

Dryopteridaceae (Woodfern Family) Key

Key to species in Newfoundland and Labrador

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- 1a. Fronds stiff and leathery (coriaceous), often evergreen; sori round, indusia round with a peltate attachment (*Polystichum*). **2**
- 1b. Fronds membranaceous to firm; usually deciduous in winter, but some species evergreen; sori round, indusia reniform and, attached at the sinus (*Dryopteris*). **4**
 - 2a. Fronds bipinnate-pinnatifid; pinnule bases with inconspicuous lobes (auricles) on the upper (acroscopic) side of each pinnule. **Polystichum braunii** (Braun's holly fern)
 - 2b. Fronds pinnate or pinnate-pinnatifid, to 40 cm tall; pinnae bases with a triangular or oblong lobe (auricle) on the upper (acroscopic) side of each pinna. **3**
- 3a. Fronds linear-lanceolate, with 25–35 pairs of pinnae; basal auricle of each pinna triangular, not divided from the rest of the pinna; plants usually on calcareous substrates. **Polystichum lonchitis** (northern holly fern)
- 3b. Fronds narrowly elliptic, with 20–40 pairs of pinnae; basal auricle on side of each pinna oblong-ob lanceolate, divided nearly to the costa; plants of serpentine substrates. **Polystichum scopulinum** (mountain holly fern)
- 4a. Fronds bipinnate-pinnatifid to tripinnate; pinnules of basal pinnae stalked; pinnule margins serrate, teeth with spinulose tips. **5**
- 4b. Fronds pinnate-pinnatifid to bipinnate; pinnules of basal pinnae sessile, nearly sessile, or adnate to the costa; pinnule margins crenate or serrate, but not spinulose-toothed. **8**
- 5a. Fronds remaining evergreen over winter; the 2nd lower (basisopic) pinnule of the basal pinnae longer or equal in length to the 1st lower pinnule of the pinna; the frond surface, rachis, costae, and indusium glandular. **Dryopteris intermedia** (evergreen woodfern)
- 5b. Fronds dying back over winter; the 1st lower (basisopic) pinnule of the basal pinnae longer than the 2nd and remaining lower pinnules of the pinna; the frond surfaces glabrous to occasionally glandular; indusium usually not glandular. **6**
- 6a. Frond bipinnate-pinnatifid; the 1st lower (basisopic) pinnule of the basal pinna longer than the 2nd and adjacent lower pinnules, twice as long as and situated nearly opposite the 1st upper (acroscopic) pinnule. **Dryopteris carthusiana** (spinulose woodfern)

- 6b. Fronds tripinnate-pinnatifid (sometimes the basal pinnae are tripinnate); the 1st lower (basiscopic) pinnule of the basal pinna equal to much longer than the 2nd lower pinnule and situated closer to the 2nd upper (acroscopic) pinnule than the 1st upper pinnule. **7**
- 7a. Fronds 60–90 cm tall, arching to spreading, tripinnate-pinnatifid, dying back early in the winter; first lower (basiscopic) pinnule of the basal pinnae 2–4+ times longer and 2 times wider than the first upper (acroscopic) pinnule; blades not glandular; stipe with 7 vascular bundles arranged in a C-shaped pattern; scales of stipe attenuate to lanceolate, light brown, lacking a darker centre; basal pinnae broadly ovate to triangular; sporangia brown at maturity. ***Dryopteris campyloptera*** (mountain woodfern)
- 7b. Fronds 80–100 cm tall, erect, tripinnate-pinnatifid, dying back later in the winter; basal pinnae broadly triangular; first lower (basiscopic) pinnule of the basal pinna equal to or longer than and 2 times wider than the first upper (acroscopic) pinnule; some populations may have blades that are finely or sparsely glandular; stipe with 5 vascular bundles arranged in a C-shaped pattern; scales of stipe brownish with a darker central area, lanceolate-ovate; sporangia black at maturity. . ***Dryopteris expansa*** (spreading woodfern)
- 8a. Fronds dimorphic, pinnae twisted about 90° and oriented horizontally; plants of wet habitats, such as swamps, wet woods, and shrubby wetlands.
..... ***Dryopteris cristata*** (crested woodfern)
- 8b. Fronds monomorphic, pinnae oriented in the same plane as the frond; plants of wooded or rocky habitats, such as cliffs and talus slopes. **9**
- 9a. Fronds very glandular and aromatic, densely scaly beneath; dead fronds persistent at fern base; fronds linear-elliptic, 1–6 cm wide, with 20–30 pairs of pinnae.
..... ***Dryopteris fragrans*** (fragrant woodfern)
- 9b. Fronds glabrous, not glandular nor aromatic; dead fronds deciduous, not persisting at fern base; fronds lanceolate-ovate or elliptic, 10–30 cm wide, with 12–24 pairs of pinnae. ... **10**
- 10a. Fronds lanceolate-ovate, widest near the base, to 1 m tall, with 12–16 pairs of pinnae, evergreen; sori marginal, situated near the pinnule margins; scales on stipe of one kind, ovate. ***Dryopteris marginalis*** (marginal woodfern)
- 10b. Fronds elliptic, widest at the middle, to 1.2 m tall, with 16–24 pairs of pinnae, deciduous in winter; sori medial, situated midway between midvein and pinnule margins; scales on the stipe of two kinds: long attenuate hair-like scales and ovate scales. ***Dryopteris filix-mas*** subsp. ***brittonii*** (Britton's male fern)

Dryopteridaceae Comparison Chart

Genus:	<i>Polystichum</i>	<i>Dryopteris</i>
	holly fern	woodfern
FronDs	stiff and leathery (coriaceous), often evergreen	membranaceous to firm ; usually deciduous in winter, but some species evergreen
Pinnae	Petiole 1/9–1 times blade length	Petiole about 1/4–2/3 blade length
Sori	sori round, indusia round, with a peltate attachment	sori round, indusia reniform or horse-shoe shaped, attached at the sinus
Stipe	petiole base with 3 or more vascular bundles	vascular bundles more than 3, arranged in an arc, ± round in cross section

***Dryopteris* (Dryopteridaceae) Comparison Charts**

<i>Dryopteris</i> Chart 1 (of 2):				
Species previously included within the former <i>Dryopteris spinulosa</i>				
<i>Dryopteris</i> species:	<i>D. expansa</i>	<i>D. campyloptera</i>	<i>D. carthusiana</i>	<i>D. intermedia</i>
	northern woodfern	mountain woodfern	spinulose woodfern	evergreen woodfern
Fronds	80–100 cm tall; tripinnate-pinnatifid , deciduous, dying back later in winter	60–90 cm tall; tripinnate-pinnatifid , deciduous, dying back early in winter	30–80 cm tall; bipinnate-pinnatifid ; deciduous, dying back over winter	to 70 cm tall; bipinnate-pinnatifid to tripinnate at base ; evergreen
Pinnae	12–14 pairs; blade surfaces glabrous to sparsely glandular; pinnule margins not spinulose-toothed	12–15+ pairs; blade surfaces not glandular; pinnule margins spinulose-toothed	12–14 pairs; blade surfaces not glandular; pinnule margins spinulose-toothed	12–20 pairs ; frond surface, rachis, and costae glandular ; pinnule margins spinulose-toothed
Pinnules of Basal Pinnae	1st lower pinnule = or longer than 1st upper pinnule and 2 × wider; situated between 1 st & 2 nd upper pinnules	1st lower pinnule 2-4+ times longer than the 1st upper pinnule and 2 × wider; situated closer to the 2nd upper pinnule	1st lower pinnule longer than adjacent lower pinnules and 2 × as long as and opposite the 1 st upper pinnule	2nd lower pinnule usually longer than the 1st lower and other pinnules of the pinna
Indusium	indusium usually not glandular	indusium not glandular	indusium not glandular	indusium glandular

Dryopteris Chart 2 (of 2): **Other Dryopteris species**

<i>Dryopteris</i> species:	<i>D. cristata</i>	<i>D. filix-mas</i> subsp. <i>brittonii</i>	<i>D. fragrans</i>	<i>D. marginalis</i>
	crested woodfern	Britton's male fern	fragrant woodfern	marginal woodfern
Fronds	dimorphic ; dead fronds deciduous in winter; not persisting	monomorphic; fronds deciduous in winter; not persisting	monomorphic; evergreen, persistent dead fronds at base	monomorphic; evergreen ; dead fronds deciduous, not persisting
Fronn Size & Shape	pinnate-pinnatifid , 3.5–7 dm tall; lanceolate-elliptic, widest at the middle; sterile blades smaller	pinnate-pinnatifid to bipinnate , 3–12 dm tall, lanceolate-ovate, widest at the middle	pinnate-pinnatifid to bipinnate. to 4 dm tall , elliptic to oblanceolate, widest near or above the middle	pinnate-pinnatifid to bipinnate , 3–10 dm tall, lanceolate-ovate, widest near the base
Blade Surface	glabrous, not glandular nor aromatic	glabrous, not glandular nor aromatic	very glandular and aromatic, rachis and costae also glandular	glabrous, not glandular nor aromatic
Pinnae	10–20 pairs; fertile pinnae twisted ± 90°, oriented horizontally	16–24 pairs; pinnae oriented ± in same plane as the frond	20–30+ pairs ; pinnae oriented ± in same plane as the frond	12–16 pairs; pinnae oriented ± in same plane as the frond
Sori	medial, midway between midvein and margin; indusia not glandular	medial; indusia not glandular	medial; indusia glandular, large and often overlapping	marginal, situated near the pinnule margins ; indusia not glandular

***Polystichum* (Dryopteridaceae) Comparison Chart**

<i>Polystichum</i> species:	<i>P. braunii</i>	<i>P. lonchitis</i>	<i>P. scopulinum</i>
	Braun's holly fern	northern holly fern	mountain holly fern
Fronds	to 70 cm tall; evergreen, bipinnate-pinnatifid, elliptic	to 40 cm tall; evergreen, pinnate or pinnate-pinnatifid	to 40 cm tall; evergreen; pinnate or pinnate-pinnatifid
# of Pinnae	20–40 pairs, oblong; basal pinnae very small	25–35 pairs of pinnae; oblong to lanceolate	20–40 pairs of pinnae; narrowly elliptic, with
Pinnules	pinnules short-stalked, base of pinnules near the rachis with inconspicuous lobes (auricles) on the upper (acroscopic) side of each pinnule	pinnules short-stalked, auricle of each pinna triangular, not divided from the rest of the pinna; pinnule bases with a triangular or oblong lobe (auricle) on the upper (acroscopic) side of each pinnule	auricle on side of each pinna oblong-ob lanceolate, divided nearly to the costa; pinnae twisted horizontal to rachis; pinnules short-stalked; pinnae bases with a triangular or oblong lobe (auricle) on the upper (acroscopic) side of each pinnule
Stipe	$\frac{1}{4}$ – $\frac{1}{2}$ the length of the blade; scales silvery at first, then light brown; dense at base; vascular bundles 5–7	$\frac{1}{2}$ the length of the blade; scales light brown, larger near the stipe base; vascular bundles 5	$\frac{1}{4}$ – $\frac{1}{2}$ length of blade; vascular bundles 4
Sori	round, medial, in 1 row; indusium peltate, round, light brown; sporangia grey-brown to black.	round, medial, in 1 row; indusium peltate, round, greyish-white; sori on upper half of blade; sporangia dark brown to black	round, medial, in 1 row; indusium peltate, round, greyish-white; sori on upper $\frac{2}{3}$ of frond; sporangia brown
Habitat	rich forest habitats	rock crevices; often on calcareous substrates	plants of open serpentine substrates