

MOSSES LIVERWORTS AND LICHENS-Introduction to species in NW England.

These plants are for the most part quite distinctive, but can sometimes be confused. These notes are intended to help guide the beginner to the right key

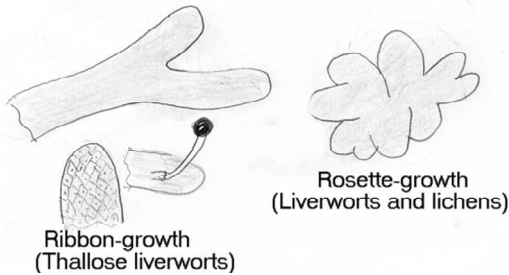
MOSSES are recognised by most people but leafy liverworts (qv) are often taken to be mosses. Both groups have stems and leaves like a miniature flowering plant.

LIVERWORTS are of two kinds: **THALLOSE** liverworts are strips of tissue (often branched) with no hint of differentiation into stem and leaf; many people's idea of a "liverwort" is restricted to these, but the second kind, **LEAFY** liverworts, can be confused with mosses (see below for differences)

Thallose liverworts can be confused with some forms of lichen (see below).

LICHENS take many forms. Some are powdery granules, some form crusts like dried spilled paint; these cannot be confused with mosses or liverworts but others (*foliose* and *fruticose* lichens) are strapshaped or leaflike and can be confused with thallose liverworts

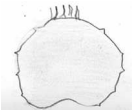
Thallose liverwort or lichen?



Thallose liverworts, broadly speaking, have two growth forms. The commonest (for example, those found as plant-pot weeds) grow as long forked ribbons. No lichens have this growth form. However, some liverworts grow as "rosettes"; these, and sometimes poorly grown and dwarfish specimens of the ribbon kind, can be taken for lichens, many of which grow in rosettes or similar patches.

Differences are as follows:

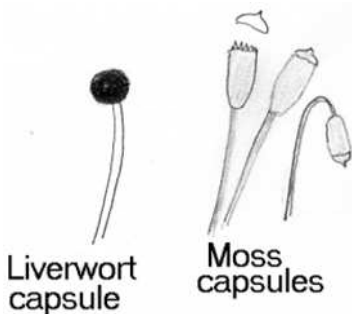
- Habitat:thallose liverworts with the rosette growth form almost always grow in arable fields on disturbed soil; lichens are hardly ever found in such habitats.
- Size: liverwort rosettes are rarely more than 2-3 cm across. Lichen patches can be as small but are often much bigger.
- Any plant which is NOT green above and either green or purple/black below is almost certainly a lichen (many are white or grey below).
- Many (not all!) thallose liverworts have a characteristic diamond-pattern on the upper surface. Lichens never do.
- Fruiting bodies comprising a spherical black capsule on a translucent stalk are diagnostic of liverworts.



(A **fern prothallus** is *tiny* (a few mm across), much smaller than a liverwort rosette, *undivided* except for a slight indentation, and *translucent*).

Leafy Liverwort or Moss?

There is no single feature separating leafy liverworts and mosses (other than tricky technical ones) But the following characteristics will distinguish the majority of species:



- Fruiting bodies, when present, are diagnostic. Liverworts have spherical black capsules on translucent colourless stalks, moss capsules are usually elongated, some shade of brown, and carried on a wiry opaque and coloured stalk. (Both kinds of capsule are green when immature).
- Leafy liverworts often (not always!) have leaves deeply divided into two or more lobes (eg like an ivy leaf). Moss leaves are never deeply divided (at most they may have tiny teeth).
- Many species of moss (not all!) have leaves with a thickened "nerve" or midrib showing as a dark line down the middle of the leaf in transmitted light. No liverwort has a midrib (though one common species has a central row of translucent cells *lighter* than the rest of the leaf in transmitted light).

If your plant does not unambiguously fit one of the above characters you can look (with a hand lens) at the arrangement of leaves on the stem. Liverwort leaves are in two rows on opposite sides of the stem (sometimes with a third row of much smaller and usually very inconspicuous leaves on the underside).

Moss leaves, on the other hand, are spirally arranged. There is a single exception - the moss genus *Fissidens* has leaves in rows; however, you will already have decided that a *Fissidens* specimen is a moss, because the leaves have a prominent nerve.

