



Klamath Network Featured Creature

October 2012

Stair-step moss

(*Hylocomium*

General Description:

Stair-step moss has glossy olive green colored leaves and branches that have a feathery look. The branches grow from and contrast with its reddish stems, which grow from 2 - 20 cm long. It has a unique growth pattern such that each years growth originates from about the middle of the stem from the previous years growth; creating a pattern of branches on branches, spreading at first and then arching. When growing in dense patches this growth pattern can result in the look and feel of a stair-step moss shag carpet.



Image: <http://drug.kr/xe/1497>

Life cycle:

The simplest form in the moss lifecycle is the spore. Moss spores grow and develop into leafy gametophytes (See image above), this is the dominant form in the moss lifecycle. The gametophytes of stair-step moss are either male or female. Once the gametophytes have matured, male mosses produce sperm and females produce eggs. Water is required for sperm to move, this is why mosses are most often found in moist and cool climates. Following fertilization, which occurs within an archegonium (literally meaning 'first seed') found on the gametophyte, the sporophyte begins to grow. The sporophyte is anchored within the gametophyte and grows out of it as an appendage. Sporophytes are 2n and when mature will undergo meiosis and ultimately produce spores. Sporophytes on stair-step moss are rare.



Image of *Hylocomium splendens* gametophyte with sporophytes from Finnish Museum of Natural History.

Life cycle cont.:

After spores are produced, the cycle repeats (See image below). Stair-step moss (like most mosses) can also reproduce asexually. Fragments of the gametophyte can grow into new individuals.

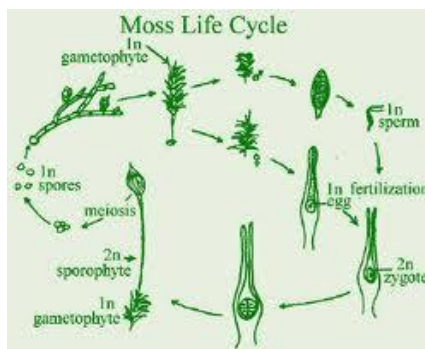


Image: <http://biology.clc.uc.edu/courses/bio106/mosses.htm>

splendens)

Where to see in the Network:

Stair-step moss can be observed at Redwood National and State Parks. It is possible the species may also occur at Oregon Caves National Monument.

Distribution and Habitat:

Widely distributed in cooler parts of the Northern Hemisphere: Greenland to Alaska, south to North Carolina, and west to Oregon and California, also the West Indies, Europe, Asia; and in the Southern Hemisphere in Africa, and New Zealand. It can be found growing on humus, rotten logs, or litter, and occasionally cliff shelves; very rarely does it grow on live trees.



Image from <http://www.discoverlife.org/>

Factoids:

- The stair step growth pattern makes *H. splendens* the moss of choice for most moss research as it is easy to measure the yearly growth of the moss.
- *Splendens* is the Latin word for 'shining'.
- *H. splendens* is still used for chinking log structures in Alaska. The wet moss is pressed into cracks between logs using a wooden chisel. When it dries it remains compressed and green for the life of the cabin.
- *H. splendens* has been found to possess strong antibacterial properties.