



KEY TO GROUPS OF PTERIDOPHYTES IN SASKATCHEWAN

1A. Stems either reduced to a short, compacted corm with quill-like leaves or plants polypodial (lacking a single main upright stem) and upright stems with small (scale-like or lanceolate), crowded, overlapping leaves; leaves microphyllous (simple with a single, unbranched vein) **LYCOPHYTES (page XX)**

1b. Stems and leaves not as above **2**

2a. Plants monopodial (with a single main upright stem, and branches, if any, distinctly lateral and subordinate), simple or branched; stems conspicuously jointed by distinct nodes, ridged and channeled, hollow, often roughened by superficial silica deposits; leaves scale-like, in relatively distant nodal whorls, fused basally to form nodal sheaths with free apical teeth (see Figure XX); sporangia pendent on shield-shaped sporangiophores, these borne in whorls and aggregated into cylindrical terminal cones (strobili); plants homosporous **HORSETAILS (page XX)**

2b. Plants usually polypodial (lacking a single main stem); stems not conspicuously jointed, nor ridged and channeled, nor hollow, lacking silica-roughened surfaces; leaves megaphyllous (characterized by branched veins and generally much expanded blades, usually lobed or 1-3-pinnately compound); sporangia borne on the abaxial (lower) surfaces of frond ultimate segments, where either arranged in small, variously shaped clusters called sori (*sing.* sorus) or as more-or-less continuous marginal bands; plants either homosporous or heterosporous **FERNS (page XX)**

Lycopodium dendroideum Michx.

[*L. obscurum* auct. non L.; *L. o.* var. *dendroideum* (Michx.) Eat.]

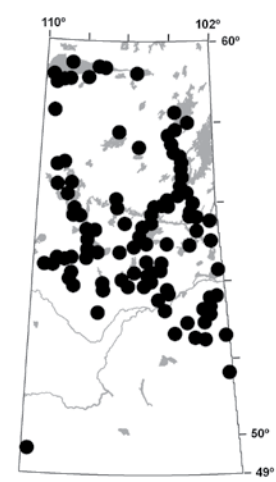
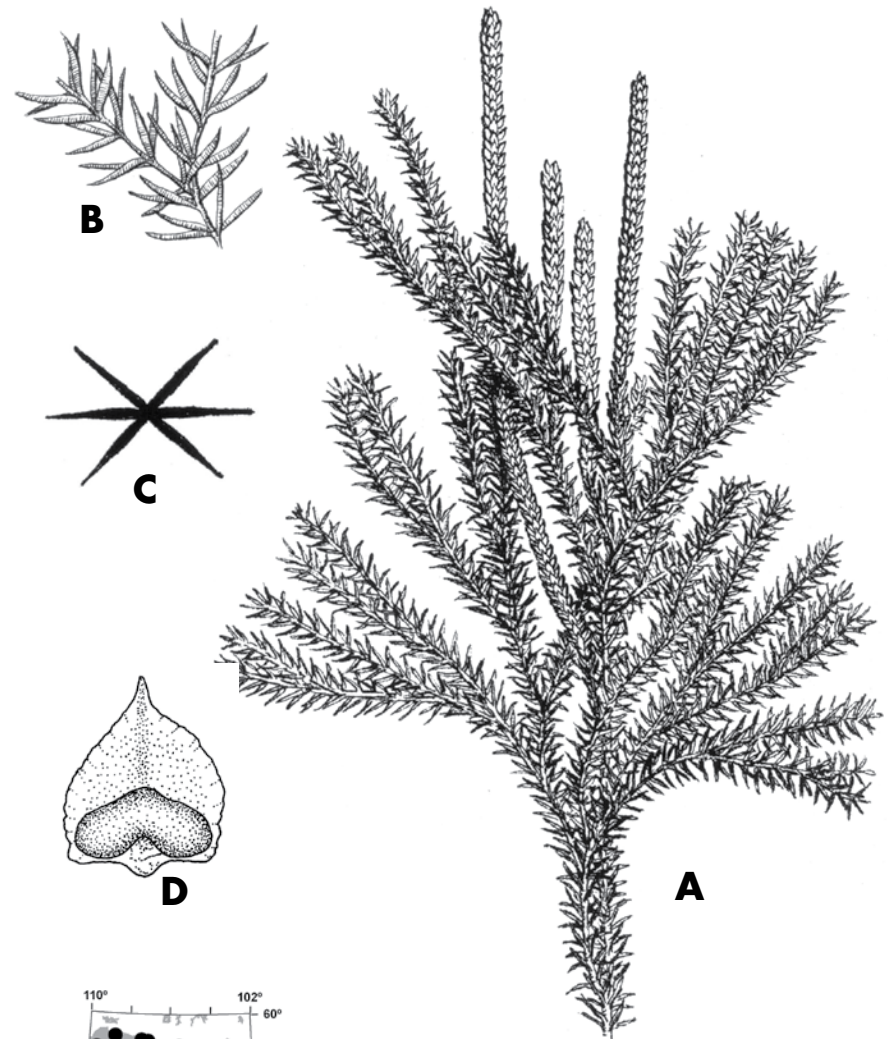
PRICKLY TREE CLUB-MOSS

[PRICKLY TREE GROUND-PINE]

Spreading branches, leaved on all sides like spruce boughs, earn this species the common names ground-pine and tree club-moss, as well as the species' epithet *dendroideum*, which means "tree-like." The only other Saskatchewan Lycophyte with a tree-like form is *Diphasiastrum complanatum* whose flattened branches and more open growth form resemble cedar trees, for which it is named "ground-cedar."

■ **Horizontal stem:** subterranean. ■ **Upright shoots:** extensively branched and rebranched, tree-like in form, prickly to the touch below the branches; branches round in cross-section. ■ **Leaves:** all similar, pale green, those on the main stem below the branches spreading and prickly to the touch and those on the sterile lateral branches, spreading to ascending, 6-ranked with 2 leaves on the upperside of the branchlet, one on either side and 2 on the underside. ■ **Cones:** 1-7 per upright shoot, attached to the tips of erect leafy branches, unstalked. ■ **Sporophylls:** scale-like, firm.

■ **Habitat:** Mesic-moist woods, shrub-thickets and clearings. ■ **Distribution:** found throughout the boreal forest region and in the Cypress Hills. Provincially common.



A - Prickly Tree Club-moss plant showing stem (s) with spreading leaves, sterile lateral branches (sb), unstalked cones (c).
B - tip of sterile lateral branch.
C - diagrammatic cross-section of sterile branch showing leaf ranking (2 on upperside, 1 on each side, 2 on the underside).
D - sporophyll with sporangium (sp).

GLOSSARY

1-pinnate frond: leaf-blades once pinnately compound.

1-pinnate-pinnatifid frond: leaf-blades once pinnately compound, and the pinnae pinnately, deeply lobed but not completely divided to midrib.

2-pinnate frond: leaf-blades twice pinnately compound.

2-pinnate-pinnatifid frond: leaf-blades twice pinnately compound, and the pinnules pinnately, deeply lobed but not completely divided to midrib.

3-pinnate frond: leaf-blades thrice pinnately compound.

3-pinnate-pinnatifid frond: leaf-blades thrice pinnately compound, and the pinnules (tertiary segments) deeply, pinnately lobed but not completely divided to midrib.

abaxial: away from the axis; refers to the back (*i.e.* dorsal) side, or to the side facing away from a vertical axis; generally for horizontally oriented plant appendages referring to the lower (*i.e.* underneath) surfaces (*cf* adaxial).

abscission: the natural separation of one part of a plant from the rest of the plant due to the breakdown of a layer of cells, known as the abscission layer.

acroscopic: pointing upward, toward the tip; refers to the upward extending pinnule of a pinnule-pair (*cf* basiscopic).

acuminate: tapered with sides more-or-less concave to a somewhat prolonged sharp tip.

acute: tapered to sharp pointed tip, with sides straight or slightly convex at an angle of less than 45°.

adaxial: toward the axis; refers to the upper (*i.e.* ventral) side, or to the side facing towards the vertical axis; generally for horizontally oriented plant appendages referring to the upper (*i.e.* above) surfaces (*cf* abaxial).

adnate: fused to a dissimilar part (*e.g.* fusion of leaf-blade basal portion to stem) as compared to a similar part (*cf* coherent).

alternate: arranged singly on an axis (stem, rachis, etc.) and on alternate sides.

annulus: a ring; specifically in Pteridophytes a specialized ring of thickened cells on sporangia walls of leptosporangiate ferns that is involved in spore release upon contraction when drying to break open thin-walled lip cells.

antheridium (*pl.* **antheridia**): male sex organ in which male gametes (sperm) are produced.

apiculate: ending in a short, abrupt point, as in the tip of a cone in the genus *Equietum*.

approximate: situated close together (*cf* remote, distant).

archegonium (*pl.* **archegonia**): female sex organ in which female gametes (eggs) are produced.

attenuate: long tapering to a slender tip.

axil: the upper angle between a structure (*e.g.* leaf, pinnule) and its supporting structure (*e.g.* stem, pinna).

basiscopic: pointing downward, toward the base; refers to the downward extending pinnule of a pinnule-pair (*cf* acroscopic).

bifid: divided into two parts or lobes

bilateral: arranged on opposite sides; or two planes of symmetry with two halves being mirror images of one another.

blade: the expanded portion of a frond; also know as the lamina.

bristle: a stiff hair.

caudex (*pl.* **caudices**): the persistent, thickened, more-or-less woody, underground stem base of a perennial plant.

ciliolate: having minute, hair-like processes (cilia).

circinate vernation: a coiled arrangement of young fronds in the bud; found in leptosporangiate ferns (*cf* erect vernation).

coherent: fused to similar parts, such as leaves to leaves.

compound: composed of two or more parts (*cf* simple)

cone: a terminal aggregation of sporophylls bearing sporangia in Pteridophytes; often referred to as a strobilus.

corn: enlarged, fleshy stem-base.

corticular roots: in *Huperzia*, adventitious roots produced on stems above ground, but passing downward through the stem-cortex before emerging at ground level.

crenate: margins having round-tipped (non-sharp) teeth (*cf* serrate, dentate).

crenulate: minutely crenate.

cuneate: wedge-shaped at base (*i.e.* narrowly triangular with narrow end at point of attachment).

decumbent: lying on the ground with tip tending upward.

decurrent: extending down the stem below the point of attachment; refers to bases of leaves, pinnae, or pinnules.

deltate: triangular shape with attachment point at broader end.

dentate: with sharp teeth that are outwardly directed (*cf* serrate, crenate).

denticulate: minutely dentate.

dichotomous: divided into two parts.

dimorphic: occurring in two morphological forms (*e.g.* sterile and fertile shoots or fern-fronds with different shapes and/or sizes).

diploid: with two basic chromosome sets per cell, $2n$.

disarticulate: to come apart at a natural joint at maturity.

disjunct: of species or other taxa, having a wide geographical gap in the distributional ranges.

distal: situated away from the point of origin or attachment (*cf* proximal).

distant: situated far apart or well spaced (*cf* approximate).

egg: haploid female gamete (sex cell) produced in archegonia on gametophytes or megagametophytes (female gametophytes).

elliptic: tapering at both ends and widest in the middle.

entire: even and unbroken, without teeth, lobes, or any indentations; refers to margins.

erect vernation: a straight upright, not coiled, arrangement of young fronds in the bud; found in eusporangiate ferns (*cf* circinate vernation).

equilateral: having all sides equal in size or shape.

eusporangiate: a type of sporangial development in which the sporangia are thick-walled and globose, and dehisce by a vertical slit; Ophioglossaceae, grape-ferns, is the one family of eusporangiate ferns that occurs in Saskatchewan. (*cf* leptosporangiate)

evergreen: remaining green over the winter season.

false indusium: a structure that has a role similar to that of the indusium, but a different placement and origin.

filiform: threadlike, very slender and flexible.

frond: the leaf in ferns, including the stipe (petiole) and blade portions; in general botanical usage especially referring to large, expanded, and much compounded leaves.

gamete: a sex cell (*e.g.* egg or sperm); these are capable of fusion with another gamete to form a zygote.