

### GUIDE TO GROUPS

**GROUP 1**

papillose cells and a strong single costa → often pinnate

papillose cells, costa weak, double or absent → stringy, shaggy, or pinnate

paraphylla among leaves

**GROUP 2**

smooth cells, strong single costa, and either slender leaves or differentiated alar cells → may be tree-like, wormlike shaggy, or flattened

smooth cells, strong single costa, average leaves and undifferentiated alar cells

alar groups

**GROUP 3**

smooth cells, costa weak, double or absent, and either leaf tips slender and curved or alar cells inflated.

smooth cells, costa weak, double or absent, leaf tips not slender and curved, alar cells not inflated

alar groups

shoots may be flattened

often have brood bodies or brood branches

### GROUP 1: PAPILLOSE CELLS, STRONG SINGLE COSTA

multiple papillae (at least on apical cell of branch leaves) → often fern-like

*Thuidium, Rasiella, Pelekiem* pinnate, with paraphylla

*Anomodon* never pinnate, no paraphylla

*Haplomenium triste* broken leaf tips

single papillae at ends of cells → paraphylla among leaves

*Catoneuron commutatum* paraphylla on stems, basal or alar cells enlarged

*Rhytidium rugosum* alar cells small, leaves both pleated & wavy

*Helodium* paraphylla on stems & leaf bases

*Bryhnia* either inflated alar cells or small sharp teeth

single papillae in middle of cells → tightly overlapping leaves

*Thelia* spiny teeth, tall forking papillae

*Haplodadium* paraphylla, no teeth

like *Thuidium* but with single papillae on all cells

*Lindbergia brachyptera* shorter costa, longer cells

*Leskea* no paraphylla or teeth, branches stringy & irregular

### GROUP 2: PAPILLOSE CELLS, WEAK OR DOUBLE COSTA OR NONE

short cells → leaves spreading, branches somewhat flattened

*Schwetschkeopsis fabronia* thick-walled cells, square cells running up margins

*Myurella* deeply concave spoon-shaped leaves, loose or tight branches

*Heterocladium dimorphum* heart-shaped leaves, shaggy branches, paraphylla on stems

thin-walled cells, basal marginal cells not differentiated

small moss with skinny thick-walled cells and spoon-shaped leaves → a small, dark creeper with stringy branches

*Pterigynandrum filiforme*

large mosses with skinny thin-walled cells and pointed leaves → main stems erect & very shaggy, branches irregular

*Rhizidadelphus triquetrus*

*Hylocomium splendens* stepladder growth, 3x pinnate

*Ctenidium molluscum* 1x pinnate, heart-shaped stem leaves

main stems arching, branches more or less pinnate

### GROUP 3: SMOOTH CELLS, STRONG SINGLE COSTA, NARROW LEAVES OR DIFFERENTIATED ALAR CELLS

wetland mosses with long slender leaves → can be pinnate

*Tomentothamnium nitens* Erect, pinnate, with straight pleated leaves

*Drepanocladus, Hematocaulis, Sanionia, Warnstorfia, Limprichtia* Leaves often curved, alar or basal cells usually differentiated

*Dichelyma* leaves very slender, sharply keeled, in three rows

*Leptodictyum riparium* costa reaches tip

leaves broader, not keeled, in more than three rows

enlarged and often decurrent alar cells → irregular branching

*Brachythecium (i)* long cells, short capsules, slender tips, often pleated

*Catoneuron filicinum* short cells, stem & branch leaves differentiated, few paraphylla

*Hygrohypnum (i)* short upper cells, long lower cells, often concave, costa often variable

*Calliergon* simple or branched

many small square alar cells → shaggy, horizontal, loosely pinnate

*Forstroemia trichomitria* with a band of square cells running up the edges

*Leskeella nervosa* dark moss with short thick-walled cells and many brood branches

*Leskeella nervosa* dark moss with short thick-walled cells and many brood branches

*Fabronia ciliaris* leaves with white needle tips, cells short rhombic

*Homalothecella* Plants tiny, leaves deeply concave and sharply toothed

### GROUP 4: SMOOTH CELLS, STRONG SINGLE COSTA, UNDIFFERENTIATED OR WEAKLY DIFFERENTIATED ALAR CELLS

large, broad-leaved mosses of rocks & soil with jagged teeth → shaggy, horizontal, flattened branches

*Thamnobryum alleghaniensis* widest above base, paraphylla absent, costa toothed

*Climacium* widest near base, paraphylla present, costa smooth

*Hylocomium pyrenaicum* sharp, slender tip, pleated leaves, loosely pinnate branching

rounded mosses of various habitats with small teeth or none → tip often twisted

*Homalia trichomanoides* branches very flat, leaves not concave

*Bryodesmia ilicabra* rounded, concave leaves with abrupt, skinny tips

*Cirriophyllum piliferum* skinny leaves, looser branches

*Tormentia (Eurhynchium) riparioides* alar cells undifferentiated, toothed almost to base

few or no square alar cells → spreading leaves, flattened shoots

*Rhynchostegium semulatum* pale, toothy, twisted tip

*Anacamptodon splachnoides* leaves turn up at branch tips

*Eurhynchium* very toothy, short upper cells and long lower ones

*Platyloma lescunii* with a border of elongate cells

*Amblystegium, Hygroamblystegium* strong costa, inclined capsules, no border or teeth

### GROUP 5: SMOOTH CELLS, WEAK OR DOUBLE COSTA OR NONE, TIPS LONG & CURVED OR ALAR ENLARGED

leaf tips all curved in one direction, plants often pinnate → very stringy

*Brodiaea* toothed margins, inflated alar cells, skinny pseudoparaphylla

*Hynum* if toothed then with small alar cells or broad pseudoparaphylla

*Ptilium crista-castaneae* leaves strongly pleated, fronds erect and feathery

*Campylophylum (Campyloium)* alar cells differentiated

*Rhizidadelphus squarrosus* tip strongly toothed, alar not differentiated

alar cells enlarged, leaves tapering to tips → capsule cells with thickened corners

*Sematophyllum* few, abrupt, thin-walled, bubble-like alar cells

*Callidulum haldanianum* more & less abrupt alar cells, often thick-walled

*Herzogella striatella* edges toothed to base, outer stem cells inflated

*Fontinalis* large, limp, stringy, aquatics with concave leaves in 3 rows

alar cells enlarged, tips rounded or deeply concave, with short apical cells → erect if pinnate

*Pleurozium scheberi* red stems, orange alar cells

*Calliergonella cuspidata* erect & pinnate

*Scorpidium scorpioides* branches cylindrical or worm-like, outer stem cells inflated

### GROUP 6: SMOOTH CELLS, WEAK OR DOUBLE COSTA OR NONE, LEAF TIPS NOT SLNDER & CURVED, ALAR NOT INFLATED

branches strongly flattened, & comblike → leaves tightly overlapping

*Taxiphyllum deplanatum* few weak teeth, few square alar

*Isoetesopsis muellerianum* no teeth or differentiated alar cells, outer cells of stem inflated

*Neckera pennata* leaves wavy, branches flattened

*Plagiothecium* leaf bases run down stem as a slender strip of cells, branches often flat

leaves asymmetrical in flattened species

numerous square alar cells running up edge → loose curling on trees

*Leucodon* middle cells short, leaves loosely arranged, broad branches common

*Entodon* middle cells long, leaves tightly overlapping, deeply concave

*Hylocomium* large, pinnate, erect coarsely toothed, with paraphylla

*Herzogella turfosa* small, not pinnate, toothed to base

rounded concave leaves, variable costa, tips often curved → small, creeping, somewhat difficult mosses

*Hygrohypnum (iii)* usually aquatics with stringy branches

*Platygyrium repens* beaked lid to capsule; lower leaf edges reflexed

*Pylaisiella* no beak, flat edges

*Homomallium adnatum* round leaves, short cells

*Platydictya, Serpolskea* very tiny, no features

*Isoetesopsis, Pseudotaxiphyllum* long middle cells, often has brood branches

## MOSS GENERA OF THE NORTHERN FOREST • CHART 2 • PLEUROCARPUS

JERRY JENKINS, 2016

Stem and branch leaves

Smooth leaf

Papillose leaf

Pleated leaf

Recurved leaf edge or thickened border

Inrolled margins

Hooded or deeply concave tip

Coarsely toothed edge

Finely toothed edge

Variable costa

Inflated alar cells, with detail

Square alar cells in small group

Elongate middle cells

Long middle cells, shorter upper ones

paraphylla at base of leaf

Leaf tips curved one way (secund)

Leaves slender, curved forward and down (falcate-secund)

Leaves ascending

Leaves spreading

Leaves squarrose

Shoots cylindrical with tightly overlapping leaves (julaceus)

Shoots somewhat flattened

Shoots strongly flattened

Once-pinnate branching

Twice-pinnate branching

Single papilla on both sides of cell

Multiple papillae on both sides of cells

Single papilla on lower end of cell

Tall single papilla on lower side of cell

Paraphylla

NFA

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WCS

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