

---

## MC6

### *Atriplex prostrata*-*Beta vulgaris* ssp. *maritima* sea-bird cliff community

*Atriplici-Betetum maritimae* J.-M. & J. Géhu 1969

#### Synonymy

*Atriplicetum* Gillham 1953; Ornithocoprophilous vegetation Gillham 1956b p.p.; *Lavaretum arboreae* J.-M. & J. Géhu 1961; *Beta maritima* – sociatie Beeftink 1962; *Atriplici-Betetum perennis* J.-M. & J. Géhu 1969; *Beto-Tripheurospermetum maritimi* Malloch 1970; Herring gull colony vegetation Sobey & Kenworthy 1979 p.p.

#### Constant species

*Atriplex prostrata* agg., *Beta vulgaris* ssp. *maritima*, *Festuca rubra*, *Matricaria maritima*.

#### Physiognomy

The *Atriplici-Betetum* is very variable in its floristics and appearance. Usually one or more of *Atriplex prostrata* agg. (including *A. glabriuscula* and *A. babingtonii*: Aellen 1964), *Beta vulgaris* ssp. *maritima* and *Lavatera arborea* dominate in an open or closed, often scruffy, cover with sometimes abundant *Matricaria maritima*. *Festuca rubra*, *Spergularia rupicola*, *Armeria maritima* and *Dactylis glomerata* occur frequently in isolated but often vigorous fragments of crevice vegetation or maritime sward. Various species characteristic of open disturbed places, such as *Polygonum aviculare* agg. and *Rumex crispus*, may be prominent on the sometimes extensive areas of bare ground. There may be a marked seasonal variation in the vegetation with a dramatic spring growth of overwintered *Cochlearia officinalis* (or *C. danica*: Gillham 1953) being succeeded by *A. prostrata*.

#### Habitat

The community is most characteristic of rocky coastal sites where there is a combination of high maritime influence and intense disturbance by sea-birds, notably gulls (*Larus* spp.), razorbill (*Alca torda*) and guillemot (*Uria aalge*). Essentially similar mixtures of *Atriplex* spp. and *Beta* can also be found on strandline debris in sandy and shingle foreshores.

It has been generally assumed that the major influence

of the sea-birds is to enrich the soils with nutrients through their guano but, in a study of herring gull (*Larus argentatus*) colonies on the east coast of Scotland, Sobey & Kenworthy (1979) have demonstrated that physical disturbance in treading, nest-building and particularly in boundary clashes, is also of considerable importance. Such disturbance fragments, and may eventually destroy, the existing vegetation, both directly and by making it more susceptible to wind erosion. It also creates a suitable habitat for colonisation by species, some of them non-maritime, characteristic of open situations. Some, once established, may show a resistance to further disturbance by virtue of a stout rooting system (e.g. *Rumex crispus*, *Matricaria maritima*, *Lavatera arborea*) but many are ephemerals well able to exploit the repeatedly-disturbed patchwork of open ground, especially when there is also some nutrient enrichment. Along foreshores, turbulent wave action repeatedly creates a congenial open environment.

Sea-bird guano is rich in a variety of potential nutrients and, though the soils carrying the community are of varying depth and pH (generally acid to neutral), they are all characterised by high levels of cations and particularly large amounts of available phosphorus and nitrogen during the period of occupation by the birds. During the winter, the levels of these nutrients decline (Sobey & Kenworthy 1979) and the extreme maritime microclimate is the distinctive feature of the habitat.

#### Zonation and succession

The *Atriplici-Betetum* usually represents the most maritime vegetation where it occurs, replacing the *Crithmo-Spergularietum* or *Armeria-Ligusticum* community though it also occurs higher up cliffs in the zone normally occupied by the *Festuca-Armeria* maritime grassland (Figure 20). Fragments of each of these communities may occur in mosaics with the *Atriplici-Betetum* where the effect of sea-birds is not too severe and may be able to expand if sites are abandoned by the birds. Very intense or prolonged activity may result in the total degeneration

of the normal maritime vegetation (see Sobey 1976 on the Isle of May). Foreshore stands occur with other strandline vegetation like the *Honkenya-Cakile* and *Matricaria-Galium* communities.

Distribution

The community occurs patchily around the cliffed coasts and foreshores of the south and west extending north into Scotland. Particularly fine examples are found in sites less subject to human disturbance of nesting sea-birds as on islands. The distribution of *Lavatera arborea* within the community is probably limited by climatic factors: Okusanya (1979c) has shown this species to be injured by low temperatures and destroyed by slight frosts (−5 °C).

Affinities

As described here, the community includes some of the vegetation noted in accounts of sea-bird colonies

(Gillham 1953, 1956b; Sobey & Kenworthy 1979) and fouled foreshores (Beefink 1962). In Britain there seems no justification for separating a *Lavatera arborea* community from one more generally dominated by *A. prostrata* and *B. maritima* (cf. Géhu & Géhu 1969). Géhu & Géhu (1969) placed relatively short-lived communities of organically-enriched maritime environments in a new alliance, the Honckenyo-Crambion maritimae, within the Elymetea pycnanthi.

Floristic table MC6

<i>Atriplex prostrata</i>	V (2–8)
<i>Festuca rubra</i>	V (2–5)
<i>Beta vulgaris maritima</i>	IV (3–9)
<i>Matricaria maritima</i>	IV (3–5)
<i>Spergularia rupicola</i>	IV (2–4)
<i>Dactylis glomerata</i>	III (2–5)
<i>Armeria maritima</i>	III (2–4)
<i>Lavatera arborea</i>	II (2–9)
<i>Desmazeria marina</i>	II (2–6)
<i>Rumex crispus</i>	II (2–4)
<i>Polygonum aviculare</i>	II (1–4)
<i>Cochlearia officinalis</i>	II (2–4)
<i>Silene vulgaris maritima</i>	I (4)
<i>Plantago coronopus</i>	I (6)
<i>Daucus carota</i>	I (1)
<i>Bromus hordeaceus feronii</i>	I (1)
<i>Sonchus oleraceus</i>	I (1)
<i>Taraxacum</i> sp.	I (1)
Number of samples	8
Number of species/sample	7 (5–10)
Vegetation height (cm)	23 (3–50)
Total vegetation cover (%)	83 (50–100)
Altitude (m)	26 (5–33)
Slope (°)	11 (0–20)
Soil depth (cm)	11 (4–24)

Figure 20. Vegetation of sea-bird cliffs at St Govan's Chapel, Stackpole.  
MC1 *Crithmo-Spergularietum* vegetation occurs in crevices on the lower spray-splashed stretches of the cliffs at this site but is replaced by luxuriant stands of MC6 *Atriplici-Betetum* vegetation beneath ledges occupied by nesting guillemots and gulls. Higher up the cliffs, as the influence of spray becomes less intense, there are ledges with, first, the *Crithmum* sub-community of MC8 *Festuca-Armeria* vegetation, then the *Holcus* sub-community. Where sightseers trample the cliff-top sward, this is replaced by the *Plantago coronopus* sub-community.  
(Redrawn from Cooper 1987, by permission of the Joint Nature Conservation Committee.)



