DENVER BOTANIC GARDENS

EcoQuest

February 2024

February EcoQuest: Looking for Love(ly Lichens)

As Valentine's Day warms our hearts, let's explore the forest's most romantic residents—lichens! Imagine a love story where fungi and algae join forces, creating the ultimate power couple—that's a lichen. Lichens are a symbiotic relationship between two or even three different species—one or two fungi paired with an algae or even cyanobacteria.

Usnea hirta, phyllisholst, some rights reserved, CC BY-NC.

Usnea hirta, bolmstead42, some rights reserved, CC BY-NC.

These partnerships give lichens structure through the fungi and energy through the photosynthetic algae (you could say they're a bit co-dependent).

In addition to being biologically fascinating, they are also ecologically important. They provide food, shelter and even habitat for various other species. For example, birds will use lichens for building their nests, and tiny tardigrades (aka water bears) live within lichen like a real bear might live in a forest. Lichens perform ecosystem services like carbon capture, nutrient cycling and can act as pioneer species, able to obtain nutrients from sheer rock and sunlight.

Beard lichens are a specific genus of lichens called *Usnea*. Although lichens are notoriously challenging to identify, this genus is quick to spot—look for tangled masses of silvery-green threads hanging from tree branches and bark. This genus is prolific in its range and grows from the Arctic to the tropics. *Usnea* is often confused with Spanish moss (which actually isn't a moss or a lichen and doesn't grow in Colorado). To identify *Usnea*, pull apart the outer sheath of its main stem. If there is tiny, white central cord inside, with the pull of an elastic thread—it'll be *Usnea*. If not, it'll likely be a different genus.

Usnea and other lichens are known for their valuable benefits to humanity. For example, they are known for their usefulness in traditional medicine. The species in *Usnea* aren't edible but are widely regarded for their medicinal uses, especially for their antibacterial and antifungal properties. Lichens are also known as bioindicators, meaning they can be used to monitor changes in environmental health. Some lichens, such as the beard lichen, are sensitive to common air pollution contaminants, like sulfur dioxide. This means that they can only thrive in areas with good air quality.

We still have a lot to learn about lichens. Learning more about where they grow can help us better understand air quality in the Front Range. In February, get more acquainted with this romantic fellow and contribute to our understanding of beard lichens by searching for these fascinating forest lovebirds and posting your findings on **iNaturalist**.

What is an EcoQuest?

EcoQuests, part of the Denver EcoFlora project, challenge citizens to become citizen scientists and observe, study and conserve the native plants of the City via iNaturalist, an easy-to-use mobile app.

How Do I Get Started?

1. Download the iNaturalist app or register online at **iNaturalist.org**.
2. Take photos of the plants in bloom that you find on your daily neighborhood walk. It is ok if they are weeds! But avoid taking photos of cultivated plants in gardens or in your home.
3. If you are concerned about revealing the location of sensitive organisms or observations at your own house, you can hide the exact location from the public by changing the "geoprivacy" of the observation to "obscured."
4. Post your findings on iNaturalist via the app.
5. Your observations will automatically be added to the **Denver EcoFlora Project**.
6. You can add an identification to your photo when you post your findings on iNaturalist, or leave it blank for others to identify.

What is the Goal?

The EcoFlora project is designed to meaningfully connect citizens with biodiversity, and to assemble novel observations and data on the metro area's flora to better inform policy decisions and conservation strategies.

Photo by Scott Dressel-Martin

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