

Sea Bryum and Matted Bryum

Bryum warneum and *Bryum calophyllum*



Bryum warneum with a close up of a capsule (insert)
© David Holyoak



Bryum calophyllum with a close up of leaves (insert)
© David Holyoak

Identification

Bryums are a notoriously difficult genus of moss to identify in the field. Their small size and subtle differences make it difficult even for experts. Key features to look out for include differences between the height of the seta (stem) and the shape and size of capsules (sporophytes) hanging from the end. On capsules, the size of the mouth opening can be an identifying feature. The shape, size and arrangement of leaves, including the presence or absence of a reddish colour to the base of the leaf is also useful. The length of excurrent leaf nerves (the central nerve in each leaf protruding from the tip of the leaf) can vary between Bryum species, some shortly protruding and some much longer giving a spiky appearance, others have none altogether giving leaves a blunt appearance.

The following guide should be used to help identify Sea Bryum and Matted Bryum only, other species of Bryum have been included for reference but are easily misidentified and should be left to experts. Sea Bryum and Matted Bryum have a couple of key features that can be used to distinguish them from other species when surveying for Bryums in a sand dune slack habitat.

Bryum warneum. distinctively long seta 1-2cm tall, sometimes taller, with a pear-shaped capsule hanging from the end. The capsule will have a narrow mouth opening. Capsules mature late-summer to winter. The leaves have an excurrent nerve and are not reddish at the base. Can grow in large patches that are green or pinkish in colour. May be confused with *B. algovicum* and *B. pseudotriquetrum*.

Bryum calophyllum. long seta, but not as long as Sea Bryum. Capsules are short and ovoid in shape with a wide mouth opening. Capsules mature in autumn. Leaves are concave, blunt tipped and oval-oblong in shape. No excurrent leaf nerve. Leaves are not reddish at the base. May be confused with *B. dichotomum* and *B. dyffrynense*.



Bryum pseudotriquetrum leaves and a close up of the capsules (insert). © David Holyoak

***Bryum algovicum*.** Long (3.5mm), ovoid capsule with a wide mouth opening usually develop & mature in spring. Often forms dense tufts, 5-10mm tall. Leaves have an excurrent nerve and are reddish at the base.

***Bryum dichotomum*.** Seta are very short, usually less than 1cm tall. Capsules are short and egg shaped with a wide mouth opening. Capsules mature in autumn and winter. Leaves have excurrent nerves giving it a spiky appearance. Some bulbils (small bulb-like structure around 1mm in size) may be present between many of the leaf axils. Leaves are not reddish at the base. Grows in compact tufts.

***Bryum dyffrynense*.** Capsules are long with a wide mouth opening. The leaf nerve is reddish in colour but doesn't protrude from the top of the leaf. Leaves are concave and closely pressed to the stem, overlapping one another.

***Bryum pseudotriquetrum*.** The capsules hang at the end of a long seta (2-3cm). Capsules are long (3.5mm) with a wide mouth opening, maturing to a brown colour in late-summer and autumn. Excurrent leaf nerve which is sometimes red in colour. Leaves have a reddish base. Shoots form green to reddish or brown tufts.

Surveying

When: Surveys for Sea Bryum and Matted Bryum should be carried out between late-summer and winter when

plants are producing sporophytes, which helps with identification. Several visits should be made throughout the season. It is advised to survey earlier in the season as winter rainfall may result in a rapid raising of the water table causing some populations to be flooded and therefore difficult, if not impossible, to survey.

Where: They are most frequently found in wet dune slacks and at the base of blow-outs where damp, calcareous, nutrient-poor sand is present. It colonises bare areas of damp sand, favours open, early-successional vegetation and may be outcompeted by taller vegetation causing shading over time.

Matted Bryum and Sea Bryum are frequently associated with plant communities that are typical of a wet dune slack. They will often be grow where rushes, sedges and creeping willow are present, and may also be found alongside liverworts such as *Aneura pinguis* and other species of *Bryum* such as *B. algovicum*, *B. dichotomum*, *B. dyffrynense*, *B. Knowltonii*, *B. pseudotriquetrum*.

How: Use maps or aerial imagery to locate dune slacks and depressions within the dunes close to the water table – these will be the survey areas. Search damp and sparsely vegetated areas with a low vegetation height for *Bryum* species. The best method is to walk slowly, zig-zagging across the survey area, scanning side to side. Once you have located a *Bryum*, identify the species, record the grid-reference and continue with your search.

What to record

Records in the field should be captured on a recording form, in a notebook or using a digital app. For each survey, the date should be recorded. For each patch of *Bryum* species found, record the 10-figure grid reference (British National Grid), species and any additional notes (e.g sporophytes present). Grid references can be captured using a handheld GPS or mobile phone with a grid-reference app.

Protection

Matted Bryum and Sea Bryum are protected in the UK under the Wildlife and Countryside Act 1981 and as priority species under the UK Biodiversity Action Plan (UK BAP). These plants are included as species “of principal importance for the purpose of conserving biodiversity” under Section 41 (England) of the Natural Environment and Rural Communities Act 2006.