Common **Lichens** of Wisconsin

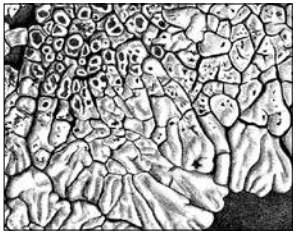
This booklet portrays the 30 most common lichen species of the approximately 800 species in Wisconsin based on the frequency the lichens have been collected. They are grouped alphabetically by Latin name within lichen type. Many of these 30 species can be identified in the field, but most others can only be identified in the laboratory using microscopic and chemical characters. Users of this booklet are encouraged to either use the references listed at the end or contact the authors for more information or help.

What is a lichen?

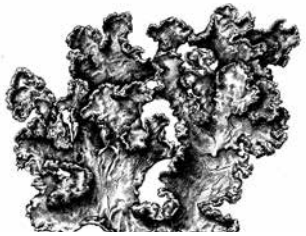
A lichen is a symbiotic compound organism composed of an alga growing inside a fungus. They contain no vascular tissue so they tend to be small. They are dormant when dry, but rapidly change color and grow when wet. They reproduce both sexually and asexually.

Three types of lichens

Crustose:
thin, paint-like tissue tightly attached to the substrate. Crustose species in this booklet are 10-30 mm across.



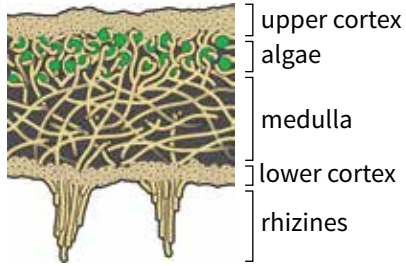
Foliose:
large, leaf-like tissues free of the substrate. Patches of these range from 10 – 30 cm across depending on age and species.



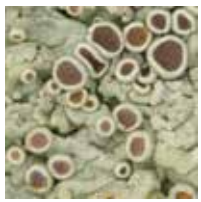
Fruticose:
three-dimensional complex (one or two parts) tissues. Individual thalli are 1-4 cm in size, but colonies can range up to half a meter to a meter in area.

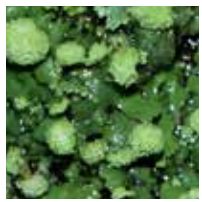
Anatomy and Reproduction

The body of a lichen is called a **thallus**, and is covered by a **cortex**, followed by a layer of **algae**, then a layer of fungal filaments called a **medulla**, with a lower surface sometimes covered in root-like attachment structures called **rhizines**. The latter do not function as roots, and only attach the lichen to the substrate.



Lichens reproduce sexually by producing spores from a fruiting body called an **apothecium**, or asexually by **soredia** (soralia) or **isidia** that contain clusters of the fungal and algal cells, or by fragmentation of the thallus (lobules). Some lichens have a frosted appearance due to the presence of **pruina**, which are calcium oxalate crystals grouped in such a way they reflect light. Other lichens have holes in the cortex called **pseudocyphellae**.


apothecia


soredia

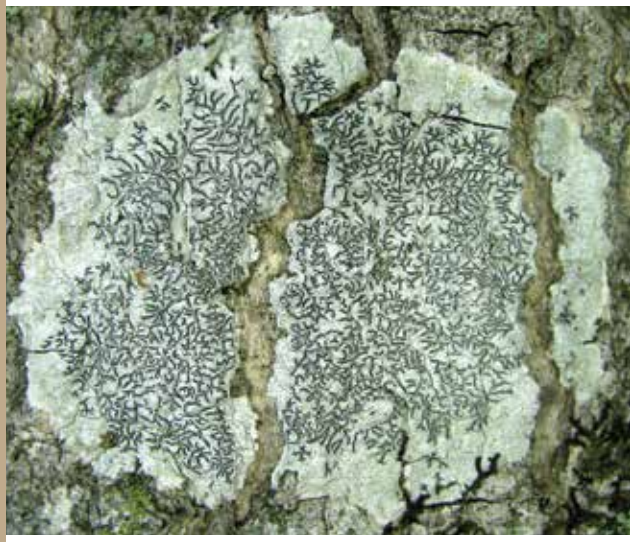

isidia

Habitats

Lichens can grow in almost any habitat, but are most common in forests, bogs, sand barrens, cliff faces and talus, rock outcrops, and cemeteries. Look for lichens on trees and shrubs, dead tree trunks and fences, most kinds of rocks including tombstones, soil, weathered metal and plastic surfaces, and roof shingles. Lichens are sensitive to air pollution and consequently are not common in cities. They are also abundant in agricultural areas due to the fertilization effects of atmospheric ammonia. The greatest lichen diversity in Wisconsin is in the northern part of the state, especially in bogs and boreal forests.

Frosted comma lichen *Chrysothrix caesia*

Very common on tree branches with colorful bluish purple apothecia due to calcium oxalate crystals. Prefers smooth bark. Formerly in the *Arthonia* genus. Occurs statewide and is common in cities.



Common script lichen *Graphis scripta*

One of a group of lichens whose apothecia are slit-shaped instead of disk-shaped. The black apothecia grow in groups against a white thallus giving it the appearance of writing from a distance. It is most common on smooth bark but occasionally occurs on rough bark. Occurs statewide.

Brown-eyed rim lichen *Lecanora allophana*

The reddish-brown apothecia of this species stand out from the white to grey thallus crust, typically found on smooth bark of many hardwood tree species. It can be found statewide.

Fused rim lichen *Lecanora symmicta*

This Lecanora has yellow to orange, hemispherical apothecia that swell up above the crustose thallus, which is almost non-existent. It occurs throughout the state on bark and old wood of both conifers and hardwoods.

Candleflame lichen *Candelaria concolor*

The bright yellow color makes this lichen very conspicuous on tree trunks and branches statewide. It is pollution tolerant and occurs in cities. The tiny lobes can be seen with a hand lens.

Common greenshield *Flavoparmelia caperata*

One of the larger foliose species in the state, this yellow-green lichen can grow on tree trunks to 20-30 cm if the tree is old. Smaller individuals occur on branches. It rarely has apothecia, and can be covered in soredia in the older parts. This is the most common species in the state.

Speckled greenshield *Flavopunctelia flaventior*

This lichen differs from the common greenshield by the presence of tiny, white holes in the upper surface. It also grows on tree trunks and branches statewide.

Hooded tube lichen *Hypogymnia physodes*

One of a group of species characterized by having hollow lobes, hence the general morphology of a tube. This species occurs on both conifer and hardwood tree branches and trunks abundantly in northern WI, and has also been used in air pollution monitoring.

Powdery axil-bristle lichen *Myelochroa aurulenta*

A foliose species with hairs along the margins and a distinctive yellow color in the tissue below the soredia, making it easy to identify. It grows mostly on oak and maple trees throughout the state.

Bottlebrush shield lichen *Parmelia squarrosa*

The narrow gray lobes, bottlebrush rhizines (root-like structures on the lower surface), and presence of isidia (reproductive structures with a cortex) make this lichen that grows on deciduous tree bark distinctive. It mostly occurs in the northern half of the state with some exceptions in the southern part.

Hammered shield lichen *Parmelia sulcata*

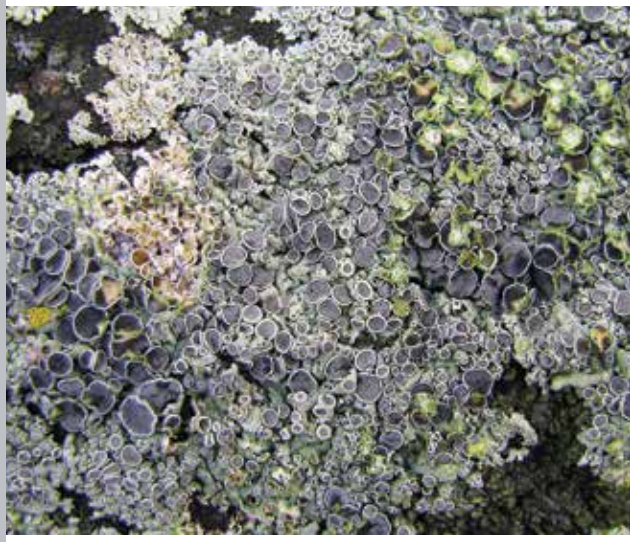
Similar to *Parmelia squarrosa* except this species has soredia (reproductive structures with no cortex) instead of isidia. This species occurs statewide.

Dog lichen *Peltigera canina*

This soil lichen turns dark green/black when wet due to the presence of cyanobacteria, the only lichen of this type in this booklet. The red-brown apothecia are oriented vertically on erect lobes. Species in this genus are called dog lichens due to the resemblance of the apothecia to dog ears. Occurs statewide.

Orange-cored shadow lichen
Phaeophyscia rubropulchra

A small, green/brown lichen with narrow lobes and a unique orange/red medulla (internal tissue), that can be seen when the thallus is broken. It occurs on tree trunks and branches statewide.



Hoary rosette lichen *Physcia aipolia*

A tree branch rosette-forming lichen with very abundant apothecia that appear white to blue due to thick pruina (calcium oxalate crystals). It prefers nitrogen-rich environments like cities and agricultural areas with high light. Blow-down branches in cities are usually covered in this lichen. It is common throughout the state.

Mealy rosette lichen *Physcia millegrana*

This species is small, grey-green, and covered with granular soredia that give it a powdery appearance like no other species on tree branches and trunks throughout the state. The soredia are found on the margins that coalesce to form mounds of granules, masking the white spotted thallus in the center.

Star rosette lichen *Physcia stellaris*

Very similar to *Physcia aipolia* except the apothecia are usually not pruinose, and the disks appear red-brown. It also has a different chemistry. It occurs statewide.

Bottlebrush frost lichen *Physconia detersa*

A brown lobed species distinguished by the appearance of pruina at the margins and especially at the lobe tips, giving a frosted appearance. It grows on tree trunks in hardwood forests throughout the state.

Eastern speckled shield lichen *Punctelia bolliana*

Similar to *Parmelia* but distinguished by the presence of small holes in the upper surface (pseudocyphellae – use hand lens). This species is greenish-grey with a tan lower surface, and occurs on the bark of hardwoods statewide.

Rough speckled shield lichen *Punctelia rudecta*

Similar to Punctelia bolliana except for the abundance of isidia in the older parts of the thallus. It is abundant statewide.

Powdery sunburst lichen
Xanthomendoza ulophyllodes

A brilliant yellow to orange lichen with soredia along the margins and abundant white rhizines. It is very common on hardwood trunks and branches throughout the state.

Ladder lichen *Cladonia cervicornis* ssp. *verticillata*

The cups (apothecia) proliferating from the centers of lower cups makes this lichen very distinctive and easy to identify. It occurs on mineral soils and occasionally on soil over rocks and occurs statewide.

Mealy pixie-cup *Cladonia chlorophaea*

The most common pixie cup lichen, covered with fine dusty particles (soredia), occurs statewide on soil, rotting logs, and tree bases in well-lighted sites.

Common powderhorn *Cladonia coniocraea*

Unlike *Cladonia chlorophaea* this species has no cups at all, and appears awl-like. The surface has little cortex, so the algal component shows through the fungal component giving it a mottled green/white appearance. Often grows among other *Cladonias* in the same habitats as *Cladonia chlorophaea*.

British soldiers *Cladonia cristatella*

This is the only cupless, red-fruited *Cladonia* without soredia in the state, and is easy to identify. It is most common on sandy soils, rotting logs, tree stumps in the northern part of the state, and occasionally in the south.

Reindeer lichen *Cladonia rangiferina*

This highly branched, grey *Cladonia* has no cups, and the branch tips typically point in one direction. It often grows in clumps and mats. It is common on poor and/or boggy soils and along roadsides in northern WI and occasionally in the south.

Dragon cladonia *Cladonia squamosa*

The stalks of this species are covered in leaf-like projections called squamules, topped by cups or not along with brown fruits. It prefers poor soils and road banks, but can also be found on rotting logs. This species occurs statewide.

Boreal oakmoss *Evernia mesomorpha*

This shrubby, branched and tufted species is covered in soredia and occurs on the trunks and branches of many tree species, mostly in northern WI. It has been widely used in air pollution monitoring due to its abundance and ease of collection.

Sinewed ramalina *Ramalina americana*

A tufted lichen with solid, flat branches and yellowish apothecia that grows on tree trunks and branches mostly in northern WI.

Bristly beard lichen *Usnea hirta*

Unlike *Ramalina*, the branches of this genus contain a cord inside that can be seen if the filaments are gently pulled apart. This species is very densely covered in isidia, and is found on tree branches, trunks, and old wood mostly in the northern part of the state.

Common beard lichen *Usnea subfloridana*

This *Usnea* is bigger than *Usnea hirta* and is covered in dense soredia in patches. It also grows on tree branches and trunks and occurs mostly in the north but has been recorded in Sauk Co.

For more information:

Lichens of Wisconsin by John W. Thomson. 386 pp. Available from the UW-Madison Dept. of Botany Store: **https://charge.wisc.edu/botany/sales.aspx**. Technical treatise (keys, descriptions) of most lichen species in the state; no illustrations. Spiral softcover.

Lichens of Wisconsin Checklist: **http://lichenportal.org/portal/checklists/checklist.php?cl=112&pid=102**

Lichens of the North Woods by Joe Walewski. North Woods Naturalist Series. Kollath&Stensaas Publishing. Pocket guide to 111 species with illustrations, all of which occur in northern WI.

Lichens of North America by I. M. Brodo, S. D. Sharnoff & S. Sharnoff. 828 pp. Yale University Press. Covers over 1500 species and includes over 1700 color and black and white illustrations.

Acknowledgements

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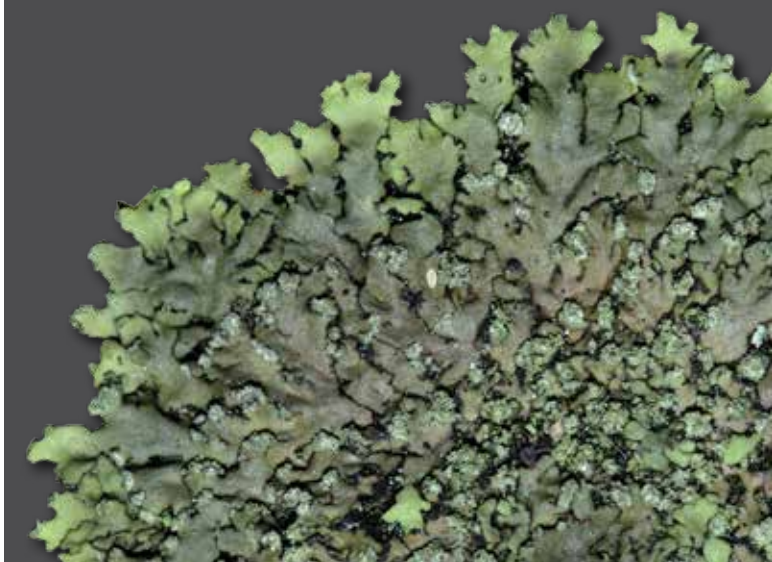

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