

## UNIT III – MOSSES (Bryophyta)

### Reading:

Bryopsida (incl. Polytrichopsida): pages 360 – 366 (inclusive)  
Andreaeopsida: pages 359 – 360 (inclusive)  
Sphagnopsida: pages 358 – 359 (inclusive)  
Life Cycle Fig 16-25!!!!

### Outline (will go for at least three lectures)

- A. Introduction to Mosses
- B. Life Cycle – *same same, but different*  
Includes: Overview of Asexual Reproduction
- C. Gametophyte
- D. Sporophyte
- E. Poikilohydry – How'd they do that?
- F. Ecosystem: Bog
- G. Ecological Roles in Our Forests – 5-minute paper (based on your own thoughts)

### Learning Objectives

#### By the end of this unit you should be able to:

1. Explain why asexual reproduction is important for bryophytes. What is the main way in which asexual reproduction occurs?
2. Describe gemmae from two different bryophytes (include structural features and ploidy). Explain how they are dispersed.
3. Explain the advantage of having an extensive protonematal stage. Explain conditions under which an extensive protonema would not be advantageous.
4. Describe the variation of leaf structure in the mosses. Explain the functions of leaves in bryophytes. How do they differ from leaf function in tracheophytes?
5. Compare and contrast leaf structure and arrangement in mosses and liverworts.
6. Describe leaf lamellae of the Polytrichopsida. What is their function? In which habitats would you expect to find mosses with more lamellae?
7. Describe the conductive tissues of mosses and their occurrence in the different classes.
8. Identify the classes in which a pseudopodium occurs. Explain its function and ploidy.
9. Explain the splash cup mechanism and give examples of where it occurs in the fungi, liverworts, and mosses. Explain why you would not expect this mechanism in epiphytic mosses and liverworts.
10. Compare and contrast the development and structure of the sporophytes of mosses and liverworts.
11. Compare and contrast the gametophytes and sporophytes of members of Classes Andreaeopsida, Sphagnopsida, Polytrichopsida, and the Bryopsida (answers on hand-out).
12. Compare and contrast spore dispersal in Classes Andreaeopsida, Sphagnopsida, Polytrichopsida, and the Bryopsida (include structural differences in your answer).
13. Give examples of desiccation tolerance in the embryophytes.
14. Describe 4 features that help some mosses retain moisture? (Remember some mosses are more desiccation tolerant than others.)
15. Define poikilohydry. Explain what is known about desiccation tolerance in bryophytes?
16. Describe the characteristics of a bog. What role does *Sphagnum* play in bog formation? Explain the characteristics of *Sphagnum* that facilitates bog formation.
17. Explain the ecological roles of bryophytes in a forest ecosystem.