

Biodiversity in Tropical Rainforests

A photograph of a dense tropical rainforest. The scene is filled with a variety of green plants, including tall trees with thin trunks, thick vines, and numerous ferns. The lighting is bright, highlighting the vibrant colors of the vegetation. The overall atmosphere is one of a lush, thriving ecosystem.

Nalini Nadkarni
University of Utah

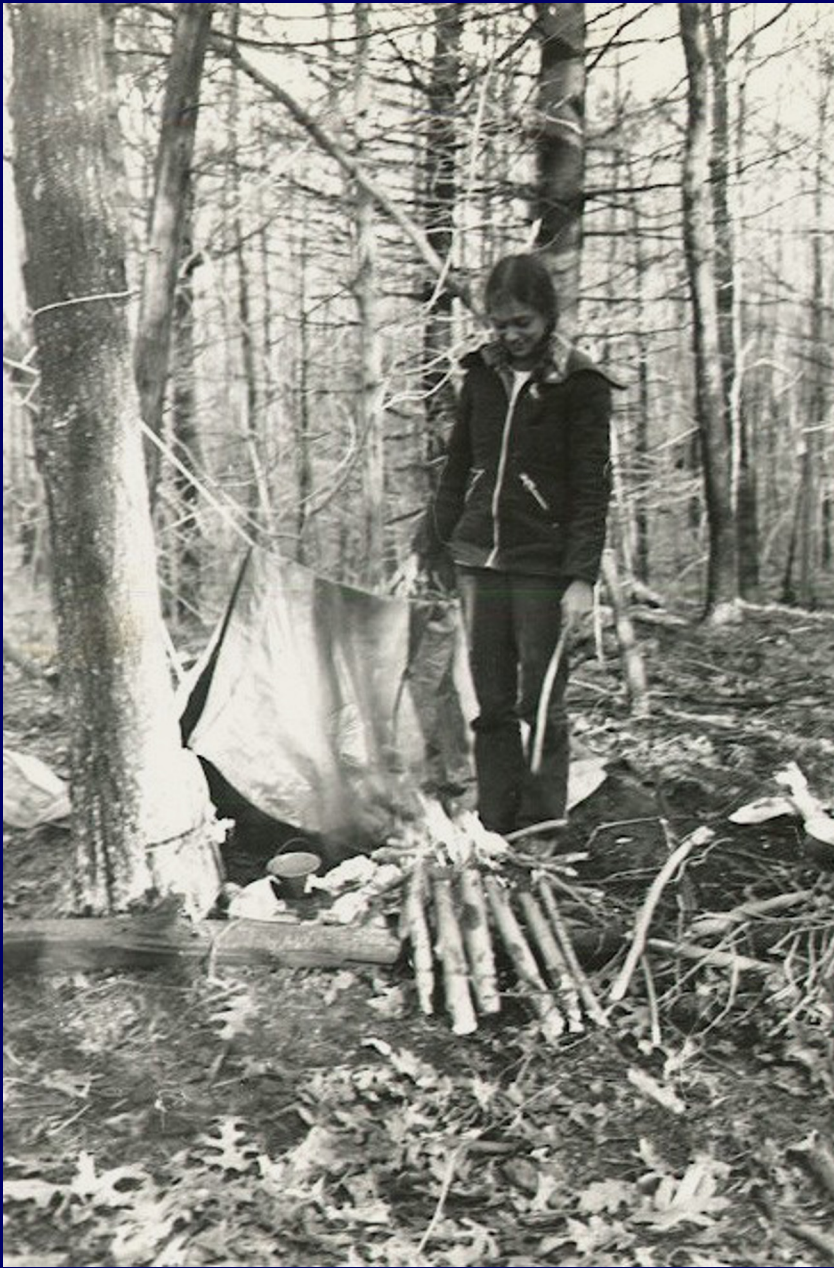


SCIENCE

“SCIO”

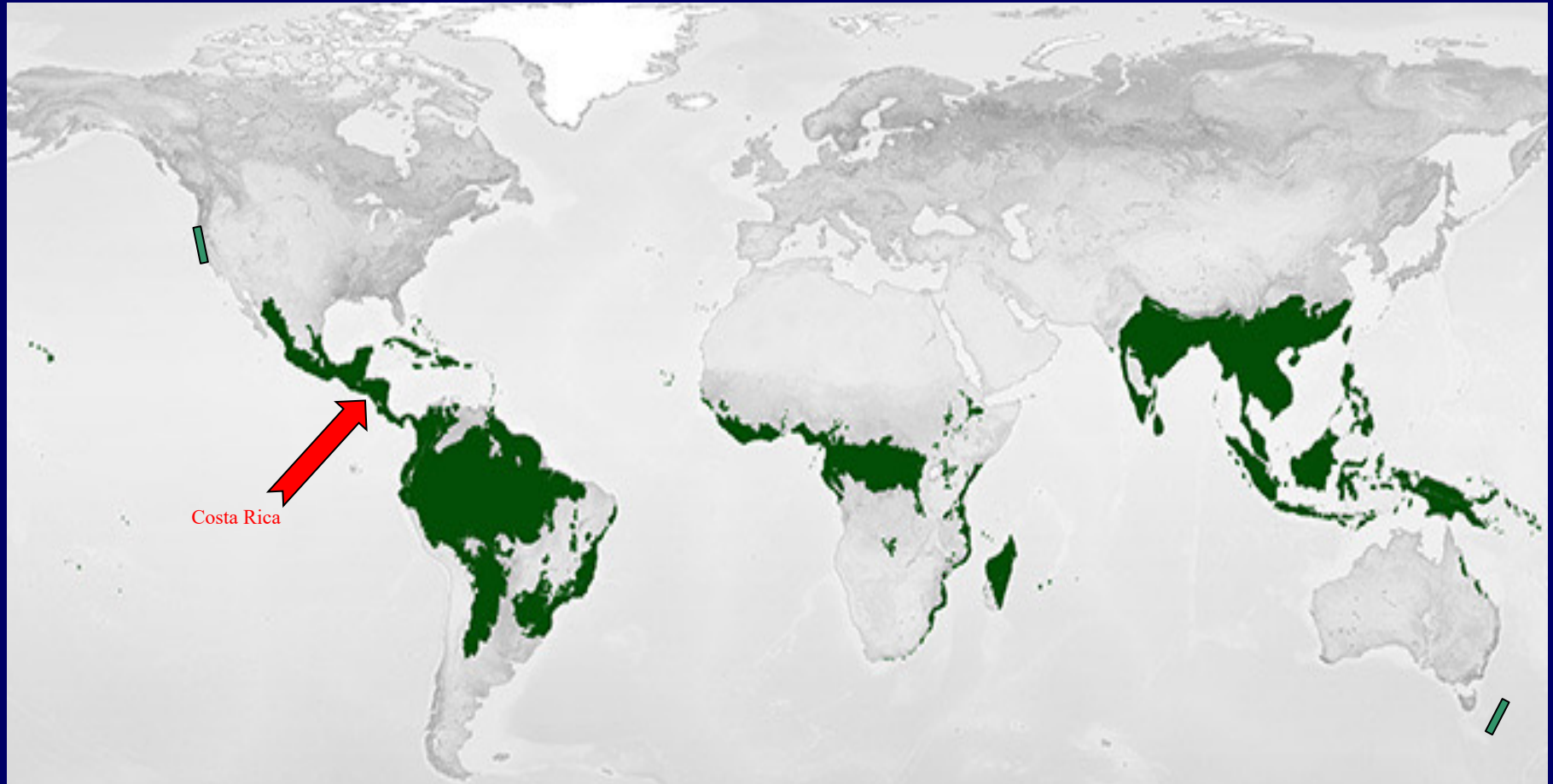








Rainforests of the World



Forest Canopy – “The last biotic frontier”



Canopy: “the combination of tree crowns -- leaves, twigs, branches, and air in a forest“

Crucial to forest biodiversity!

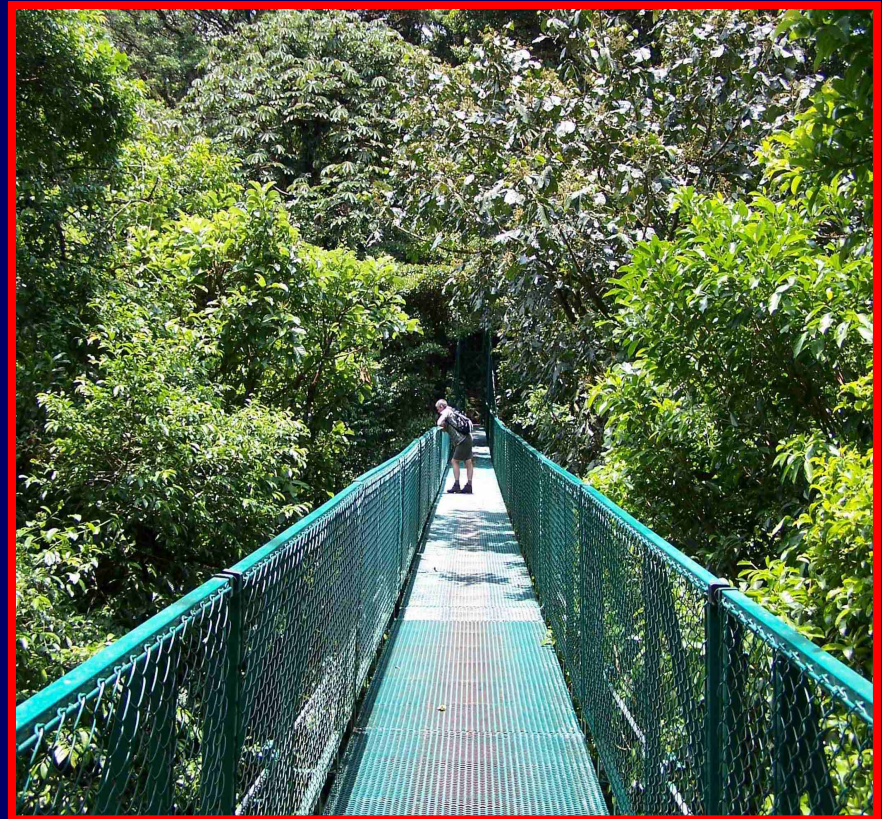
How do we study the canopy?

Who lives up there?

What happens when forests are disturbed?

Why should we care about biodiversity?

EARLY CANOPY ACCESS





Terry Erwin
Smithsonian
Institution



CONSTRUCTION CRANES



HOT AIR BALLOONS – THE CANOPY RAFT





Drones

Satellite images





**Heroes
Of the
High
Frontier**





**DIVERSITY OF
SPECIES**





GLIDING ANIMALS







Procryptocerus nalini

EPIPHYTES

“Epi” = upon
“Phyte” = plant

PLANTS THAT GROW
ON OTHER PLANTS





NUTRIENT INPUTS

Nitrogen

Phosphorus

Calcium



NUTRIENT INPUTS



Canopy Soils



Nutrient transfers



“epi-slides”



One-third of all
Feeding visits
Were to canopy plants



Rufous-and-white wren



Orchids and Orchid Bees





Bulbophyllum

"...smells like a herd of dead elephants!"



Canopy plants are important:

- Biodiversity
- Capturing water and nutrients
- Help for animals
- Beauty



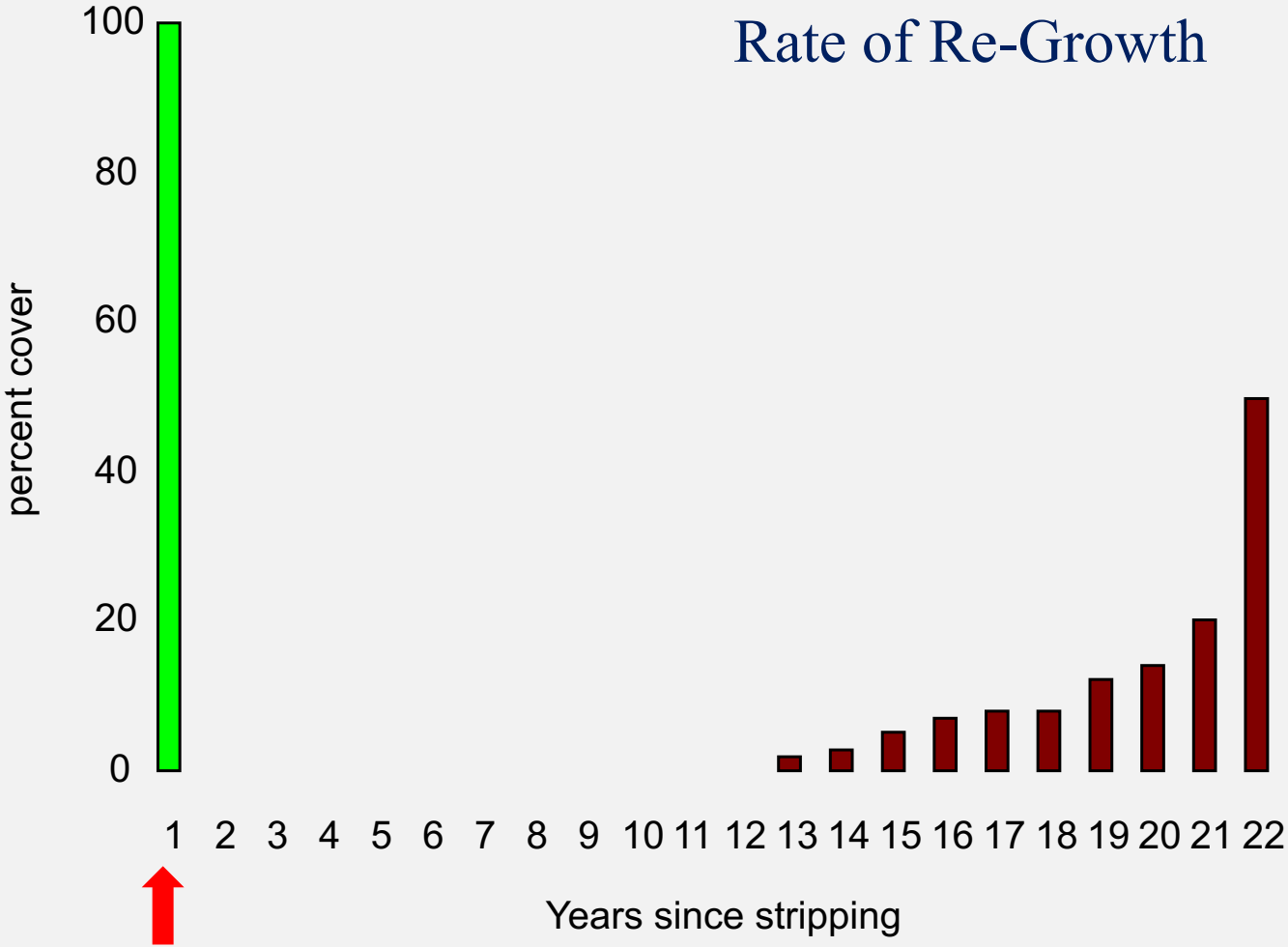
What happens if
epiphytes are
disturbed??



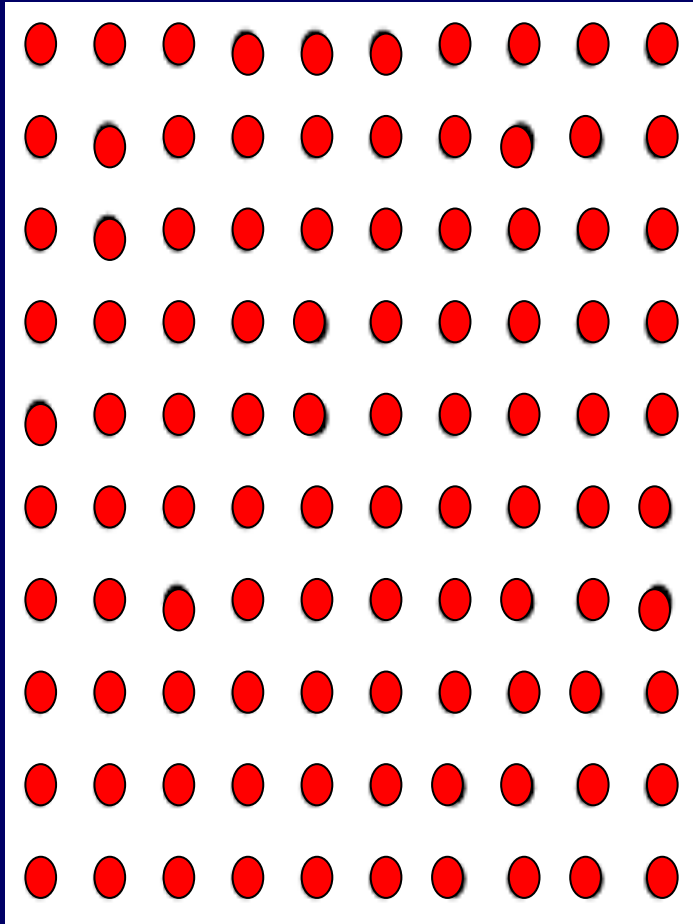




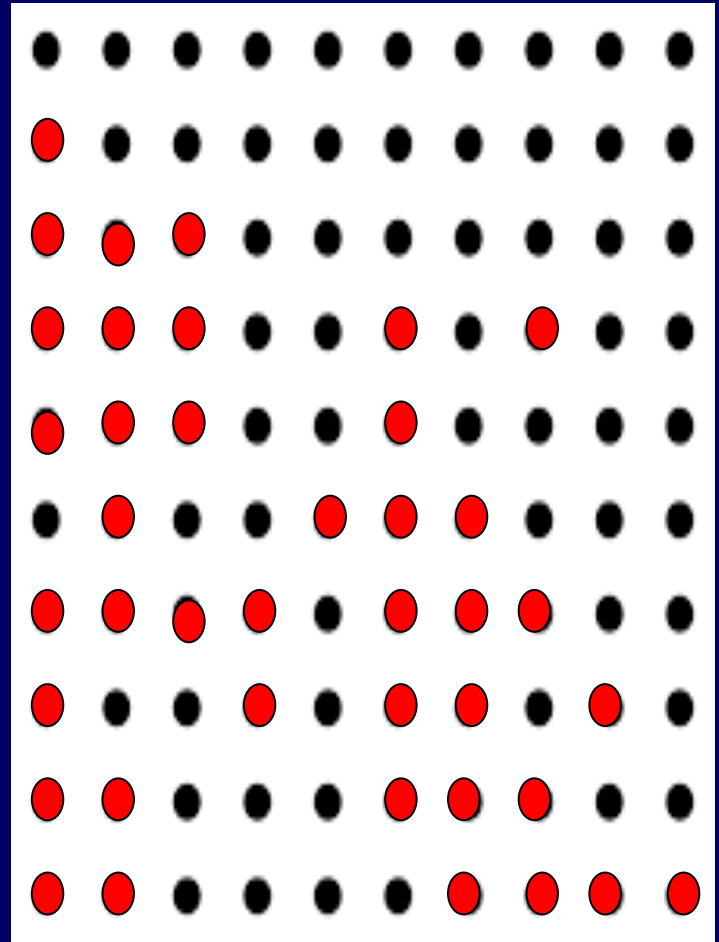
Rate of Re-Growth

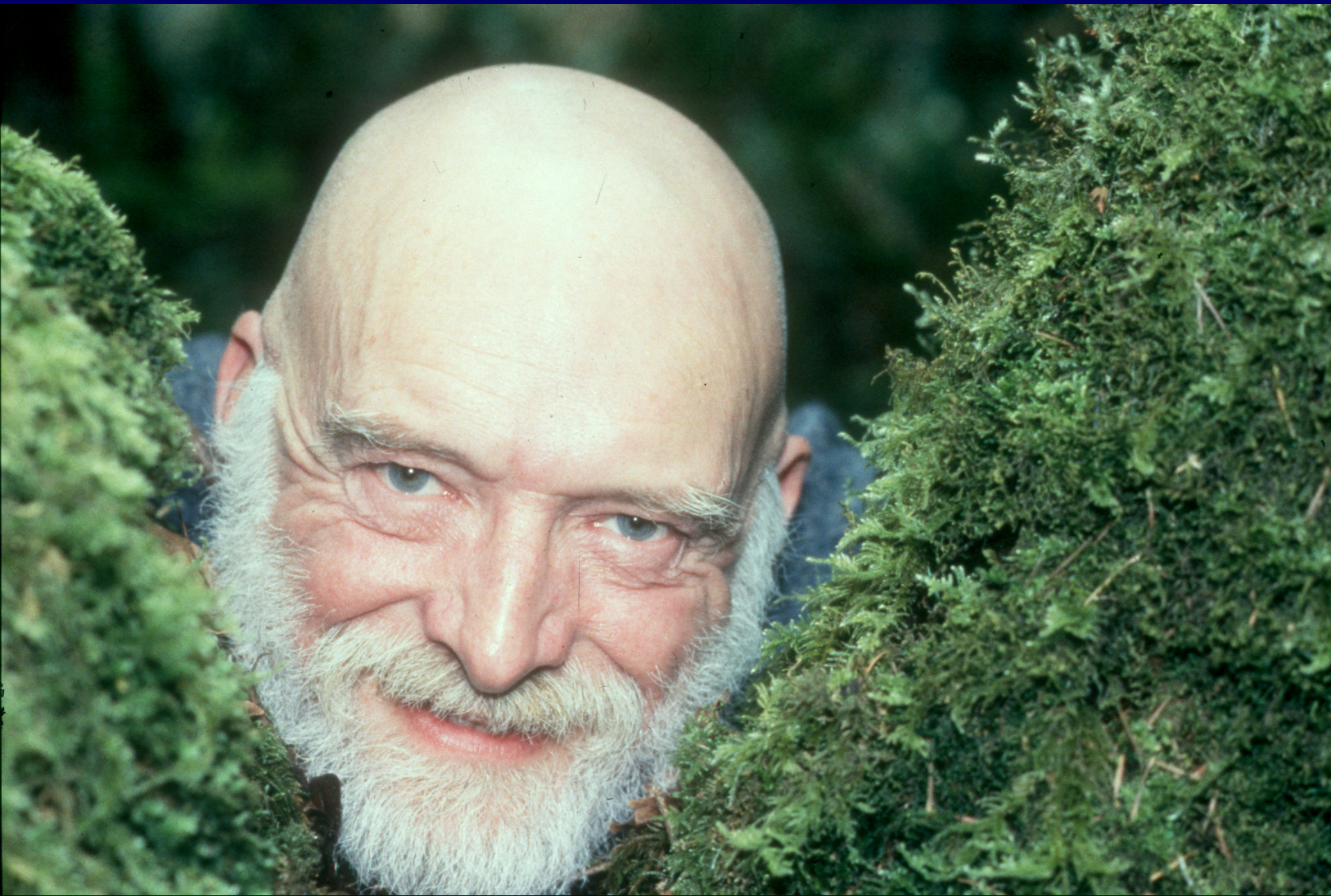


100 % cover



40 % cover





PEOPLE AND FORESTS



**SOME ANIMALS
ARE GOING
EXTINCT**





WHAT SHOULD SCIENTISTS DO?



新宿区役所
Shinjuku City Office
←

セブン

ENN54

東陽ビル

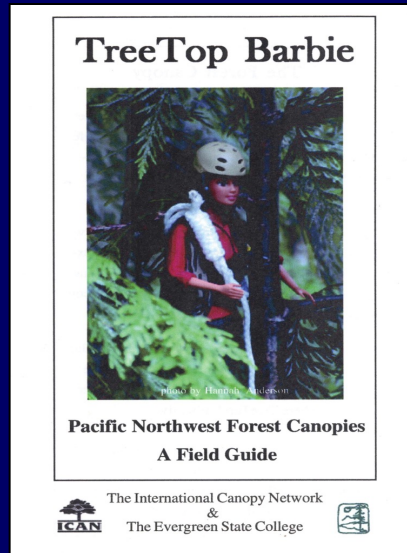




Barbie

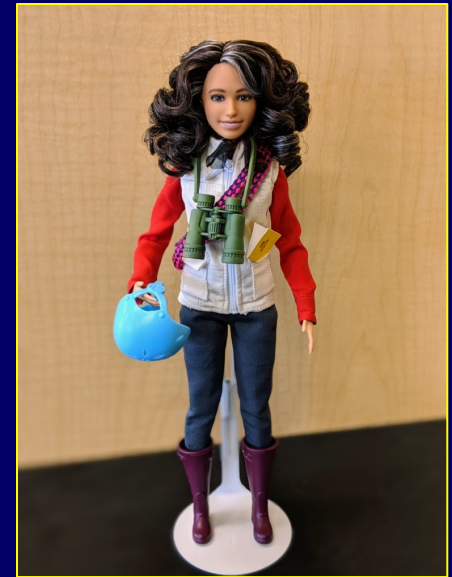


TREETOP BARBIE



2004

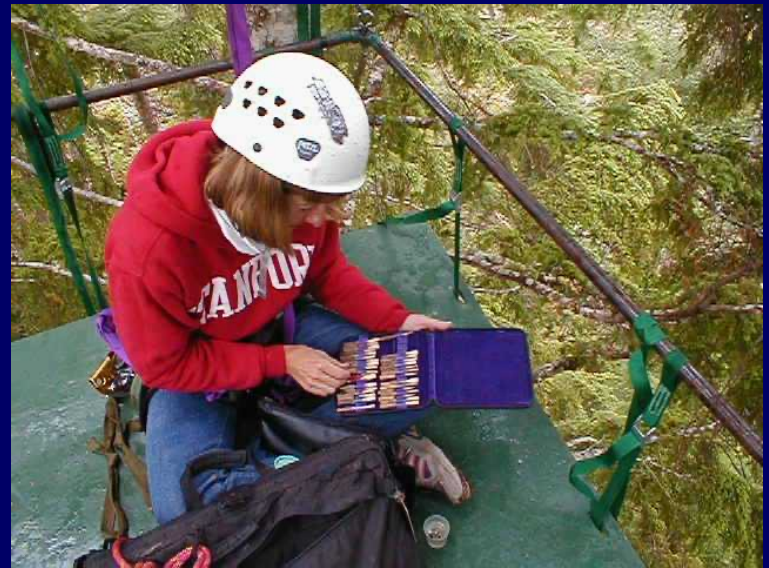
EXPLORER BARBIES

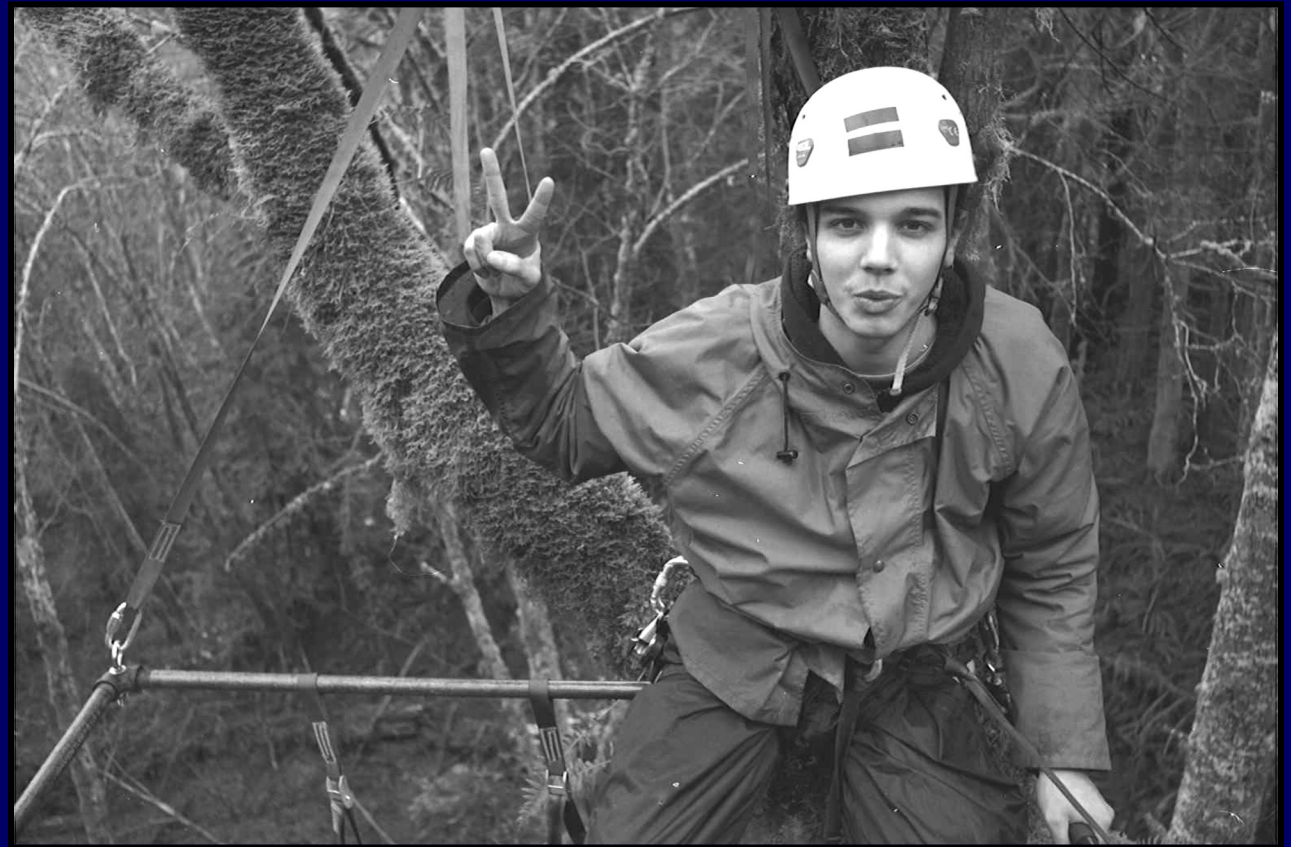


2019

VALUES FOR ARTISTS







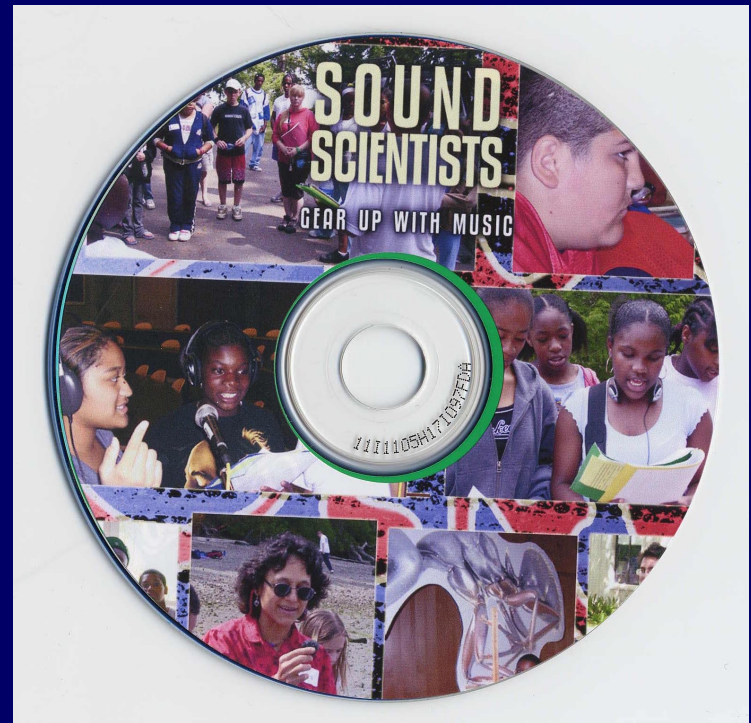
Look up! Expand your perspective!
Don't clearcut and don't be so selective.
In just another minute and I will leave you alone
Try walking a mile in a different biome ...





Rap Singer C.A.U.T.I.O.N.

Recording a real CD



VALUES FOR PEOPLE WHO DON'T HAVE ACCESS TO NATURE



MOSS IN THE PACIFIC NORTHWEST





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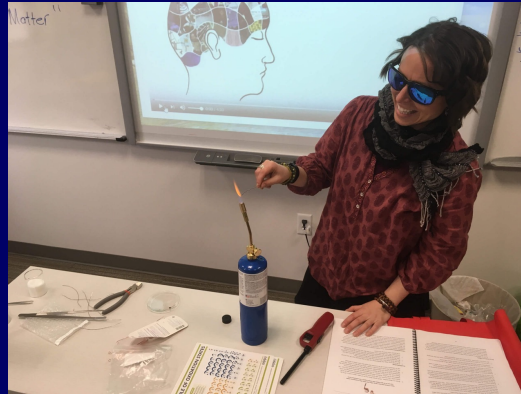








YOUTH-IN-CUSTODY

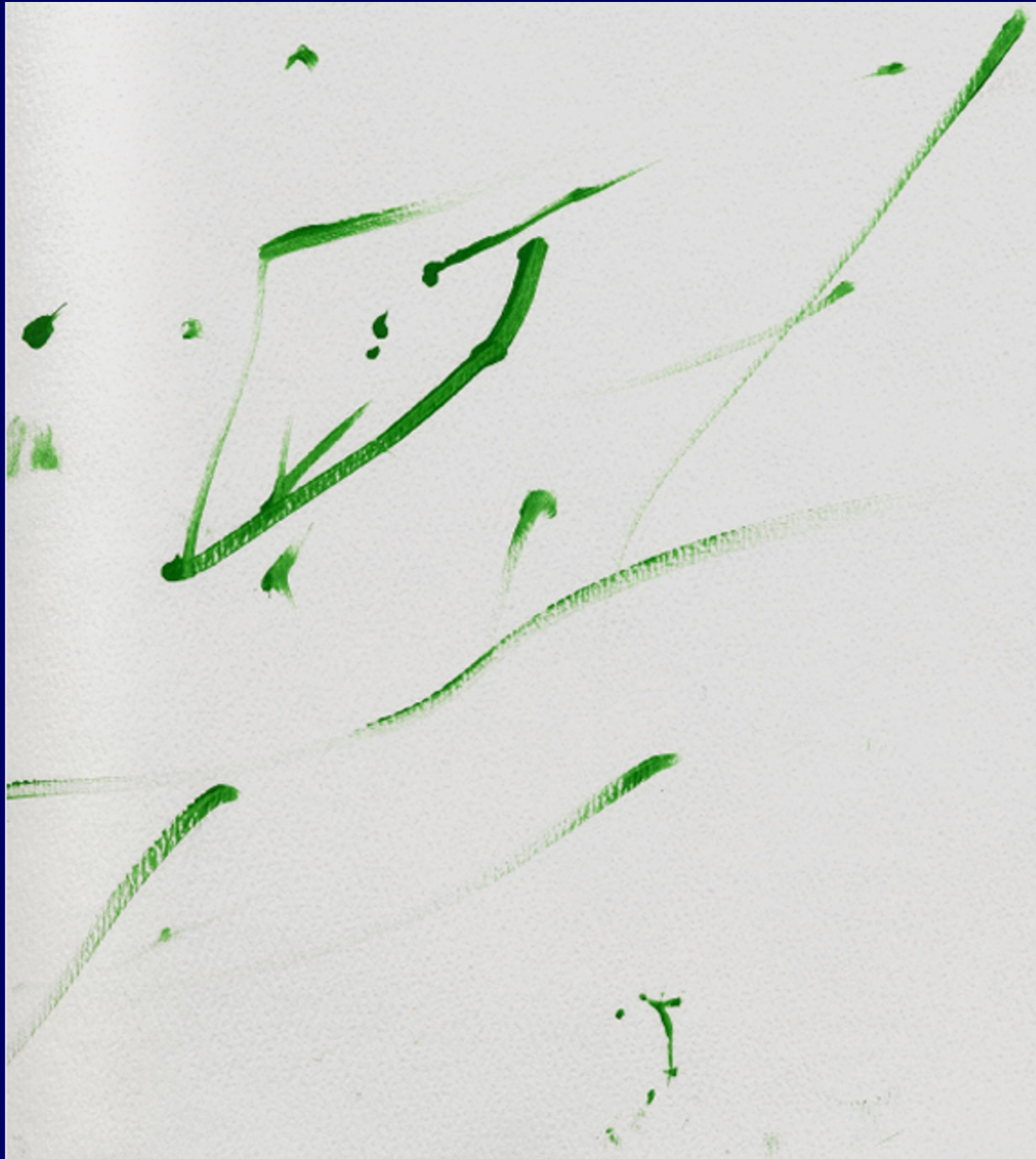




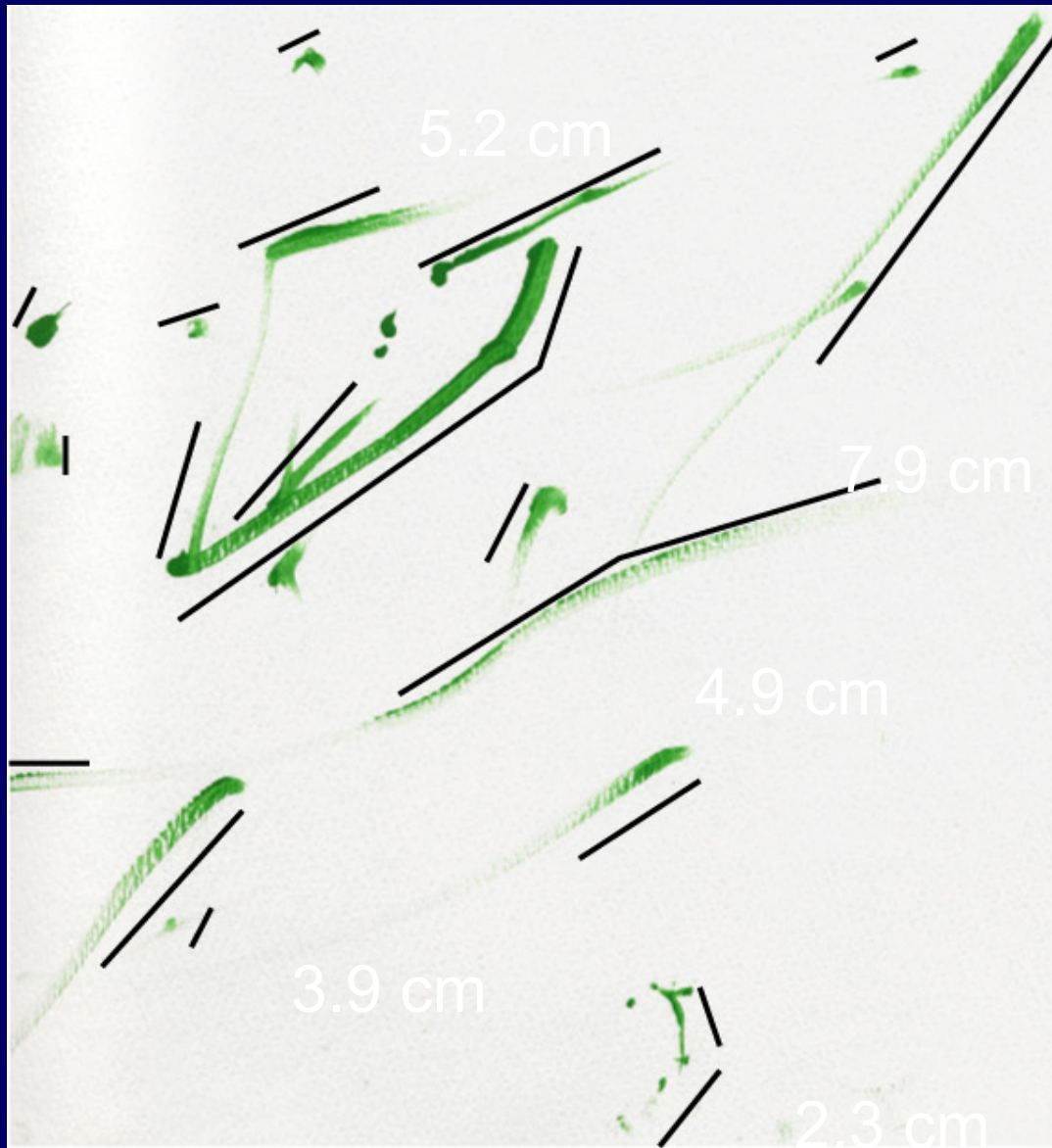








VINE MAPLE



$$\frac{\text{TWIG DISTANCE}}{2 \text{ MINUTES}} \times \frac{\text{MINUTES}}{\text{HOUR}} \times \frac{\text{HOURS}}{\text{DAY}} \times \frac{\text{DAYS}}{\text{YEAR}} \times \frac{\text{TWIGS}}{\text{BRANCH}} \times \frac{\text{BRANCHES}}{\text{TREE}} = \text{DISTANCE PER YEAR}$$

186,540

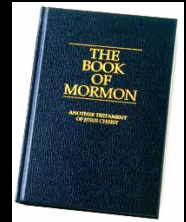
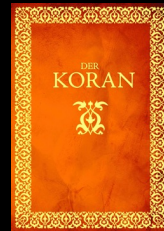
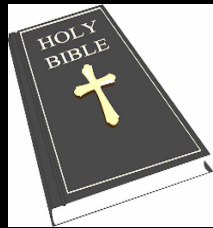
MILES PER YEAR



7
MORE THAN
TIMES AROUND
THE EARTH

SPIRITUAL VALUES



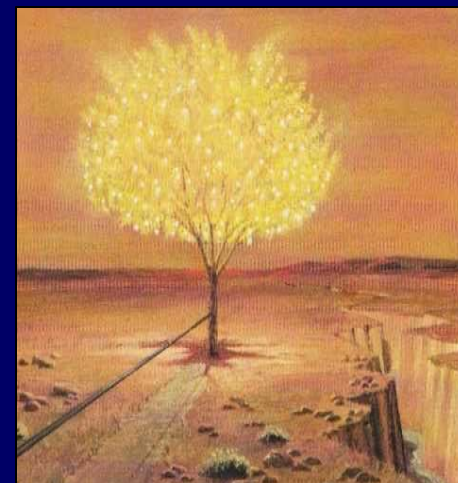




Tu B'shvat

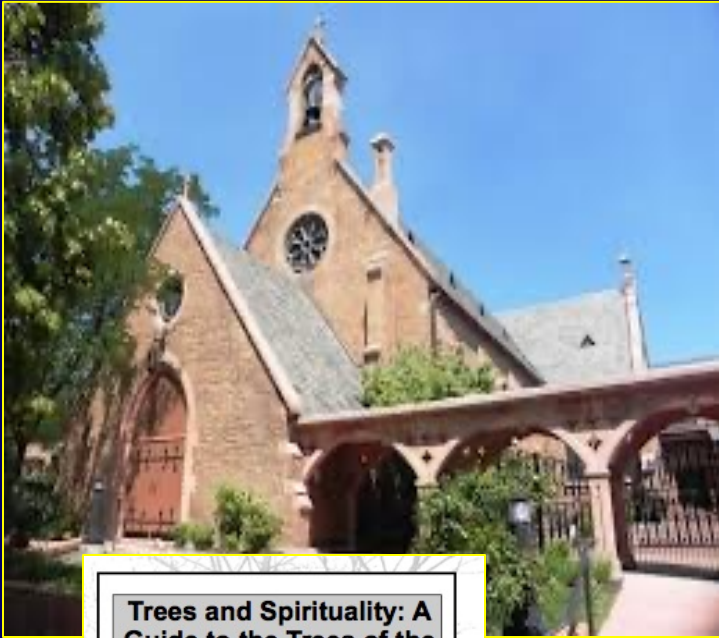


Buddha



Book of Mormon





Trees and Spirituality: A Guide to the Trees of the Episcopal Church Center of Utah

