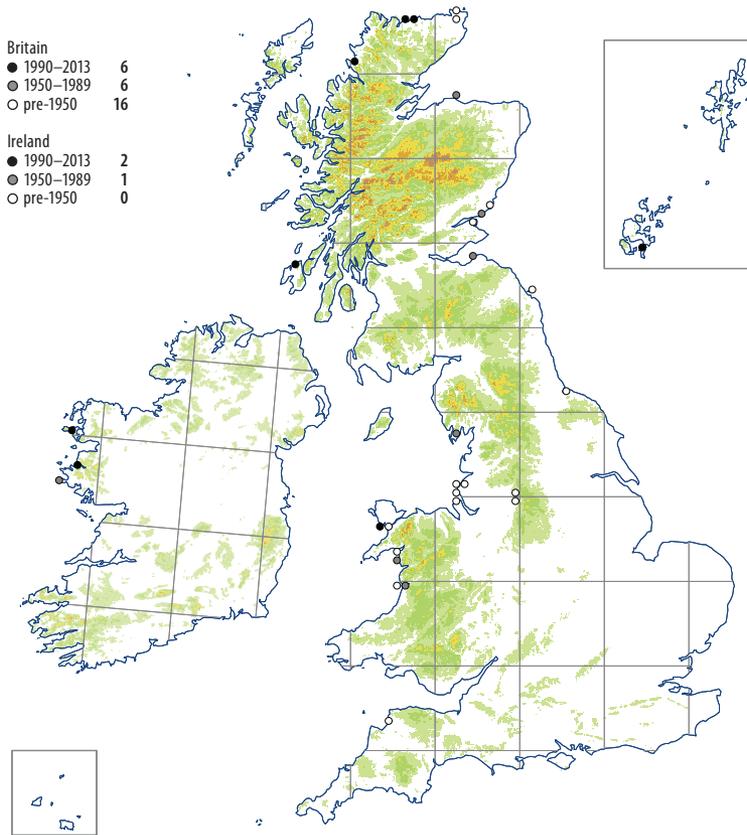


Bryum calophyllum



Recent records from Britain and Ireland are from coastal dune or machair areas on damp calcareous sand with sparse open vegetation, e.g. on foredune slacks or beside shallow pools. In the west of Scotland most stands are found where fresh water drains through calcareous sand dunes, either as a flush or a small rill. It has also been recorded occasionally on damp sand beside estuaries, and there is a single old record (1865) inland from an old gravel pit at Ashton-under-Lyne, Lancashire. In W and N Europe it is almost exclusively coastal but in most of the rest of its range it is often found away from the sea, e.g. growing on sandy tundra, along rivers or by lakes. Altitudinal range: 0–20 m.

Since the 1991–1994 Atlas, targeted surveys in England, Wales and Ireland (Holyoak, 2001c, 2002a, b; Lockhart *et al.*, 2012) have revealed a large decline in southern parts of

its range, with apparent extinction in England, only a single site remaining in Wales (Anglesey) and three in Ireland. Scotland has five modern hectad records, four of them in the north. Its decline is apparently linked to loss of early successional habitats (e.g. to golf course developments) and perhaps to intolerance of trampling and eutrophication. Future sea-level rise may worsen these problems.

Autoicous; the plants mature in their second year of growth and produce abundant capsules, which mature mainly from September to November (sometimes in summer). Bulbils, axillary gemmae and tubers are absent, and protonemal gemmae are not recorded.

The status of *Bryum calophyllum* as a distinct species is supported by molecular data (Bell *et al.*, 2013), although the status of some closely related continental taxa requires further investigation.

Circumpolar Boreo-arctic montane. Common in some Arctic regions. In Europe it is known from Iceland and Arctic Norway southwards along coasts to the Netherlands and locally inland in C Europe (e.g. Germany). Elsewhere it is known from Asia and Canada. Reports from Sardinia, Svalbard, Alaska and Greenland are now discounted.

D.T. Holyoak

