



## Exploring oak woodland

### *Investigating woodland moss*

#### **Dr Sarah Watkinson:**

There are hundreds of different species of moss. At first sight they tend to look rather similar to each other, but if you look closely at this stone, you can probably see that there are at least 2 different sorts. One is much more feathery, and the other which has the capsules on it is more robust and slightly more yellowy-green.

The leaves of a moss aren't really like the leaves of higher plants at all. They are just flat plates of green cells, only one cell thick, and they don't have a waterproof cuticle like higher plant leaves do. And that means that the cells can just soak up water directly from the surface, and with the water, nutrients go into the leaves directly. They're quite different from the leaves of flowering plants which have a nutrient supply and a water supply that come along internal conducting pipes.

These are the capsules of the moss and you can see the little bags at the tops of stalks. The stalks move about a little bit in the wind, and then at the tip of the capsule there are little teeth which move about when the humidity changes and help to get the spores out into the atmosphere.

If you peel the moss back, and look and see what the contact is like between the rock and the plant, you can see that there are no roots there, any water it's taken up hasn't been taken up like higher plant roots have pulled up out of the soil, but instead it's just absorbed over the whole surface.

The rock underneath is limestone, and some mosses only grow on alkaline rocks, others are specific to acid rocks.

Although it hasn't got roots, with a microscope you can see these microscopic cells which embed themselves just in the surface layer of the rock. But really it's a surface growing organism.

These plants spread by spores and grow without soil, so their life cycles are probably like those of the very earliest land plants, when plants first emerged out of the water and started to grow on land there would have been no soil and so no way in which seeds could have grown by putting roots into soil. This is the very simplest sort of land plant life cycle you could have.