



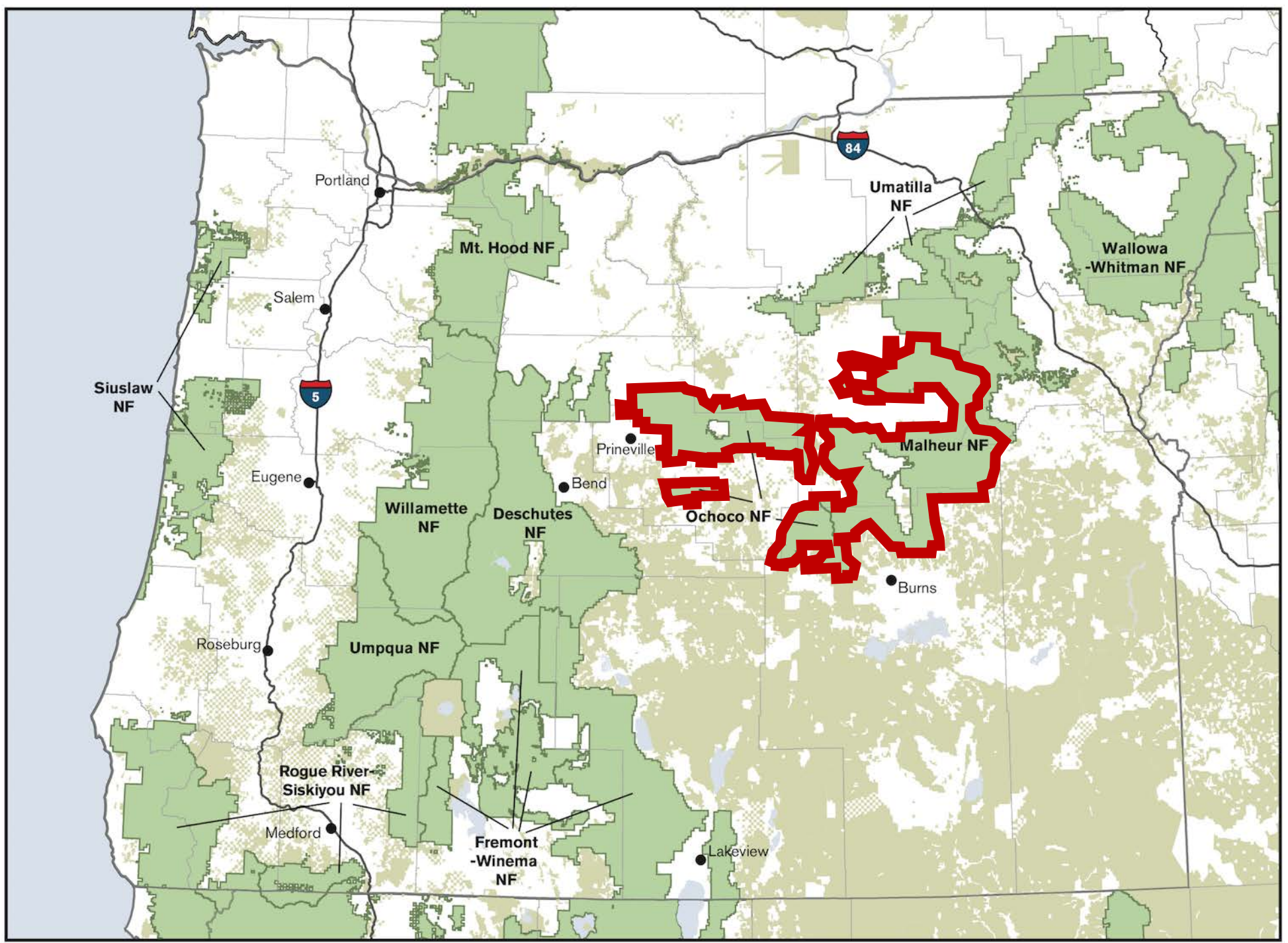
Collaborative forest restoration in the Blue Mountains

Forest Health in Oregon: State of the State
Oregon State University, March 1, 2018
James Johnston
james.johnston@oregonstate.edu



Malheur and Ochocho National Forests in the southern Blue Mountains

-  Forest Service
-  BLM

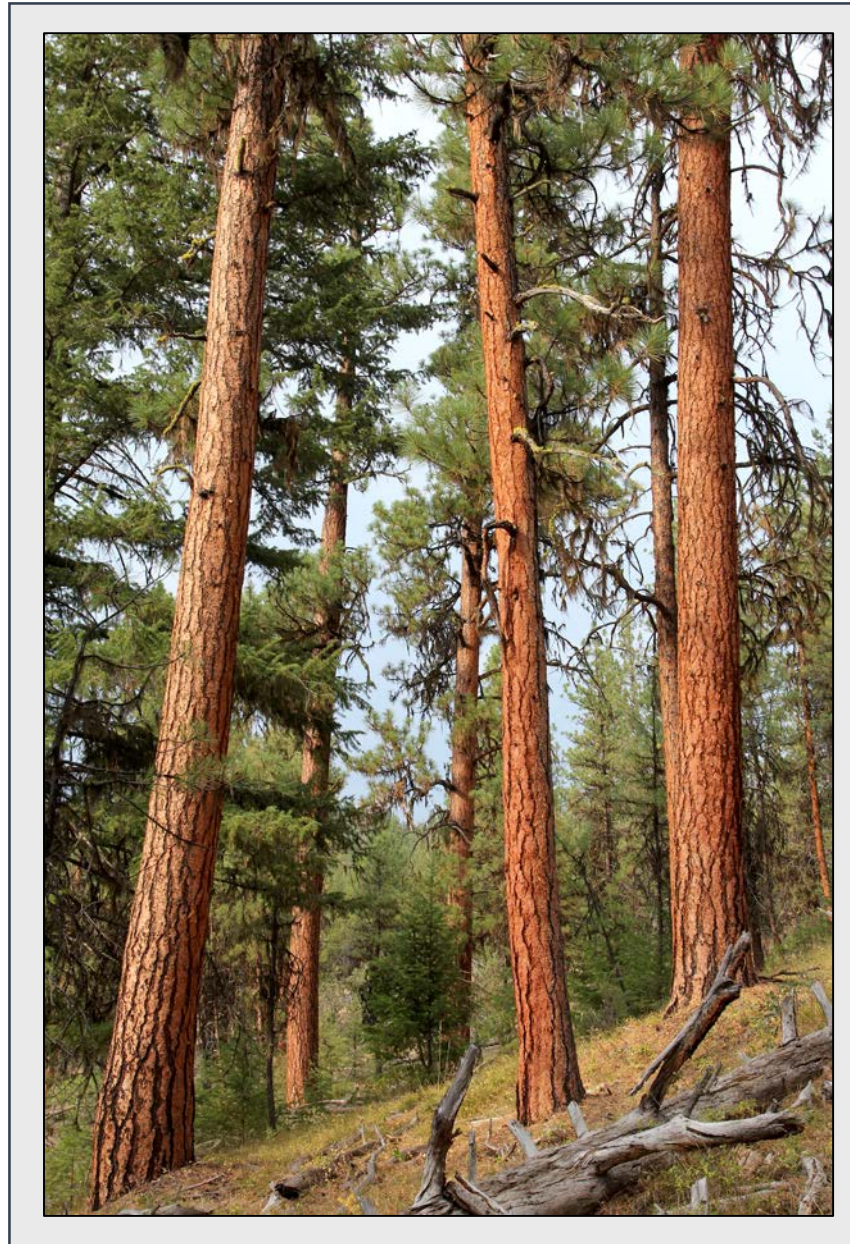


What we do:

- 1. Research into historical successional and disturbance dynamics to inform restoration treatments in different forest types.**
- 2. Technical tools for accomplishing restoration treatments.**
- 3. Multi-party monitoring to inform adaptive management.**

Forest types

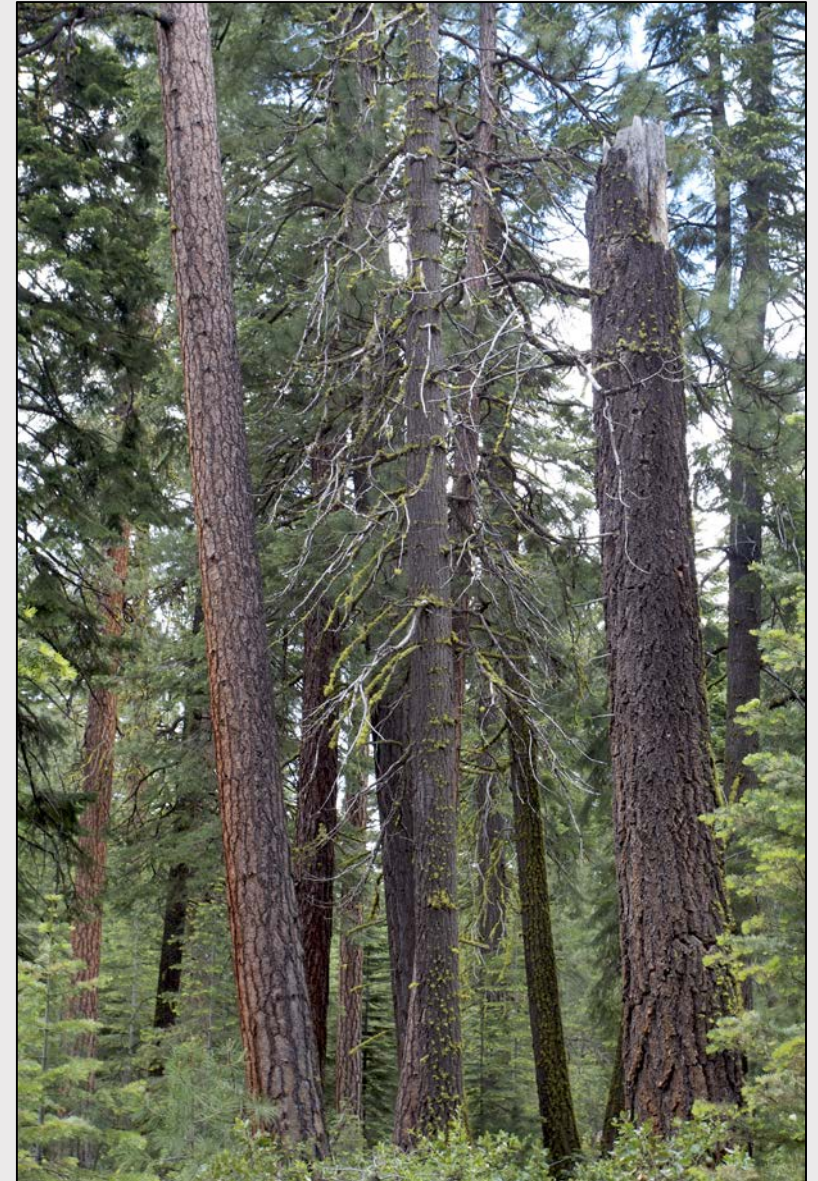
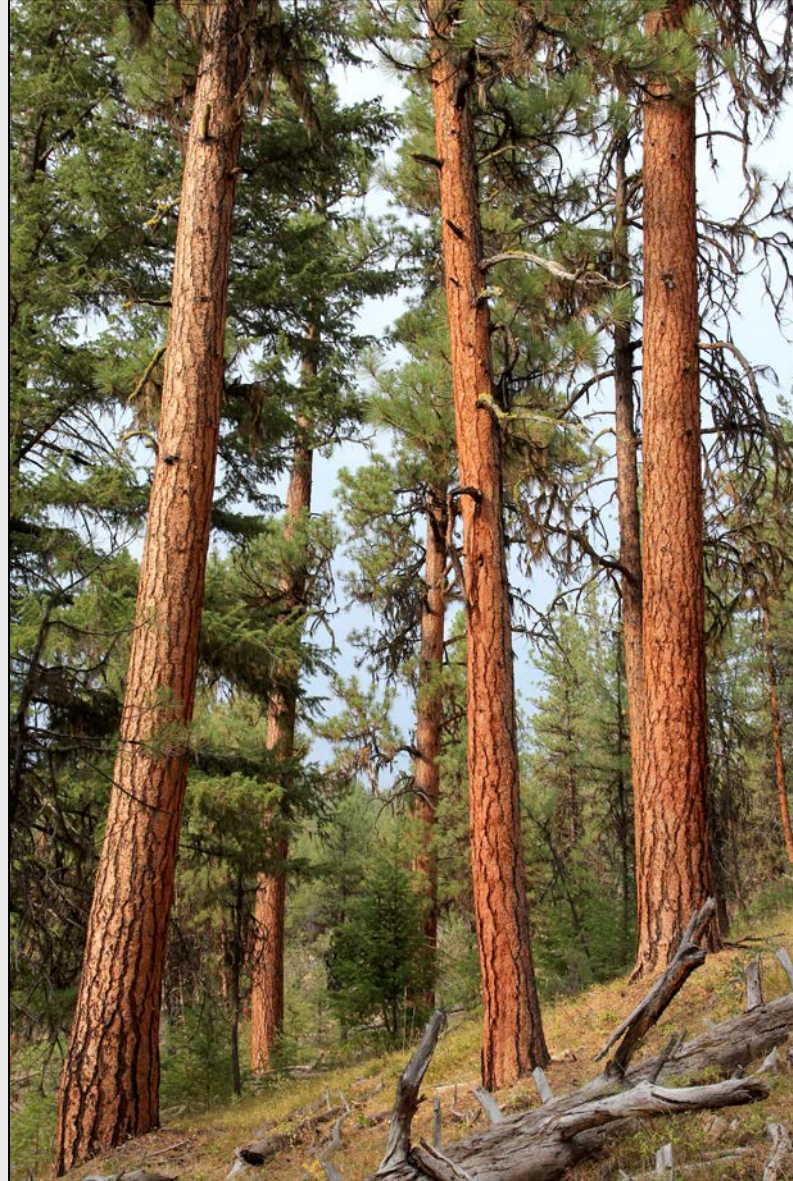
Ponderosa pine:
Shade intolerant
Fire tolerant



Forest types

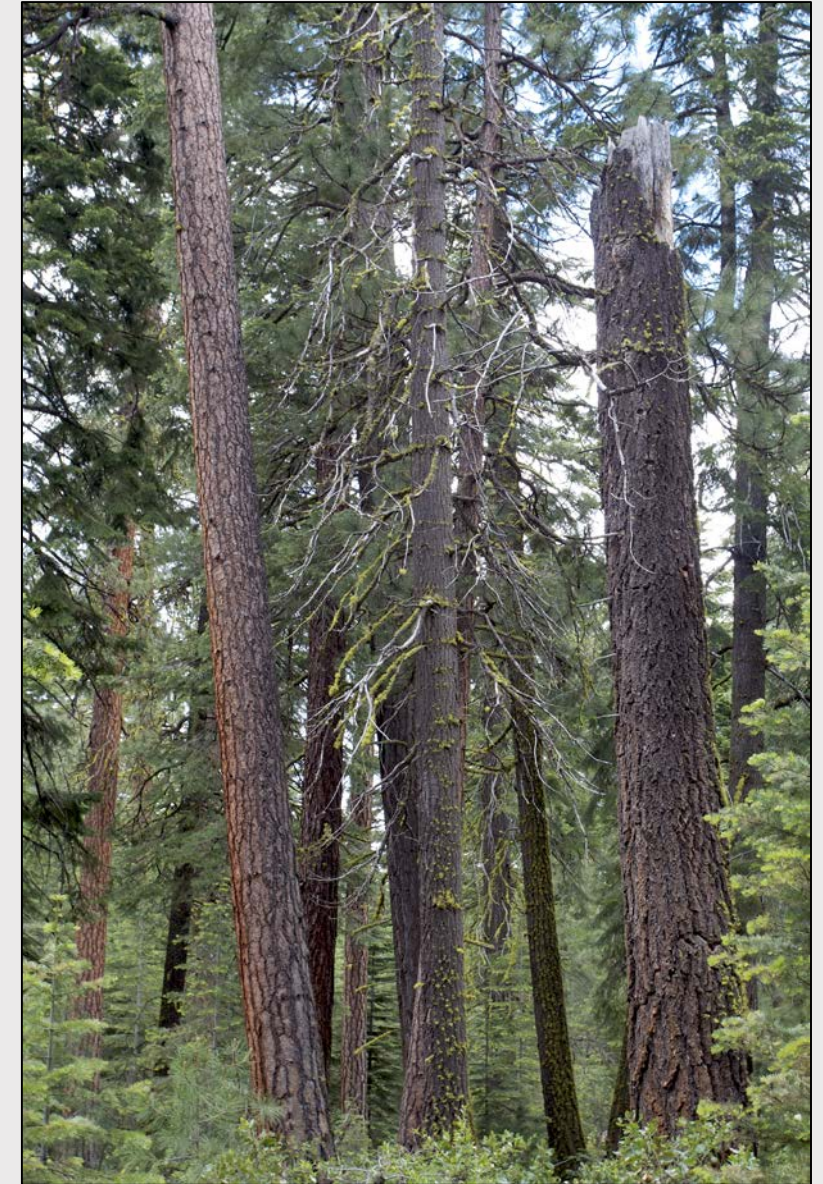
Ponderosa pine:
Shade intolerant
Fire tolerant

Grand fir:
Shade tolerant
Not so fire tolerant



Forest types

Historical
disturbance
dynamics



Forest types

Historical
disturbance
dynamics

Open pine: High frequency,
low severity fire

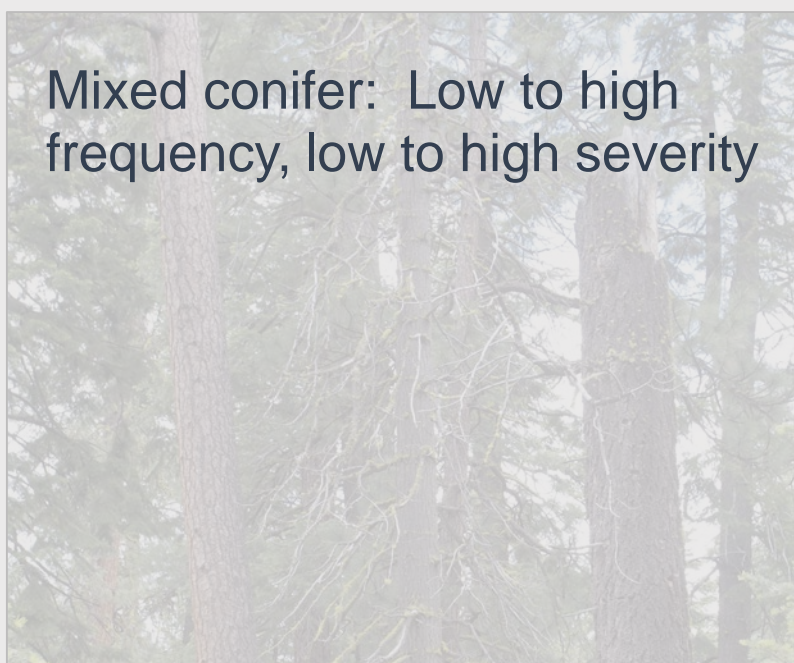


Mixed conifer: Low to high
frequency, low to high severity



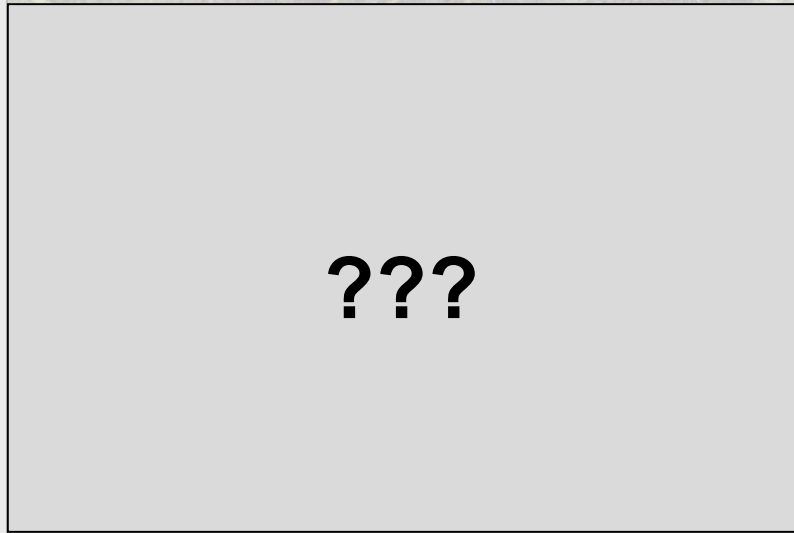
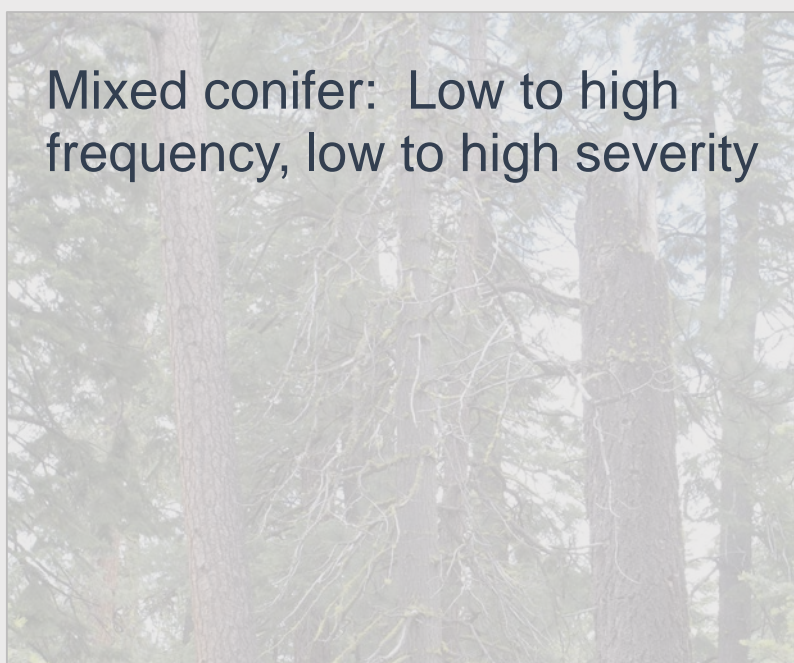
Forest types

Appropriate
management



Forest types

Appropriate
management





STIHL
Small and light
MAKES POWER EASY
CHAINSAW OIL
CHAINSAW OIL

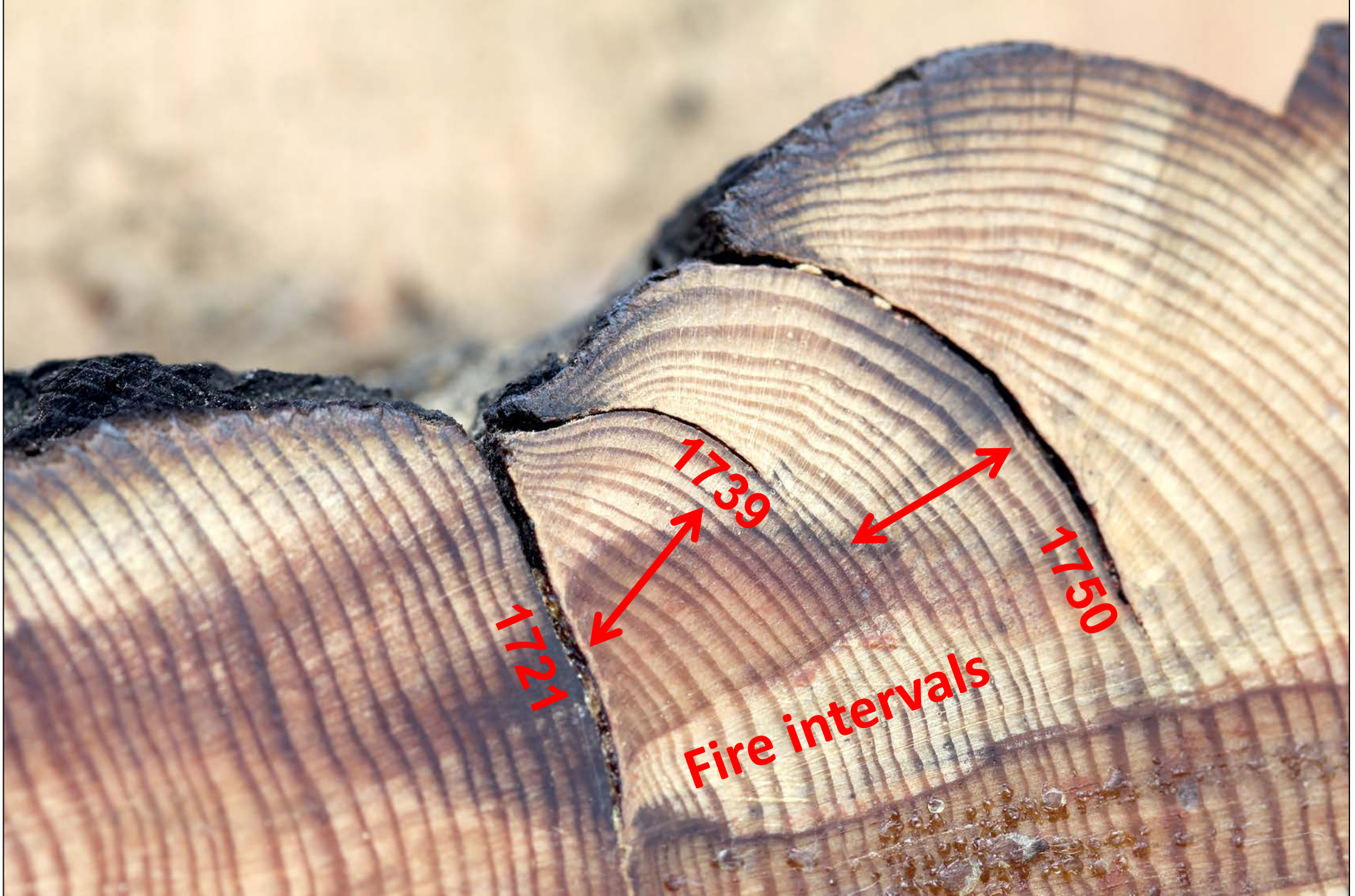
156

10-156-2-A

10-156-2-B

156



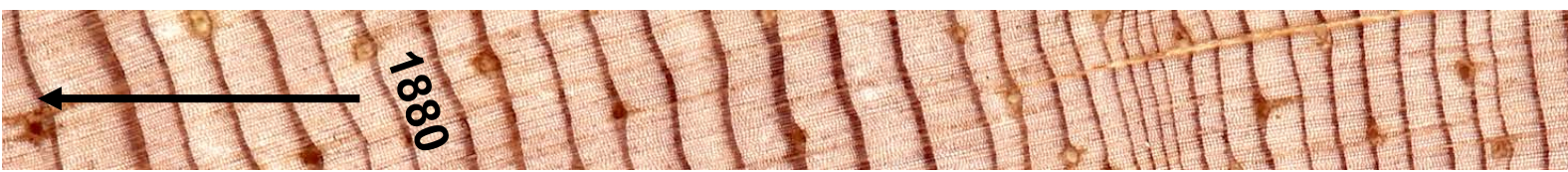
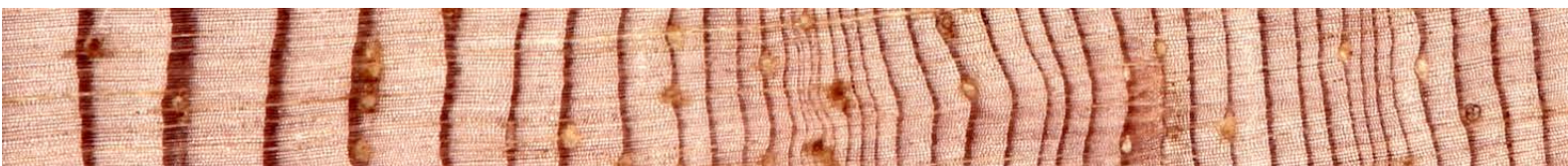


1721

1739

1750

Fire intervals



Fire frequency in contrasting forest types



← Dry ponderosa pine site



Moist mixed conifer site →

Fire frequency in contrasting forest types



← Ponderosa pine 94%
Douglas-fir 6%
Juniper <1%

Grand fir 84%
Douglas-fir 8%
Western larch 2%
Lodgepole pine 6%
Ponderosa pine <1%



Fire frequency in contrasting forest types



← **Ponderosa pine** 94%
Douglas-fir 6%
Juniper <1%

Grand fir 84%
Douglas-fir 8%
Western larch 2%
Lodgepole pine 6%
Ponderosa pine <1%



Fire frequency in contrasting forest types



← Historical fire frequency = 11-18 years



Historical fire frequency = 12-21 years →

Fire frequency in contrasting forest types



← Historical fire frequency = **11-18 years**



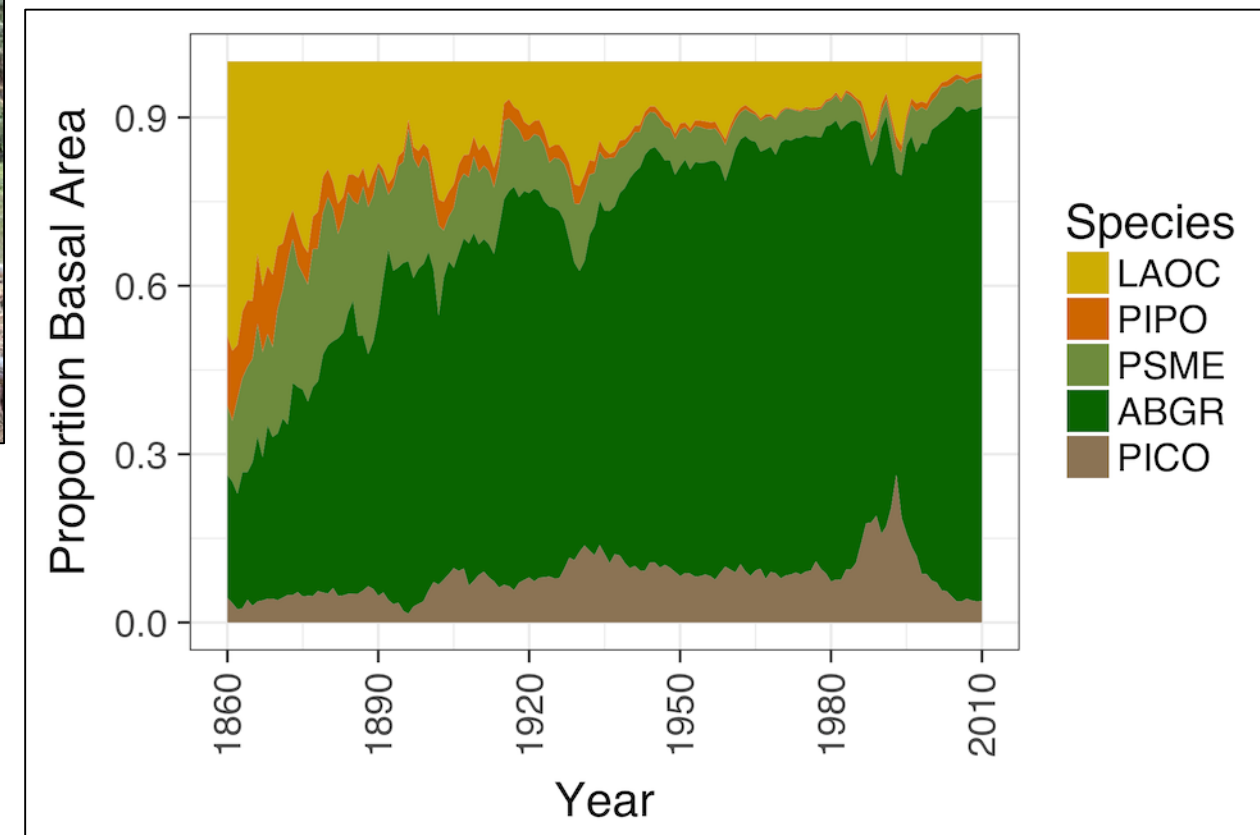
Historical fire frequency = **12-21 years** →

Fire frequency in contrasting forest types



← Historical fire frequency = 11-18 years

Historical fire frequency = 12-21 years →



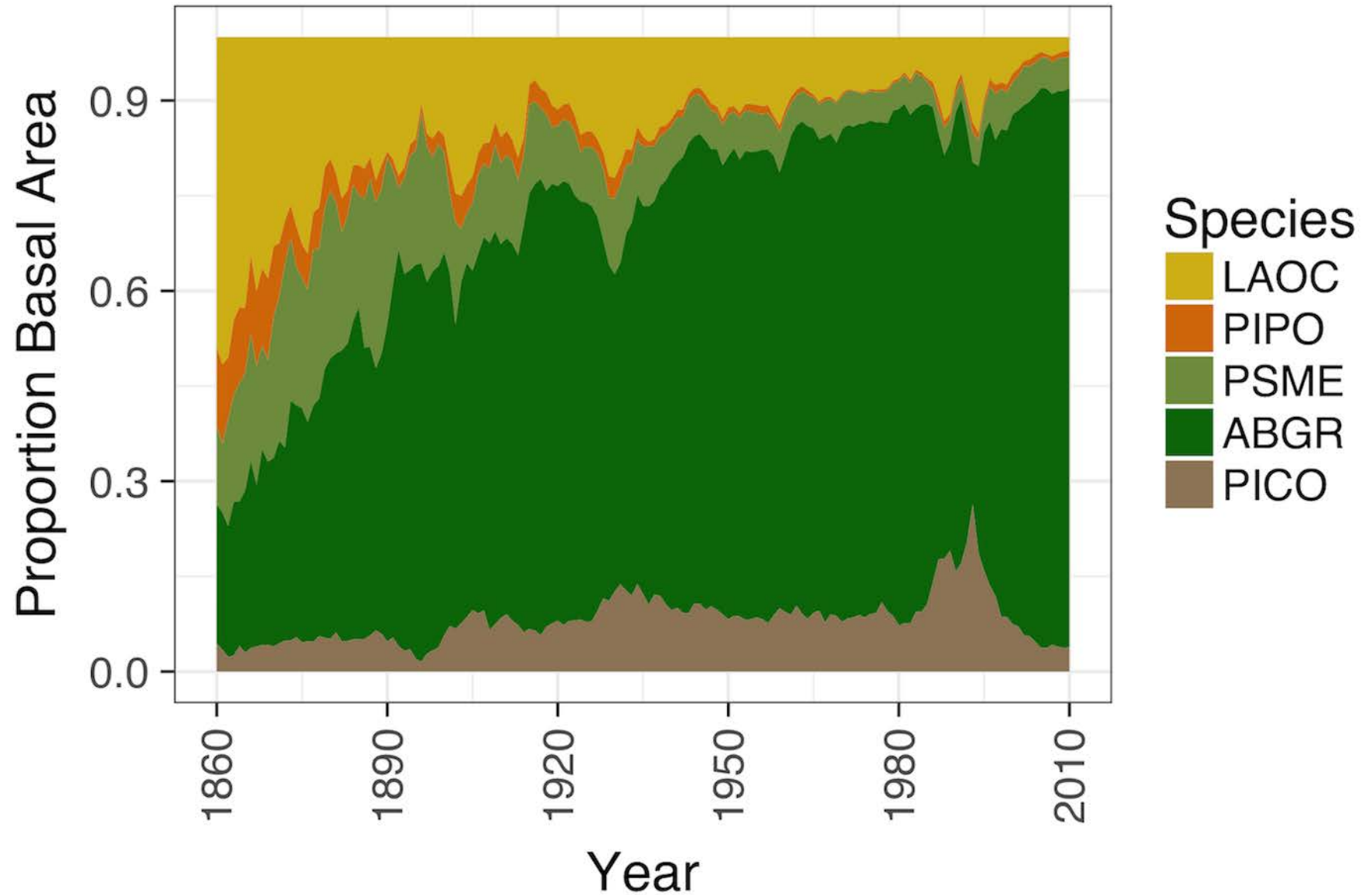
Succession over time

Historical

Shade tolerant 39%
Shade intolerant 61%

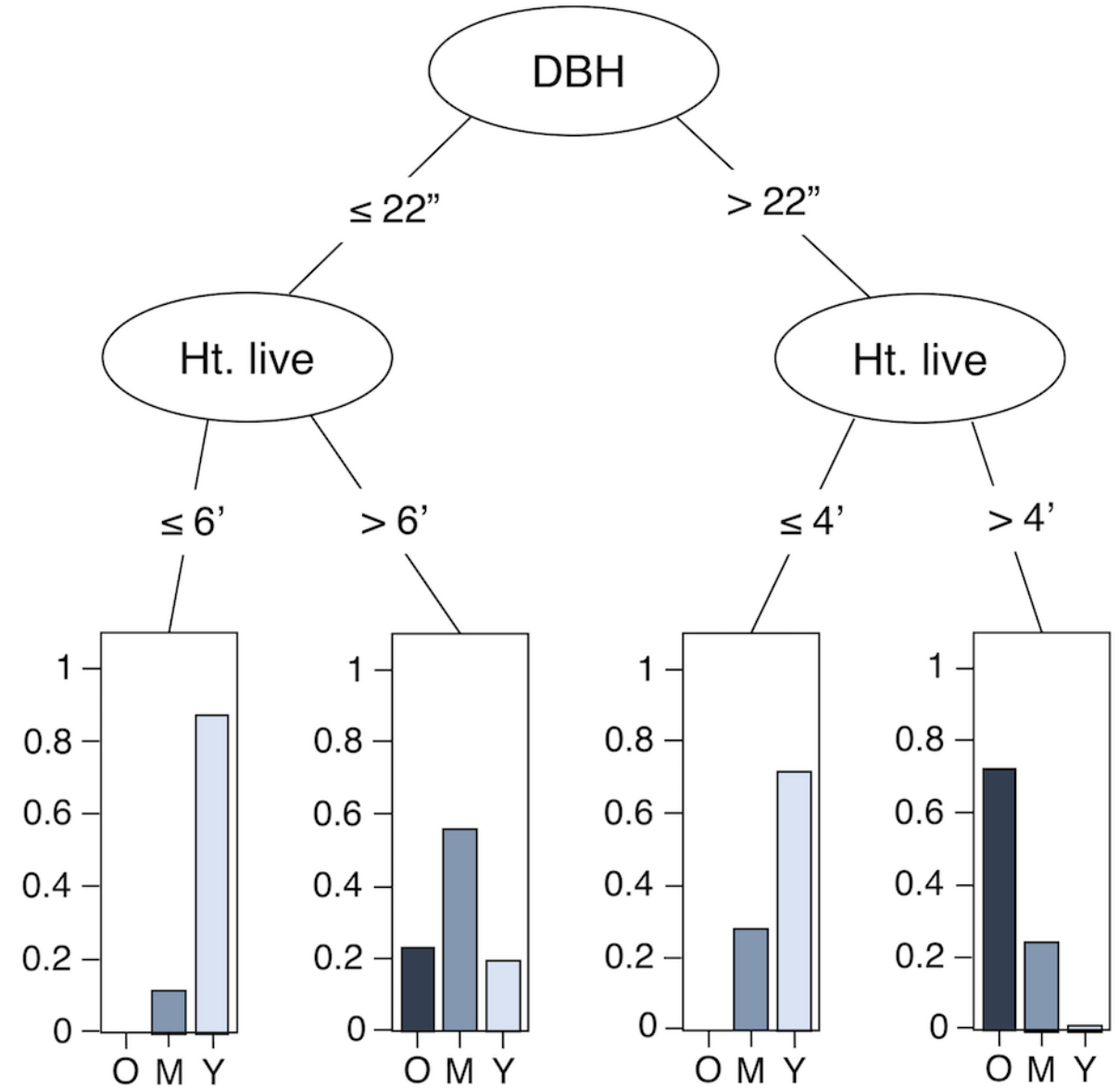
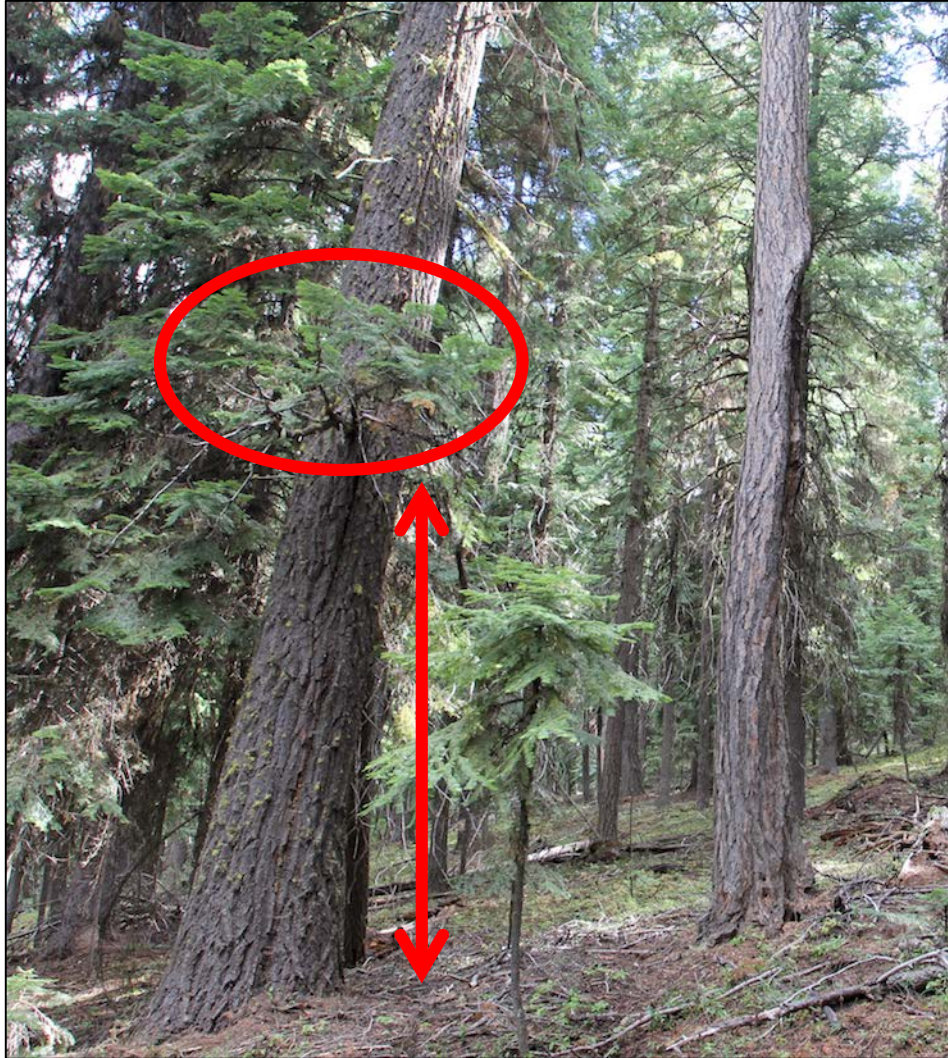
Contemporary

Shade tolerant 4%
Shade intolerant 96%



Tools for determining tree age

Grand fir



Multi-party monitoring

531 permanent plots across two national forest (measured 2014-2017)

2,987 surface fuel loading transects

9,561 trees

37,793 understory plants



Multi-party monitoring

531 permanent plots across two national forest (measured 2014-2017)

2,987 surface fuel loading transects

9,561 trees

37,793 understory plants



Multi-party monitoring

2014

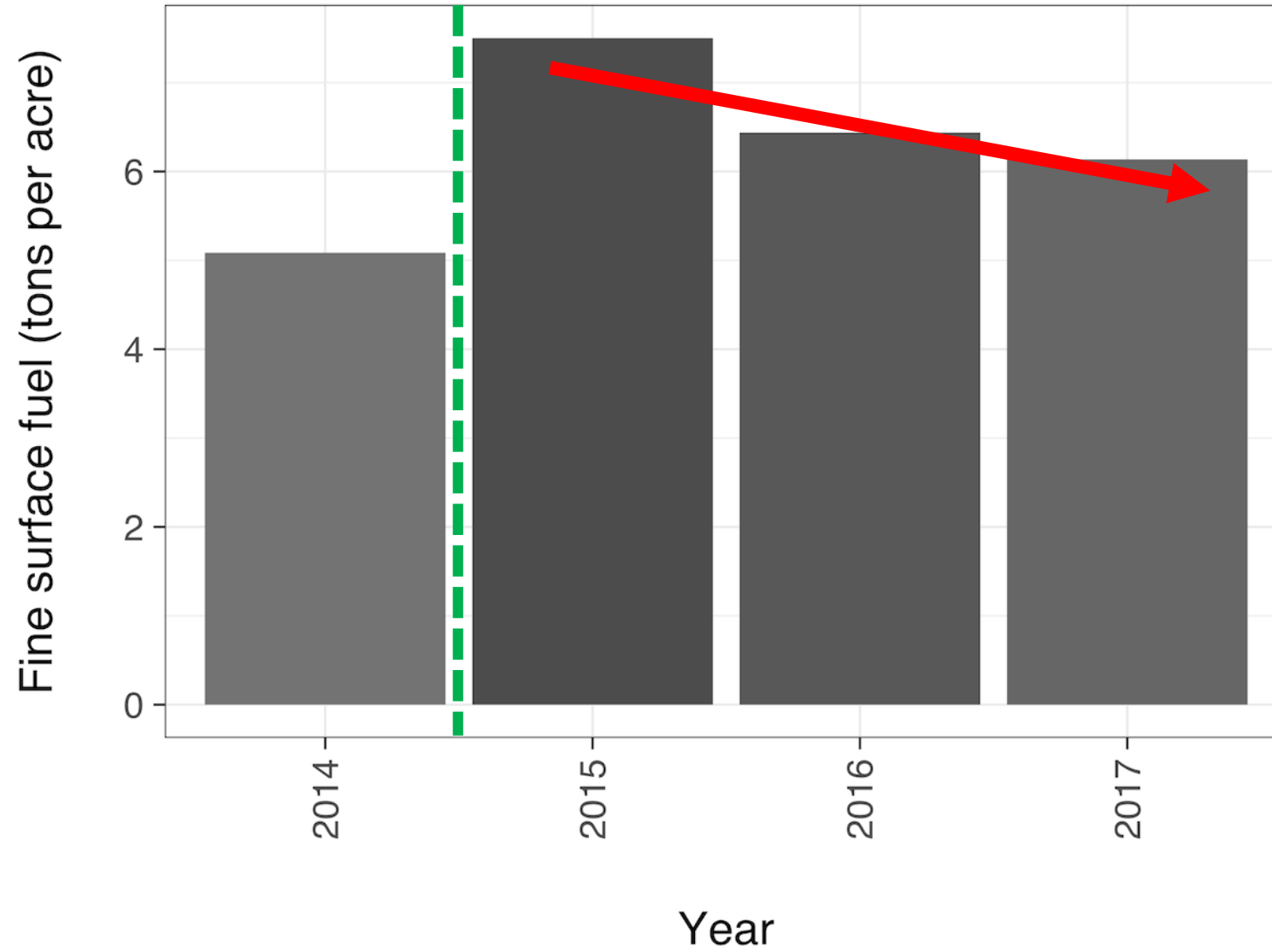


Multi-party monitoring

2015



Multi-party monitoring





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Oregon State University
College of Forestry

