

Key 2. Pteridophyte Families of Newfoundland and Labrador

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- 1a. Submerged aquatic plants with slender terete quill-like leaves arising from a swollen corm; spores dimorphic, with megaspores and microspores borne within the base of separate sporophylls (quillworts). **Isoetaceae**
- 1b. Terrestrial or emergent aquatic plants; spores and sporangia are borne in leaf axils, terminal strobili, modified fertile fronds, or in sori on the lower surface of fertile fronds. **2**
 - 2a. Plants with sporangia borne in terminal strobili or in leaf axils. **3**
 - 2b. Plants with sporangia borne on modified fertile fronds or in sori on the lower surface of fertile fronds (ferns). **5**
- 3a. Plants with photosynthetic stems and branches; whorls of small leaves are fused into sheaths that surround each node; spores are borne in peltate sporangia on hexagonal sporangiophores arranged in a terminal strobilus (horsetails). **Equisetaceae**
- 3b. Plants bearing small photosynthetic leaves (microphylls) with a single vein; sporangia are borne laterally in leaf axils or in terminal strobili, with each sporangium subtended by a scale-like sporophyll (lycophytes). **4**
 - 4a. Plants heterosporous, with megaspores and microspores in separate sporangia; upper leaf surface with a thin flap of tissue (ligule) situated above each sporangium in a strobilus. **Selaginellaceae** (*Selaginella selaginoides*)
 - 4b. Plants homosporous, with all spores of the same size and borne in terminal strobili or individually in leaf axils; leaves lacking a ligule (eligulate). **Lycopodiaceae**
- 5a. Fronds a single shoot divided into separate sterile and fertile branches, with a sterile photosynthetic portion (trophophore) and a branched fertile portion (sporophore); ferns bearing eusporangia (larger sporangia with the wall more than 2 cell layers thick and lacking a distinct annulus). **Ophioglossaceae**
- 5b. Fronds monomorphic (the fertile and sterile fronds similar in appearance) or dimorphic (fertile fronds separate and distinctly different from the sterile fronds); ferns bearing leptosporangia (smaller sporangia with a wall only 1 cell layer thick and dehiscing by means of an annulus) arranged in sori, individual leptosporangia not distinguishable without the aid of a hand lens; or ferns with dimorphic fronds bearing naked sporangia on highly modified fronds or pinnae. **6**

- 6a. Ferns with dimorphic fronds, the fertile fronds bearing naked sporangia or sori on highly modified, bladeless or mainly bladeless, fronds or pinnae. 7
- 6b. Ferns with monomorphic or dimorphic fronds, the fertile fronds similar, but usually smaller, with narrower pinnae than the sterile fronds; bearing leptosporangia in sori on the lower surface of the blade. 9
- 7a. Ferns small; sterile fronds simple, linear, very curly, to about 8 cm long × ca. 0.5 mm wide; fertile fronds to 12 cm tall, pinnatifid at the apex, with 3–8 pairs of small oblong segments folded inward and bearing naked bivalvate sporangia along the inner surface.
..... **Schizaeaceae** (*Schizaea pusilla*)
- 7b. Ferns larger, to 1.2 metres tall, bearing sporangia on highly modified fronds or pinnae; fronds pinnate-pinnatifid or bipinnate. 8
- 8a. Fronds pinnate-pinnatifid; fertile fronds with highly modified pinnae; the reduced blade with revolute margins enclosing the sori, the linear pinnae arranged in dark brown feather-like fronds with double rows of oblong segments (*Matteuccia*), or in dark greenish-black wand-like fronds with double rows of bead-like segments (*Onoclea*). **Onocleaceae**
- 8b. Fronds bipinnate or pinnate-pinnatifid; fertile fronds or pinnae completely lacking a blade, the naked bivalved sporangia borne on the reduced pinnae, either the entire frond fertile, or portions of a frond may be fertile. **Osmundaceae**
- 9a. Fronds with marginal sori and indusia, or round sori in small cup-like marginal indusia at vein ends. 10
- 9b. Fronds with linear, J-shaped, or round sori on the lower surface of the blade. 11
- 10a. Fronds large, 7–20 dm tall; bipinnate-pinnatifid with 10–25 pairs of pinnae, with small cup-shaped indusia at or near the pinnule margins (*Dennstaedtia*), or ternately compound (divided into 3 main branches), with 10–12 pairs of pinnae, marginal sori along the pinnule margins and covered by a fairly continuous false indusium (*Pteridium*). **Dennstaedtiaceae**
- 10b. Fronds smaller, 1.8–4 dm tall, with most of the pinna's margin revolute and forming a false indusium over the marginal sori; fronds either monomorphic and palmately divided, with 6–10 pinnae on either side of the stipe, pinnae fan-shaped, straight along the lower surface, crenately lobed above, with crenate margins revolute (*Adiantum*); or fronds dimorphic and bipinnate-pinnatifid, with 4–7 pinnae; the fertile fronds with narrower lanceolate-oblong pinnae, the sterile fronds with ovate to nearly orbicular pinnae (*Cryptogramma*). **Pteridaceae**
- 11a. Sori linear, indusia linear or J-shaped, attached along lateral veins of the pinnae. 12
- 11b. Sori round, indusia round, reniform, hood-shaped, or absent (exindusiate). 13

- 12a. Fronds pinnate, sori and indusia linear, the indusium attached along lateral veins. ...
..... **Aspleniaceae**
- 12b. Fronds bipinnate-pinnatifid, indusia J-shaped, attached along lateral veins.
..... **Athyriaceae** (in part, *Athyrium filix-femina*)
- 13a. Sori round, indusia usually absent. **14**
- 13b. Sori round or linear; indusia present, either round, reniform, linear, hood-shaped, or of
narrow, hair-like segments. **17**
- 14a. Fronds bipinnate-pinnatifid to tripinnate; indusia absent, the immature sori clearly
visible as crosiers unfurl; ferns with numerous dead fronds persistent around the
base; rare, restricted to alpine snowbeds.
..... **Athyriaceae** (in part, *Athyrium distentifolium* subsp. *americanum*)
- 14b. Fronds ternately divided, pinnate-pinnatifid to tripinnate; indusia absent, sori
round, forming on fully-expanded fronds; ferns not restricted to alpine snowbeds.
..... **15**
- 15a. Fronds ternately compound. **Cystopteridaceae** (in part, *Gymnocarpium*)
- 15b. Fronds pinnatifid to pinnate-pinnatifid. **16**
- 16a. Fronds pinnate-pinnatifid, with the lowest (largest) pair of pinnae conspicuously
bent forward and slightly downward, resembling a mustache.
..... **Thelypteridaceae** (in part, *Phegopteris connectilis*)
- 16b. Fronds pinnatifid, with linear-oblong lobes oriented perpendicular to the rachis or
somewhat ascending; sori in a single row on either side of the midvein of each lobe.
..... **Polypodiaceae**
- 17a. Fronds pinnate-pinnatifid; fronds bearing transparent, needle-like hairs on costa, rachis,
and/or blade, and often thin scales on rachis and costae; indusia reniform, small, soon
withering or not visible to the naked eye.
..... **Thelypteridaceae** (in part, *Thelypteris*, *Oreopteris*, *Parathelypteris*)
- 17b. Fronds pinnate-pinnatifid to tripinnate-pinnatifid; fronds lacking transparent, needle-like
hairs, but usually with thin scales on rachis and costae; indusia round, reniform (and
persistent), hood-like, or of thin hair-like segments. **18**
- 18a. Fronds pinnate-pinnatifid to bipinnate, indusia of several to many thin hair-like
segments, attached beneath and arching over the sori. **Woodsiaceae**
- 18b. Fronds ternately divided, pinnate-pinnatifid or tripinnate; indusia round, reniform,
or hood-like. **19**

- 19a. Fronds ternate, bipinnate-pinnatifid, or tripinnate-pinnatifid; indusia hood-shaped, attached to the costa side of the sorus base (receptacle) and arching over the sorus towards the pinnule margins.**Cystopteridaceae** (in part, *Cystopteris*)
- 19b. Fronds bipinnate to tripinnate-pinnatifid; indusia round and peltate, or reniform and attached at the sinus.**Dryopteridaceae**