

GETTING TO
KNOW
YOUR
BOREAL LICHENS
of
Saskatchewan, Canada

Series II

Bernard de Vries

Irma de Vries

Photograph © Bernard de Vries

Posted/Compiled by: Steve Porter

Conservation Data Centre - Resource Stewardship Branch

Saskatchewan Environment

July, 2006

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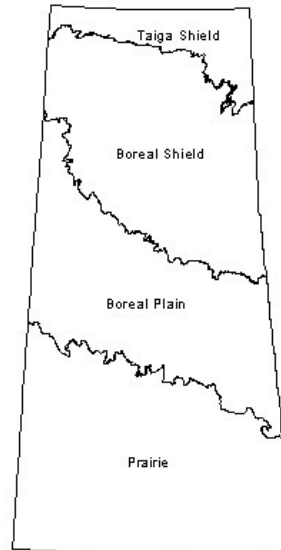
Conservation Data Centre - Resource Stewardship Branch

Saskatchewan Environment

hoped that this series will bring a greater awareness to these fascinating boreal plants.

Twelve common and often conspicuous boreal lichens are described, alphabetically arranged by genus, with synonyms, location, habitat, description of the species, comments on geographic distribution, chemical reactions and commercial and nutrient uses. Common english names are also listed for each species. Colour photos were taken in the field showing each in its natural setting. Photographic techniques and equipment are the same as stated in Series I. Chemical 'spot' testing, is done to note colour changes resulting from interaction of specific chemicals with certain chemicals present in the lichen, and used as an aid to species identification.

Figure 1a Ecozones of Saskatchewan.



PREFACE

An introduction to the fascinating world of lichens has been given in *'Getting To Know Your Prairie Lichens'* (Series I). Series II introduces the reader to some of the more common boreal lichens found in Saskatchewan.

Boreal lichens are generally more somber in colour, mostly in shades of grays and browns. This could be explained that light is more filtered and ultra violet light not much of a problem in a forested setting. However, an exception would be colourful species on rocks or trees in open locations, where pigmentation acts as a protection to shield the algae from radiation.

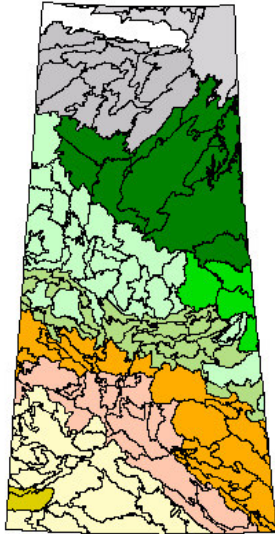
The text, as in Series I, is non-technical, enabling the user to become familiar with common boreal lichens. With the use of the descriptive text and colour photo, the user should have no problem identifying these lichens in the field. As such it is

The geographic distribution maps were prepared as dot maps using the Ecozones of Saskatchewan Map (Padbury and Acton, 1994, Figure 1a), whereby each dot within a dark shading represents the known location and distribution within a Landscape Area (Figure 1b), while lighter shading

A pdf version of this document can be found at <http://www.biodiversity.sk.ca/ftp.htm>

shows the potential range for the species by Ecozone within Ecozone (Figure 1c). The site where the photograph was taken is marked *.

Figure 1b. Landscape Areas within Ecozones



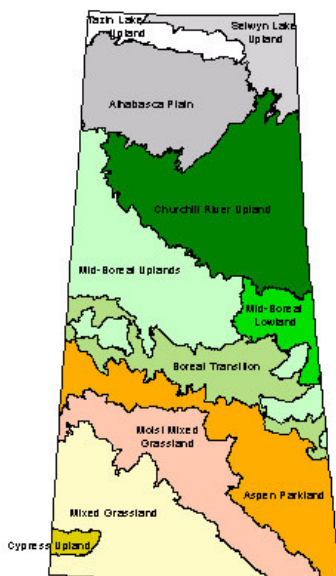
An additional update to the series will be given in the future. The author plan is to consolidate the series, and others to follow, into a comprehensive field booklet to take along on nature hikes, and a classroom wall chart for schools throughout Saskatchewan. Comments and suggestions would be appreciated.

WARNING

The chemicals mentioned in the series are hazardous if used inappropriately, and users of these chemicals must ensure that they are used in a well ventilated area, and avoid direct skin contact.

Some species show a wide distribution, ranging north into the Taiga and Boreal Shield Ecozones, Arctic Regions, or south into the Prairie Ecozone (Ecozones of Saskatchewan . Rowe, 1972, Figures 1b, & 1c).

Figure 1c Ecozones within Ecozones



Cladina rangiferina

(L.) Nyl.

Grey reindeer lichen

Synonym: *Cladonia rangifera* (L.) F.H. Wigg.

With: *Cladina stellaris*

(Opiz) Brodo

Star-tipped reindeer lichen

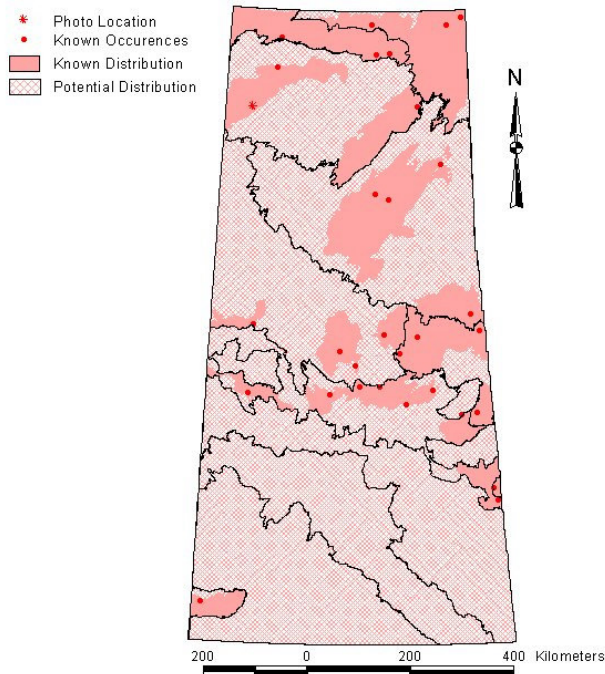
Synonym: *Cladonia alpestris* (L.) Rabenh.

Location: Hanson Lake Road. Boreal Plain Ecozone.

Habitat: Both species can be found on sandy soil or soil rich in humus, and on thin soil over rock in open areas.

Geographic Distribution: Both species are circumpolar and common across the boreal forest, reaching north into the Arctic regions covering thousands of square kilometers. Gray reindeer lichen occasionally reaches south into the Prairie Ecozone and is reported for the Cypress Upland Ecoregion (Cypress Hills Inter-Provincial Park) in 90

the Prairie Ecozone.



Description: The primary lichen body of this species soon disappears and is seldom seen. The fruiting stems are in tufts or form extensive mats; usually quite tall and ashy to silver-gray with slightly browned deflected tips, giving it a more or less “combed” appearance. Branching

is tree-like with main stems and side branches with the tips in whorls of twos or threes around an open axil. Older specimens become gray, with a markedly webby surface having scattered rounded greenish bumps. The base blackens on dying. Small dark brown or black fruiting bodies are found at the small branch tips. In fresh material all globular outgrowth containing a colourless jelly (visible as a wet mount microscopically) can also be found at branch tips. Star-tipped reindeer lichen has quite large pale yellowish-green rounded cauliflower like heads (see insert).



Chemical Reactions: Gray reindeer lichen-branch tips PD+ red, K+ pale yellow, KC-, C-, UV-.

Chemical Abbreviations: PD= paraphenylenediamine, K= potassium hydroxide, C= sodium hypochlorite, KC=combination of K & C, UV=ultra violet light.

Notes: The species name *rangiferina* comes from *rangifer*, the scientific name for Reindeer or Caribou. Gray reindeer lichen, Star-tipped reindeer lichen and *Cladina mitis* (Green reindeer lichen) are the principal winter nutrient for Caribou. These lichens form almost unbroken thickly branched mats, intercepting and preserving considerable amounts of rainwater thereby affecting soil moisture, and rate of runoff. Their light colour reflects heat, thus moderating soil temperature. Upon decay they add considerable amounts of organic matter to the soil, enabling small seeds trapped among their tightly meshed branches to find a ready medium for germination. By their large bulk, and widespread distribution over vast areas, these lichens are excellent indicators of atmospheric pollution. Northern indigenous people have used Gray-reindeer lichen for medicinal purposes.

Cladina stellaris

(Opiz) Brodo

Star-tipped reindeer lichen

Synonym: *Cladonia alpestris* (L.) Rabenh.

Location: North of Prince Albert. Boreal Plain Ecozone.

Habitat: On sandy soil, preferring open Jack Pine forest.

Geographic Distribution: Transitional Boreal Forest Ecoregion in the Boreal Plain Ecozone.

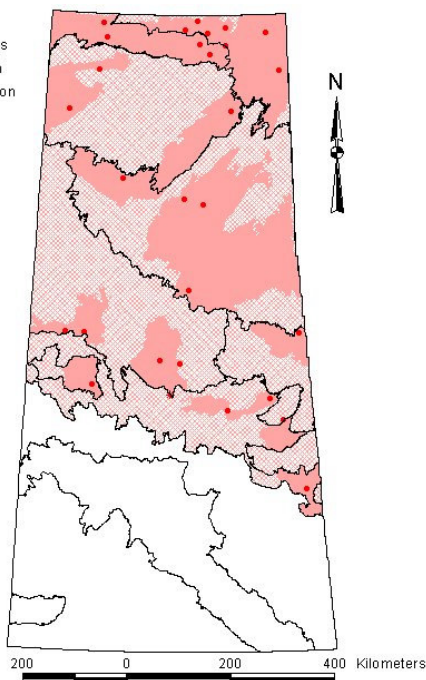


Chemical Reactions: PD-, K-, KC+ yellow, C-, UV+ blue white.

Chemical Abbreviations: PD = paraphenylenediamine, K=potassium hydroxide, C=sodium hypochloride, KC= a combination of K & C, UV=ultraviolet light.

Notes: The species name comes from the Latin *stella* star, referring to the star-like branch clusters. Star-tipped reindeer lichen and other *Cladina* species, often called reindeer moss, constitutes a principal winter nutrient for large ungulates, especially woodland caribou. This lichen, and the previously discussed Gray reindeer lichen, has by its vast bulk and compact branching forming an extensive groundcover and light reflecting colour, the same environmental effect. This is critical in absorbing and slowly releasing large amount of water, affecting soil moisture, soil temperature, and rate of runoff. Star-tipped reindeer lichen is also used in Europe by the pharmaceutical industry to obtain an antibiotic. Upon decay they too add considerable amounts of organic matter to the soil, enabling small seeds trapped among their tightly meshed branches to find a ready medium for germination. Reindeer lichens by their large bulk and widespread distribution over vast areas, are excellent indicators of atmospheric pollution. Interestingly, this lichen is used in miniature railroad or architectural layout to simulate shrubbery or trees.

- * Photo Location
- Known Occurrences
- Known Distribution
- ▨ Potential Distribution



Description: The lichen is pale-yellowish green (wet) or grayish-yellow (dry), forming characteristic compact large rounded or semi-rounded (cauliflower-like) heads, singly or in mats, lacking a main stem, but with many intricate branches, having wide open axils. The branch tips are formed in star-like clusters surrounding a large opening, showing very little combing. The branches are dull, with a light woolly covering. Upon age the base becomes almost black. Small dark fruiting bodies occur at the tips of the branchlets. Small globular bodies containing a red jelly (in fresh material visible microscopically) also occur at tips of branchlets.

Cladonia borealis

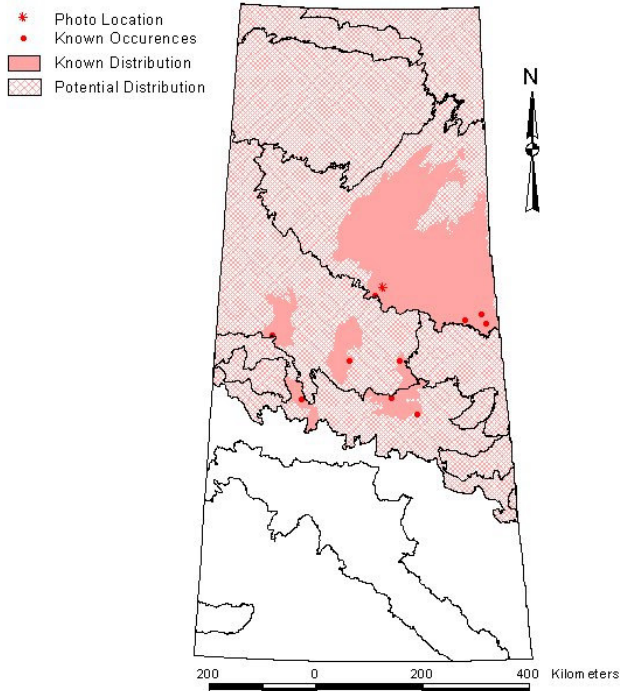
S.Stenroos

Boreal pixie-cup

Location: North of La Ronge. Boreal Shield Ecozone.

Habitat: On needle humus, mossy rocks or occasionally on decaying conifer logs.

Geographic Distribution: Widely distributed across the boreal forest.



Chemical Reactions: Stems: PD-, K-, C-, KC+ golden yellow.

Chemical Abbreviations: PD = paraphenylene-diamine, K = potassium hydroxide, C = sodium hypochloride, KC= a combination of K & C.

Notes: Boreal pixie-cup is often mistaken for *Cladonia coccifera* (Madame's pixie-cup). Both are yellowish green, broad cupped, red fruited, without vegetative structures. However, they differ in chemistry, and in that Madame's pixie-cup has rather large, irregular plate-like vegetative tissue inside the cups, and occurs in the more northern boreal forest. Other common and similar red-fruited lichen are: *Cladonia pleurota* (Red-fruited pixie-cup) which has a granular substance inside the cups, and *Cladonia cristatella* (British soldiers) which has no cups, but has red fruiting bodies on the branched or un-branched stem tips. The species name *borealis* probably refers to its habitat: the boreal forest.

Description: This lichen forms colonies of upright un-branched stems, arising from small, pale yellowish green scale-like lobes, without vegetative structures. The fruiting stems have goblet-shaped cups, with small, rounded somewhat irregular vegetative tissue inside, and occasionally outside the cups, and on the fruiting stems. The characteristic, vivid red fruiting bodies occur on short stalks on cup margins.

Cladonia pleurota

(Flörke) Schaerer

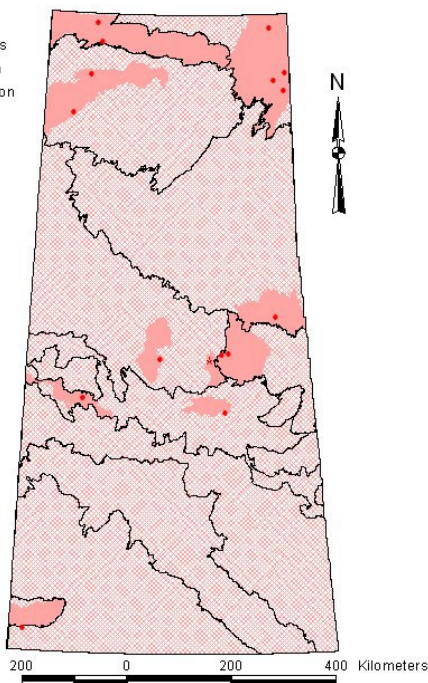
Red-fruited pixie-cup

Location: Narrow Hills Provincial Park. Boreal Plain Ecozone.

Habitat: The species has a wide variety of substrates: soil, thin soil over rock, base of decaying stumps, on decaying logs or old decaying bark in coniferous or mixed forests.

Geographic Distribution: A common circumpolar species of boreal forests and recorded for the Cypress Upland Ecoregion (Cypress Hills Inter-Provincial Park) in the Prairie Ecozone.

- * Photo Location
- Known Occurrences
- Known Distribution
- ▨ Potential Distribution



Description: The small or rather large primary scale-like lobes are persistent, deeply lobed, and pale yellowish green; the underside is pale to brownish towards the base, and without vegetative structures. Fruiting stems rather short, but can reach up to 30 mm., bearing goblet shaped cups with margins usually even but can be dentate or with short stems bearing fruiting bodies or small cups; inside of cups and upper stems covered with granular vegetative structures. Bright scarlet fruiting bodies, and small globular outgrowths are frequently

found directly on cup margins or on short stems protruding from the cup margins.



Chemical Reactions: PD-, K-, KC+ yellow, C-, UV-.

Chemical Abbreviations: PD= paraphenylene-diamine, K=potassium hydroxide, C=sodium hypochlorite, KC=combination of K & C, UV=ultra violet light.

Notes: Red-fruited pixie-cup can intergrade with *Cladonia borealis* (Boreal pixie-cup) especially when its vegetative structures are particularly large on the fruiting stems, or with the much rarer *Cladonia coccifera* (Madam's pixie-cup) which also contains the chemical zeroin as found in the Red-fruited pixie-cup.

Cladonia uncialis

(L.) F.H. Wigg.

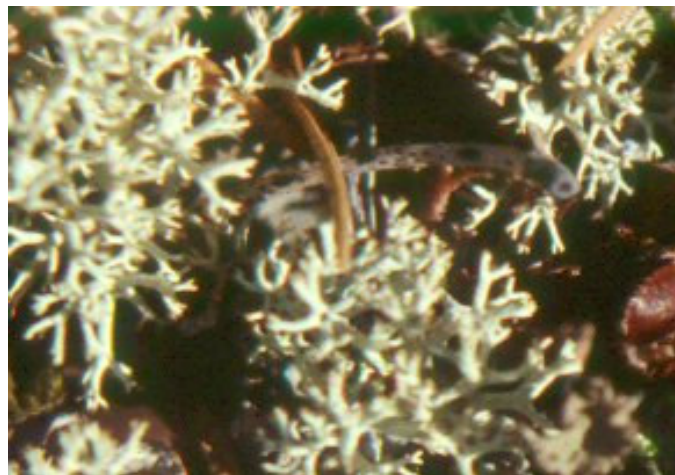
Thorn cladonia, spike lichen

Location: North of Prince Albert. Boreal Plain Ecozone.

Habitat: Commonly found on sandy soil, with mosses on humus soil, or on thin soil over rocks in open areas and outcrops.

Geographic Distribution: Throughout the boreal forest and reported for the Cypress Upland Ecoregion (Cypress Hills Inter-Provincial Park) in the Prairie Ecozone.

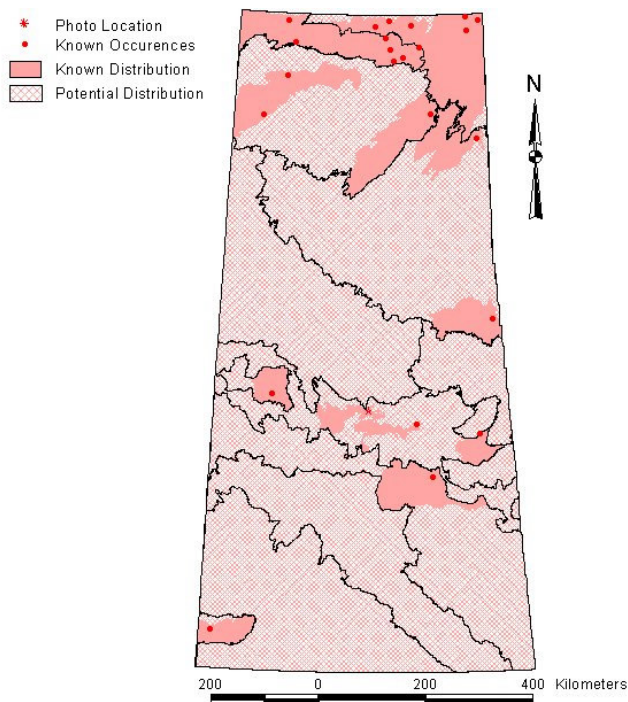
lines occur on the stems. Branch tips bearing fruiting bodies are very rare.



Chemical Reactions: The outer body layer KC+ strong yellow; the inner layer PD-, K-, KC-, C-, UV+ an icy blue or -.

Chemical Abbreviations: PD = paraphenylenediamine, K = potassium hydroxide, C = sodium hypochloride, KC = a combination of K & C., UV = ultraviolet light.

Notes: This lichen can be confused with *Cladonia amaurocraea* (Quill lichen) which is generally less branched and often has well developed cups on branch tips, as well as with reindeer Lichens with which it often grows. The species name *uncialis* is Latin for 'an inch', although the species is mostly taller than that. Thorn cladonia as well as Quill lichen are an important winter nutrient for Woodland Caribou.



Description: The primary, small, scale-like lobes are absent or very seldom present. The vegetative body has shiny, and yellow to yellowish green, abundantly branched, smooth, thin walled, sub-cylindrical stems, having dilated wide open axils, forming dense mats or tufts. Stems are hollow, smooth and uniform, and somewhat with a spider web-like covering; branch tips are divergent, pointed and thorn-like, lacking cups, without vegetative structures or scale-like outgrowth, and variable in size depending on the habitat it growth in. Small green blotches with thin white or yellowish

Flavopunctelia flaventior

(Stirton) Hale

Speckled greenshield lichen

Synonym: *Parmelia flaventior* Stirton

Location: Prince Albert National Park. Boreal Plain Ecozone.

Habitat: On bark and branches of various trees and large shrubs in semi-open wooded areas.

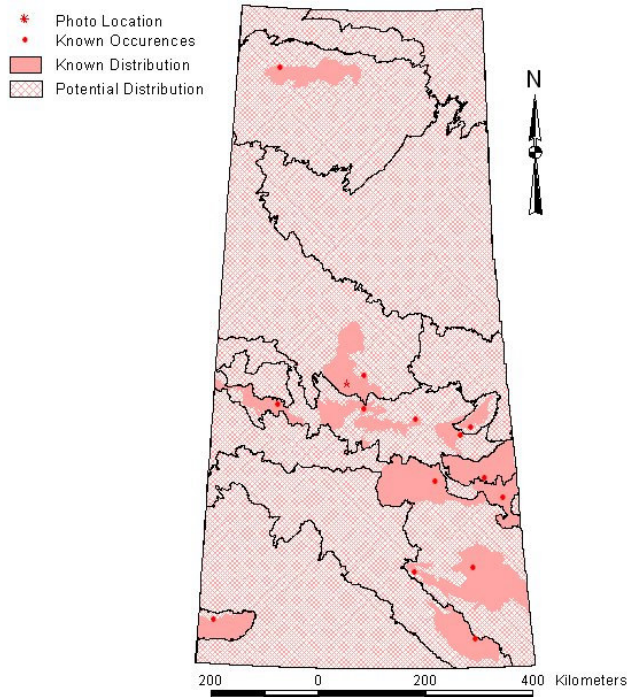
Geographic Distribution: A widespread species across the southern boreal forest, occasionally spreading into the southeastern Prairie Ecozone. The species has been recorded for the Cypress Upland Ecoregion (Cypress Hills Inter-Provincial Park) in the Prairie Ecozone.



Chemical Reactions: Upper body K+ yellow, inner fungal layer C= bright red, KC+ pale red.

Chemical Abbreviations: K=potassium hydroxide, C = sodium hypochlorite, KC = a combination of K & C.

Notes: This showy lichen often grows in large eye-catching circles on aspen or spruce bark, or seen circling branches. It is easily confused with the less common *Flavopunctelia soledica* (Powder-edged speckled greenshield) which has a similar colour, habitat, and C+ reaction for its inner fungal layer. However, in the latter species the vegetative propagules are entirely marginal and crescent shaped, while the white spots on the upper lobes are inconspicuous. The genus name *Flavopunctelia* comes from the Latin *flavens* meaning 'yellow or golden', and *punctum*, for 'point or dot' referring to the white dots on the lobes.



Description: The lichen body has yellow green, slightly wrinkled lobes, which have marginally as well as upper surface clusters of powdery vegetative structures. The upper lobes also have many small irregular white spots caused by breaks in the upper surface, showing the inner white fungal strands. The black lower side has a brown margin, and sparse black hair-like extensions. Fruiting bodies are very rare and mostly non-existent.

Hypogymnia physodes

(L.) Nyl.

Monk's hood lichen, hooded tube lichen

Location: Prince Albert National Park. Boreal Plain Ecozone.

Habitat: On bark and wood of various trees and tall shrubs, preferring conifers. Uncommon on soil, moss or rocks.

Geographic Distribution: Widespread across the boreal forest and reported for the Cypress Upland Ecozone (Cypress Hills Inter-Provincial Park) and as scattered occurrences in the Aspen Parkland and Moist Mixed Grasslands in the Prairie Ecozone.

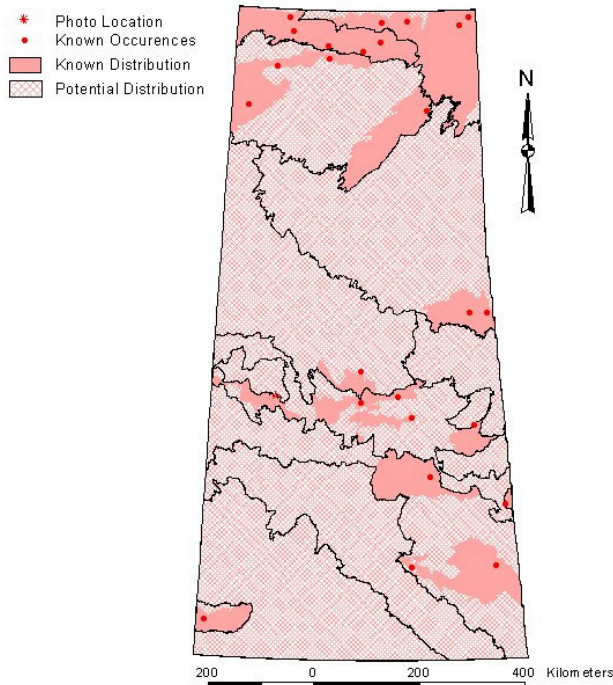
wrinkled, black, lacking attachment outgrowths. The fungal layer is white, and fruiting bodies are rare.



Chemical Reactions: Inner fungal layer: PD+red, K-, C-, KC+pink, I-.

Chemical Abbreviation: PD = paraphenylenediamine, K=potassium hydroxide, C=sodium hypochloride, KC=a combination of K & C, I=iodine.

Notes: This common tree lichen is quite tolerant to sulphur dioxide and can be found in close proximity to relatively polluted areas, and can be considered as an atmospheric indicator. This lichen is also quite common on trees in city parks and along streets. The name *Hypogymnia* comes from the Greek *hypo*, meaning 'under' and *gymnos*, 'naked' referring to the lack of lower holdfast structures. The species name comes from the Greek *physcia* meaning 'bellows' referring the inflated hood-like lobes of this lichen. It has been reported as a food or medicine and brown dye for woolens.



Description: The vegetative body is variable, usually forming flattened or closely attached rosettes, gray to blue-gray, smooth, with long or short lobes which can be irregular branched at the tips; lobe tips hollow, usually inflated, and hood-like, producing pale green powdery vegetative granules on the inside. The lower surface is

Icmadophila ericetorum

(L.) Zzahlbr.

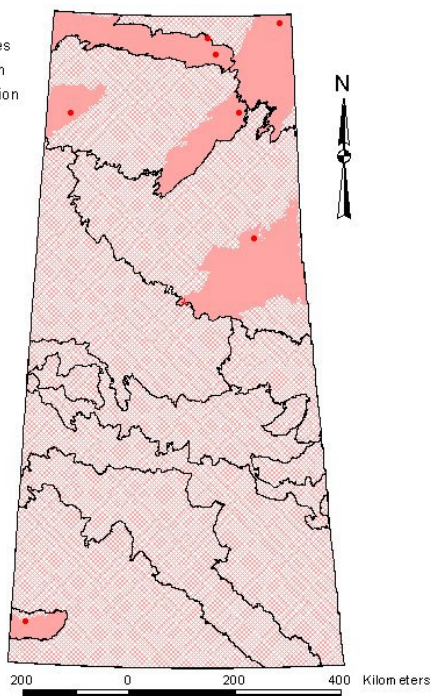
Candy lichen, Spraypaint lichen

Location: La Ronge. Boreal Shield Ecozone.

Habitat: On decaying, wood and peat moss hummocks, especially *Sphagnum fuscum*. (Common brown Sphagnum). Also found on vertical sides of mossy trail banks and often aggressively overgrowing mosses, in cool humid forests and bogs.

Geographic Distribution: Common and widespread across the northern boreal forest and occasionally in the northern Boreal Plain Ecozone, also reported for the Cypress Hills Upland Ecoregion (Cypress Hills Inter-Provincial Park) in the Prairie Ecozone.

- * Photo Location
- Known Occurrences
- Known Distribution
- Potential Distribution



Description: This very showy crustose lichen is very pale green when dry, becoming blue green when moist. The vegetative body is continuous, thick, smooth to granular, or to some extent covered with small, spherical, at times hollow warts, which occasionally erupt into irregular fragments. The algal partner is green. Fruiting bodies are abundant, pink, often with a

light frosting, tightly attached to the surface or on very short, practically invisible stalks, with flat or slightly convex discs which have paler generally wavy margins which later disappear.



Chemical Reactions: Vegetative body K+ yellow to brown, and fruiting bodies PD+ orange, K+ deep yellow, KC-, C-, UV+ white.

Chemical Abbreviations: PD=paraphenylene-diamine, K=potassium hydroxide, C=sodium hypo chlorite, KC=K & C, UV=ultra violet light.

Notes: This unusual lichen is partially parasitic and supplements its nutritive requirements with carbohydrates obtained from the moss on which it is typically found. *Icmadophila* comes from the Greek words *ikmas*, 'moisture', and *philos*, 'loving', referring to the moist habitat of the lichen. In the species name *ericetorum* we find the Latin word *erica*, 'heath', referring to the acidic habitat of this species.

Parmelia sulcata

Taylor

Hammered shield lichen

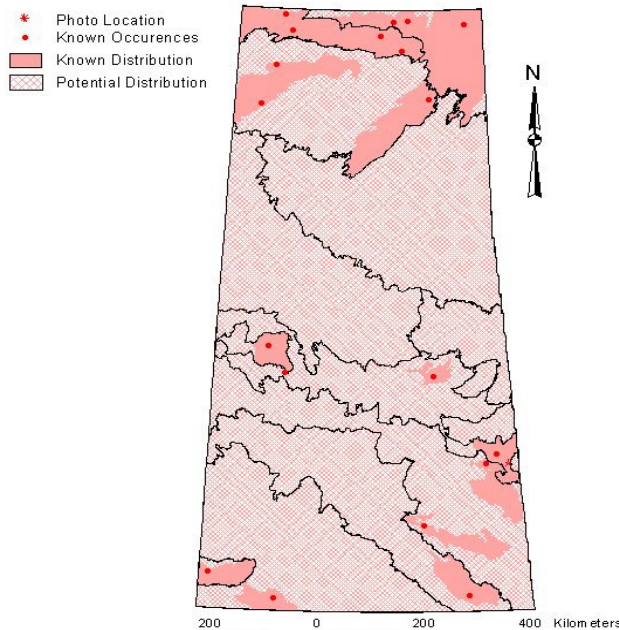
With: *Evernia mesomorpha* Nyl.
Boreal oakmoss lichen (foreground)

Location: Duck Mountain Provincial Park in the Boreal Transition Ecoregion in the Boreal Plain Ecozone.

Habitat: Common on bark of a wide variety of coniferous and deciduous trees and shrubs. At times on decaying logs, wood, mossy boulders, or soil in shady or sunny locations.

Geographic Distribution: This common lichen occurs throughout all of the four Saskatchewan Ecozones, and is reported from the Cypress Upland Ecoregion (Cypress Hills Inter-Provincial Park) in the Prairie Ecozone.

strands breaking into the surface. Round or elongate powdery vegetative structures often occur along ridges or lobe margins where surface cracks develop. The underside is black with brown edging, and has numerous simple attachment structures, which become branched when mature. Fruiting bodies are rare, but occasionally occur directly on the surface or on short stalks. The brown disk, are flat, with entire margins or bearing small vegetative structures.



Description: The lichen body is loosely attached to the surface upon which it grows, blue-gray, ashy gray, or turning light green when wet, or often become browned at the edges or entirely brown in open locations. It often grows with Boreal oakmoss lichen. The lobes are elongate up to 5 mm wide, with entire or notched margins, and a raised network of sharp ridges and depressions, with whitish dots caused by breaks in the upper surface showing an extension of the inner fungal

Chemical Reactions: Upper surface K+ yellow, inner fungal strands PD + yellow becoming orange, K+ yellow becoming red, KC-, C-.

Chemical Abbreviations: PD=paraphenylene-diamine, K=potassium hydroxide, C=sodium hypochlorite, KC=a combination of K & C.

Notes: Hammered shield lichen often acts as a pioneer species, becoming established in suburban parks. This lichen is used for dyeing wool, producing a deep brown to dark tan or at times a golden or rusty brown hue. Rufus hummingbirds often use this lichen as nesting material for camouflage. The species is quite variable, and can be found with, or without, vegetative boides within its' range. The specific name *sulcata* has its roots in the Latin *sulcus*, meaning 'furrow or groove', referring to the network of cracks on the upper lichen body. *Parmelia saxatilis* (Rock lichen) resembles Hammered shield lichen, but instead of powdery structures it has tiny club-shaped outgrowths on the upper surface, and colonizes rock rather than trees or logs. *Saxatilis* comes from the Latin 'growing among rocks', and the root *saxum* refers to 'a rock'. Boreal oakmoss lichen is a bushy species with wrinkled pale green slightly angled branches, abundantly covered with coarse vegetative structures. It occurs throughout much the same range as Hammered shield lichen. Its narrow branches and tufted habit resembles some of the Beard lichens. The generic name *Evernia*, comes from the Greek word for 'growing well' perhaps referring to its widespread occurrence.

Peltigera preatextata

(Flörke *ex* Sommerf.) Zopf

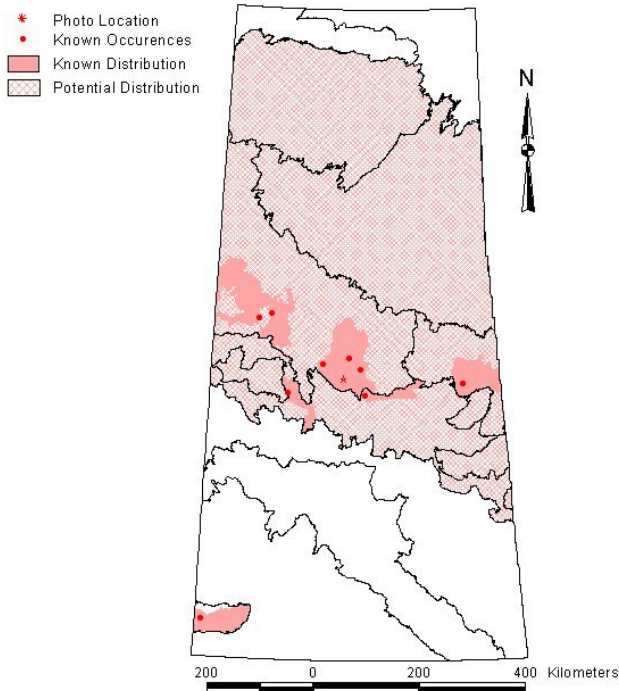
Scaly dog lichen

Synonyms: *Peltigera canina* var. *rufescens* f. *innovans* (Körber) J.W. Thomson
Peltigera canina f. *innovans* (Körber) J.W. Thomson

Location: Prince Albert National Park. Boreal Plain Ecozone.

Habitat: Scattered throughout open and sheltered forests on soil, decaying logs or over mossy rocks.

Geographic Distribution: Quite common across the central boreal forest, and reported for the Cypress Upland Ecoregion (Cypress Hills Inter-Provincial Park) in the Prairie Ecozone.



Description: Upper surface gray, greenish brown to brown, smooth, dull, with more or less wavy lobe margins and a thin wooly covering on the lobe tips, which tend to become crisp upon aging, developing abundant small flat regeneration platelets along stress cracks and margins. The pale undersurface with a network of slightly raised light brown to brown veins becoming darker towards the center, bearing simple,

rather long thread-like outgrowth. Fruiting bodies are uncommon.



Chemical Reactions: No chemical substances are known for the species.

Notes: Scaly dog-lichen can resemble other dog-lichens. The lobate stress cracks often bear small regeneration lobules. Along with the thin fuzzy lobe tips, this is usually enough to distinguish this lichen from other *Peltigeras*. It can, however, be mistaken for the somewhat related *Peltigera canina* (Dog lichen), except that Scaly dog lichen has less raised veins and more discrete holdfast structures, which are never jointed at the base, a diagnostic characteristic of Dog lichen. The generic name *Peltigera* comes from the Latin *pelta*, 'light shield', referring to the flat leaf-like lobes resembling shields. The species name *canina* is Latin for 'dog'.

Stereocaulon tomentosum

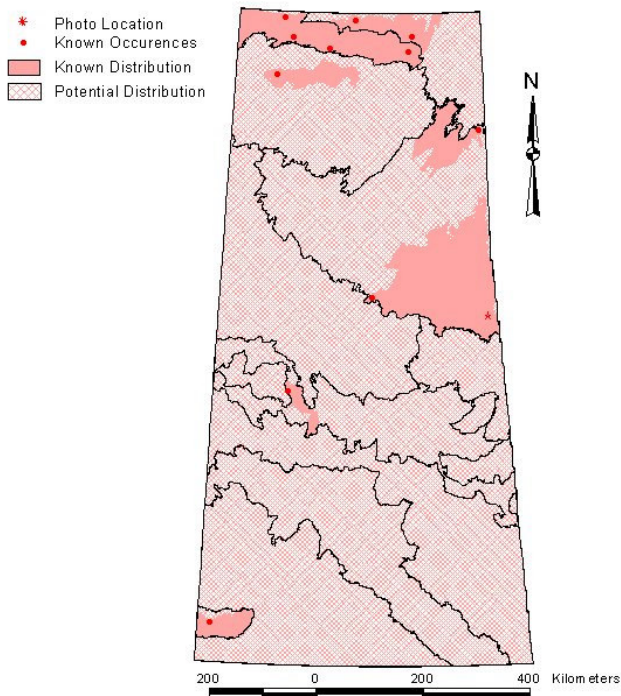
Fr.

Woolly foam-lichen, Woolly coral (and others)

Location: Creighton. Boreal Shield Ecozone.

Habitat: On earth, over mosses, or occasionally over rocks and gravel in open locations.

Geographic Distribution: Common throughout the boreal forest and reported for the Cypress Upland Ecoregion (Cypress Hills Inter-Provincial Park) in the Prairie Ecozone.



Description: Vegetative body is erect or tufted, loosely attached to the soil or other medium. The conspicuously ashy to silvery blue-gray stems bearing many re-curved solid branches which a distinct upper and lower side. The lower surface has a thick woolly covering. The upper side has abundant, overlapping minute scale-like lobed are almost coral-like. Small dark blue-green granular bodies containing blue green algae are inconspicuously embedded in the wooly lower surface of the braches. Small more or less rounded to spherical

dark blue-green outgrowths (containing blue-green algae), are inconspicuous, and imbedded in the woolly covering on the lower side of the branches. The numerous small fruiting bodies with convex, red-brown discs and pale margins, occur on lateral branches.



Chemical Reaction: The vegetative body is PD+orange.

Chemical Abbreviation: PD=paraphenylene-diamine.

Notes: Woolly coral can be confused with *Stereocaulon paschale* (Common coral), however there are some noticeable differences. In woolly coral the fruiting bodies are numerous, small, lateral, convex minute scale-like lobed outgrowths that are appressed to the stems, which have a clearly visible upper and lower side, covered with a woolly growth. In common coral the vegetative body has a thinner or near absent woolly covering; small scale-like clusters of granular wart-like protuberances, which are somewhat elongate or almost coral-like, but seldom expanding into 'finger-like' lobes. Small, dark brown, fibrous, irregular gall-like outgrowths are often noticeable on the branches. Small, dark brown, fibrous, irregular, gall-like growths are obvious on the branches. Fruiting bodies are few, terminal, larger and flatter. Both species share the same habitat, and geographic distribution. The generic name *Stereocaulon* has its origin in the Greek *stereos* 'hard, firm or solid', and *kaulos* 'a stem', referring to the very firm stems of these species. In the species name *tomentosum* we find the Latin *tomentum*, 'a stuffing of hair or wool', pertaining to the woolly stem coverings.

Usnea substerilis

Mot.

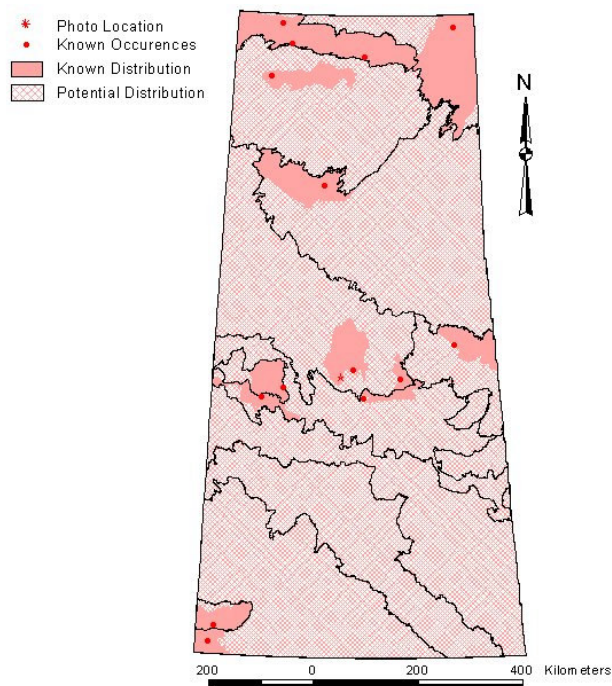
Embossed beard lichen

Synonym: *Usnea stippea* (Räsänen) Mot.

Location: Prince Albert National Park. Boreal Plain Ecozone.

Habitat: Widespread throughout the boreal forest, on conifer branches, but favoring deciduous trees and large shrubs in open forest locations.

Geographic Distribution: Mainly throughout the boreal forest and reported for the Cypress Upland Ecoregion (Cypress Hills Inter-Provincial Park) and the northern Aspen Parkland Ecoregions in the Prairie Ecozone.



Description: A rather small tufted greenish straw coloured but sometimes quite yellowish species usually 25 mm in length and width; branches rather tufted, non-inflated, and main stem has a narrow dark zone at the base, is non-inflated and distinctly covered with small bumps. Branches are at near right angles to the main stem, lacking small bumps but bearing copious small raised vegetative propagules in localized masses that contain a very fine whitish powdery substance. These

structures often develop easily detached peg-like vegetative structures. Fruiting bodies are absent.



Chemical Reactions: This lichen is variable in its chemical constituents. With usnic acid alone it is PD-, K-, KC-, and C- for its inner fungal layer. However, some species have salazincic acid and are PD+ yellow, K+ red, KC-, and C- for the fungal layer.

Chemical Abbreviations: PD=paraphenylene-diamine, K=potassium hydroxide, C=sodium hypochlorite. KC=K & C.

Notes: Embossed beard lichen can be confused with *Usnea lapponica* (Powdered beard lichen) and *Usnea subfloridana* (Nit beard lichen). Both are similar in colour and habitat. However, Powdered beard lichen has its side branches densely covered with small bumps and powdery vegetative structures which at times are deeply excavate, reaching the inner fungal strands, but lacking peg-like vegetative propagules. Nitbeard lichen has clusters of peg-like vegetative bodies, which are not always obvious. The usnic acid present in Beard lichens has widespread applications as an antibiotic for many infectious diseases, e.g. *streptomycin* for tuberculosis. The name *Usnea* seems to find its origin in the Arabic word meaning moss.

References

The following technical manuals are useful for lichen identification, common names, and geographic distribution are recommended:

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Note: Those marked * are recommended illustrated field-books for the beginner.

Map References

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