



Searching for the Forest Primeval.

Discover how research helps in our understanding of how people and forests interact on one another and ultimately change as a result.

A photograph of a forest with many tall, slender trees with white bark, possibly aspens or birches. The trees are densely packed and extend into the distance. The image is split vertically by a black bar in the center, which contains white text.

Does anyone have
a favorite tree?

What is our relationship to
trees or forests?



Paper Products

FIRE

Water purification

OXYGEN

Porcupines

CLIMBING

Music

HABITAT

Building Supplies

Sense of Wonder

Seasons

SHADE

Climate History

Clues to the past

FRUIT

S'mores

Homes

SHADE

NUTS AND SEEDS

ART

Beaver Cider

Syrup

WORK SOLITUDE





Indian Encampment, Bar Harbor , 1889

Maine's Native People: the Wabanaki



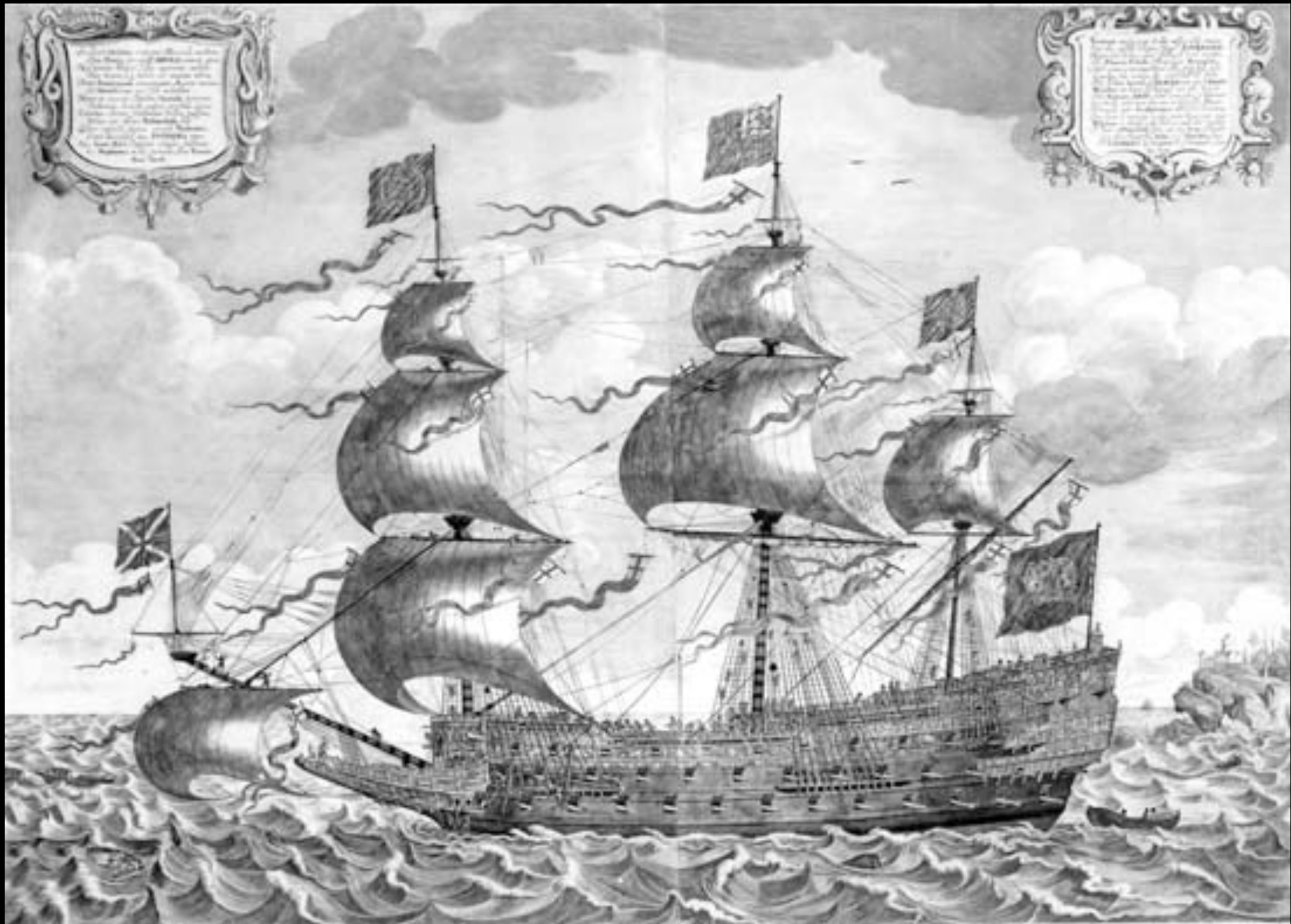
Wigwam at Sieur de Mont



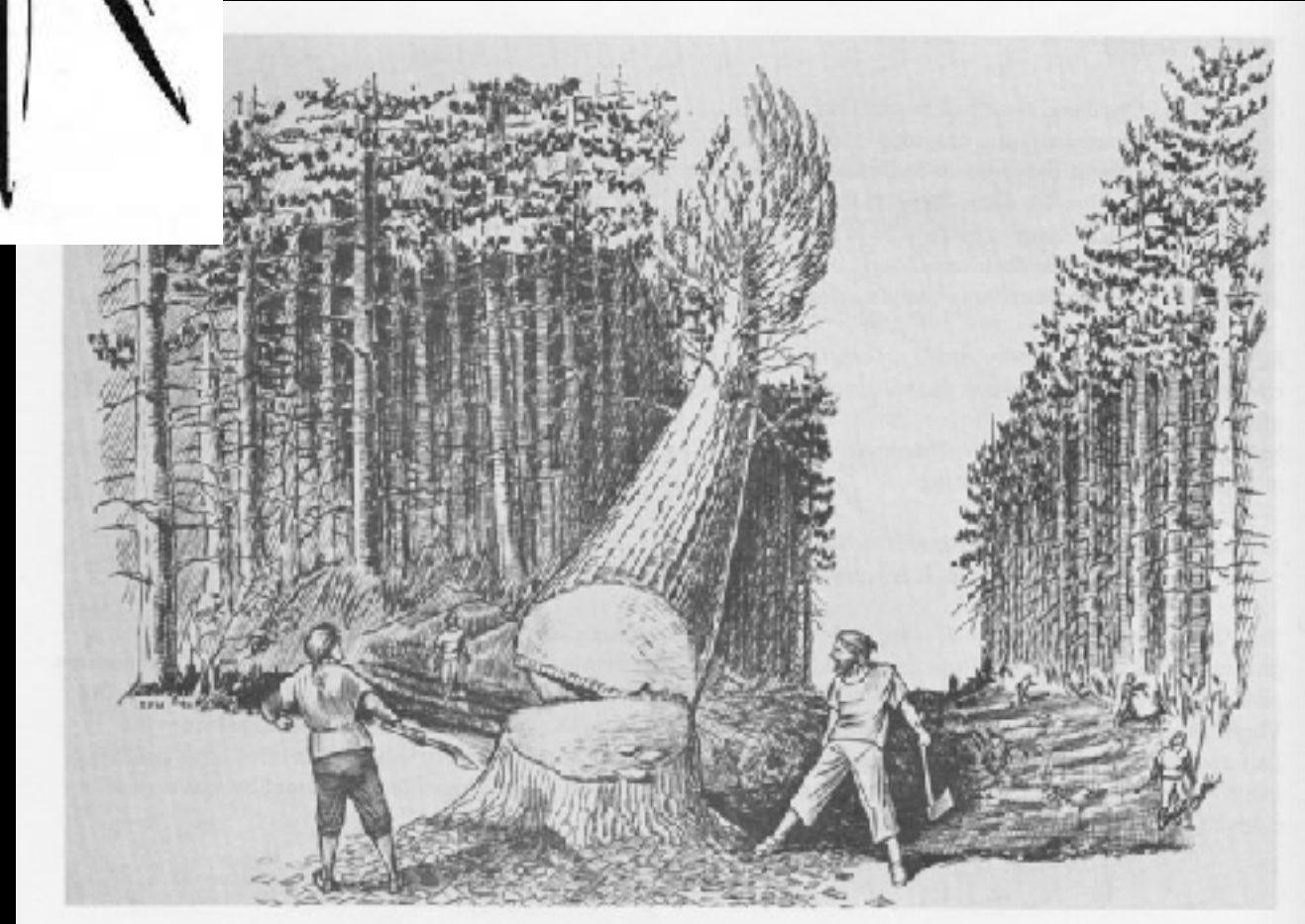
David Moses Bridges, Passamaquoddy
and Steve Cayard



Fred Tomah Maliseet
Cultural ConnectionL 8/16/17



Sovereign of the Seas launched in 1637.
Contemporary engraving by J. Jayne



Illustrations of The King's Broad Arrow and Felling a Mast Tree
From the book, *New England Masts and the King's Broad Arrow*

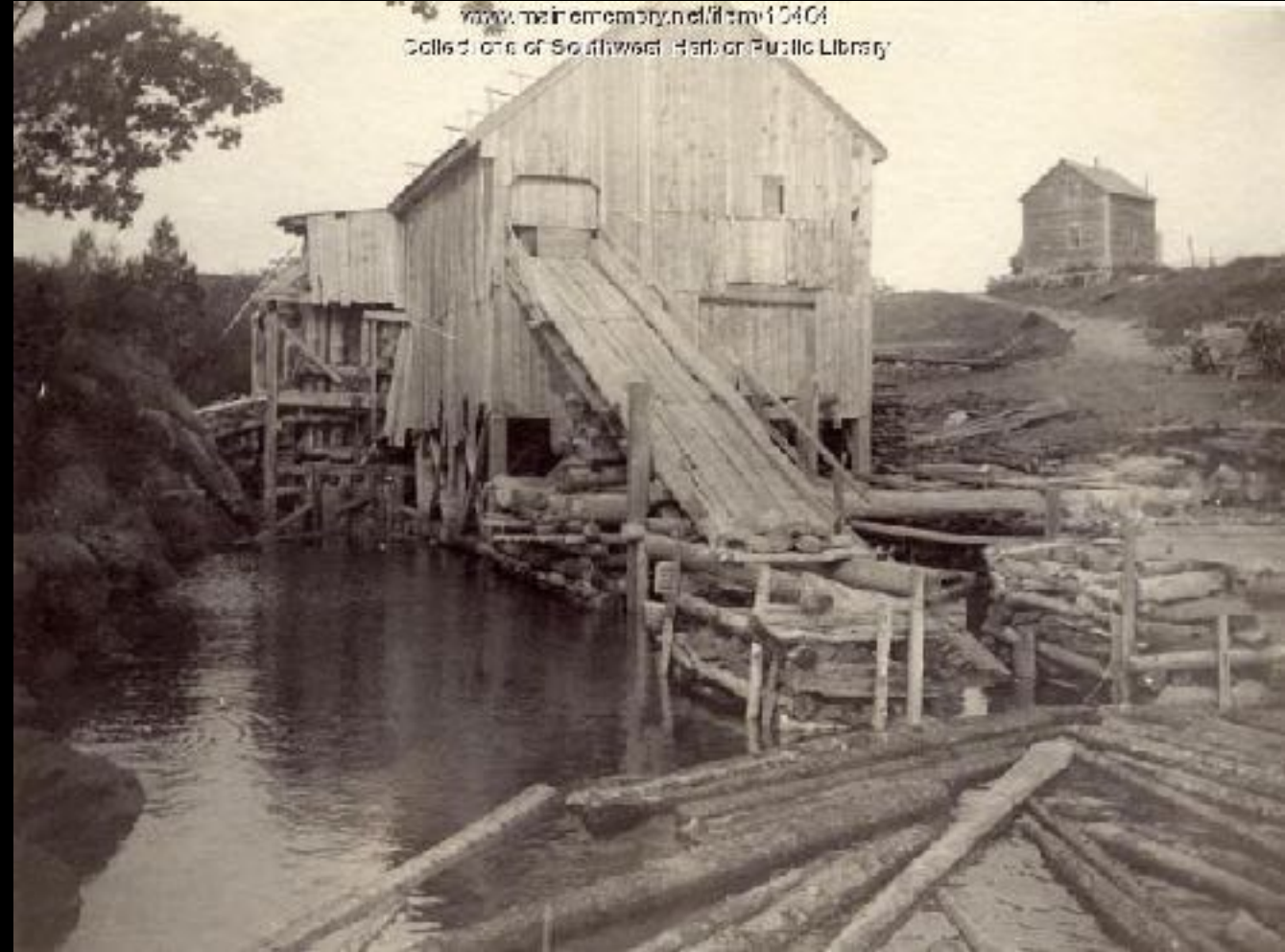
*24 inches in diameter 10ft from the ground

www.maineemory.net/film/524
Collections of Patten Lumbermen's Museum



Logging, Maine Woods,
c.a. 1900

www.maineemory.net/film/15404
Collections of Southwest Harbor Public Library



Higgins Saw Mill,
Sommesville, 1890

“I went to the woods because I wished to live deliberately, to front only the essential facts of life, and see if I could not learn what it had to teach, and not, when I came to die, discover that I had not lived.”

Henry David Thoreau, *Walden*, 1854





The Beeches
Asher Brown Durand
1845



Fog off Mount Desert, Frederick Edwin Church, 1850



Champlain Society, 1881

Champlain Society: 1880s



Members of the Champlain Society
at work on their "specialties" 1881

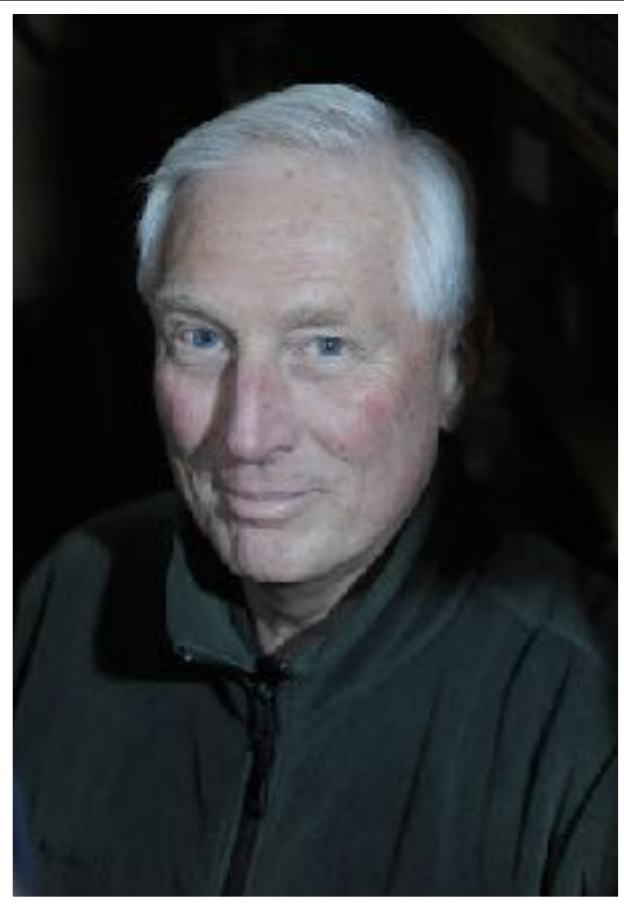


Champlain Society holding instruments of their studies:

Left to right: Sam Eliot (meteorology), unidentified, Wakefield, Charles Eliot (captain of the yacht), **Edward Rand (botany)**, Orrin Donnell, Dewitt



Dr. George Jacobson: University of Maine Orono:
Climate Change Institute: School of Biology and Ecology



“Once I discovered the dynamics revealed by paleoecology, I became fascinated by how the natural world has been undergoing almost continuous change.”

Types of coring

Ice Coring



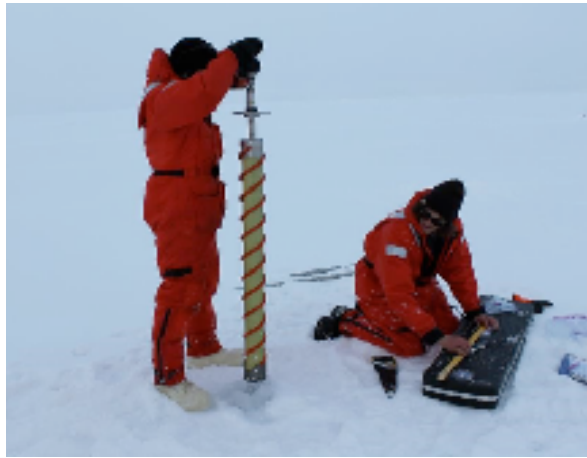
Lake Bed Coring



Bog Coring



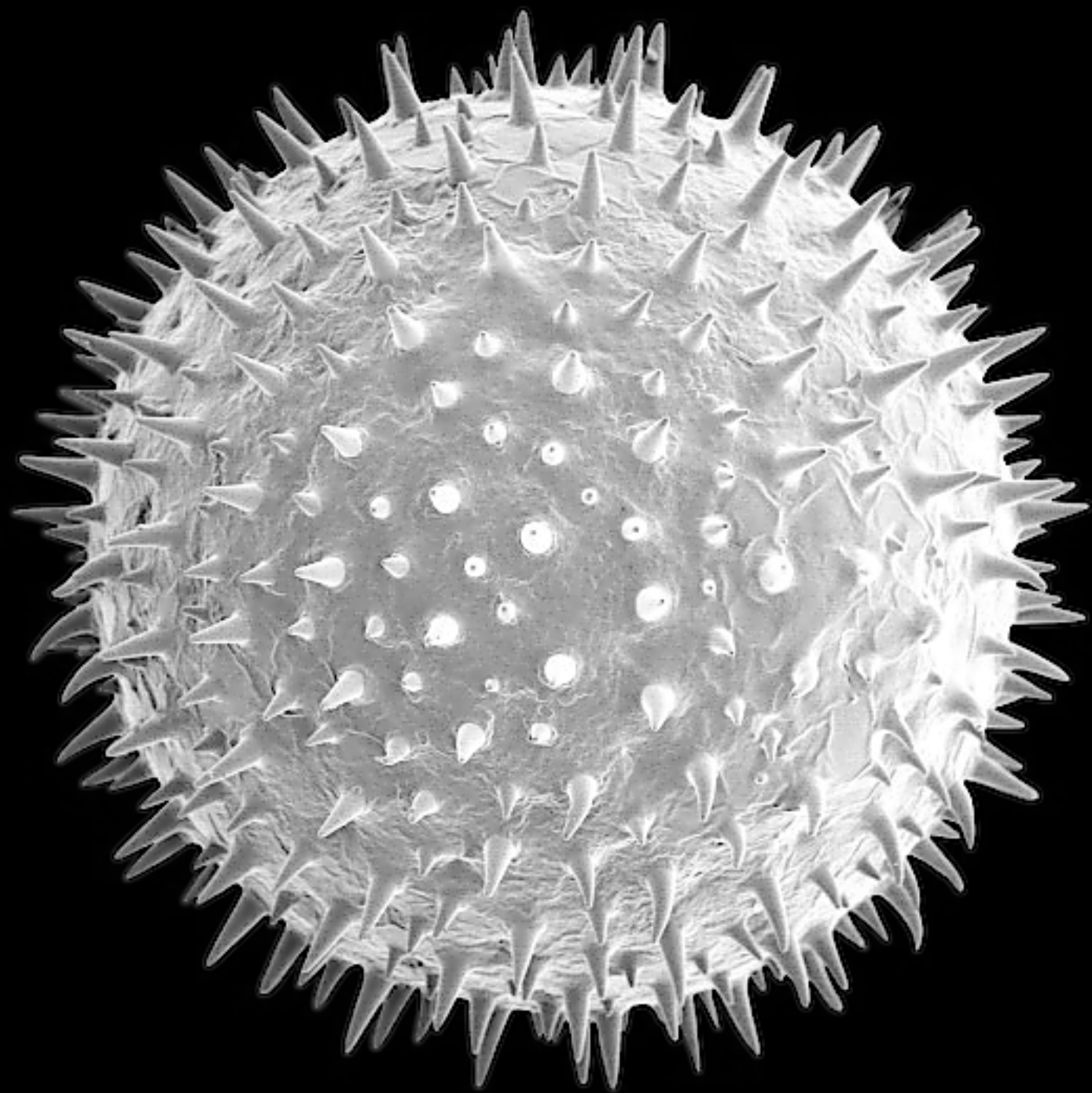
Rock Coring

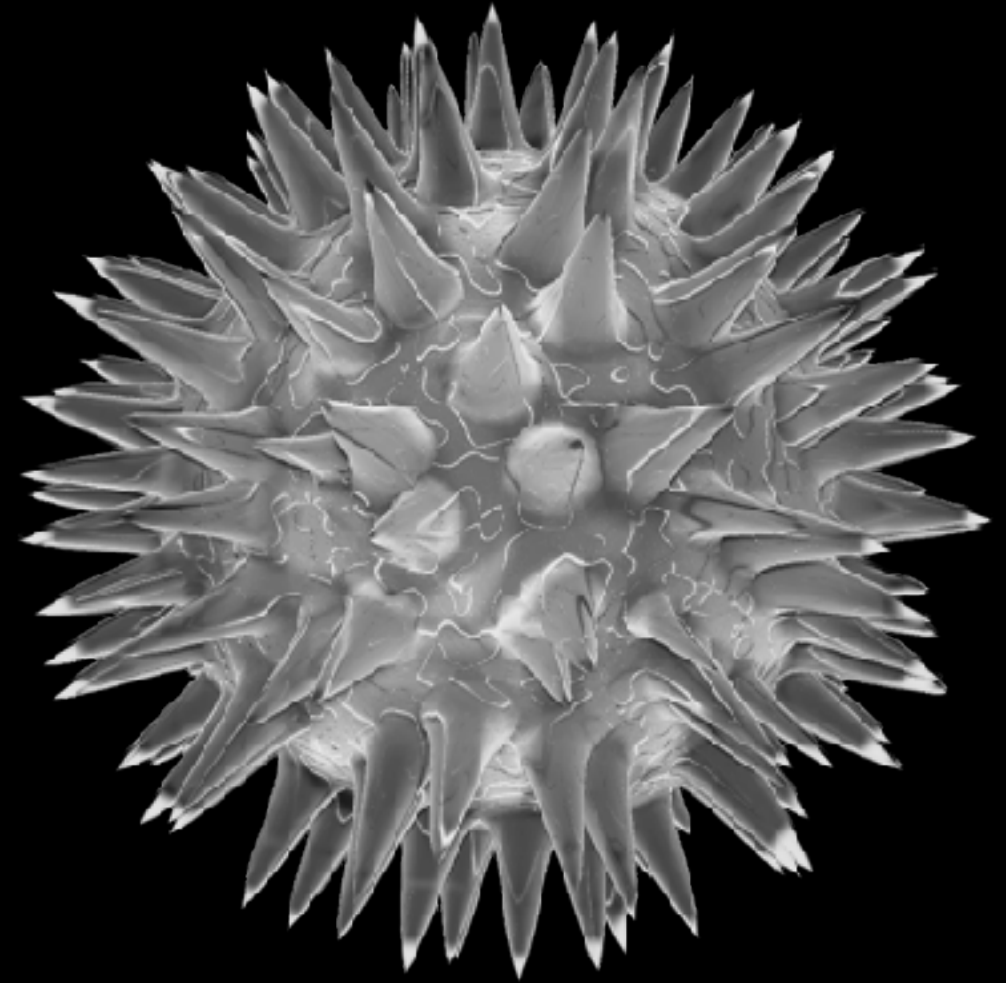
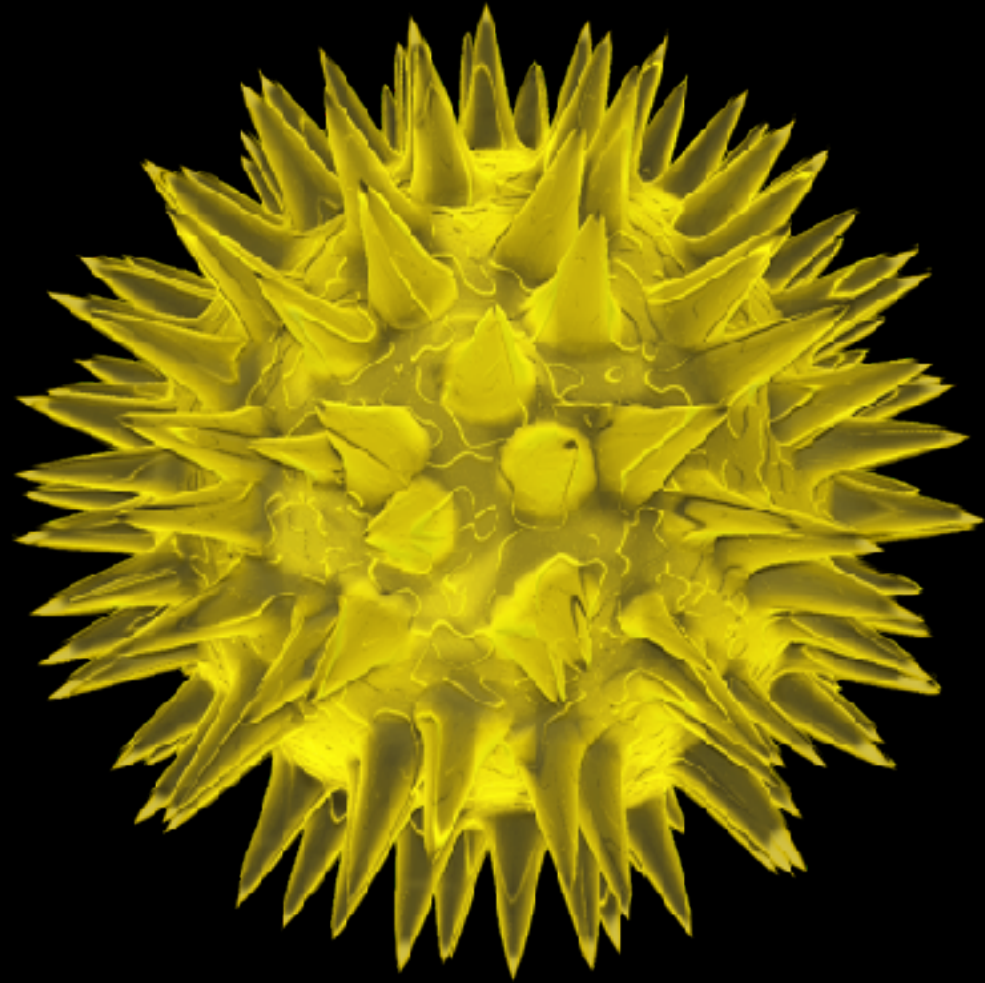




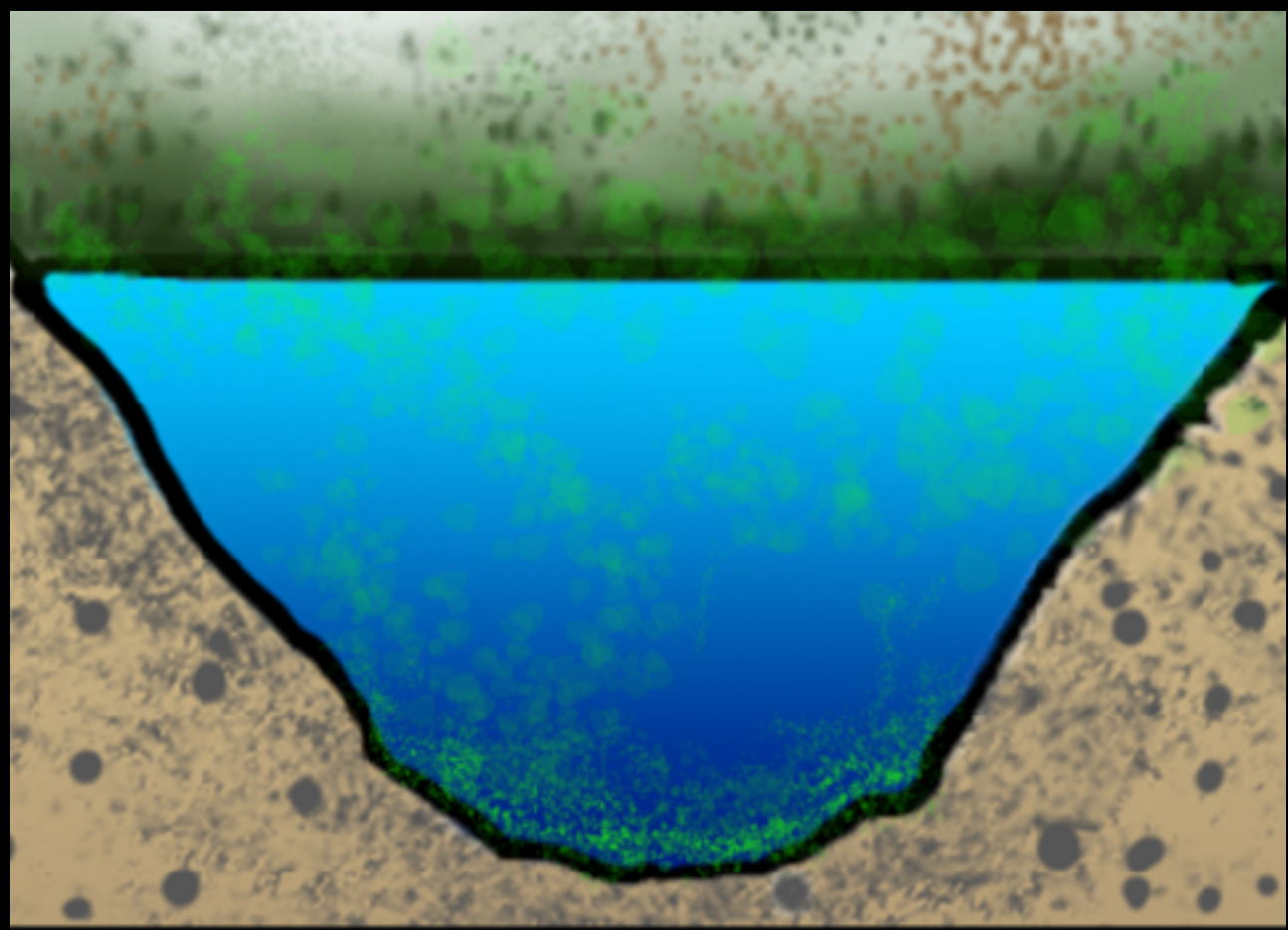
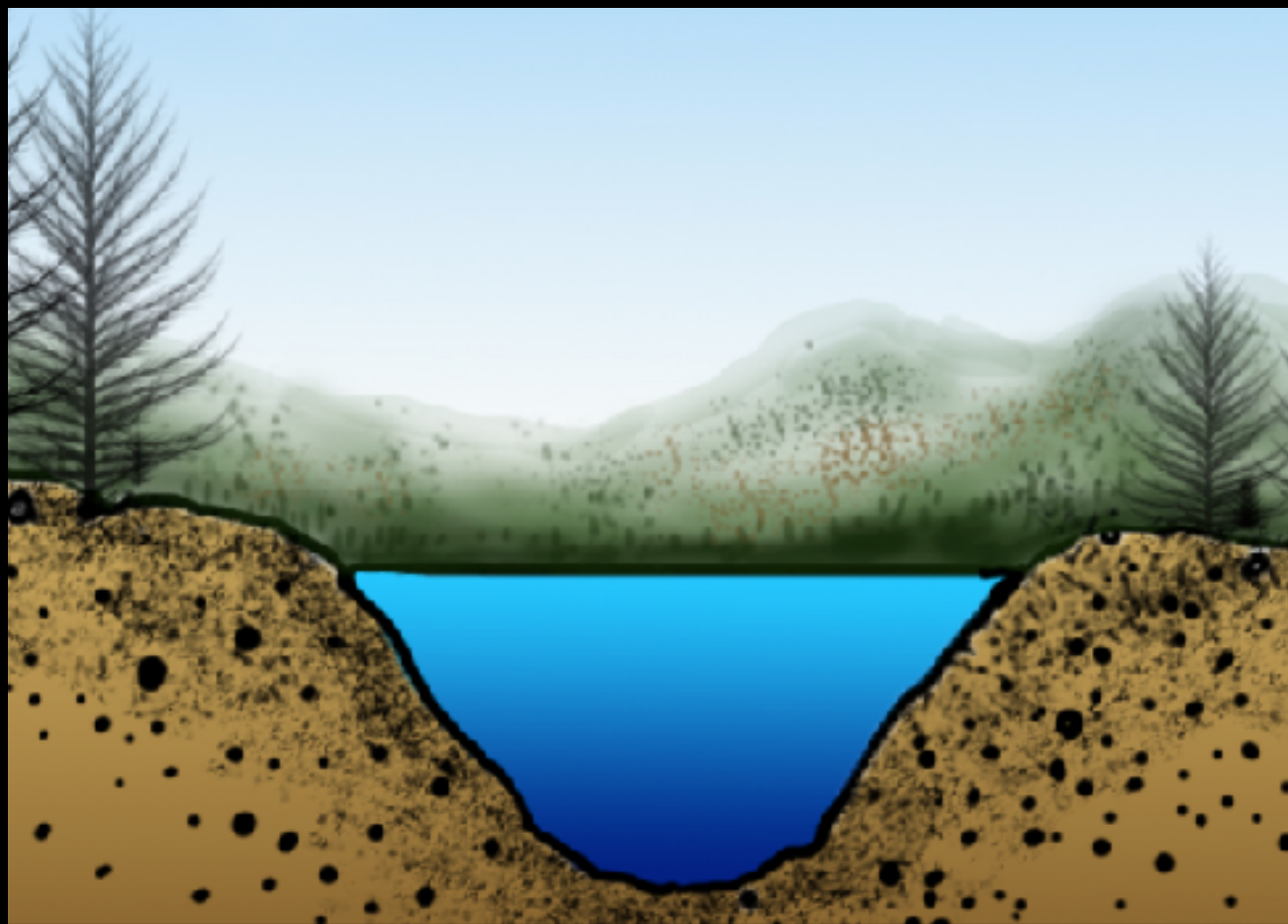
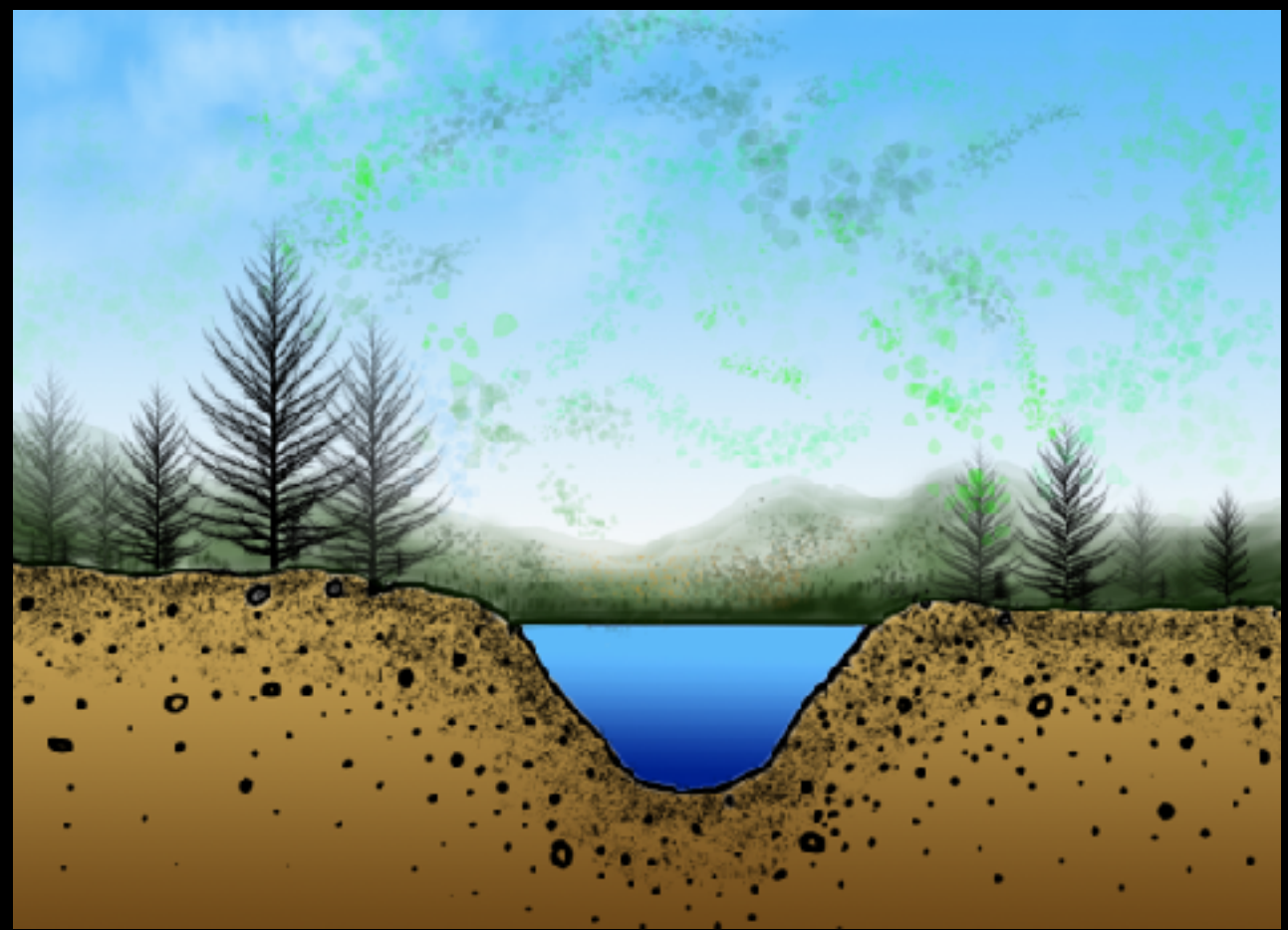
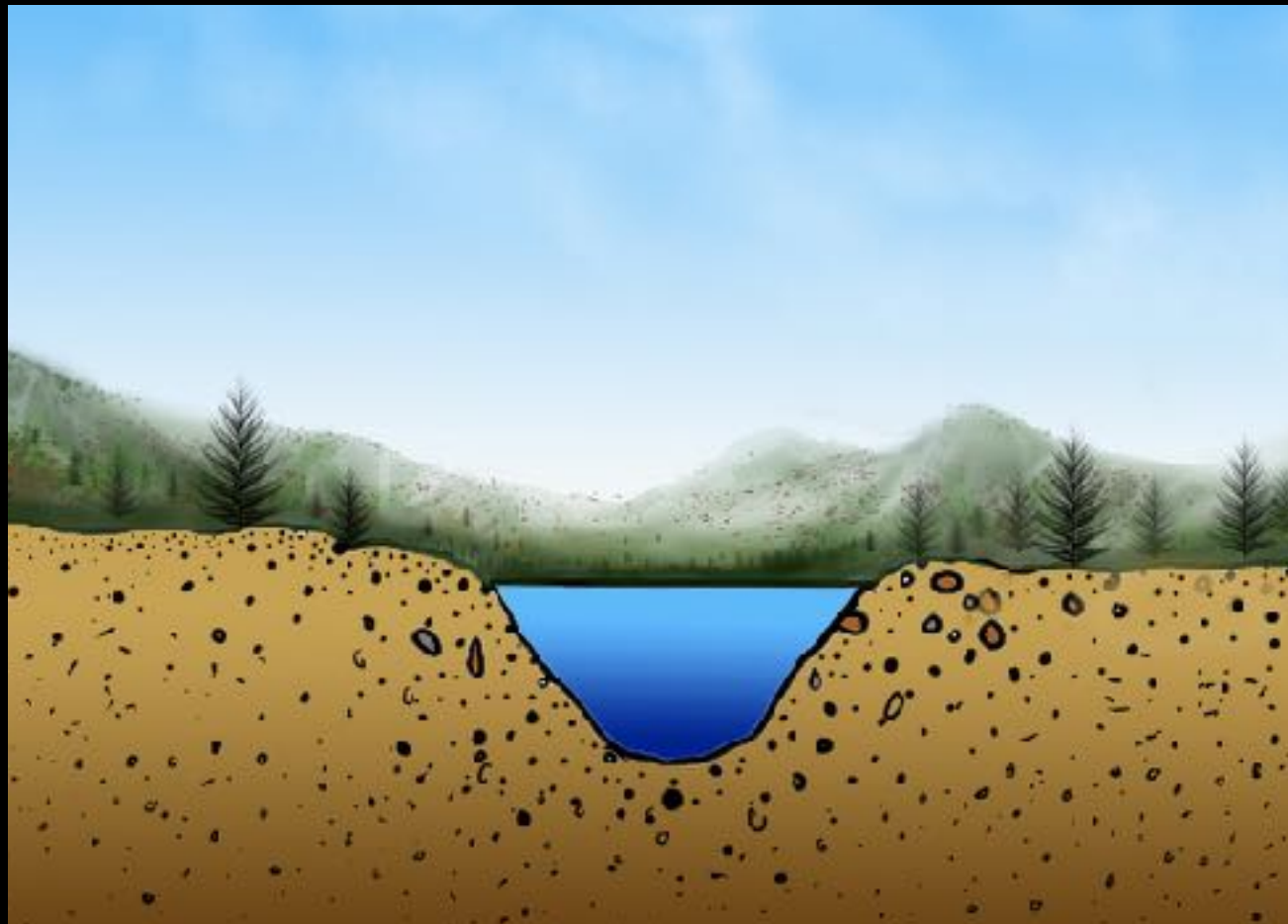


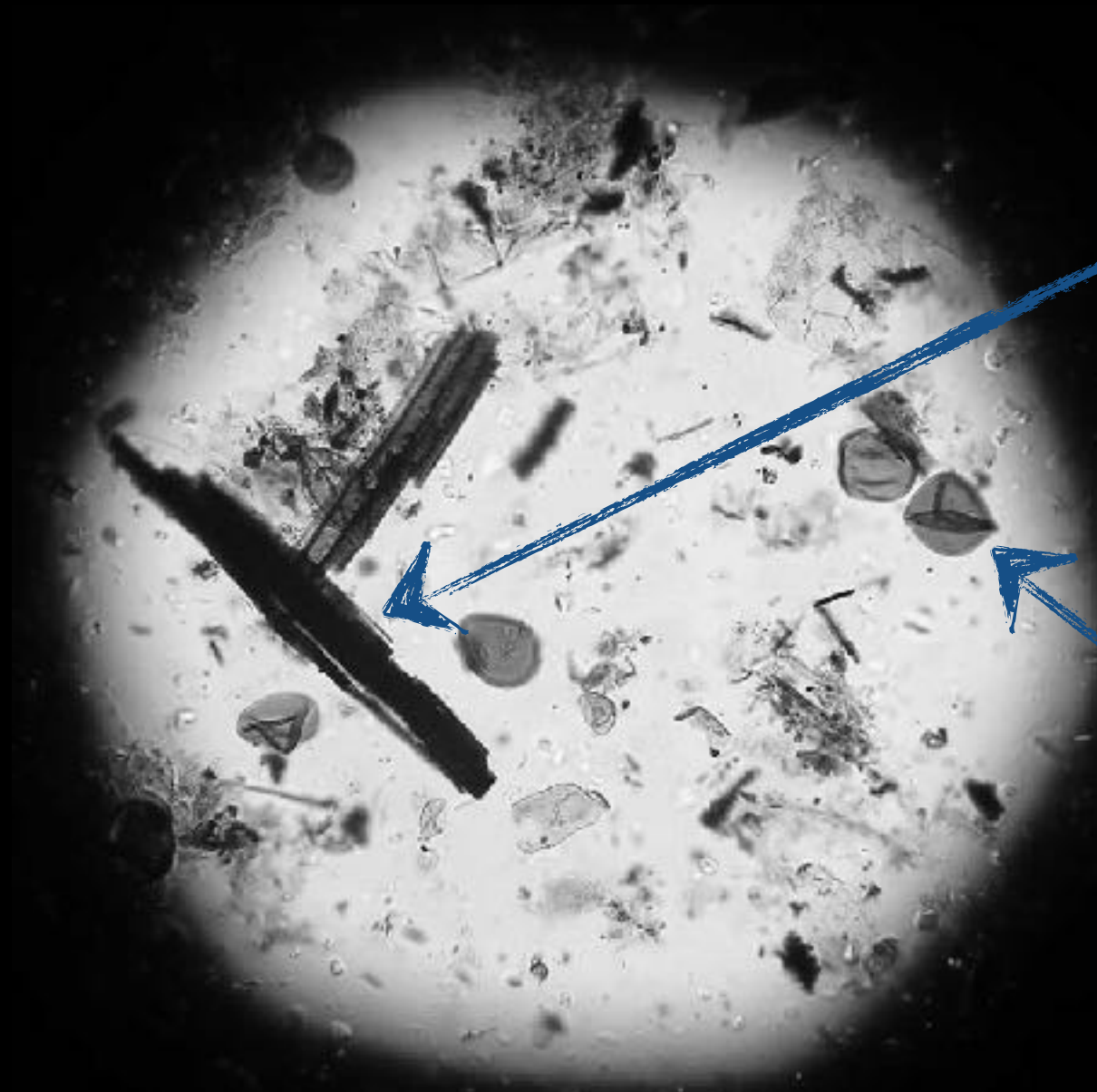
Coring at Sargent
Mountain Pond:
March 2007





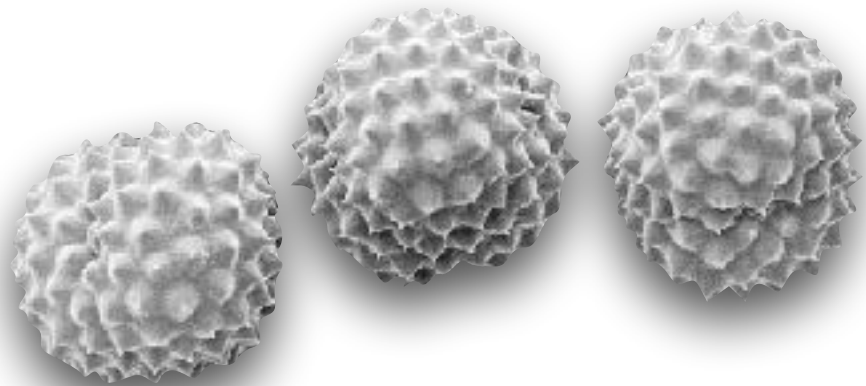






Charcoal

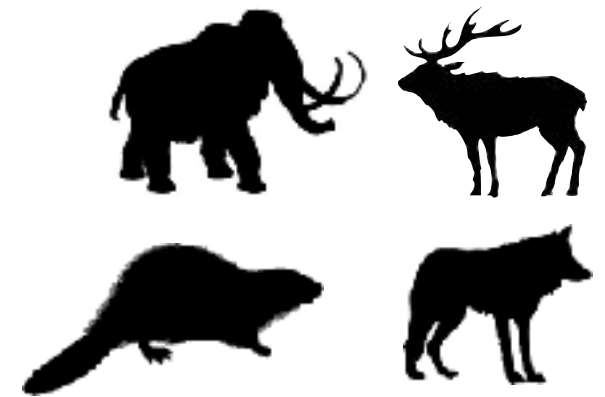
Pollen



Pollen Shows plant life*

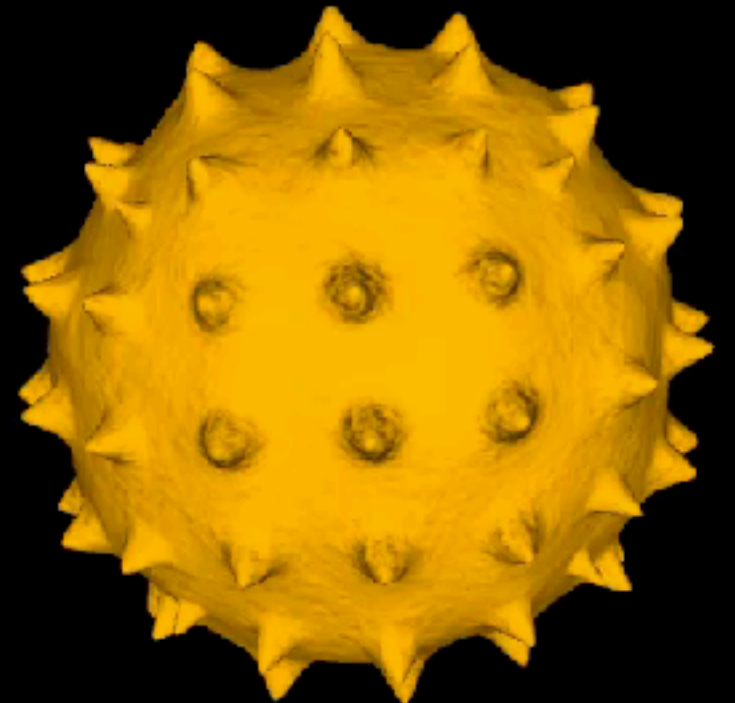
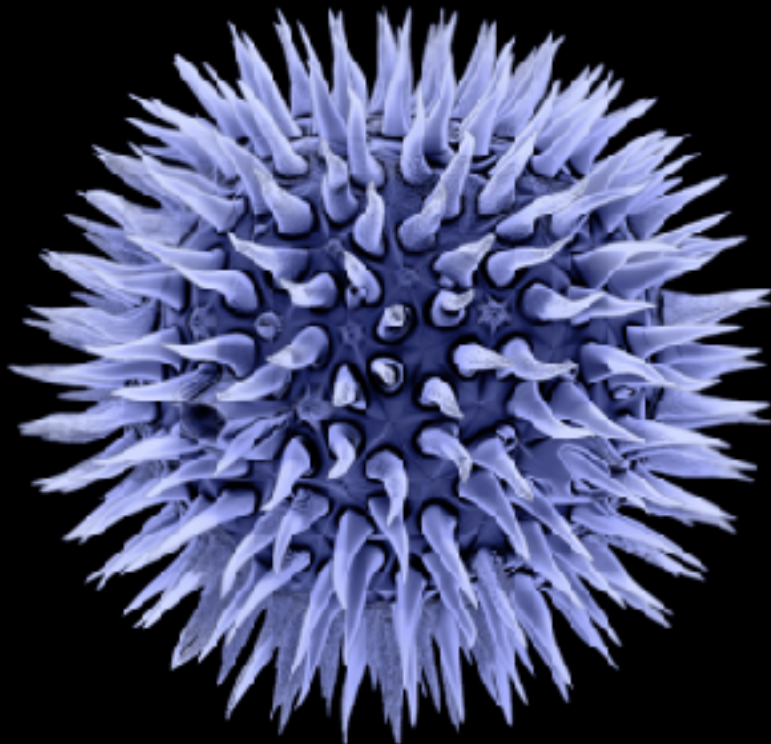
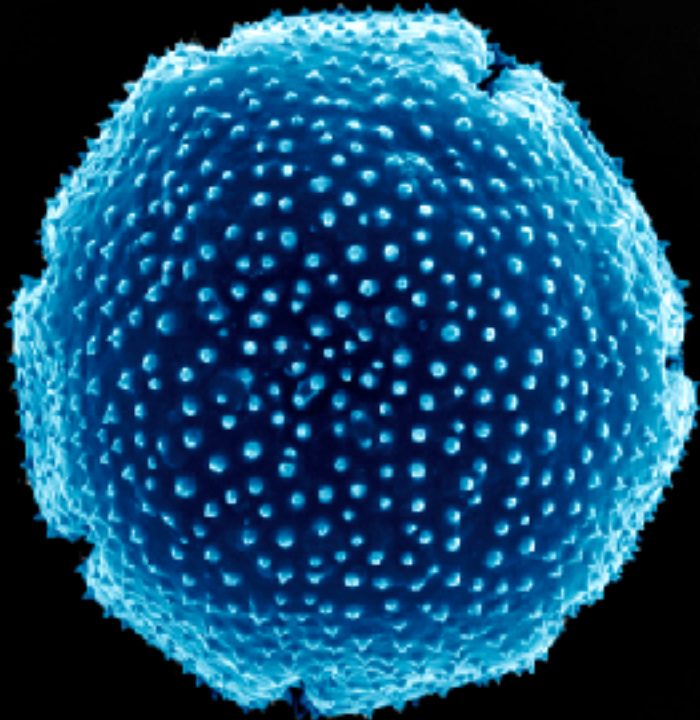


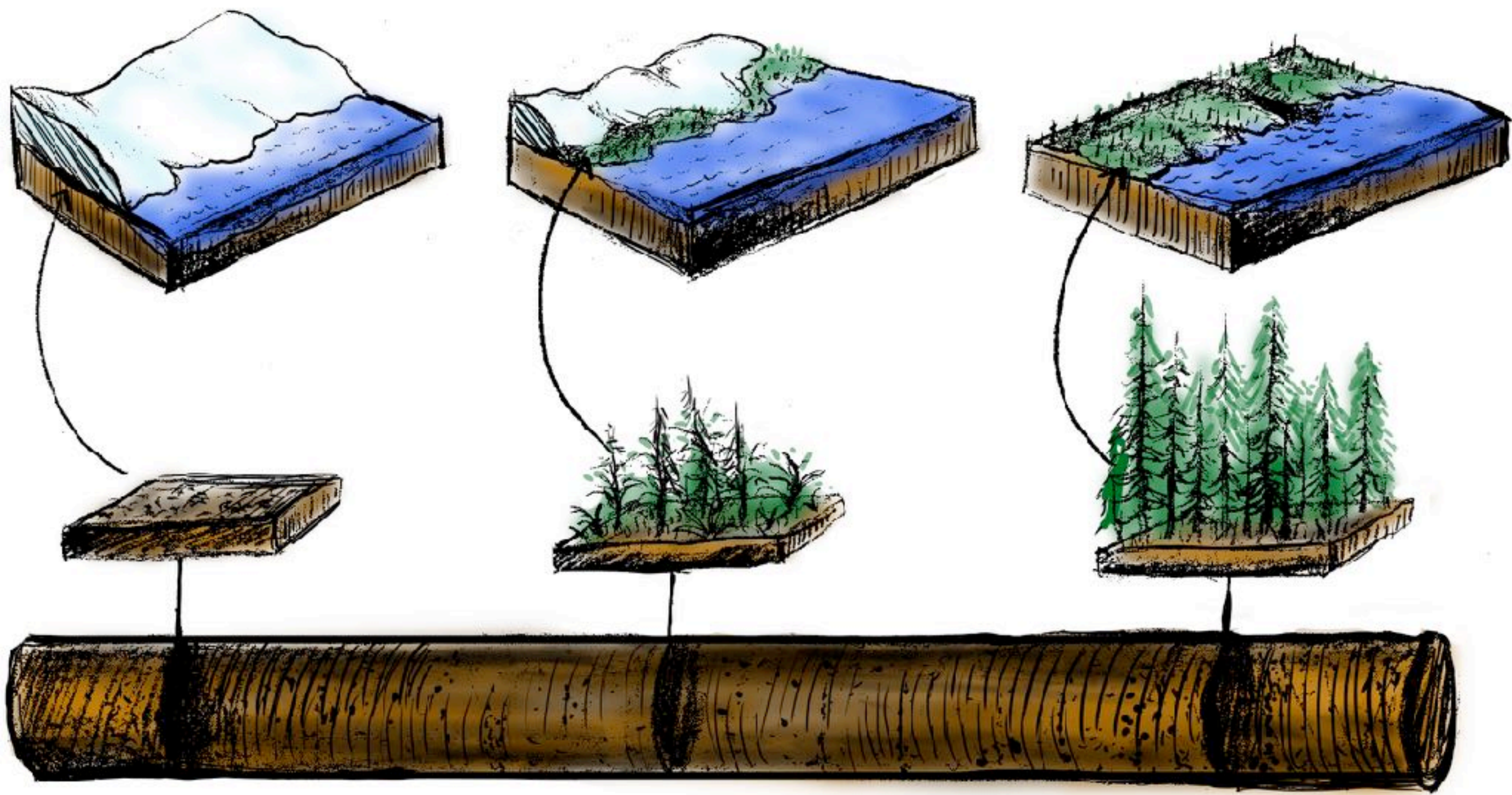
Fungus Spores show mammals



Charcoal shows fire









Primary Succession



Have the spruce-fir forests of Northern and Eastern Maine always been the forest primeval?

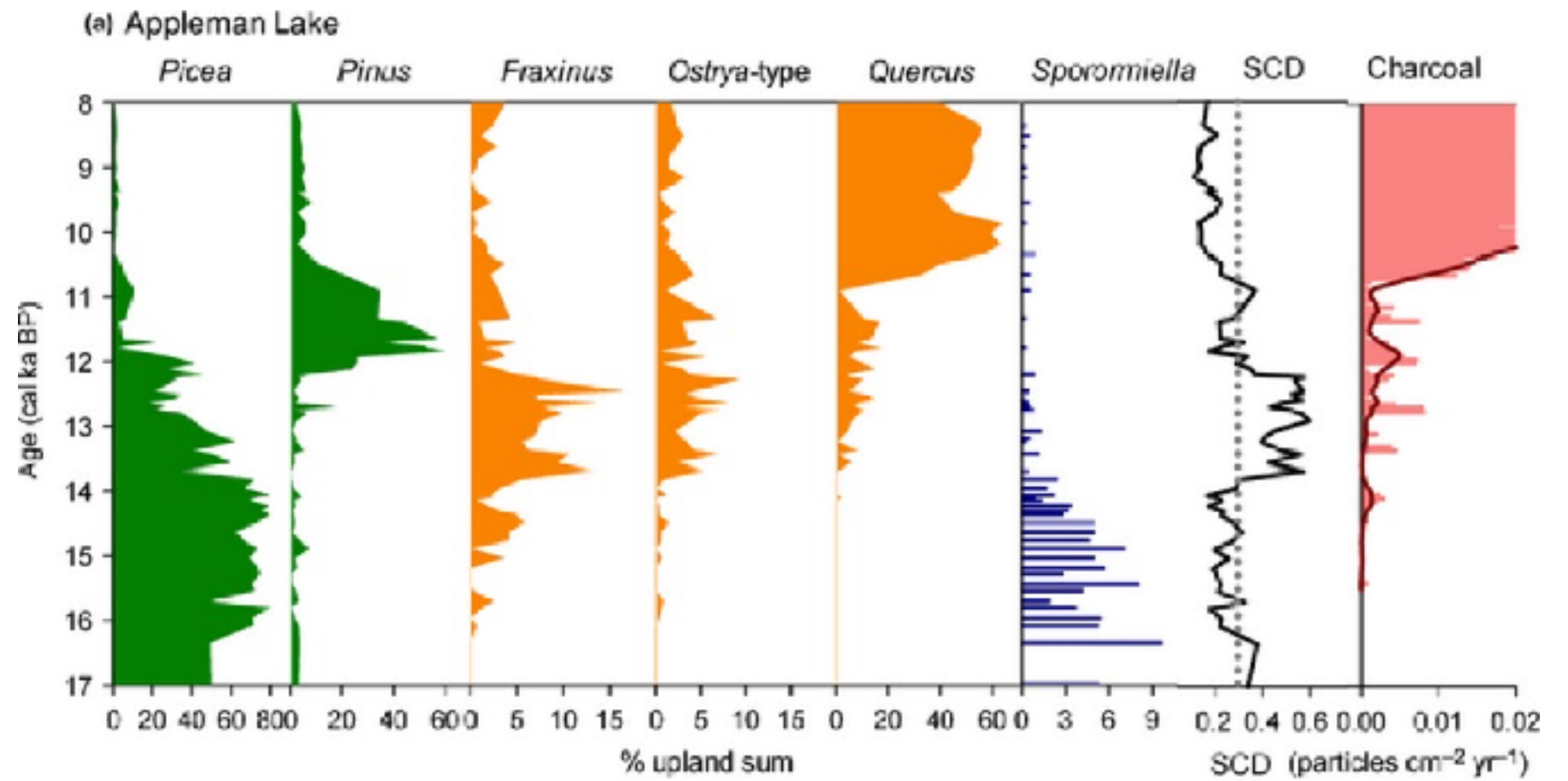


Spruce Tree



Oak Tree





Picea: Spruce

Pinus: Pine

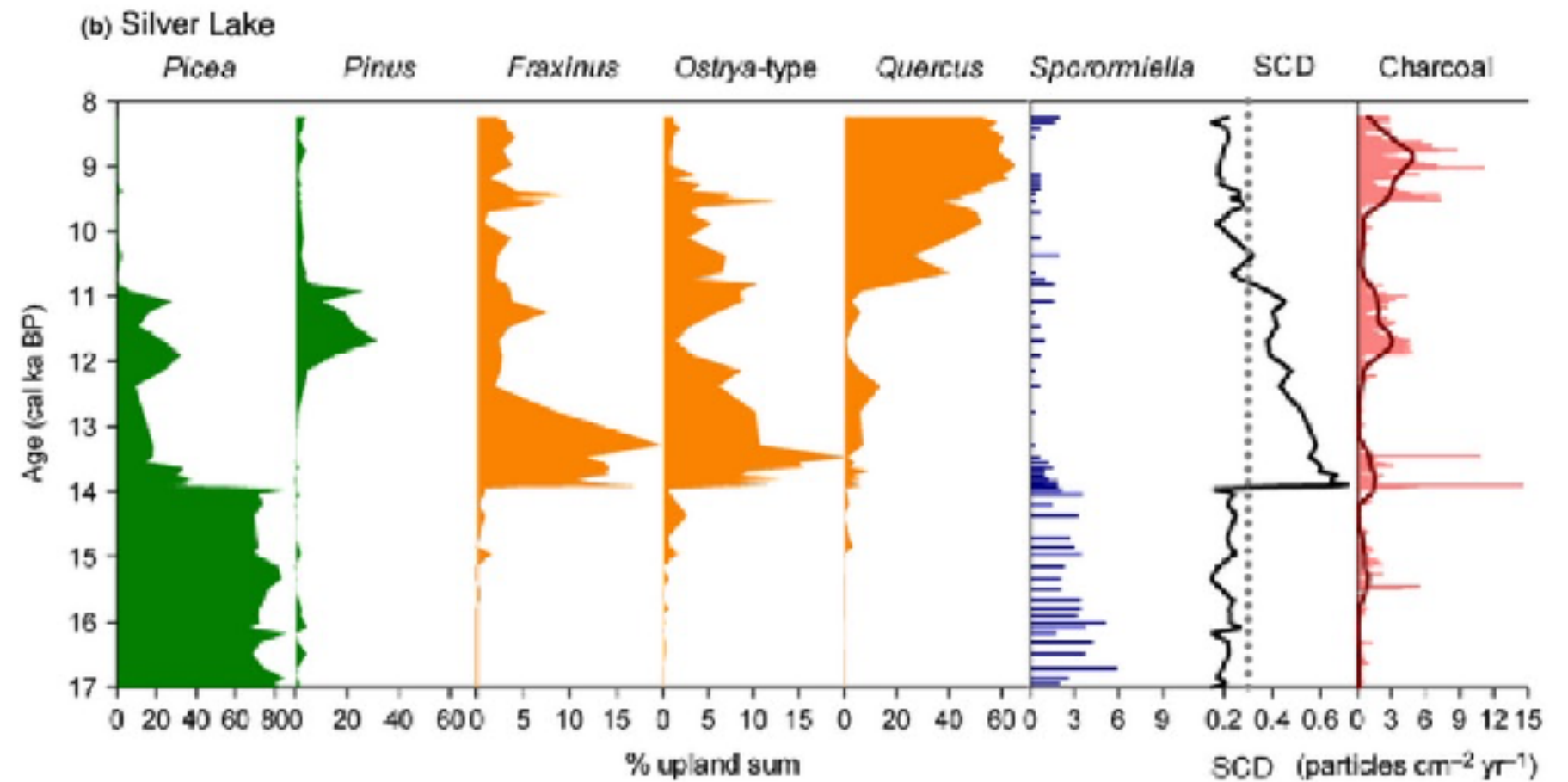
Quercus: Oak

Fraxinus: a genus of flowering plants in the olive and lilac family

Ostrya-type:
Ironwood

Sporormiella: Fungus

SCD: Minimal Dissimilarities





Tree coverage, 19,000 Years ago

21,000BP

5,000BP

Jack Pine



Found:
Schoodic and Cadillac

What does the primeval forest tell us?

- Nature changes, sometimes a lot, sometimes very fast.
- Climate change dramatically alters the abundance and distribution of species across the landscape.
- However, other environmental factors can play important ecological roles, including human factors.

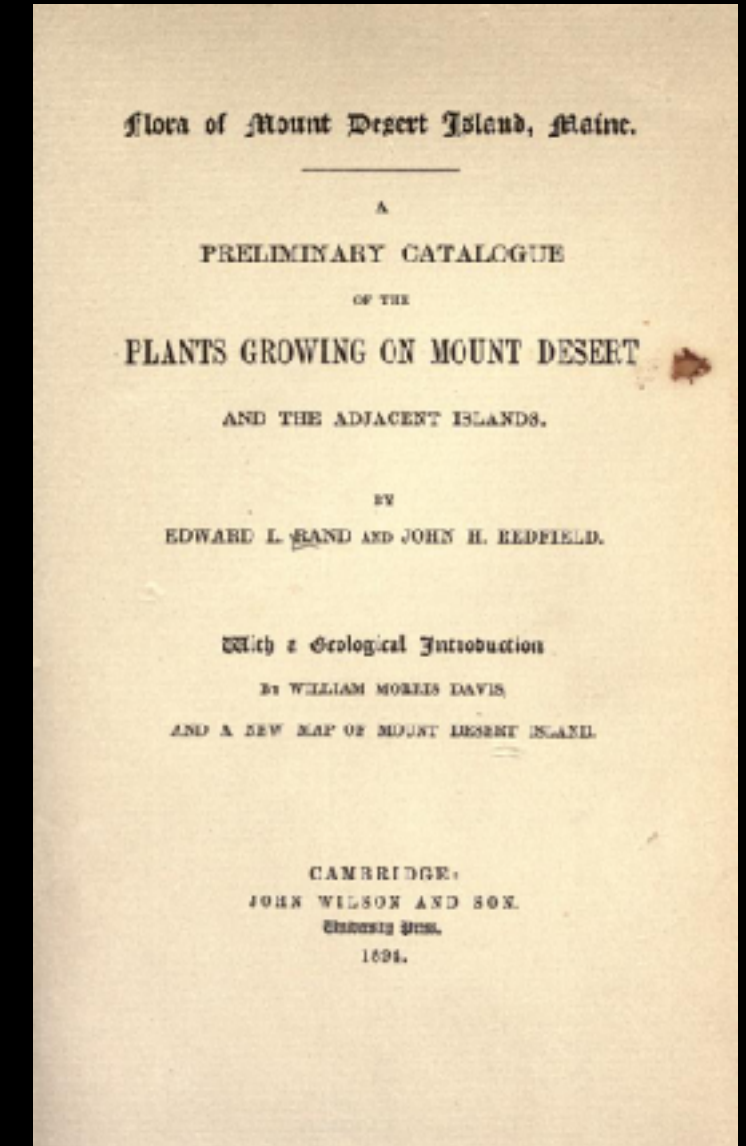
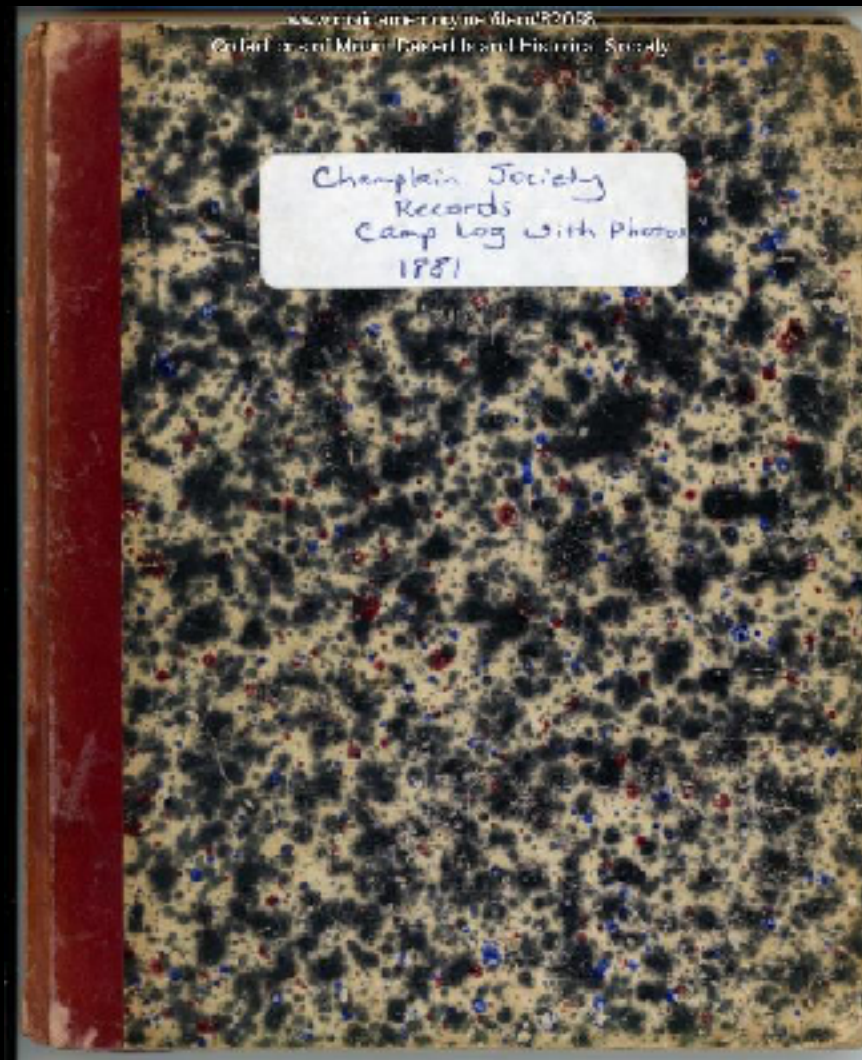


Caitlin McDonough Mackenzie, Ph.D, Plant Ecology and Climate Change Research



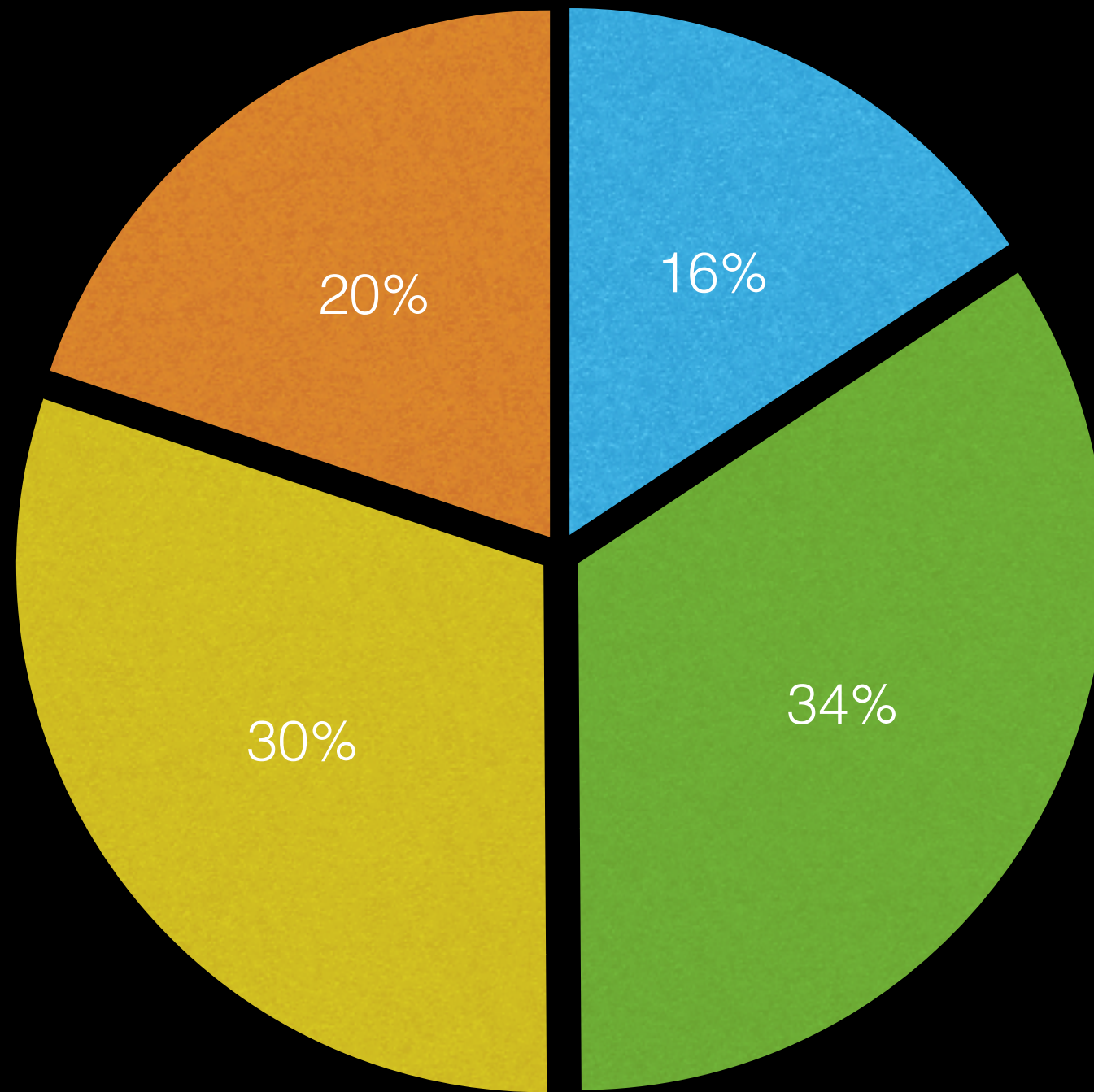
Is change currently happening to Acadia's
flora?

Using Historical Resources



Monday, July 21st 1884 - "Rand went on a botanical expedition to Cedar Mt. Swamp, finding a great many specimens of black flies."

Of the 680 species recorded by Rand in 1894:



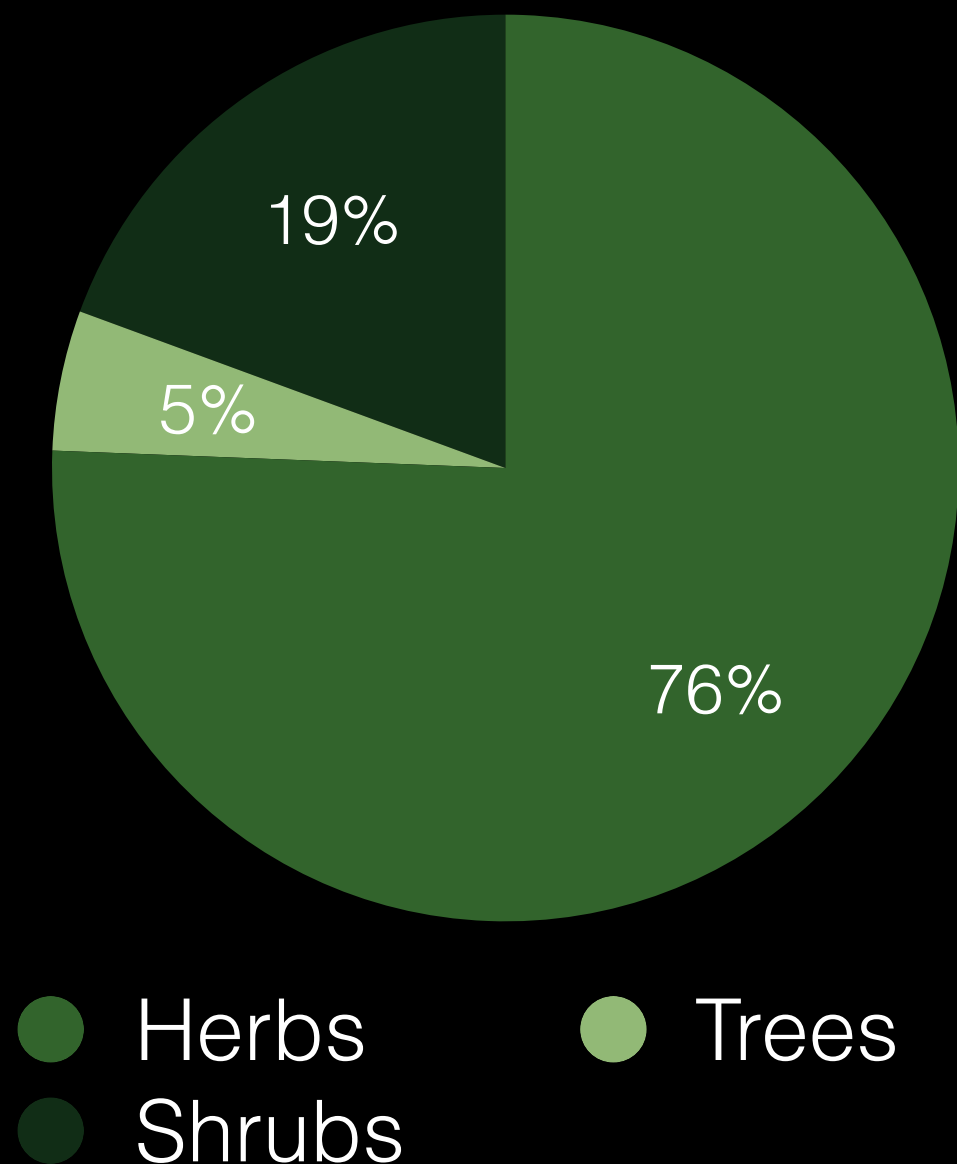
- No Longer on MDI
- Declined in Abundance
- No Apparent Change in Abundance
- Increased in Abundance

New Species:

Flora of MDI: 829 vascular plant species recorded in 2010
of these 205 were new arrivals since Rand's flora and
addendum

New Tree Species:

- Red Spruce (Native)
- Jack Pine (Native)
- Sugar Maple (Native)
- Gray Birch (Native)
- Green Ash (Native)
- Scots pine (Nonnative)
- European Mountain Ash (Nonnative)
- Big-leaved Linden (Nonnative)
- Little-leaf Linden (Nonnative)
- Norway Maple (Invasive)



What is causing the change to the plant communities and the forests?



Nick Fisichella, Ph.D., Forest Ecology Director
Schoodic Institute



Tree migrants and refugium potential of Acadia National Park



12 x 12 test beds to watch how seedlings respond to a variety of factors over three years.

*refugium = an area in which a population of organisms can survive through a period of unfavorable conditions



White Pine Seeds



Red Oak Acorn



Spruce



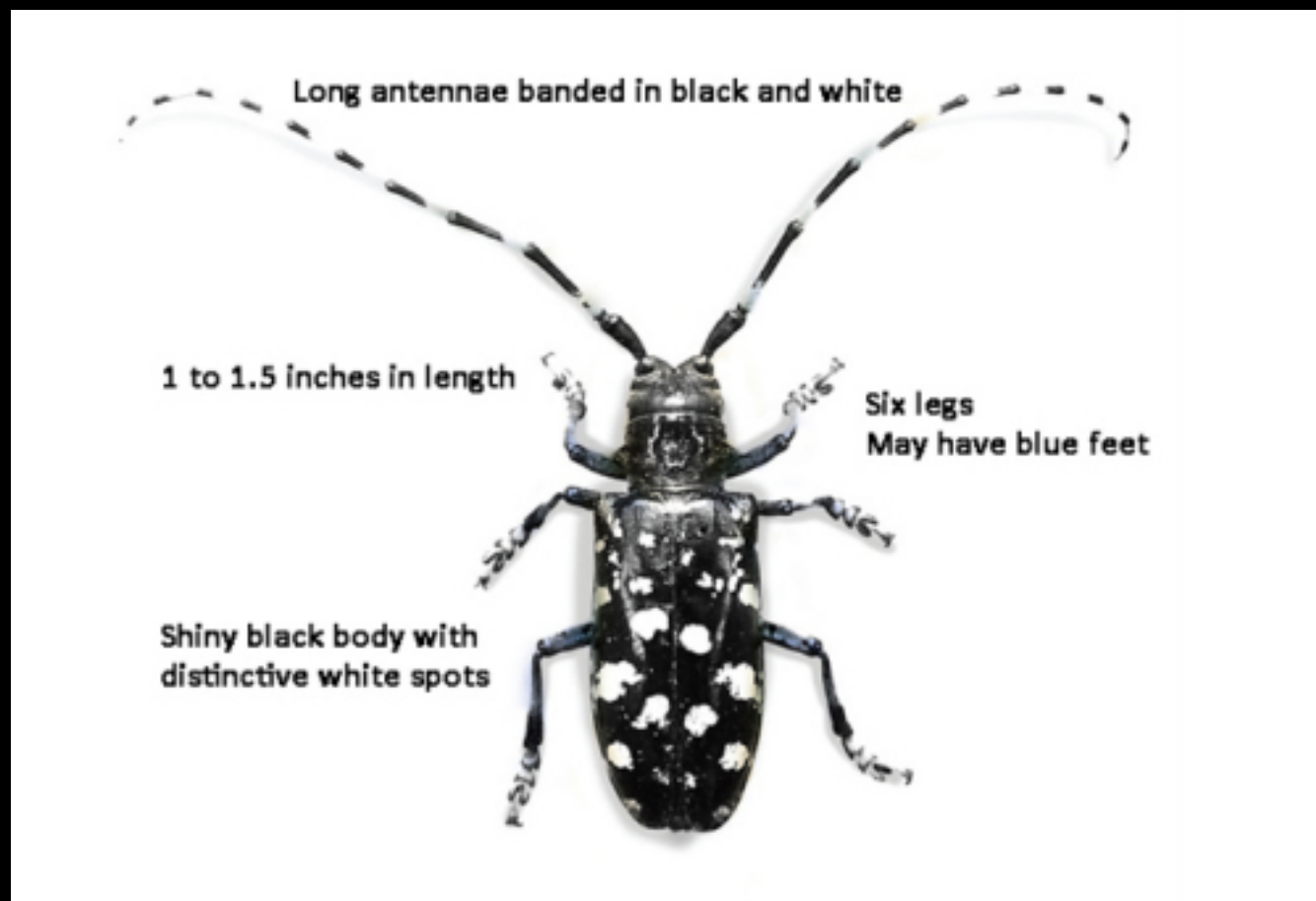
Red Oak



Tuliptree
(Not found in Acadia)

Of these three seedlings, if you were a park manager preparing for the future, what tree species would you focus restoring in the park?

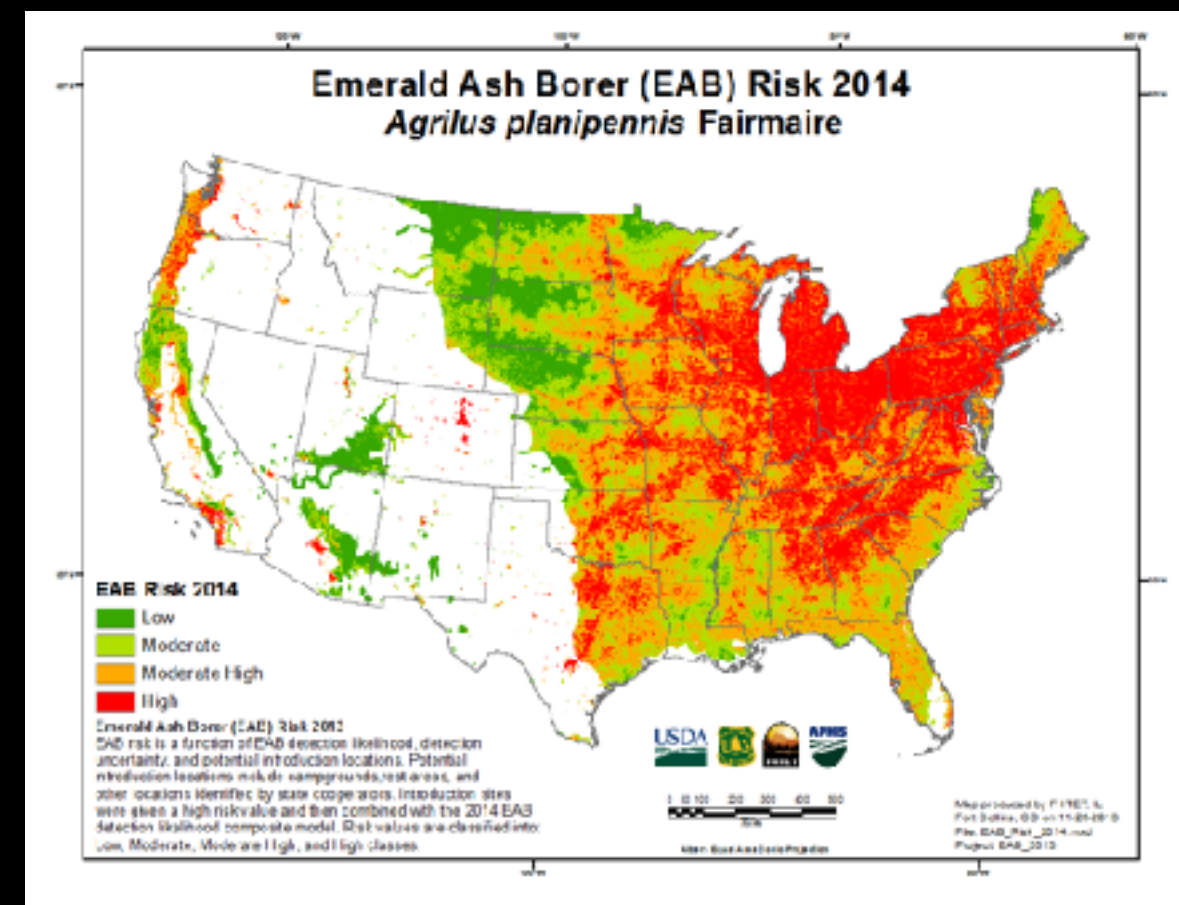
Asian Longhorn Beetle & Hemlock Woolly Adelgid





Emerald Ash Borer:

- Attacks only ash trees
- Introduced 15-20 years ago
- Found in 16 states



HELP STOP THE SPREAD OF INVASIVE SPECIES.

Our forests are threatened by nonnative insects and diseases. Many of these pests can be transported long distances on firewood. Once transported to new areas, these invasive species can become established and kill large numbers of trees and shrubs.

HOW YOU CAN HELP:

When buying firewood for camping or home use:

- Do not move firewood from location to location.
- Obtain firewood from a source local to your home or camping destination.
- Buy or collect only what you will need, and burn responsibly.
- For local firewood providers or information on key questions to ask when buying wood go to www.firewood.ca.gov.

BUY IT WHERE YOU BURN IT.



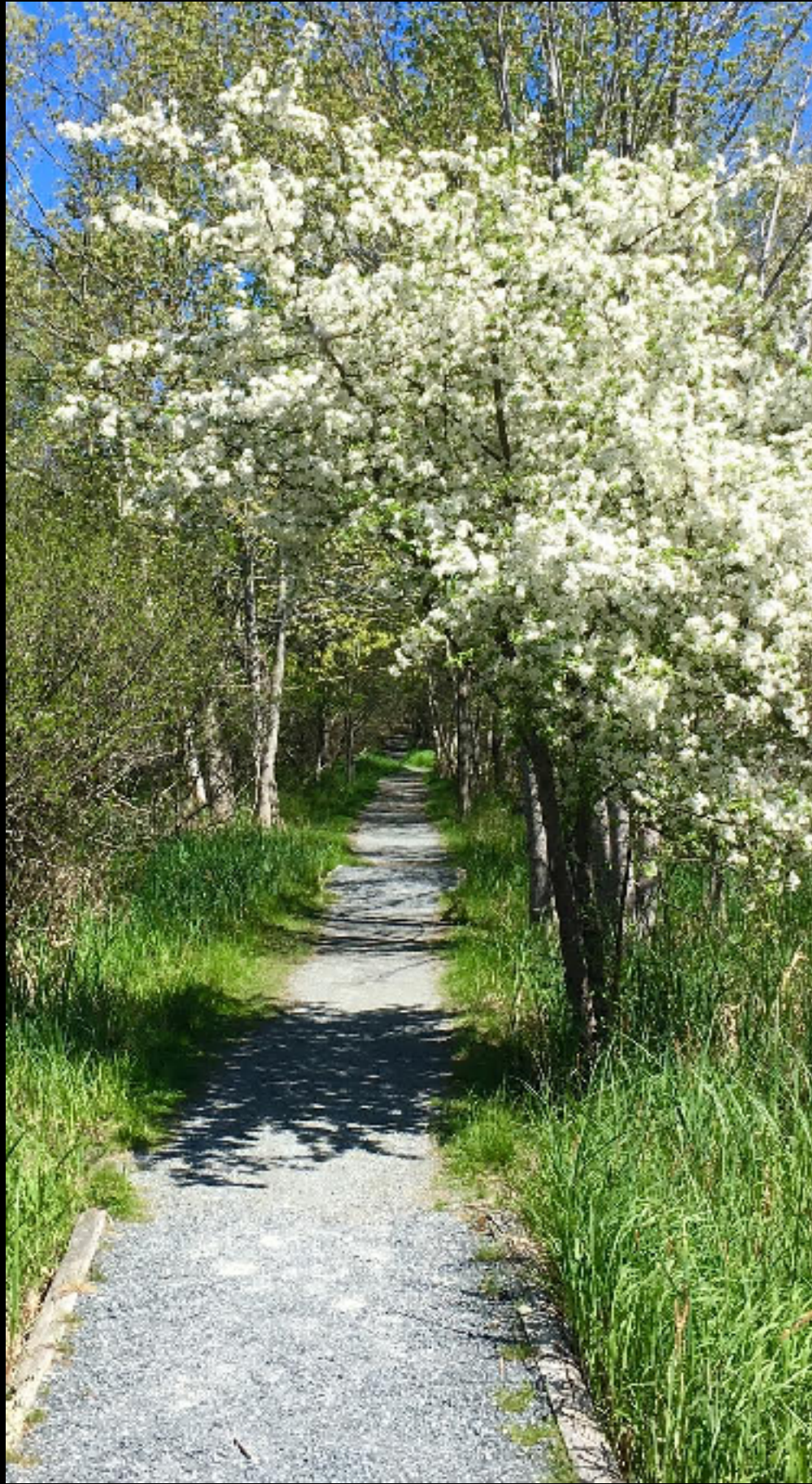
firewood.ca.gov



**DONTMOVE
FIREWOOD.org**











UNLESS someone like you
cares a whole awful lot,
nothing is going to get better.
It's not.

—*The Lorax*



