

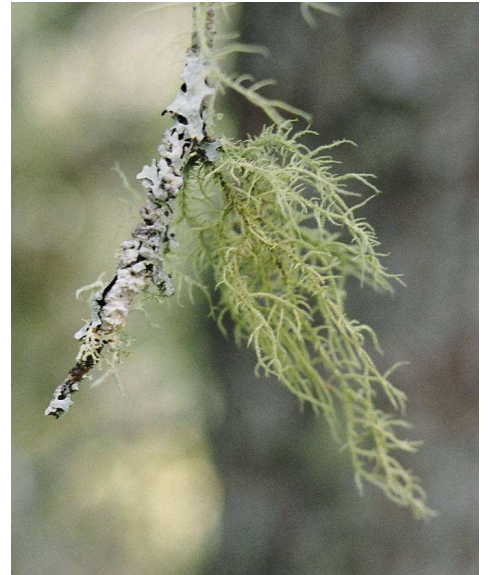
# Don't forget about the Lichens

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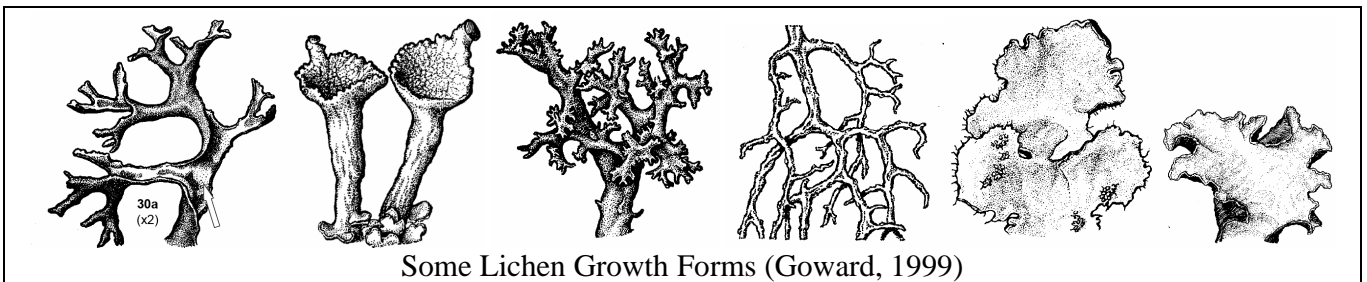
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Do you feel guilty when you hear that crunch under your feet when walking an old portage trail or setting up your tent? Have you ever wondered about the orange and yellow colouring 'painted' on rocks and old buildings? How about those weird grey elephant ears on the side of that cliff? Why do old pine trees grow yellow straggly beards?

Lichens are ubiquitous with over 600 'species' found in Manitoba alone. Crustose forms are flattened against rocks and trees, even becoming part of the substrate. Lobed foliose lichens are very common and look like dead leaves on the ground, or large yellow-green or grey flakes on trees. Fruticose lichens include little pixie cups, blanketing reindeer 'moss', or Old Man's Beards hanging from trees. Lichens come in a multitude of colours and shapes, and can be found anywhere from sea level to mountain peaks and almost from pole to pole. Yet many people never notice these amazing life forms, choosing instead to focus on the larger plants and furry and feathered animals.



What are lichens? They are an association of fungi and green or blue-green algae, forming what appears to be a single plant. The relationship is so close that many people consider them a good example of symbiosis - both the fungi and the algae get something out of the deal. When growing together the fungi obtains photosynthetic products from the algae and the algae get a safe place to live, with a stable source of moisture and protection from the environment. Both organisms can thus live in environments where neither could survive alone.



Reproduction in lichens can be complicated since they are composed of two different kinds of organisms. Each component can reproduce by itself but each needs the other to form a new lichen. In many lichens the fungal partner can create fruiting bodies; algae partners divide vegetatively. Vegetative reproduction is more successful for most lichens with specialized structures that form dust with bits of fungi and algal cells, or granular lobes that break off the parent lichen. Bits of broken lichen, like those crushed by your feet, may be able to grow into new lichens.

Although lichens grow best in places with good moisture, adequate light, and moderate temperatures, they are also found in inhospitable environments like rock outcrops and mountain peaks. Most lichens are very drought resistant. They can absorb enough water to survive from fog, dew, and even high humidity. In Canadian canoe country where lichens are often found, some surfaces, such as rock outcrops, have temperatures that can range from -40°C or colder to 70°C or more. Lichens can only survive these extremes in a dry state. When dry they can survive for months, reviving quickly when moisture again becomes available.

Because lichens rewet very quickly, they can readily absorb dissolved minerals. This is both a blessing and a curse. Necessary nutrients are brought in and stored, but pollutants are just as easily absorbed. This makes lichens very sensitive to pollution and is likely the reason why few of them are seen in urban areas. A good indicator of pollution are those yellow-green leafy lichens growing on trees and rocks. Even the yellow and orange lichens which are a little more tolerant of pollution are hard to find in urban areas.

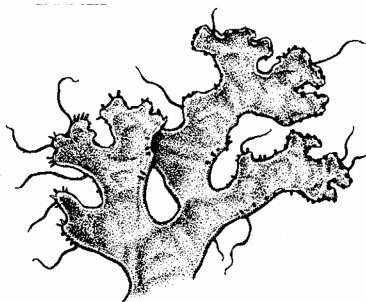
Lichens grow very slowly, something to remember when collecting them for any of their several uses. Most crustose lichens grow less than 2mm each year – often much less. Foliose lichens (those that look like dried up leaves) may grow only 4-10mm every year. Reindeer lichen may put on a new set of branches each year making that little model tree older than me.



So what are lichens good for you might ask? Birds, such as the Ruby Throated Hummingbird, gather shield lichens, the larger green and grey lichens on tree branches, for camouflage in nest construction. Northern Parula Warblers weave strands of beard lichens to build nests. Many animals, from large caribou to small mites, eat lichens. They are also a pioneer species, the first to colonize bare rock and soil making way for mosses, and then larger bushes and trees. The blue-green algae in lichens fix nitrogen and contribute to soil fertility.

Many natural dyes, from cool pastels to quite vibrant purples and yellows, can be made from lichens. Apparently the Harris Tweed was coloured using lichens scraped from the rocks. In an unfortunate example of over collection the kind lichen used was depleted near the Tweed plant. .

Some lichens can be edible or have medicinal qualities. We often hear of northern travelers and adventurers surviving on Rock Tripe. I find Rock Tripe to be quite a nice mushroom replacement in hot and sour soup, providing the lichen is first boiled in several changes of water with baking soda. A number of lichens can be crushed and used as thickeners for soup. These same powdered lichens have also been used to treat people for lice and fleas. Many lichens, especially yellow-green ones like Old Man's Beard, have anti-biotic properties. Iceland Moss is used in herbal remedies for sore throats and coughs and has also been used in some toothpastes and deodorants. Recently there has been interest in examining lichen derivatives for use in the treatment of AIDS.



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