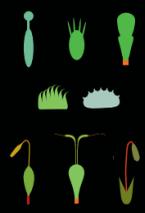


MOSSES I:
ACROCARPS



Aulacomnium androgynum (wet hollows, local)



gemmae on stalk
light color, broadly lance-shaped leaves



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



Slender leaves, not strongly curled; small, detachable branches near tip



Dicranum scoparium (forest floor, rocks, common)



slender leaves, curved to one side, wet or dry, fuzzy stems



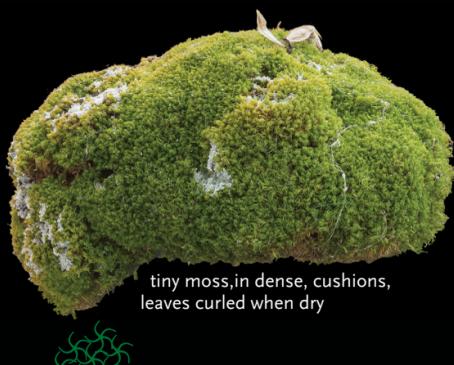
Dicranum fuscescens (forest floor, frequent)



slender leaves, irregularly curled



Dicranum montanum (bark, roots, logs, common)



tiny moss, in dense cushions, leaves curled when dry



Dicranum polysetum (forest floor, rocks, abundant)



slender, shiny leaves, straight or slightly curved, with ruffles wet or dry, several capsules per stem



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



long beak, 1 or 2 capsules per stem
Slender leaves, curled when dry, not ruffled when wet



broad at top
1 year's growth
narrow at base
leaves with slender tips and broad bases

Dicranum spurium (uncommon, open glades)



Leucobryum glaucum forest floor, common



thick, opaque leaves with inrolled edges



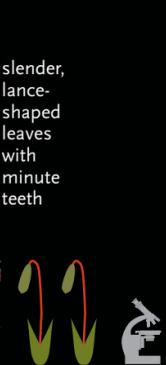
Mnium hornum (wet hollows, seeps, abundant)



long nodding capsules
elongate, slender-oval leaves with double teeth



Pohlia nutans (soil, crevices, common)



slender, lance-shaped leaves with minute teeth

Polytrichum commune (forest floor, glades, common)



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

leaves with inrolled margins that cover the upper surface, spiny red tips, and no teeth.



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

Atrichum



thick, blue-green, aloe-like leaves, with spiny teeth and a dark needle tip



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



rounded, densely packed heads, often forms mounds or hummocks, red color, when present, is distinctive



Always green, in loose mats; heads flat-topped, with the young descending branches in a single vertical row

Sphagnum girgensohnii (wet hollows in woods, common)



Green or pale yellow, in loose wet mats; young descending branches in two vertical rows, like chipmunk teeth;

Sphagnum angustifolium or (wet hollows in woods, common)

NORTHERN FOREST MOSS CHARTS: CRYPTOGAMS OF THE BOREAL FOREST FLOOR II

MOSES II:
PLEUROCARPUS



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



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



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



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



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



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



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



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



Cladonia rangiferina



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



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



fernlike shape, long, slender, curled leaves



Ptilium crista-castrense (forest floor, frequent)

LIVERWORTS



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



toothed, shingled leaves



Leucobryum



perianth surrounding the young capsule



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



Pleurozium



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



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



red-brown to olive, fuzzy-looking, creeping



Ptilidium pulcherrimum (logs, trees, rotting wood, common)

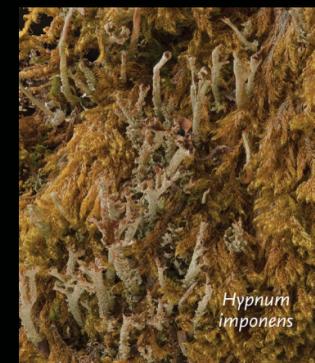
CLADONIA LICHENS



broad cups, powdery surface inside and out



Dicranum scoparium



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

Hypnum imponens

Cladonia cenotea, (old wood, common)



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



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



gray, erect, fibrous surface, branches turned to side



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



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



Cladonia stellaris (glades, rocks, common)



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



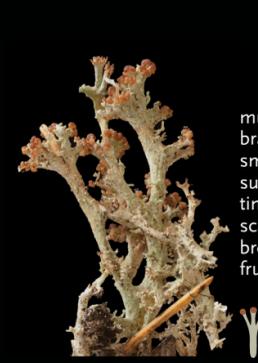
Cladonia uncialis (dry rocks and barrens, common)



lots of branches, lots of tiny scales



Cladonia squamosa (dry or wet forest floor, frequent)



much branched, smooth surface, tiny scales, brown fruits



Cladonia crispata (bare soil, frequent)

NORTHERN FOREST MOSS CHARTS: CRYPTOGRAMS 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*

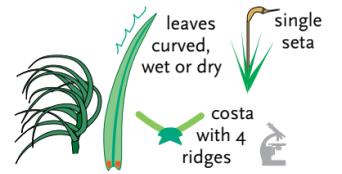


Large plants, loose mounds, toothy leaves, inclined capsules

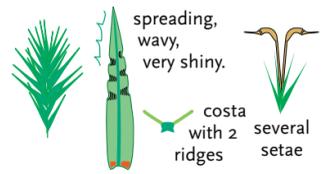
Smaller plants, denser mounds or mats, inrolled leaves, erect capsules

Upper cells long-rectangular, with pores

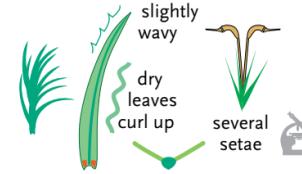
Upper cells short-rectangular, with teeth or papillae below



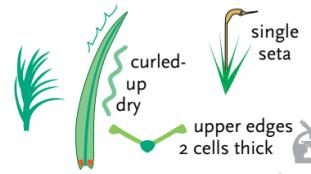
Dicranum scoparium Common in mounds on soil, rocks, logs; highly, even dangerously, variable.



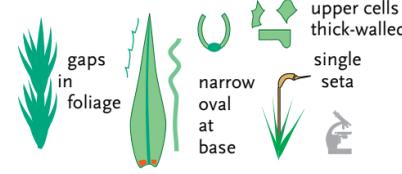
Dicranum polysetum Large, common, distinctive species of forest floor, in loose mounds



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



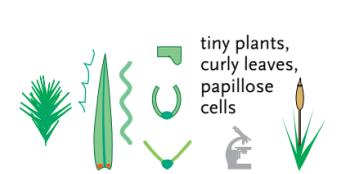
Dicranum fuscescens Frequent, soil, rocks, old wood. Much like *scoparium* in field.



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



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



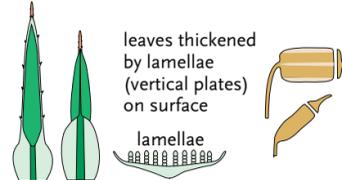
Dicranum montanum Common, small, dense, curly cushions on rocks, tree bases, old wood.

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

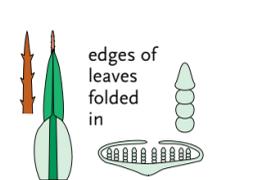
POLYTRICHUM & POGONATUM

Capsules ribbed, lamellae smooth

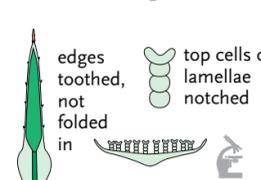
Capsules smooth, lamellae papillose



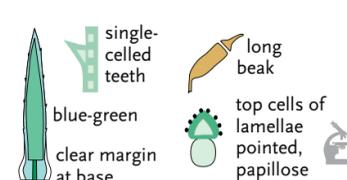
Plants resemble spruce seedlings, and grow in open colonies, like small forests.



Polytrichum juniperinum Very common, dry open soil, rocks.



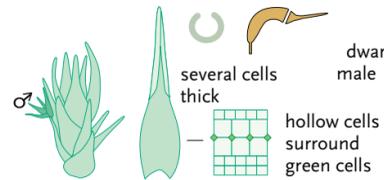
Polytrichum commune Common, forest floor, open soil, hummocks in wetlands.



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

3 THICK, OPAQUE, WHITE-GREEN LEAVES

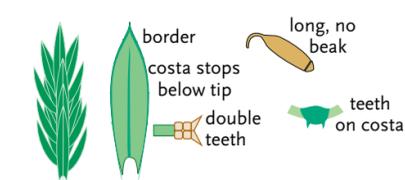
LEUCOBRYUM



Leucobryum glaucum Common, compact mounds on shaded soil or humus

4 BORDERED LEAVES WITH DOUBLE TEETH

MNIUM



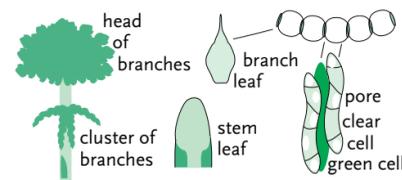
Mnium hornum Common, stream banks, wet hollows, often forming large loose mats

5 BRANCHES IN CLUSTERS, FORMING A HEAD

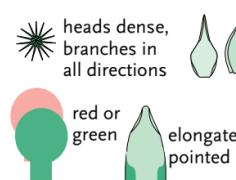
SPHAGNUM

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

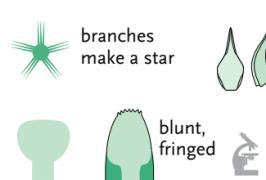
Stem leaves short, young descending branches in pairs



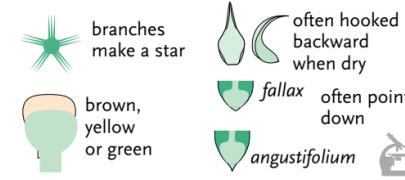
Wetland plants with clustered branches, made of large empty water-holding cells and small green photosynthetic ones.



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



Sphagnum girgensohnii, Common, loose mats in wet hollows

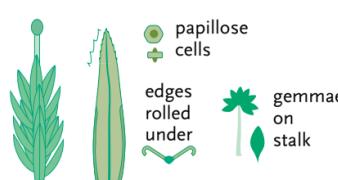


Sphagnum fallax & *angustifolium* Common and barely distinguishable from each other, loose mats in wet hollows.

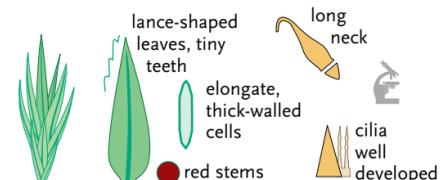
6 LEFT-OVERS: LANCE-SHAPED LEAVES, ALAR CELLS NOT ENLARGED

AULACOMNIUM

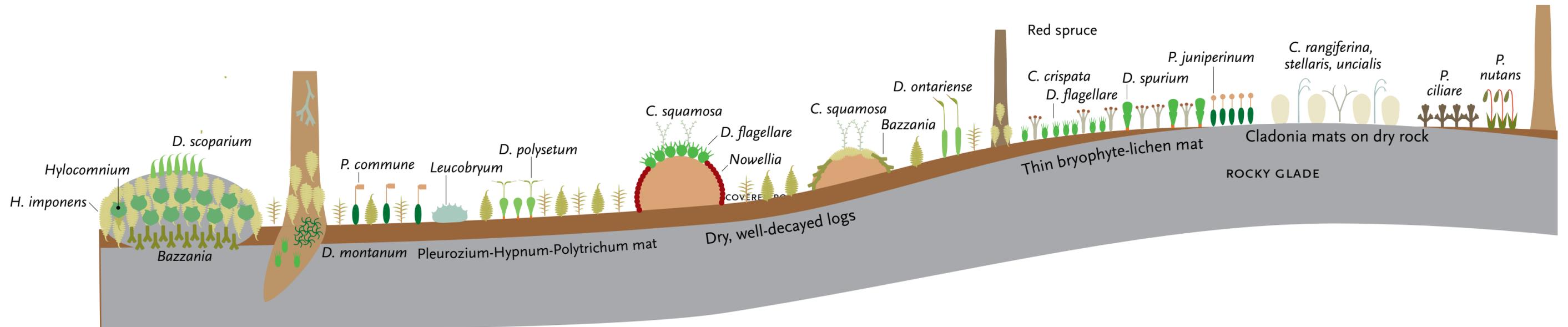
POHLIA



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



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



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.

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 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

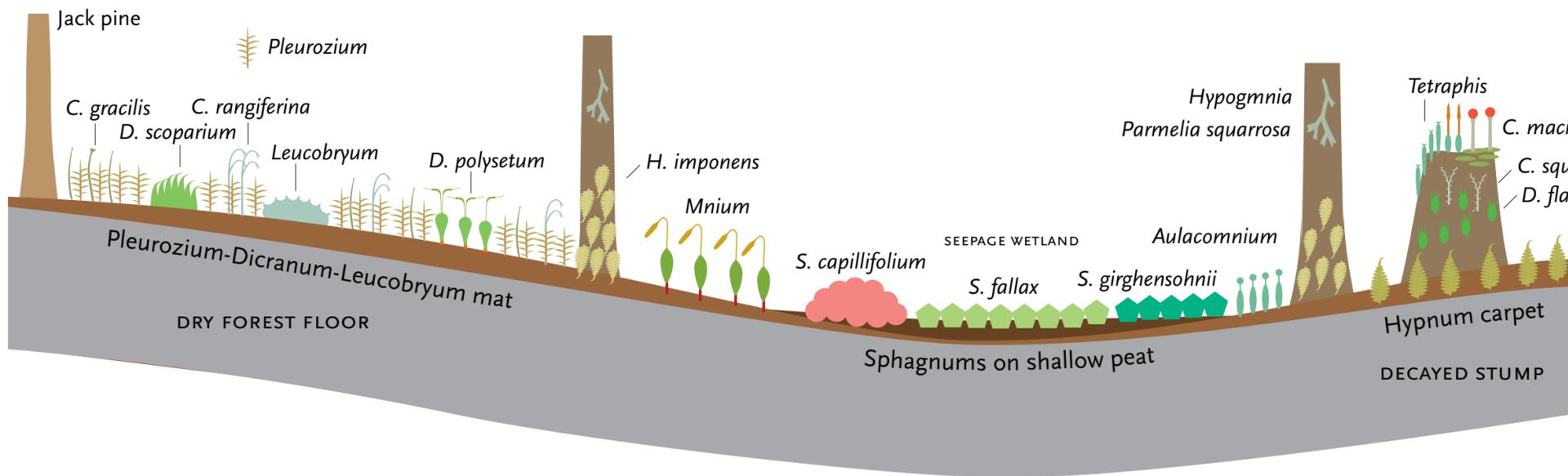
Cladonia squamosa Very common, on logs, soil, rocks, tree bases and over moss.

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.

