a common sedge with a widespread distribution in the lowlands of England, Wales and southern Scotland (Jermy *et al.* 1982) and it is most characteristic of the margins of sluggish or standing, mesotrophic to eutrophic waters. It has, however, only rarely been recorded as the overwhelming dominant in swamp vegetation and a distinct *Caricetum acutae* has not been recognised in our scheme (cf. Tüxen 1937, Westhoff & den Held 1969, Oberdorfer 1977, Birse 1980). Swamp stands in which *C. acuta* is locally abundant have here been classified in the *Phragmitetum australis*, the *Glycerietum maximae* or the *Caricetum ripariae*. The species may also be prominent in some stands of the *Phragmites-Eupatorium* and *Phragmites-Urtica* fens.

C. acuta can be confused in its vegetative state with *C. acutiformis* and the two may hybridise. Further sampling is needed to ascertain its distribution in pure swamp stands.

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