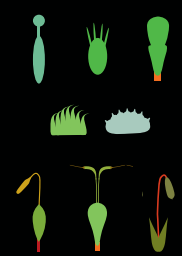


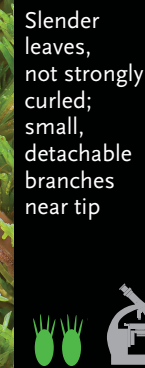
MOSSES I:  
ACROCARPS



*Aulacomnium androgynum* (wet hollows, local)



*Dicranum flagellare* (with *Cladonia uncialis*, forest floor, logs, tree bases, common)



*Dicranum scoparium* (forest floor, rocks, common)



*Dicranum fuscescens*  
(forest floor, frequent)



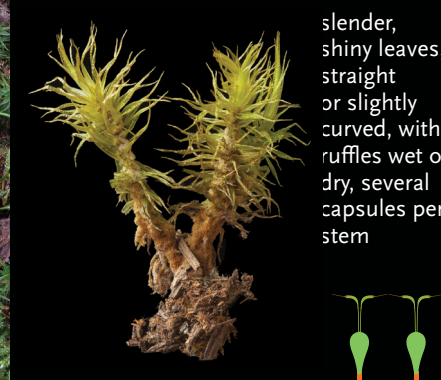
*Dicranum montanum* (bark, roots, logs, common)



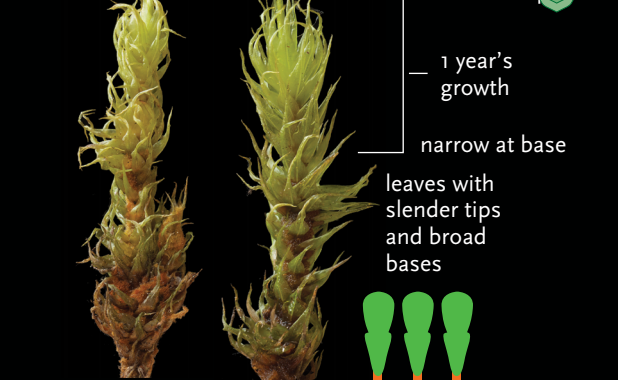
tiny moss, in dense, cushions,  
leaves curled when dry



*Dicranum polysetum* (forest floor, rocks, abundant)



*Dicranum ontariense* (forest floor, rocks, common near coast)



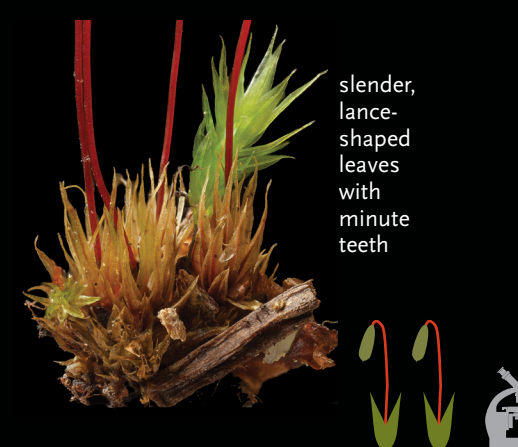
*Dicranum spurium* (uncommon, open glades)



*Leucobryum glaucum* forest floor, common)



*Mnium hornum* (wet hollows, seeps, abundant)



*Pohlia nutans* (soil, crevices, common)

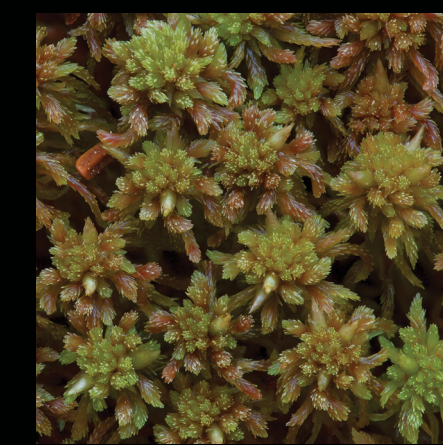
*Polytrichum commune* (forest floor, glades, common)



*Polytrichum juniperinum* (bare soil or rock in glades, common)



*Pogonatum urnigerum* (exposed rock or soil; with *Atrichum angustifolium*)



*Sphagnum capillifolium* (wet hollows, banks with seepage, common)



*Sphagnum girgensohnii* (wet hollows in woods, common)



*Sphagnum angustifolium* or (wet hollows in woods, common)



# NORTHERN FOREST MOSS CHARTS: CRYPTOOGAMS OF THE BOREAL FOREST FLOOR II

## MOSES II: PLEUROCARPUS



*Brotherella recurvans* (and *Hypnum imponens*?)  
Uncommon, moist soil and rocks.)

Very like  
*Hypnum  
imponens*;  
sometimes  
greener,  
frizzier,  
or less  
regularly  
pinnate.



*Hylocomnium splendens* (sides of rocks, forest  
floor in wetter forests, dominant)

heart-  
shaped  
leaves,  
fern-like  
branching,  
step-ladder  
growth



*Hypnum cupressiforme* (or *andoi*?) Uncommon,  
tree trunks)

delicate,  
often dan-  
gling,  
slender leaves  
with long tips,  
curled to one  
side;  
smaller than  
*Hypnum  
imponens*



*Hypnum imponens* (forest floor, rocks, logs,  
tree bases, dominant)

golden or green,  
medium size,  
regularly  
branched,  
leaf tips curved  
under,  
branches look  
like braids



*Pleurozium schreberi* (with *Cladonia rangiferina*, forest floor, logs, rocks,  
tree bases, dominant)



erect growth,  
open pinnate  
branching,  
red stems,  
broad stem  
leaves



*Ptilium crista-castrense* (forest floor,  
frequent)

fernlike  
shape,  
long,  
slender,  
curled  
leaves



## LIVERWORTS



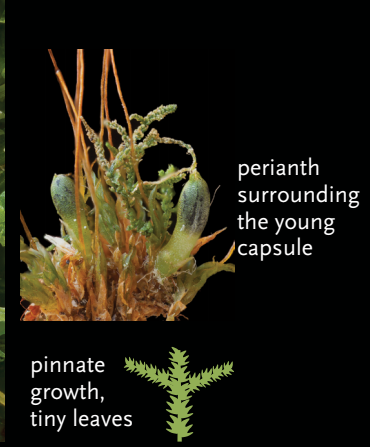
*Bazzania tridentata* (rocks, logs; dominant, looks a  
sowbug with a skirt)



toothed,  
shingled  
leaves



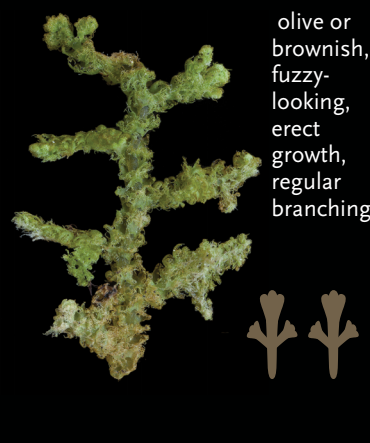
*Lepidozia reptans* (often in other bryophytes), with *Leucobryum  
glaucum* and (?) some dwarf males



perianth  
surrounding  
the young  
capsule



*Pilidium ciliare* (with *Pleurozium schreberi*, dry forest floor, rocky barrens)



olive or  
brownish,  
fuzzy-  
looking,  
erect  
growth,  
regular  
branching

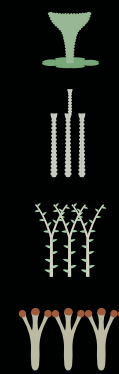


*Pilidium pulcherrimum* (logs, trees, rotting wood, common)

red-brown  
to olive,  
fuzzy-  
looking,  
creeping



## CLADONIA LICHENS



*Dicranum  
scoparium*

broad cups,  
powdery  
surface  
inside  
and out



*Hypnum  
imponens*

hollow,  
powdery  
stalks,  
small open  
cups with  
inrolled  
edges,  
branches  
from edges  
of cups



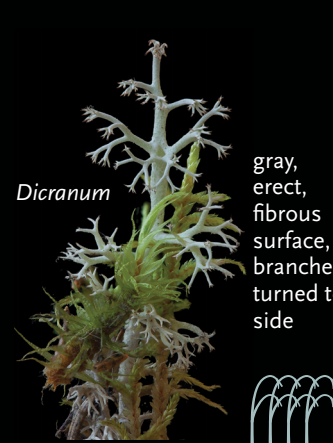
*Cladonia chlorophaea* group (soil,  
logs, rocks, common)

*Cladonia cenotea*, (old wood, common)



*Cladonia gracilis & maritima*  
(forest floor, frequent)

tall,  
slender  
stalks,  
smooth  
surface,  
with or  
without  
cups and  
fruits



*Cladonia rangiferina* (with *Pleurozium  
and Dicranum polysetum* dry forest  
floor, open rocks, common)

gray,  
erect,  
fibrous  
surface,  
branches  
turned to  
side



*Cladonia stellaris* (glades, rocks,  
common)

ball-  
shaped  
heads,  
multi-  
ple main  
branches,  
branch  
tips  
spread  
widely,  
surface  
fibrous



*Cladonia uncialis* (dry rocks and  
barrens, common)

repeatedly  
branched,  
smooth  
surface,  
holes in  
branches  
and at  
forks;  
forms  
extensive  
mats

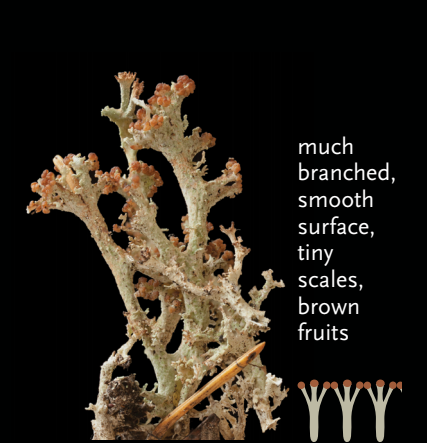


*Pleurozium*

lots of  
branches,  
lots of  
tiny  
scales



*Cladonia squamosa* (dry or wet forest floor,  
frequent)



*Cladonia crispata* (bare  
soil, frequent)

much  
branched,  
smooth  
surface,  
tiny  
scales,  
brown  
fruits





# NORTHERN FOREST MOSS CHARTS: CRYPTOGAMS FROM THE BOREAL FOREST FLOOR I

## ERECT MOSSES WITH STRONG COSTAS AND FEW BRANCHES



= Microscope needed to confirm

Red italics = Common species

### 1 LANCE-SHAPED LEAVES WITH NARROW TIPS AND ENLARGED, COLORED ALAR CELLS: *DICRANUM*



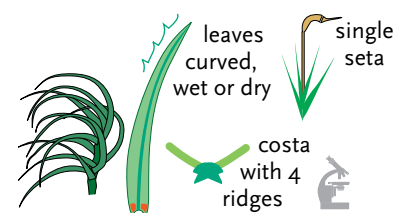
alar cells

Large plants, loose mounds, toothy leaves, inclined capsules

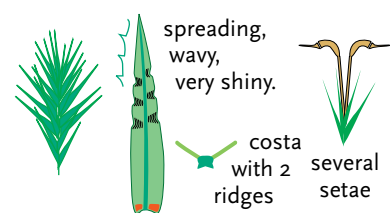


Upper cells long-rectangular, with pores

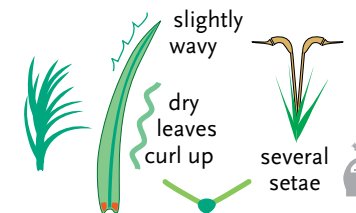
Upper cells short-rectangular, with teeth or papillae below



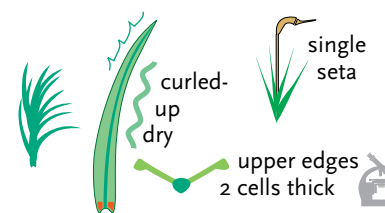
*Dicranum scoparium* Common in mounds on soil, rocks, logs; highly, even dangerously, variable.



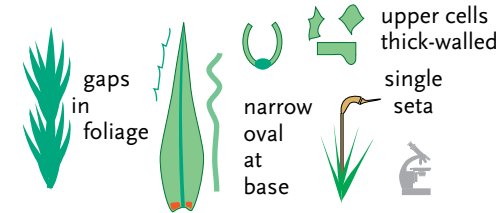
*Dicranum polysetum* Large, common, distinctive species of forest floor, in loose mounds



*Dicranum ontariense* Locally common on soil, humus, & rocks. Much like *scoparium* in field.

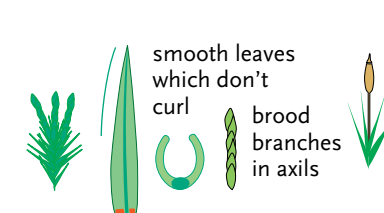


*Dicranum fuscescens* Frequent, soil, rocks, old wood. Much like *scoparium* in field.

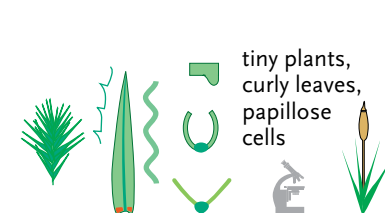


*Dicranum spurium* Occasional, dry, open, sandy woods, rocks. The gaps between growth segments are distinctive.

Smaller plants, denser mounds or mats, inrolled leaves, erect capsules



*Dicranum flagellare* Common, dark, silky mats on soil, rocks, & wood.

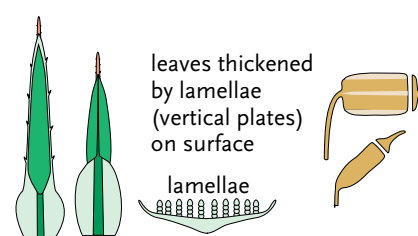


*Dicranum montanum* Common, small, dense, curly cushions on rocks, tree bases, old wood.

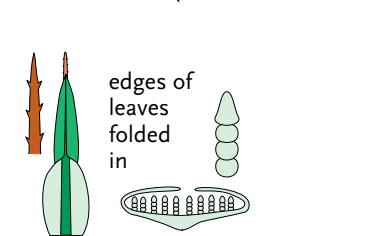
### 2 SLENDER, THICK, OPAQUE LEAVES THAT LOOK LIKE CONIFER NEEDLES

#### POLYTRICHUM & POGONATUM

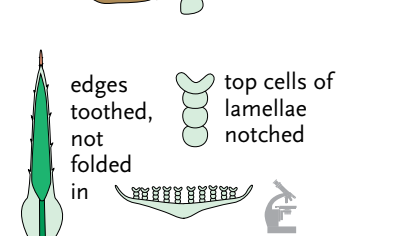
Capsules ribbed, lamellae smooth



Plants resemble spruce seedlings, and grow in open colonies, like small forests.

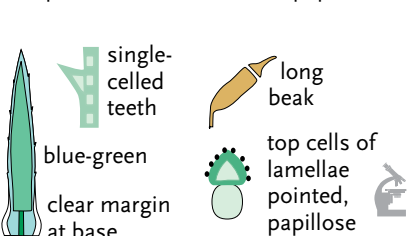


*Polytrichum juniperinum* Very common, dry open soil, rocks.



*Polytrichum commune* Common, forest floor, open soil, hummocks in wetlands.

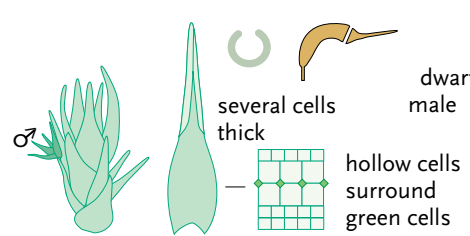
Capsules smooth, lamellae papillose



*Pogonatum urnigerum* Occasional, moist sandy or gravely open soil or crevices in rocks.

### 3 THICK, OPAQUE, WHITE-GREEN LEAVES

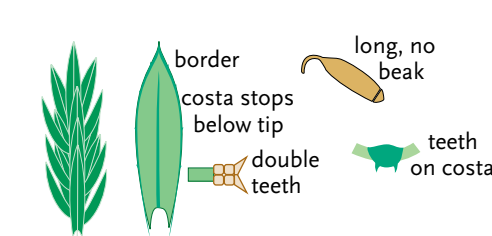
#### LEUCOBRYUM



*Leucobryum glaucum* Common, compact mounds on shaded soil or humus

### 4 BORDERED LEAVES WITH DOUBLE TEETH

#### MNIUM

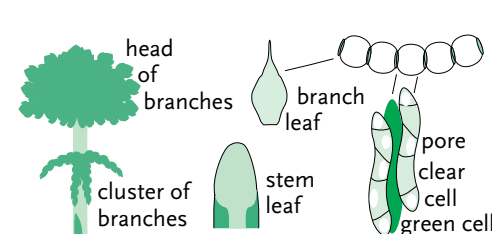


*Mnium hornum* Common, stream banks, wet hollows, often forming large loose mats

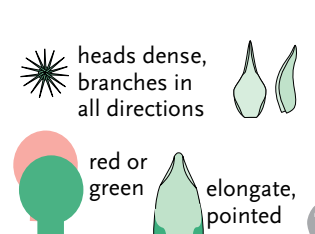
### 5 BRANCHES IN CLUSTERS, FORMING A HEAD

#### SPHAGNUM

Stem leaves elongate, young descending branches in a one row,



Wetland plants with clustered branches, made of large empty water-holding cells and small green photosynthetic ones.

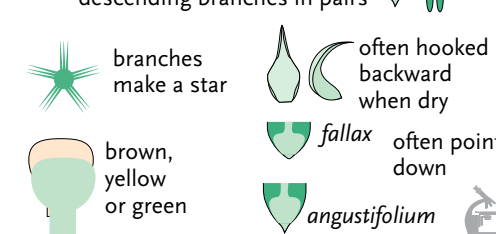


*Sphagnum capillifolium* Common, tight clumps or hummocks, wet banks and hollows.



*Sphagnum girgensohnii*, Common, loose mats in wet hollows

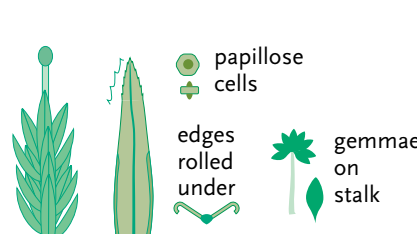
Stem leaves short, young descending branches in pairs



*Sphagnum fallax* & *angustifolium* Common and barely distinguishable from each other, loose mats in wet hollows.

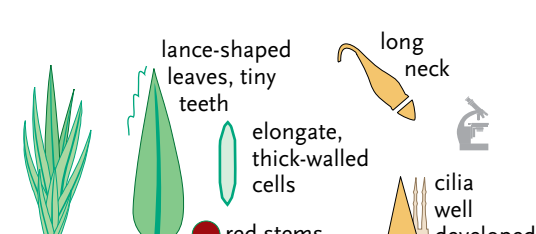
### 6 LEFT-OVERS: LANCE-SHAPED LEAVES, ALAR CELLS NOT ENLARGED

#### AULACOMNIUM

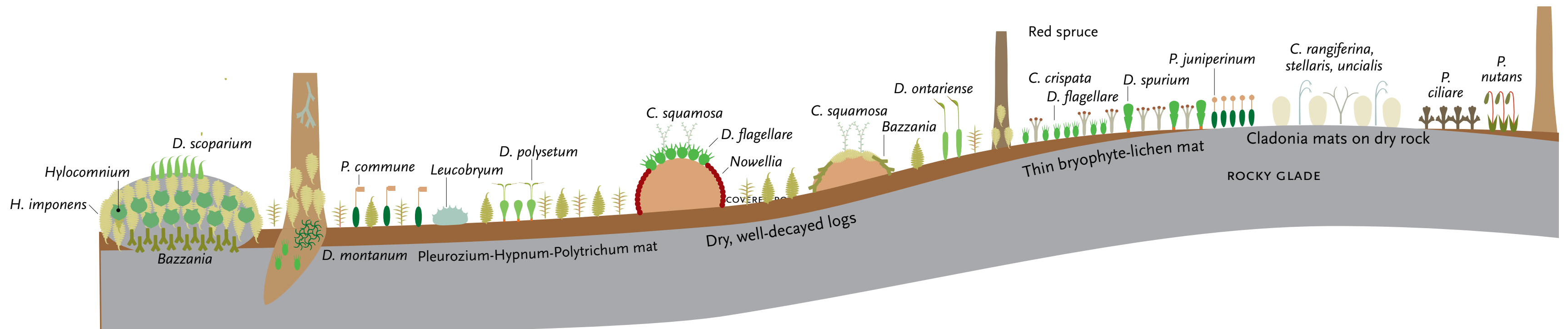


*Aulacomnium androgynum*, Occasional, wet soil in seeps and hollows.

#### POHLIA



*Pohlia nutans* Common in, small, dense cushions on moist soil, especially wet banks, and in crevices in rocks.





# NORTHERN FOREST MOSS CHARTS: CRYPTOGRAMS FROM THE BOREAL FOREST FLOOR II

## ERECT OR CREEPING MOSSES WITH PINNATE BRANCHING AND SHORT COSTAS

### 1 MULTIPLY COMPOUND BRANCHING

**HYLOCOMNIUM**

*Hylocomnium splendens* Common and locally dominant on soil, humus, rocks; stepladder growth, with one branch spray produced each year.

### 2 RED STEMS, BROAD CONCAVE LEAVES

**PLEUROZIUM**

*Pleurozium schreberi* Common, often abundant species of soil, humus, rocks, logs.

### 3 SLENDER, CURVED LEAVES POINTING IN ONE DIRECTION

**PTILIUM**

*Ptilium crista-castrense* Common on rocks, humus and logs in moist woods.

**HYPNUM**

*Hypnum imponens* Common, often dominant, forming loose, shaggy mats on rocks, logs, tree bases and soil.

**HYPNUM**

*Hypnum cf. cupressiforme* Occasional, in loose silky, often dangling tufts on rocks and trees. May be a related species, *H. andoi*.

**BROTHERELLA**

*Brotherella recurvans* Common on rocks, logs, and soil in moist forests. Leaves less regularly arranged than *Hypnum imponens*.

## LIVERWORTS: TWO ROWS OF LARGE LEAVES, NO MIDRIB, LEAVES (IN THESE SPECIES) SLANT FORWARD

### 1 CRESCENT-SHAPED LEAVES

**NOWELLIA**

*Nowellia curvifolia* Common, thin red or green mats on rotting wood. Other small liverworts have shorter points.

### 2 LEAVES WITH LONG CILIA, WHOLE PLANT LOOKS FURRY

**PTILIDIUM**

*Ptilidium ciliare* Common, growing vertically and forming deep loose mats in shallow soil over rock.

### 3 LEAVES WITH 3 OR 4 TEETH OR LOBES

**PTILIDIUM**

*Ptilidium pulcherrimum* Common, making thin, dense, felty mats on logs, stumps, and tree bases.

### 3 LEAVES WITH 3 OR 4 TEETH OR LOBES

**BAZZANIA**

*Bazzania trilobata* Common in moist forests, in thick mats over rocks and rotted wood and mounds on soil.

**LEPIDOZIA**

*Lepidozia reptans* Frequent, scattered among mosses or on rocks and decaying wood.

## CLADONIA LICHENS: HOLLOW STALKS, SIMPLE OR BRANCHED

### 1 CUPS OR RED APOTHECIA, UNBRANCHED

**CLADONIA**

*Cladonia chlorophaea group* Common on soil, rotting wood, rocks, tree bases.

**CLADONIA**

*Cladonia cenotea* Common on soil, rotting wood, moss.  
*Cladonia macilenta* Common on soil, rotting wood, rocks, tree bases.

### 2 LOTS OF BRANCHES

**CLADONIA**

*Cladonia rangiferina* Common, scattered or forming carpets on forest floor and in open barrens.

**CLADONIA**

*Cladonia stellaris* SOAPSUDS LICHEN Common, making densely branched balls and clumps in open woods and over rocks.

**CLADONIA**

*Cladonia uncialis* Common, often making dense, continuous mats, forest openings, thin soil over rocks.

### 3 SIMPLE OR FORKING BUT NOT HIGHLY BRANCHED

**CLADONIA**

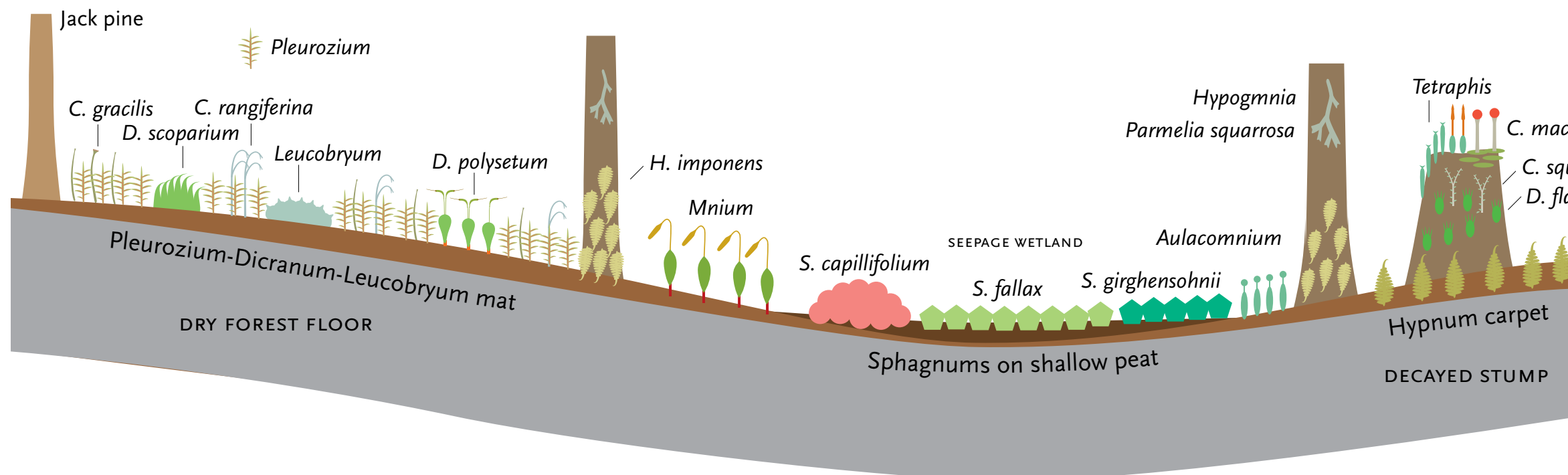
*Cladonia squamosa* Very common, on logs, soil, rocks, tree bases and over moss.

**CLADONIA**

*Cladonia crispata* Common on soil, rocks, rotting wood.

**CLADONIA**

*Cladonia gracilis & maxima* Our tallest Cladonias, common among mosses or other lichens on the forest floor. The two differ in little but size.



This is the first, and still very provisional, draft of a bryophyte and lichen chart for the boreal forest floor. It is based on the relatively dry spruce and jack pine forests on Dyer Point, Steuben, Maine, and includes most of the mosses and liverworts and a sampling of the lichens. The front side—this is the back—has photographs, icons, and the characters that are most easily visible. This side has diagrams with more technical characters (cryptograms aren't easy!), and an ecological diagram constructed from the icons. There are, of course, always more species and more technical characters: see my *Graphical Guide to Northeastern Mosses* for those.

These charts are intended to be a useful identification tool without being a complete one. The goal is to pull, from all the possible species in the northern forest, those that are most likely to be seen in a particular habitat, and then show, on two sides of two sheets, what they look like, how they are arranged ecologically, and what their critical characters are. This, to my knowledge, hasn't been done before. I would love to know what you think.

Jerry Jenkins & Sue Williams, 2013  
 A product of the Northern Forest Atlas Project and the Wildlife Conservation Society Adirondack Program

