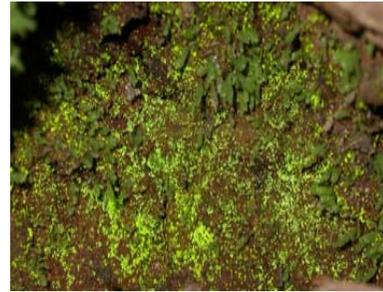


An Introduction to Bryophytes

Britain has one of the richest and most diverse bryophyte floras in Europe, due in part to a varied geology, geographical position and a generally mild, damp climate. Bryophytes fall into three groups: mosses, liverworts and hornworts, with over 760 species of moss and about 300 species of liverwort recorded in Britain. Only four species of hornwort occur, but these are seldom encountered. Wales supports almost three quarters of all British bryophyte species.

Mosses and liverworts come in a variety of colours, but most are shades of green or yellow-green, sometimes with brown or red pigmentation, especially in stems and fruits. Some appear to glow in the dark. They occur in a wide range of habitats such as woodland, moorland, boulders, cliffs, rivers, arable fields, marshy grassland, bog and urban areas. They can even colonise discarded plastic objects and unwashed cars.



Goblin Gold (*Schistostegia pennata*) appears to glow in the dark.

Most mosses and liverworts are rather small and inconspicuous, but where conditions are ideal they can be amongst the most abundant plants. Because leaves of most bryophytes are often only one cell thick, they are prone to drying and therefore the best place to find them is in damp or wet habitats, but moss species have evolved to occupy some of the most arid and environmentally harsh areas including the Antarctic and sand dunes or old tiled roofs can have a great abundance of mosses. Some mosses even specialise in growing on unusual substrates such as dung and decaying bones. In general, liverworts are more dependent on damp conditions and are most common in the western parts of Britain, with north Wales and north-western Scotland having the richest floras.



Slender Cruet-moss (*Tetraplodon mnioides*) grows on old bones and dung.

Bryophytes can have a significant influence on the environment. Sphagnum moss is often the dominant plant in bogs, with dead plants building up and forming deep layers of peat, locking up vast amounts of carbon from the atmosphere and storing reservoirs of water which is then slowly released,

helping reduce flood risks and keeping rivers running during periods of drought. Many bryophytes quickly establish on bare soil and help to reduce soil erosion. Bryophytes are not particularly nutritious and in general tend to be avoided by grazing animals, but they do provide a large surface area on which many small or microscopic animals live and which in turn support species higher up the food chain.



Bog-moss (*Sphagnum*) - there are 34 species in Britain.



Features seen through a hand-lens can aid identification.

Mosses tend to be divided into two broad groups: Acrocarpous mosses, tend to be small, usually upright plants, producing small fruits at the top of the stem. They are often most obvious when colonising bare areas of soil and can be frequent on shaded tarmac.



Slender Smooth-cap (*Atrichum tenellum*) is known from only four sites in Wales.



Red-stemmed Feather-moss (*Pleurozium schreberi*) - common on moorland.

Liverworts can also be split into two groupings: Leafy liverworts usually have three rows of leaves running down a central stem (two rows down the side of the stem and another row of different looking leaves underneath the stem). Many are small and are often found growing through tufts of other bryophytes.

Pleurocarpous mosses tend to form sprawling mats with the fruits growing along the stem. The lush mats of moss on a woodland floor tend to be pleurocarpous mosses. In the uplands they are usually a very obvious component of heathy habitats.



The scarce Hutchin's Hollywort (*Jubula hutchinisia*) grows on rocks by streams.

Thallose liverworts are flat and strap-like, often several cell layers thick and quite leathery. They have no leaves and tend to grow flattened to the ground. Some species form large colonies on streamsides, just above average water levels and others can be abundant in greenhouses.



Common Liverwort (*Marchantia*) can be abundant in plant-pots in gardens and nurseries.

Bryophytes reproduce by a variety of methods. In some species there are separate male and female plants, whilst in others, plants may be both male and female. Reproductive features can be a very useful aid for identification purposes. They may have root tubers (like small potatoes), bulbils or buds often growing where a leaf joins the stem, granular growths (gemmae) on leaves, and some species can propagate from fragments of stems. The most obvious reproductive feature though are fruits (sporophytes), which are often held above the plants on a long stalk (seta). The fruits contain microscopic spores which may drift long distances in the air. If a spore germinates it produces an algal-like growth from which the more recognisable plant will form (often small leaves will be noticed growing on a green fuzzy mat). Many of our rarer bryophytes have a poor ability to reproduce or have very exacting requirements for growth.



Common Haircap (*Polytrichum commune*) usually has abundant fruits.

The British Bryological Society was formed to promote the study of mosses and liverworts. The society organises field meetings all over Britain and maintains a website www.britishbryologicalsociety.org.uk, which is full of information for people at all skill levels. Recently it published an inexpensive full colour Field Guide, which features the majority of the bryophyte species found in Britain. The individual pages from the book can be viewed at www.bbsfieldguide.org.uk, and these include simple identification keys as well as the individual species accounts.

Text and photographs by G S Motley

Bryophytes on front cover: Bamberger's Crisp-moss (*Tortella bambergeri*), Recurved Rock-bristle (*Seligeria recurvata*), Varnished Hook-moss (*Hamatocaulis vermicosus*), Handsome Woollywort (*Trichocolea tomentella*), Crescent-cup Liverwort (*Lunularia cruciata*), Red Leskea (*Orthothecium rufescens*), Greater Pincushion (*Ptychomitrium polyphyllum*), Spiky Bog-moss (*Sphagnum squarrosum*), Alpine Thread-moss (*Bryum alpinum*)

