

The Lichens of North Texas: An Expert Guide

Featuring: Dr. Manuela Dal Forno, Lichenologist (BRIT)

Location: Southwest Nature Preserve, Arlington, TX

Introduction to Lichens

Lichens are unique organisms that represent a complex symbiosis between fungi and algae (or cyanobacteria). In the Dallas-Fort Worth area, they are ubiquitous but often overlooked. Dr. Manuela Dal Forno, a research scientist at the Botanical Research Institute of Texas (BRIT) and former Smithsonian postdoctoral fellow, guides us through the identification and biology of North Texas species.

The Three Main Growth Forms

To identify lichens in the field, we categorize them into three primary growth forms:

1. **Foliose (Leaf-like):** These lichens have distinct upper and lower surfaces and look like flattened leaves. They are often found on tree bark and are generally easy to remove with a simple tool.
2. **Fruticose (Shrubby/Hair-like):** These have a three-dimensional, shrubby appearance. They can grow erect or hang down like hair. A common local example is the "Golden Eye" (*Teloschistes*).
3. **Crustose (Crust-like):** These grow tightly attached to their substrate (usually rock or bark). They are "crusty" and lack a formal lower surface, making them nearly impossible to remove without taking a piece of the substrate with them.

Key Species Found in DFW

During our exploration of the Southwest Nature Preserve, we highlight several notable species including:

- **Golden Eye (*Teloschistes*):** A vibrant orange fruticose lichen that stands out against gray bark.
- **Stonewall Rim (*Protoparmeliopsis muralis*):** A hardy species that thrives on the sandstone boulders common in Arlington.
- **Rock Shield (*Xanthoparmelia*):** These are often yellowish-green due to the presence of usnic acid, which acts as a natural sunscreen.

Field Identification and Chemistry

Identifying lichens often requires more than just a visual check.

- **Hand Lenses:** A 10x or 20x magnification is necessary to see the fine structures like *apothecia* (fruiting bodies).
- **Chemical Spot Tests:** Scientists use common household bleach (C test) or potassium hydroxide (K test) to check for specific chemical reactions. For example, some species will turn bright red or purple when a drop is applied, signaling the presence of specific protective acids.

The Importance of Lichens

Lichens serve as vital bio-indicators of air quality and play a massive role in the local ecosystem. Over 50 species of birds in North Texas use lichens as nesting material. Furthermore, the chemical compounds they produce—often developed to protect them from UV radiation—are currently being studied for potential medical breakthroughs, including cancer research.