
SM23

Spergularia marina-*Puccinellia distans* salt-marsh community

Puccinellietum distantis Feekes (1934) 1945

Synonymy

Sperguletum marinae Tyler 1969.

Constant species

Spergularia marina, *Puccinellia distans*, *P. maritima*.

Physiognomy

The *Puccinellietum distantis* is a generally open association of scattered but often abundant individuals of *Spergularia marina*, *Puccinellia distans* and *P. maritima* with rather variable amounts of *Agrostis stolonifera* and sparse records for a variety of salt-marsh species (especially in coastal sites) and ruderal glycophytes. An algal mat is sometimes conspicuous in coastal stands but bryophytes are always rare.

Sub-communities

Sampling of coastal stands of the association has been insufficient to detect the existence of well-defined sub-communities but individual stands bear some resemblance to the *Puccinellietum distantis polygonetosum* R.Tx. 1956 emend. Beeftink 1962 (with *Polygonum aviculare*) and the *Puccinellietum distantis pholiuretosum* (with *Parapholis strigosa*) described from The Netherlands (Beeftink 1962, 1965, 1977a). Lee (1977) encountered inland stands similar to the 'initial' (with *Atriplex hastata*) and 'degraded' (without *A. hastata* and *Spergularia marina*) sub-associations recognised on Polish coastal marshes (Piotrowski 1974) and to the *Puccinellietum distantis juncetosum* Westhoff 1947 (with *Juncus ambiguus* Guss.) described from the Netherlands (Beeftink 1962). Lee's (1977) *asteretosum* is probably best considered in relation to the *Aster tripolium* communities of salt-marshes and brackish habitats. Further sampling is necessary to establish the validity of these sub-divisions in Britain.

Habitat

The association is characteristic of disturbed situations with soils of variable but generally high salinity. On

coastal marshes, it is found in dried-up pans in the upper marsh, in old turf-cuttings, along paths and (particularly in The Wash) in cattle-poached areas. It also occurs on and behind sea walls.

Inland, *Puccinellietum distantis* has been described (Lee 1977) from both natural brine springs and marshes, where it is best developed on the most saline, cattle-poached soils, and from the artificial habitats associated with the salt and alkali industries. Disturbance helps maintain and extend the association, especially through the establishment of the prolifically-seeding annual *Spergularia marina*. Lee found this species best able to tolerate the most saline conditions, though it appeared to suffer from competition with *Puccinellia distans* on soils of lower salinity. Differential response of these two species formed the basis of small-scale mosaics over uneven spoil and soil surfaces.

In these inland sites, the so-called 'initial' sub-association (after Piotrowski 1974) persisted provided soil salinity remained high. The 'degraded' sub-association, dominated by *P. distans*, was characteristic of drier soils and the *juncetosum* of wetter soils, both of lower salinity.

Zonation and succession

Mosaics of the various sub-communities appear to develop in relation to differences in soil salinity levels and the height of the water-table. In coastal sites, the association is usually rather sharply marked off from the surrounding vegetation, often *Juncetum gerardi* or *Puccinellietum maritimae*, though in some cases there may be a more gradual transition to a *Puccinellietum maritimae* with large amounts of *Puccinellia distans* (e.g. the upper reaches of the tidal Nene; Adam & Akeroyd 1978).

The association is maintained by continued disturbance. If this ceases, then a closed sward of the surrounding vegetation is likely to extend into the *Puccinellietum distantis*.

Distribution

Fragmentary stands occur on coastal marshes throughout the country. Inland, the association is confined to areas with percolation of saline waters or accumulation of salt and alkali waste. The most extensive sites are in Cheshire, though some of these have been lost by reclamation (Lee 1975, 1977).

Affinities

The British stands are typical of the *Puccinellietum distantis* widely described from Europe. The association is most closely related to the *Puccinellietum maritimae* but its distinctive ephemeral nature has led some authorities to place it in a separate alliance, the *Puccinellion distantis*, within the *Asteretea*.

Floristic table SM23

	a	b
<i>Spergularia marina</i>	V (4–8)	V (2–9)
<i>Puccinellia maritima</i>	V (1–7)	IV (4–5)
<i>Puccinellia distans</i>	II (1–6)	IV (2–8)
<i>Agrostis stolonifera</i>	II (4–6)	IV (2–7)
<i>Salicornia</i> agg.	III (2–7)	
<i>Suaeda maritima</i>	III (2–5)	
<i>Glaux maritima</i>	II (2–5)	I (1)
Algal mat	II (5–8)	
<i>Parapholis strigosa</i>	II (4–8)	
<i>Halimione portulacoides</i>	II (1–3)	
<i>Atriplex prostrata</i>	II (1–5)	I (2–3)
<i>Triglochin maritima</i>	II (2–3)	I (1)
<i>Plantago maritima</i>	II (2–4)	
<i>Elymus pycnanthus</i>	II (1–4)	
<i>Aster tripolium</i> (rayed)	I (3–4)	I (1–9)
<i>Alopecurus geniculatus</i>	I (2–5)	I (2–3)
<i>Juncus bufonius</i>	I (3–4)	I (2–9)
<i>Polygonum aviculare</i>	I (3–4)	
<i>Festuca rubra</i>	I (3–4)	
<i>Spergularia media</i>	I (3–8)	
Number of samples	13	180
Mean number of species/sample	7 (2–11)	6 (3–8)*
Mean vegetation height (cm)	6 (3–15)	no data
Mean total cover (%)	70 (50–90)	71 (30–100)*

* Means of 25 samples only.

a Coastal stands

b Inland stands (Lee 1977)

