SM21
Suaeda vera–Limonium binervosum salt-marsh community

Synonymy
Suaedeto-Limonietum Chapman 1934 *p.p.*; *Halimioneto-Limonietum* Chapman 1934 *p.p.*; ? *Suaedetum fruticosae* Tansley 1939 *p.p.*; *Suaedeto-Limonietum binervosi* Adam 1976; *Halimiono-Frankenietum laevis* Adam 1976 *emend.*; Norfolk *Frankenia laevis* stands Brightmore 1979.

Constant species
Armeria maritima, *Halimione portulacoides*, *Limonium binervosum*, *Puccinellia maritima*, *Suaeda vera*.

Rare species
Frankenia laevis, *Limonium bellidifolium*, *L. binervosum*, *Suaeda vera*.

Physiognomy
The rather open vegetation of this community is generally dominated by scattered bushes of *Suaeda vera* and *Halimione portulacoides* up to 40 cm high with a patchy cover of herbaceous halophytes between. Among the constants, *Puccinellia maritima* and *Limonium binervosum* are usually most abundant with smaller amounts of *Armeria maritima*. *Suaeda maritima* is fairly frequent throughout.

Sub-communities

Typical sub-community: *Suaedeto-Limonietum binervosi* Adam 1976. *Festuca rubra*, *Plantago maritima* and *Artemisia maritima* are frequent in this sub-community, the first sometimes in abundance. There are occasional records for a variety of species characteristic of disturbed places on the upper marsh and of strandlines.

***Frankenia laevis* sub-community:** *Halimiono-Frankenietum laevis* Adam 1976 *emend. Frankenia laevis* and *Limonium bellidifolium* are constant in this sub-community which is more species-poor than the above.

Habitat
The community is characteristic of salt-marsh/dune interfaces, spit laterals, eroded dunes and some sand-dune lows where there is a base of shingle covered with varying amounts of blown sand and inwashed silt (Chapman 1934, 1960*b*, Tansley 1939).

The sub-communities differ in their tolerance of tidal inundation. The Typical sub-community is most frequently encountered at or above the tidal limit where there is inundation only during severe storms. The *Frankenia* sub-community extends further down-marsh and at its lower limit there may be a thick layer of heavy clay over the shingle base. During the summer, high soil salinities may be experienced with a salt crust forming on the soil surface (see also Brightmore 1979).

Grazing, especially by rabbits, is, or has been, of considerable importance in the maintenance of this community. Heavy grazing of low *Suaeda vera* and *Halimione portulacoides* helps to maintain an open cover but reduction of grazing or resumed grazing of taller bushes of these species (Brightmore 1979) may allow the development of a closed or more erect canopy which can shade out *Frankenia laevis* from the *Frankenia* sub-community.

Zonation and succession
In general the community occupies a stable position at the uppermost end of the salt-marsh zonation but reduction of grazing may lead eventually to the development of the *Elymo-Suaedetum verae*, especially at lower levels.

Distribution
The community is endemic to Great Britain and is restricted to the north Norfolk coast. *Frankenia laevis*, *Limonium bellidifolium*, *L. binervosum* and *Suaeda vera* are all members of the Mediterranean element in the British flora (Matthews 1955) but, though of restricted

occurrence, they are not, apart from *L. bellidifolium*, confined to north Norfolk and their distributions overlap elsewhere. Neither is the distinctive salt-marsh/sand-dune interface habitat restricted to that area. Yet there is no evidence to suggest that this particular species assemblage has ever had a more widespread distribution (Adam 1978). Both *Frankenia laevis* and *Suaeda vera* are conspicuous members of other communities in a similar habitat.

Affinities

Together with the *Limonio vulgaris-Frankenietum laevis*, this community represents vegetation which has floristic affinities with the Puccinellion communities yet which stands alongside the Armerion communities in its high position on the salt-marsh. Géhu & Géhu-Franck (1975) erected a new taxon, the Frankenio-Armerion, for similar vegetation described from France and suggested that this might be regarded as a sub-alliance within the Armerion.

Floristic table SM21

	a	b	21
Suaeda vera	V (1–4)	V (1–7)	V (1–7)
Puccinellia maritima	V (3–7)	V (2–6)	V (2–7)
Armeria maritima	V (2–7)	IV (2–5)	IV (1–7)
Halimione portulacoides	V (1–6)	IV (2–7)	IV (1–7)
Limonium binervosum	V (2–7)	IV (1–5)	IV (1–7)
Suaeda maritima	II (3)	III (2–6)	II (2–6)
Artemisia maritima	III (1–4)		I (1–4)
Festuca rubra	III (5–6)	I (3)	II (3–6)
Plantago maritima	III (2–4)	I (2–3)	II (2–4)
Elymus pycnanthus	II (1–2)		I (1–2)
Limonium cf. *L. vulgare*	II (2–5)		I (2–5)
Sagina maritima	II (2–3)	I (2)	I (2–3)
Spergularia marina	II (2–3)	I (2)	I (2–3)
Glaux maritima	I (3)		I (3)
Spergularia media	I (2)	I (1)	I (1–2)
Frankenia laevis		V (2–5)	III (2–5)
Limonium bellidifolium	II (1–4)	IV (1–6)	III (1–6)
Cochlearia anglica	I (2–3)	II (2)	I (2–3)
Cochlearia danica	I (2–3)	II (3)	I (2–3)
Salicornia agg.	I (3)	II (2–3)	I (2–3)
Cochlearia officinalis		I (1–2)	I (1–2)
Number of samples	11	14	25
Mean number of species/sample	10 (5–13)	8 (5–12)	8 (5–13)
Mean vegetation height (cm)	15 (4–40)	18 (3–40)	17 (3–40)
Mean total cover (%)	63 (20–90)	53 (20–80)	57 (20–90)

a Typical sub-community

b *Frankenia laevis* sub-community

21 *Suaeda vera-Limonium binervosum* salt-marsh (total)

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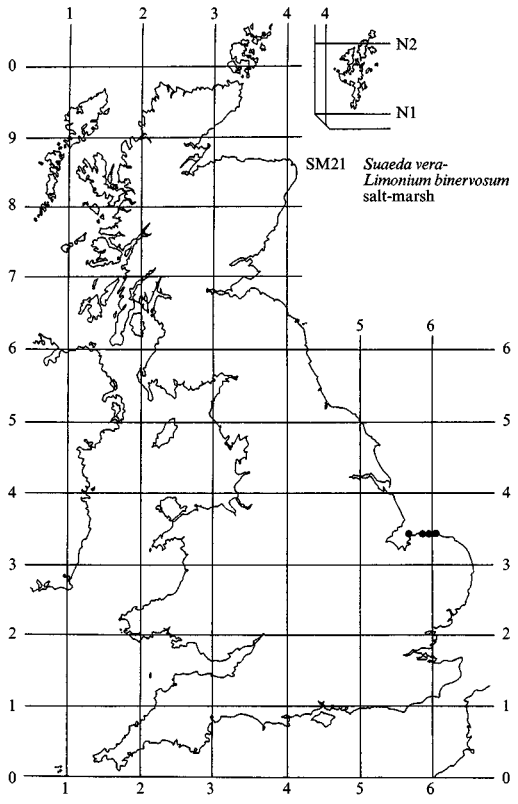

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