

Common Mosses and Liverworts of the Chicago Region

1

Kalman Strauss, Jerry Jenkins, Gary Merrill, Charles DeLavoi, Juan Larraín, Laura Briscoe & Matt von Konrat

The Field Museum, The Northern Forest Atlas Foundation

Photos by: Jerry Jenkins, Kalman Strauss, Charles DeLavoi. Produced by: Juliana Philipp and the authors

© Kalman Strauss [kalmanstrauss1@gmail.com] With the support from Gantz Family Collections Center, NSF Award No. 1145898

© Northern Forest Atlas Foundation

© Science and Education, The Field Museum, Chicago, IL 60605 USA

[fieldguides.fieldmuseum.org] [865] version 1 02/2017

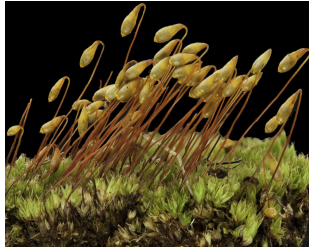
What is a Bryophyte?

Bryophytes are non-vascular plants, including mosses, liverworts, and hornworts. They are critical to understanding early land plant evolution. Bryophytes reproduce by alternation of generations. Unlike other plants, the gametophyte is the dominant stage. Instead of seeds, bryophytes have spores, which are produced and released in the sporophyte stage. There are an estimated 18,000 species of bryophytes worldwide, with over 100 species in the Chicago Region.

Useful Terms

Sporophyte:

This spore-containing stalk emerging from many bryophytes is part of bryophytes' reproductive system.



Gametophyte:

This is the leafy green part of the plant. The gametophyte is the dominant and conspicuous phase of the bryophyte.



Acrocarp:

One of two groups of mosses. The growth pattern is straight and erect; the sporophyte grows from the terminal branch.



Pleurocarp:

One of two groups of mosses, which generally grows flat and creeping; the sporophyte grows on a lateral branch.



Confused with Bryophytes

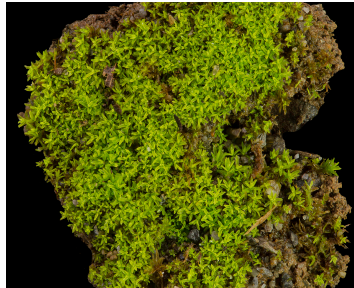
FERNS can be confused with bryophytes. Unlike bryophytes, ferns are vascular plants, meaning they have veins. Also, whereas the gametophyte is the dominant stage of the bryophyte, the sporophyte is the dominant stage of the fern. Look for tiny sporangia, which hold spores, on the underside or margin of fern fronds.

LICHENS can be confused with bryophytes. Lichens are not plants at all – in fact, they are a symbiotic combination of a fungal partner and a photosynthetic algae partner. Lichens can look similar to bryophytes, but upon close examination, lichens lack the leaves, rhizoids (similar to roots), and reproductive stages of a bryophyte.

Bryophyte Habitats

Soil

Common genera:
Marchantia, *Atrichum*,
Polytrichum, *Funaria*,
Ceratodon, *Dicranum*,
Fissidens, *Barbula*, *Bryum*,
Plagiomnium,
Brachythecium,
Amblystegium, *Thuidium*



Tree Trunk

Common genera:
Frullania, *Lophocolea*,
Orthotrichum, *Leskea*,
Brachythecium, *Entodon*,
Platygyrium



Rock

Common genera:
Atrichum, *Dicranum*,
Fissidens, *Bryum*,
Amblystegium,
Brachythecium, *Entodon*



Tree Base

Common genera:
Plagiomnium, *Anomodon*,
Leskea, *Amblystegium*,
Brachythecium, *Entodon*,
Platygyrium



Common Mosses and Liverworts of the Chicago Region

Kalman Strauss, Jerry Jenkins, Gary Merrill, Charles DeLavoi, Juan Larrain, Laura Briscoe & Matt von Konrat
The Field Museum, The Northern Forest Atlas Foundation

Photos by: Jerry Jenkins, Kalman Strauss, Charles DeLavoi. Produced by Juliana Philipp and the authors
© Kalman Strauss [kalmanstrauss1@gmail.com]. Support from Gantz Family Collections Center, NSF Award No. 1145898,
© Northern Forest Atlas Foundation
© Science and Education, The Field Museum, Chicago, IL 60605 USA

[fieldguides.fieldmuseum.org] [865] version 1 02/2017

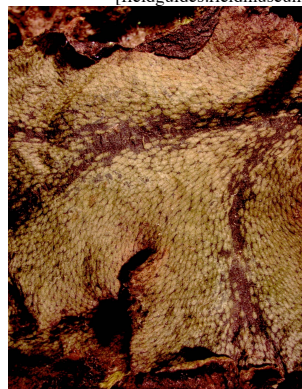
Marchantia

- Thalloid liverwort, not leafy.
- Grows on the edge of sidewalks, urban soil, and backyard gardens.
- Look for gemmae cups, asexual reproduction mechanisms, on the surface of *Marchantia*.



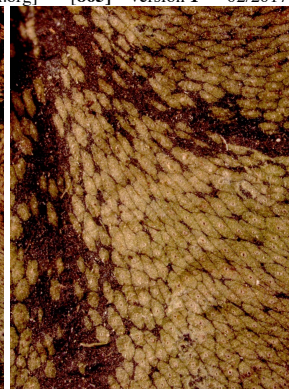
Marchantia polymorpha

Photo by Kalman Strauss



Marchantia polymorpha

Photo by Kalman Strauss



Marchantia polymorpha

Photo by Kalman Strauss

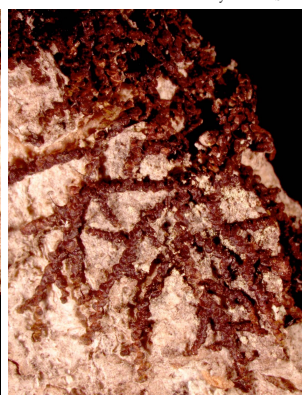
Frullania

- Small leafy liverwort.
- Red, green or brown in color.
- Grows on many deciduous trees in the forests.
- Examine with a hand lens to see tile-like appearance of stem.



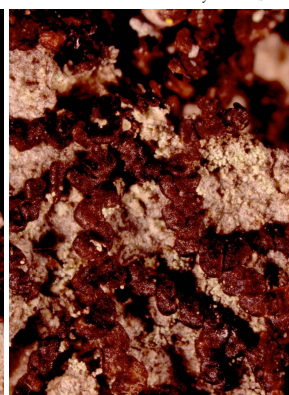
Frullania eboracensis

Photo by Kalman Strauss



Frullania eboracensis

Photo by Kalman Strauss



Frullania eboracensis

Photo by Kalman Strauss

Lophocolea

- Leafy liverwort.
- Generally small and green.
- Found on rotting logs and fallen tree trunks.
- Look for perianths, female reproductive structures.



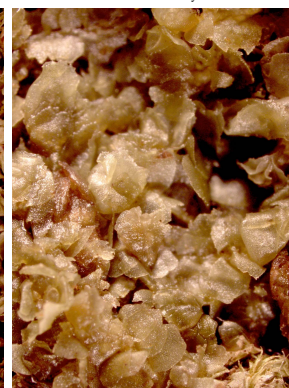
Lophocolea heterophylla

Photo by Kalman Strauss



Lophocolea heterophylla

Photo by Kalman Strauss



Lophocolea heterophylla

Photo by Kalman Strauss

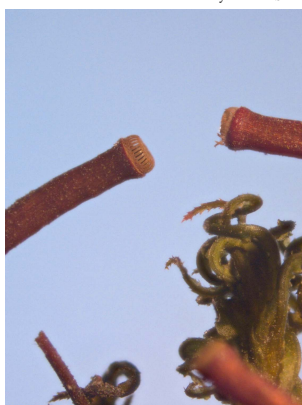
Atrichum

- A relatively large moss.
- Common in many forests on soil and rock.
- Star-like appearance will make it easy to tell it apart.
- Looks very different wet from dry – while wet, it spreads out like a star; when dry, it shrivels.



Atrichum angustatum

Photo by Jerry Jenkins



Atrichum undulatum

Photo by Kalman Strauss



Atrichum undulatum

Photo by Jerry Jenkins

Common Mosses and Liverworts of the Chicago Region

Kalman Strauss, Jerry Jenkins, Gary Merrill, Charles DeLavoi, Juan Larrain, Laura Briscoe & Matt von Konrat
The Field Museum, The Northern Forest Atlas Foundation

Photos by: Jerry Jenkins, Kalman Strauss, Charles DeLavoi. Produced by Juliana Philipp and the authors
© Kalman Strauss [kalmanstrauss1@gmail.com]. Support from Gantz Family Collections Center, NSF Award No. 1145898
© Northern Forest Atlas Foundation
© Science and Education, The Field Museum, Chicago, IL 60605 USA

[fieldguides.fieldmuseum.org] [865] version 1 02/2017

Polytrichum

- Very large moss, possibly largest upright moss (acrocarp) in the Chicago Region.
- Can be confused with *Atrichum* – *Polytrichum* is larger.
- Look for tall sporophytes, sometimes with a “hairy” cover (calyptra).



Polytrichum commune

Photo by Jerry Jenkins



Polytrichum juniperium

Photo by Jerry Jenkins



Polytrichum commune

Photo by Jerry Jenkins

Dicranella

- Wavy in appearance
- Grows in dense patches
- Common on the forest floor
- Very similar to *Dicranum*. *Dicranella* is much smaller.



Dicranella heteromalla

Photo by Jerry Jenkins



Dicranella heteromalla

Photo by Jerry Jenkins

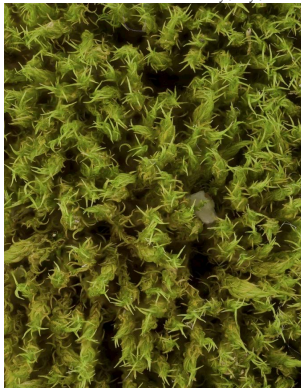


Dicranella heteromalla

Photo by Jerry Jenkins

Ceratodon

- Grows in urban settings such as ditches and roadsides, and other displaced substrates.
- Likes places with recent fire, sometimes called “Fire Moss”.
- Look out for abundant sporophytes.



Ceratodon purpureus

Photo by Jerry Jenkins



Ceratodon purpureus

Photo by Jerry Jenkins



Ceratodon purpureus

Photo by Jerry Jenkins

Dicranum

- Fairly large, windswept-looking moss.
- Grows on a variety of substrates, including soil and rock.
- Similar to *Dicranella*. *Dicranum* is fairly larger.



Dicranum flagellare

Photo by Jerry Jenkins



Dicranum flagellare

Photo by Jerry Jenkins



Dicranum ontariense

Photo by Jerry Jenkins

Common Mosses and Liverworts of the Chicago Region

Kalman Strauss, Jerry Jenkins, Gary Merrill, Charles DeLavoi, Juan Larrain, Laura Briscoe & Matt Von Konrat
The Field Museum, The Northern Forest Atlas Foundation

Photos by: Jerry Jenkins, Kalman Strauss, Charles DeLavoi. Produced by Juliana Philipp and the authors
© Kalman Strauss [kalmanstrauss1@gmail.com]. Support from Gantz Family Collections Center, NSF Award No. 1145898
© Northern Forest Atlas Foundation
© Science and Education, The Field Museum, Chicago, IL 60605 USA

[fieldguides.fieldmuseum.org] [865] version 1 02/2017

Fissidens

- A fairly small moss.
- Leaves are lobed, and look slightly toothed, or like a miniature feather or compound leaf.
- Grow on moist soil or rock in fairly dense patches.
- Flat growth habit (dorsiventral), rare among acrocarpous mosses



Fissidens subbasillaris
Photo by Jerry Jenkins



Fissidens osmundioides
Photo by Jerry Jenkins



Fissidens osmundioides
Photo by Jerry Jenkins

Barbula

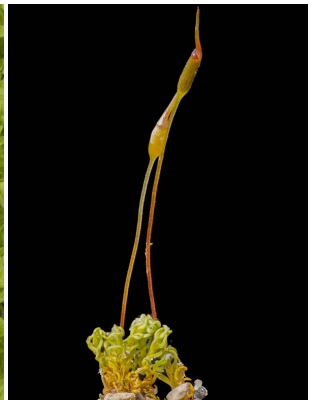
- *Barbula* is a small moss that grows in a star-like shape - you can tell it apart from other star-shaped mosses because it is much smaller.
- Grows sometimes in concentrated patches in moist soil - you can find it over a large area - can be confused with *Weissia*.



Barbula unguiculata
Photo by Jerry Jenkins



Barbula unguiculata
Photo by Jerry Jenkins



Barbula unguiculata
Photo by Jerry Jenkins

Bryum

- *Bryum* is the quintessential soft moss.
- Can grow in soil, rock, swamp.
- *B. argenteum* (not pictured) can be easily identified by its unique silver-green color - if you see a moss in a sidewalk crack, it's probably *B. argenteum*.



Bryum pseudotriquetrum
Photo by Jerry Jenkins



Bryum liseae var. *cuspidatum*
Photo by Jerry Jenkins



Bryum pseudotriquetrum
Photo by Jerry Jenkins

Orthotrichum

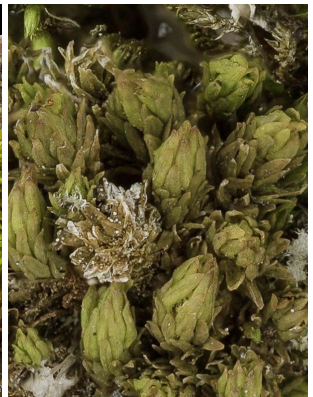
- A small moss that grows in the cracks of bark on many urban tree trunks.
- Looks different wet from dry (sometimes star-shaped, but smaller than *Atrichum* and *Polytrichum* and grows in trees unlike *Barbula*)
- Look out for inserted sporophytes (no stalk).



Orthotrichum stellatum
Photo by Jerry Jenkins



Orthotrichum sordidum
Photo by Jerry Jenkins



Orthotrichum obtusifolium
Photo by Jerry Jenkins

Photos by: Jerry Jenkins, Kalman Strauss, Charles DeLavoi. Produced by Juliana Philipp and the authors
© Kalman Strauss [kalmanstrauss1@gmail.com]. Support from Gantz Family Collections Center, NSF Award No. 1145898
© Northern Forest Atlas Foundation
© Science and Education, The Field Museum, Chicago, IL 60605 USA

[fieldguides.fieldmuseum.org] [865] version 1 02/2017

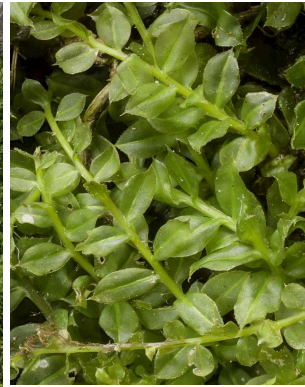
Plagiomnium

- Fairly large and robust, green.
- Found growing on moist soil, fallen logs.
- Can grow both like a pleurocarp (middle photo) and like an acrocarp (right photo).
- A bit waxy in texture.



Plagiomnium cuspidatum

Photo by Jerry Jenkins



Plagiomnium cuspidatum

Photo by Jerry Jenkins



Plagiomnium cuspidatum

Photo by Jerry Jenkins

Anomodon

- Grows on the base of trees.
- Grows in a creeping manner (pleurocarpous).
- Easily confused with *Leskea*. *Anomodon* generally has fewer sporophytes, is slightly larger, and is slightly rarer.



Anomodon attenuatus

Photo by Jerry Jenkins



Anomodon attenuatus

Photo by Jerry Jenkins

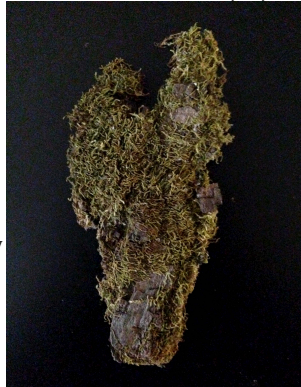


Anomodon attenuatus

Photo by Jerry Jenkins

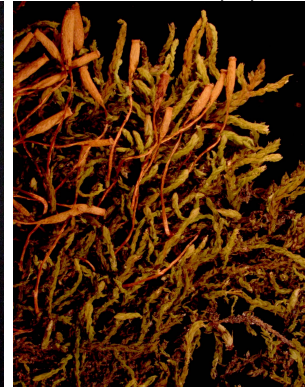
Leskea

- Grows on the base of tree, tree branches.
- Easily confused with *Anomodon* (see above). *Leskea* has generally more sporophytes, is slightly smaller, and is slightly more common.
- Usually pale green in color.



Leskea gracilescens

Photo by Kalman Strauss



Leskea gracilescens

Photo by Kalman Strauss



Leskea gracilescens

Photo by Kalman Strauss

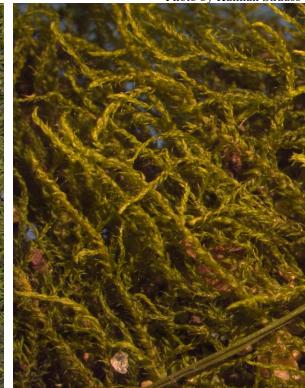
Amblystegium

- Possibly the most common moss in the forests of the Chicago Region.
- Grows on soil, rock, and logs.
- A very generic moss.
- Green in color.
- Grows creeping along the ground (pleurocarpous).



Amblystegium serpens

Photo by Jerry Jenkins



Amblystegium trichopodium

Photo by Charlie DeLavoi



Amblystegium trichopodium

Photo by Charlie DeLavoi

Common Mosses and Liverworts of the Chicago Region

Kalman Strauss, Jerry Jenkins, Gary Merrill, Charles DeLavoi, Juan Larrain, Laura Briscoe & Matt Von Konrat
The Field Museum, The Northern Forest Atlas Foundation

Photos by: Jerry Jenkins, Kalman Strauss, Charles DeLavoi. Produced by Juliana Philipp and the authors
© Kalman Strauss [kalmanstrauss1@gmail.com]. Support from Gantz Family Collections Center, NSF Award No. 1145898
© Northern Forest Atlas Foundation
© Science and Education, The Field Museum, Chicago, IL 60605 USA

[fieldguides.fieldmuseum.org] [865] version 1 02/2017

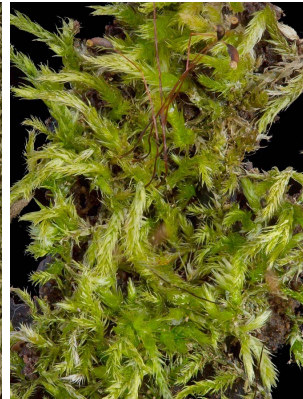
Brachythecium

- Pleurocarp (prostrate growth pattern).
- Fairly robust, commonly sporophytic.
- Grows on many substrates, including on rock, tree base, soil, log, and backyard soil.
- Can look almost furry.



Brachythecium laetum

Photo by Jerry Jenkins



Brachythecium campestre

Photo by Jerry Jenkins



Brachythecium campestre

Photo by Jerry Jenkins

Entodon

- Grows on logs, rocks, and fallen trees, along with *Platygyrium*.
- Can be confused with *Brachythecium*. *Entodon* is slightly thinner and longer and slightly rarer than *Brachythecium*, in the Chicago Region



Entodon seductrix

Photo by Jerry Jenkins



Entodon seductrix

Photo by Jerry Jenkins



Entodon cladorrhizans

Photo by Jerry Jenkins

Platygyrium

- Has waxy, almost furry, leaves.
- Grows along with *Entodon* on fallen trees and logs.
- Usually green or tan in color.



Platygyrium repens

Photo by Jerry Jenkins



Platygyrium repens

Photo by Jerry Jenkins

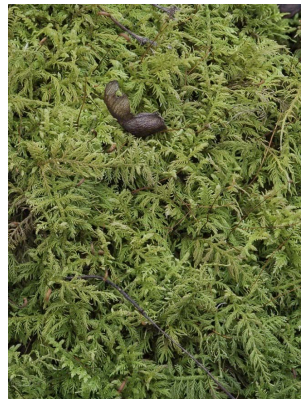


Platygyrium repens

Photo by Charlie DeLavoi

Thuidium

- A robust pleurocarpous moss.
- Has pinnate branching pattern (looks a bit like a fern).
- Sporophyte uncommon.



Thuidium delicatulum

Photo by Jerry Jenkins



Thuidium delicatulum

Photo by Jerry Jenkins



Thuidium delicatulum

Photo by Jerry Jenkins