

Tutorial for Teachers



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Learning Lichens with Students

Lessons developed by Sarah Thorne

Funded by: White Mountain Interpretive Association, Kiwanis International,

Cooperating organizations: White Mountain National Forest,

Prospect Mt. High School, Alton, NH



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Lichens are a portal to studying ecosystems

Learning Lichens

in Lesson 1: online research

- Students will learn that lichens are:
 - **symbiotic** pairings of a fungus and alga or cyanobacteria
 - affixed to substrates such as trees and rocks
 - “air plants” without roots or vascular systems, readily absorb pollutants from rain, fog and air
 - used as **bioindicators** of air pollutants



Learning Lichens

Lesson 2: in the lab

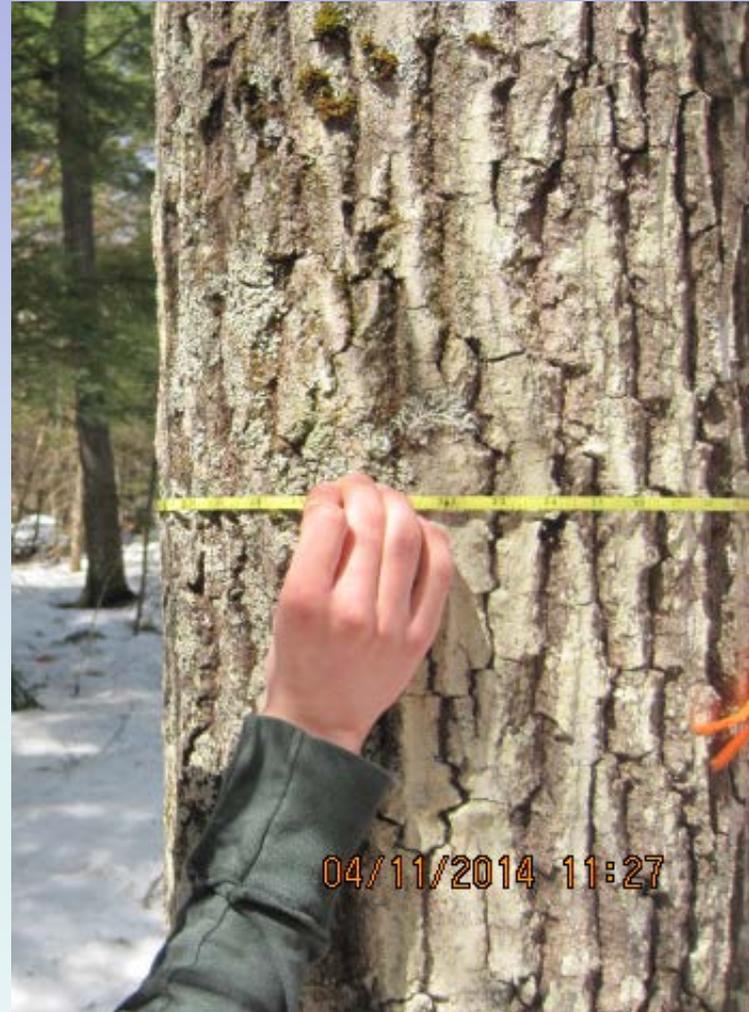
- Students will be able to compare and contrast lichens, moss, fungi, and vascular plants.
- Students will learn to recognize these growth forms of lichens:
 - Fruticose
 - Foliose
 - Crustose



Learning Lichens

Lesson 3: in the field

- Students will develop a **research question** and **inventory lichen** in the schoolyard or forest
- Students will analyze and present their results



Learning Lichens

in Lesson 4:

- Students will research lichen ecology and use in **biomonitoring** for air pollution
- Students will write an **essay** to demonstrate what they have learned



Materials available to teachers:

- Lesson Summary Table
- Student worksheets for the 4 lessons
- Belt transect protocol
- **Learning Lichens with Students PowerPoint**, intended for teacher preparation (including photos)
- **How to Conduct a Lichen Inventory (lesson 3) PowerPoint**
- Resource list



Lessons are available online at:

White Mountain National Forest Website

- <http://www.fs.usda.gov/detailfull/whitemountain/learning/parents-teacher/?cid=STELPRD3820933&width=full>



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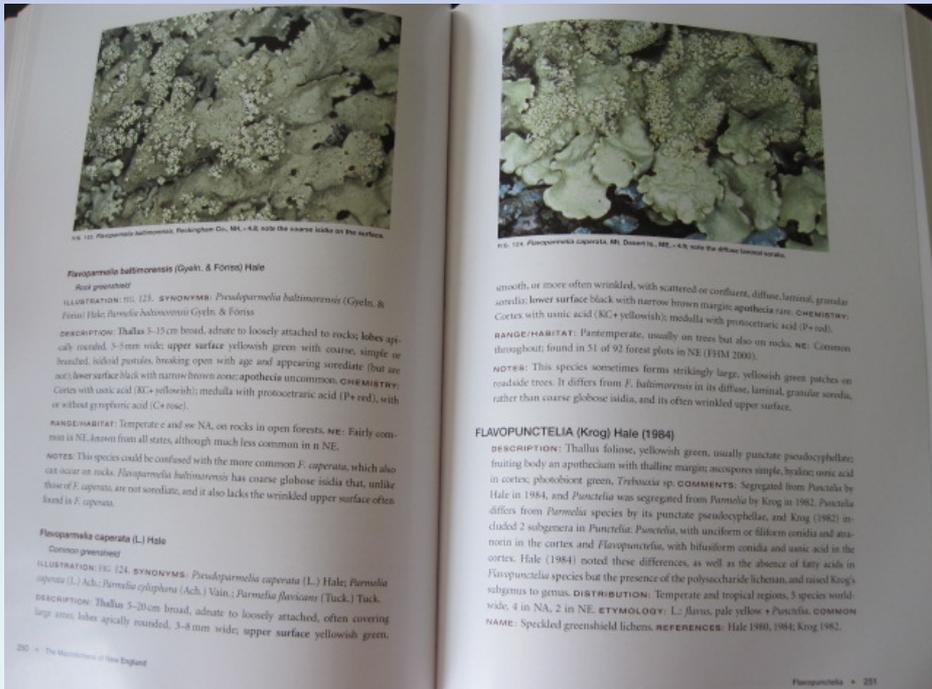
Lichen ID

- A challenge, but you don't have to learn hundreds of species!
- Photograph the common lichens in your sampling area
- Find a local lichen expert to confirm your identifications
- Make photo ID cards for field use by students



Your best ID friend

- James and Patricia Hinds' **The Macrolichens of New England** from The New York Botanical Garden Press, 2007



Equipment Needs?

Kit available on loan from WMNF



Contact rperron@fs.fed.us

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