

BRYORIA Brodo & D. Hawksw.

9 species and 3 subspecies recorded in Alberta

fremontii (Tuck.) Brodo & D. Hawksw. Syn.: *Bryoria tortuosa*, *Alectoria fremontii*, *A. corneliae*, *A. tenerima* (ACIMS, RAM)

furcellata (Fr.) Brodo & D. Hawksw. Syn.: *Alectoria nidulifera*, *Cornicularia fibrillosa*

fuscescens (Gyelnik) Brodo & D. Hawksw. Syn.: *Alectoria fuscescens*, *A. positiva*, *Bryopogon pacificus*, *vrangiana* (Gyelnik) Brodo & D. Hawksw. (Velmala et al. 2014) (ACIMS, RAM)

glabra (Motyka) Brodo & D. Hawksw. Syn.: *Alectoria glabra* (AB; NA/UBC, RAM, ACIMS)

kockiana Velmala, Myllys & Goward (Velmala et al. 2014) Syn. *Bryoria implexa* in North America

nadvornikiana (Gyelnik) Brodo & D. Hawksw. Syn.: *Alectoria nadvornikiana*, *A. altaica* (ACIMS)

nitidula (Th. Fr.) Brodo & D. Hawksw. Syn.: *Alectoria nitidula*, *A. irvingii*, *A. lanea* auct. (ACIMS)

pseudofuscescens var. **friabilis** Brodo & D. Hawksw.

pseudofuscescens var. **pseudofuscescens** (Gyelnik) Brodo & D. Hawksw. Syn.: *Alectoria achariana*, *A. norstictica* nom. nudum, *A. subtilis* nom. nudum (ACIMS)

pseudofuscescens var. **pikei** Brodo & D. Hawksw. Syn.: **pikei** Brodo & D. Hawksw. Syn.: *Alectoria cana*, North American reports of *Bryoria capillaris* & *A. setacea*

simplicior (Vainio) Brodo & D. Hawksw. Syn.: *Alectoria simplicior*, *A. nana* nom. nudum (ACIMS)

DICHOTOMOUS KEY – *Bryocaulon*, *Bryoria* & *Nodobryoria*

Modified largely from Brodo and Hawksworth 1977.

1a. Thallus yellow or yellowish-green; pseudocyphellae conspicuous; cortex **KC+ yellow** (usnic acid); no central cartilaginous cord **See Key to *Alectoria* and similar species**

1b. Thallus color variable; KC-; pseudocyphellate or not **2**

2a. Thallus attached to rock or soil, closely appressed or shrubby and erect but never pendent; forming rosettes attached over most parts of the thallus **Lead 4 – Rock horse hair lichen**

2b. Thallus attached to bark or wood **3**

3a. Thallus sorediate **Lead 10 – Tree-dwelling sorediate horse hair lichen**

3b. Thallus esorediate **Lead 15 – Tree-dwelling non-sorediate horse hair lichen**

Rock-dwelling horse hair lichen – if a specimen isn't a good fit here, go back to lead 2b.

4a. Thallus **PD+ yellow to orange** (diffusing onto filter paper), surface **C+ pink to red** on pale areas (alectoralic and/or barbatolic acid); thallus some shade of grey, white, yellowish grey or black **5**

5a. Pseudocyphellae white, raised and conspicuous, soralia absent; thallus usually pale at the base with at least the tips blackened; apices usually reflexed; terricolous in arctic-alpine **Gowardia nigricans**

5b. Pseudocyphellae small, dark, plane, generally, inconspicuous; soralia usually present; thallus either pale at tips, or entirely dark brown to black, at least black at the base; apices pointed and straight, with abundant, divergent, spinulose lateral branches **Bryoria nadvornikiana**

4b. Thallus PD- or **PD+ red** **6**

6a. Medulla or only pseudocyphellae **C+ pink or red** (gyrophoric acid); thallus bright to dark red-brown, usually shiny, concolourous; branching isotomic dichotomous, broad, divergent, subarctic to arctic-alpine **Bryocaulon divergens**

6b. Medulla and pseudocyphellae C- **7**

7a. Soralia present (may be sparse) **8**

8a. Soralia bearing tufts of isidioid spinules; soralia and cortex (particularly of distal branches) **PD+ red**; branching regularly isotomic dichotomous; branches smooth, not twisted or foveolate; shiny, pale to corvine brown; occasionally on rocks, commonly on coniferous trees **Bryoria furcellata**

8b. Soralia not bearing tufts of isidioid spinules; branching often irregular, fuscous brown to brown, usually matte; soralia frequent or sparse, fissural and tuberculate types usually present, **PD+ red**; cortex mostly PD- in Alberta **Bryoria fuscescens** var. **positiva**

7b. Soralia absent **9**

9a. Thallus uniformly red-brown, small, prostrate, under 3 cm long; main branches conspicuously longitudinally foveolate and flattened; medulla PD-; apothecia to 2.5 mm diameter, red-brown; extremely rare

- *Nodobryoria subdivergens*
9b. Thallus erect decumbent, usually forming compact tufts, uniformly dark brown to black; lateral branches arising perpendicularly or at acute angles; medulla **PD+ red** (rarely PD-); mainly restricted to the tundra where it is often common *Bryoria nitidulla*

Tree-dwelling sorediate horse hair lichen

- 10a.** Soralia with isidia-like spinules; soralia usually ~0.5 branch width; entire thallus **PD+ red**; tufted, spiny. *Bryoria furcellata*
10b. Soralia lacking isidia, otherwise variable; thallus PD- (but soralia maybe PD+R); tufted to pendant **11**
11a. Pendant, growing to decimeters long; soralia sometimes greenish yellow or bright yellow from vulpinic acid; basal branches thick, foveolate, twisted; common in the foothills and mountains *Bryoria fremontii*
11b. Tufted; rarely >15 cm long; soralia white to green to brown, not yellow; branches similar in thickness, lacking foveoles or twists; distribution various **12**
12a. Small, tufted, often overlooked; soralia greenish black, soralia wider than branch, oval-shaped, often with thalline rim visible from the underside like a turned-back collar; all tissues PD-; common, boreal *Bryoria simplicior*
12b. Thallus tufted to 15 cm long, soralia fusiform, narrower to just slightly wider than branch **13**
13a. Thallus PD-, soralia **PD+ red** (fumarprotocetraric acid); dull to shiny, soralia common *Bryoria fuscescens* group
 Includes difficult to distinguish, inadequately described, or recently synonymized species such as *Bryoria glabra*, *B. fuscescens* & *B. vrangiana*
13a. Thallus **PD+ yellow**, **K+ yellow** (barbatolic and/or alectoralic acid) **14**
14a. Pendant, lacking lateral spiny branches or soralia; colour varies with exposure *Bryoria pseudofuscescens* var. *pikei* (syn. *B. capillaris* in North America)
14b. Tufted to short-pendant, with spiny lateral branches and soralia *Bryoria nadvornikiana*

Tree-dwelling non-sorediate horse hair lichen

- 15a.** Thallus tufted, shiny, shiny, <3cm tall; branches red-brown, pitted and furrowed; often fertile *Nodobryoria abbreviata*
15b. Thallus subpendant to pendant, > 3cm long **16**
16a. Thallus PD-, C-, KC-; pendant; reddish to yellowish brown, branches grooved, pitted or twisted in part; restricted to the foothills and mountains in Alberta **17**
17a. Thallus dull, distinctly reddish-brown, foveolate or ridged; brittle; lacking soredia, isidia and pseudocyphellae; commonly fertile, apothecia with cilia on margins *Nodobryoria oregana*
17b. Pseudocyphellae elongate, sometimes greenish yellow or bright yellow from vulpinic acid; basal branches thick, foveolate, twisted; common in the foothills and mountains *Bryoria fremontii*
16b. Thallus **PD+ red**, **PD+ yellow** or **C+ pink**, **KC+ pink** **18**
18a. Thallus typically pale grey-brown to olive-brown, uneven in diameter, twisted **19**
19a. Cortex **C+ pink**, **KC+ pink** (gyrophoric acid); brittle *Bryoria pseudofuscescens* var. *friabilis*
19b. Cortex C-, KC-, **PD+ yellow** (psoromic acid); pliable *Bryoria kockiana* (syn. *B. implexa*)
18b. Thallus **PD+ red** (norstictic acid), dark olive-brown to black (rarely pale to variegated), shiny; pseudocyphellae fusiform, sparse to abundant *Bryoria pseudofuscescens* var. *pseudofuscescens*