

Sub-Guide to Initial Groups

Revised through 12 January 2009

Group A – Plants on persistent protonemata

	Group A
Leaves 2-ranked and distichous (attached in two rows on opposite sides of the stem).	
Leaves cleft at anterior edge and clasping posterior edge of next leaf; WS	<i>Fissidens</i> [†]
Leaves decurrent and confluent ; protonemata luminous ; “Goblin Gold”; WS*	<i>Schistostega</i>
Leaves with longitudinal lamellae ; setae long ; capsules cylindrical ; epiphragm present; WS	<i>Pogonatum</i> [†]
Leaves serrate to spinose-dentate ; capsules sessile , ±globose & cleistocarpous ; WS	<i>Ephemerum</i>
Leaves acute, lacking the above unique characteristics.	
Plants growing on clear, quartz crystals ; costa strong ; capsules immersed ; KS	<i>Aschisma</i>
Plants growing on soil ; costa weak at base; capsules exserted ; WS*	<i>Discelium</i>

Group B – Plants minute with immersed capsules

	Group B
Leaves with a hair-point or awn.	
Leaves with ridge-like lamellae on upper surface of costa; WS	<i>Pterygoneurum</i>
Leaves with revolute , entire margins; cells pleuripapillose (C-shaped); WS	<i>Phascum</i>
Leaves with recurved (at apex), serrate margins; cells ± smooth ; WS*	<i>Acaulon</i>
Leaves with plane , entire margins; cells smooth .	
Capsules cleistocarpous ; stem rhizome-like ; spores few and large (>100µ); TX	<i>Lorentziella</i>
Capsules operculate ; calyptrae persistent , 4-angled and split ; spores small ; E	<i>Pyramidula</i>
Leaves subulate / setaceous at least on perichaetial leaves.	
Setae curved ; capsules laterally emergent and operculate ; FL & GA	<i>Eccremidium</i>
Setae straight ; capsules immersed and cleistocarpous .	
Capsules pyriform with conspicuous, stomatose neck; spores small ; WS	<i>Bruchia</i> [†]
Capsules globose to ovoid with no neck.	
Calyptrae mitrate or cucullate ; spores numerous and small ; WS	<i>Pleuroidium</i>
Calyptrae rudimentary ; spores few and large (>100µ); E	<i>Archidium</i>
Leaves cuspidate to long-apiculate with reflexed tips; bulbiform ; WS*	<i>Acaulon</i>
Leaves involute when wet, crisped and contorted when dry; E	<i>Astomum</i>
Leaves with ridge-like lamellae on upper surface of costa; WS	<i>Pterygoneurum</i>
Leaves serrate to spinose-dentate ; protonemata persistent ; WS	<i>Ephemerum</i>
Leaves acute to acuminate, lacking the above unique characteristics.	
Capsules clearly operculate .	
Operculum short -beaked; exothecial cells collenchymatous ; WS	<i>Aphanorrhagma</i>
Operculum long -beaked; exothecial cells not collenchymatous; WS	<i>Physcomitrium</i> [†]
Capsules cleistocarpous or rupturing irregularly.	
Capsules pyriform with conspicuous, stomatose neck; spores small ; WS	<i>Bruchia</i> [†]
Capsules ovoid ; calyptrae cucullate ; spores small ; BC, OR	<i>Pseudephemerum</i>
Capsules globose .	
Calyptrae cucullate ; persistent protonemata under quartz pebbles; KS	<i>Aschisma</i>
Calyptrae mitrate ; spores numerous and small ; WS	<i>Physcomitrella</i>
Calyptrae rudimentary .	
Costa strong ; spores few and large (>100µ); E	<i>Archidium</i>
Costa lacking ; spores medium to large (up to ~80µ); WS	<i>Micromitrium</i>

Group C – Plants dendroid or frondose from an erect stipe.

Group CPlants **dendroid**Stems with dense **paraphyllia** or paraphyllia-like structures.Paraphyllia **green**, filiform, and branched.On rich **soil**; WSOn **trees**; curled when dry; WC, IDParaphyllia **hyaline**, filiform, and branched, **lamellae** on stem; NWStems **lacking** paraphyllia.Stem leaves **bordered** with long marginal right-angled teeth; WC, NWStem leaves **not** bordered and ovate to lanceolate.Leaf singly or doubly **serrate** above; apical cells **rhombic**; WSLeaf with **alternate** large and small **teeth**; alar cells distinctly subquadrate; E, WC*Climacium**Dendroalsia abietina**Pleuroziopsis ruthenica**Leucolepis acanthoneuron**Thamnobryum**Isothecium*[†]Plants **frondose**.Leaves **falcate-secund**; plant regularly pinnate; WS*Leaves **dimorphic** (ventral amphigastria), **complanate** and **bordered**; FL, BC, AKLeaves **concave** and serrulate above.**Long**, axillary, filiform **brood branches**; FL**Short**, axillary, spindle-shaped **brood bodies**; FL to LA*Ptilium crista-castrensis**Hypopterygium**Pseudocryphaea**Pirella*[†]

Group D – Plants with pendulous branches

Group DLeaves **ovate** and chordate.Leaves **plicate**; leaf cells **pleuripapillose**; FL, LALeaves **plane**; leaf cells **smooth**; FLLeaves **lanceolate** to oblong-lanceolate.Leaf margins coarsely **serrate** in upper third; upper cells **±prorulose**; WSLeaf margins **revolute** to near apex; **extra costae**; leaf cells **smooth**; W, NFLeaf margins **entire**; leaf cells **pleuripapillose**; FL to LA*Papillaria nigrescens**Zelometeorium patulum**Isothecium myosuroides*[†]*Antitrichia curtispindula*[†]*Barbella pendula*

Group E – Plants growing horizontally or as “fish-hooks”

Group EPlants growing **horizontally**; sticking **±straight out** from vertical surface.Leaves **complanate** and **undulate**.Costa **long & single**; **paraphyllia** present; WCosta **short & double**, or lacking; paraphyllia **lacking**; WS*Leaves **neither** complanate **nor** undulate.Shoots distinctly **julaceous**; costa long & single; cells short; SEShoots **not** julaceous.Alar cells subquadrate in **large** groups; EAlar cells in **small**, inconspicuous groups; ON.Plants growing as “**fish-hooks**”; secondary branches **curved upwards** when dry.Costa **long** and **single**; leaf cells **papillose**; ECosta **short** and **double** to lacking; leaf cells **smooth**.Leaf cells **>5:1**; **5-20** quadrate alar cells at the **basal angles**; WS*Leaf cells **~3:1**; **numerous** oblate alar cells extending up **leaf margins**; E, AZ*Metaneckera menziesii**Neckera*[†]*Cryphaea**Forsstroemia**Neomacounia nitida**Anomodon viticulosus*[†]*Pylaisiella**Leucodon*

Group F – Plants growing on dung

Hypophysis **turbinate, globose** or **skirt-like**, and **colored**; leaves obtuse to acuminate; N, CP & SA

Hypophysis **pyriform** and **±urn-colored**; leaves elongate-**subulate** to **hair-pointed**; N

Hypophysis evident, but **±narrower** than urn and **wrinkled** when dry; leaves obtuse to acuminate.

Capsules **cylindric**; setae **brownish**; calyptrae **constricted** above base; N*

Capsules **dumbbell** shaped; setae **hyaline**; calyptrae **not** constricted; A/A

Hypophysis **lacking**; **cleistocarpous**; leaves long **acuminate** to **hair-pointed**; A/A

Group F

Splachnum

Tetraplodon

Tayloria[†]

Aplodon

Voitia