



Oregon Society of CPAs
2011 Forest Products Conference
June 17, 2011
Eugene, Oregon

Fighting Fires: Do the Math

Presentation by Dr. Bob Zybach, Oregon Websites & Watersheds Project, Inc.

FRCC (Fire Regime Condition Class)

A measure of departure from reference (pre- settlement or natural or historical) ecological conditions that typically result in alterations of native ecosystem components. These ecosystem components include attributes such as species composition, structural stage, stand age, canopy closure, and fuel loadings.

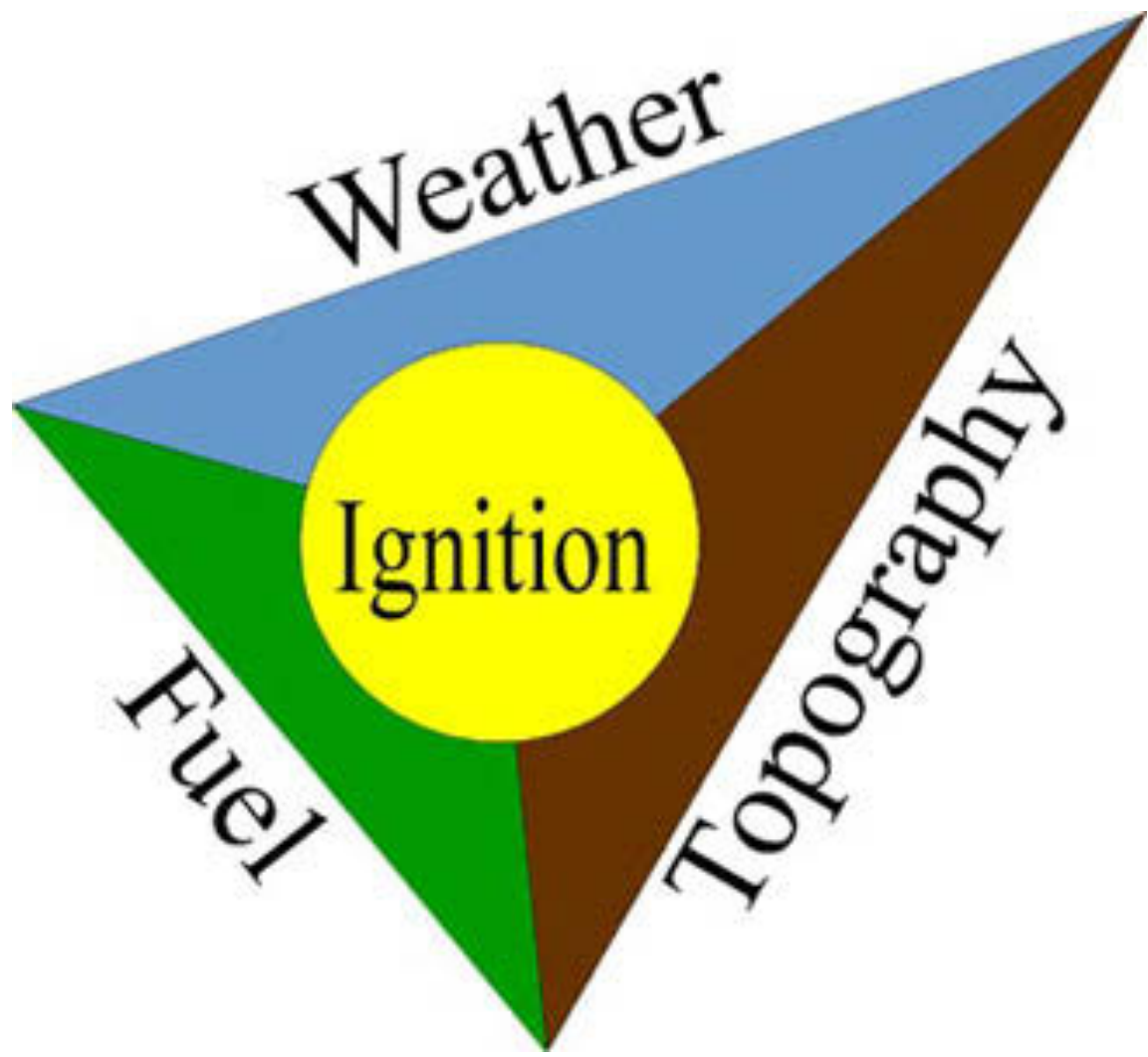
FRCC 3 is defined as:

Greater than 66 percent departure: Fire regimes have been substantially altered. Risk of losing key ecosystem components is high.

Fire frequencies may have departed by multiple return intervals.

This may result in dramatic changes in fire size, fire intensity and severity, and landscape patterns.

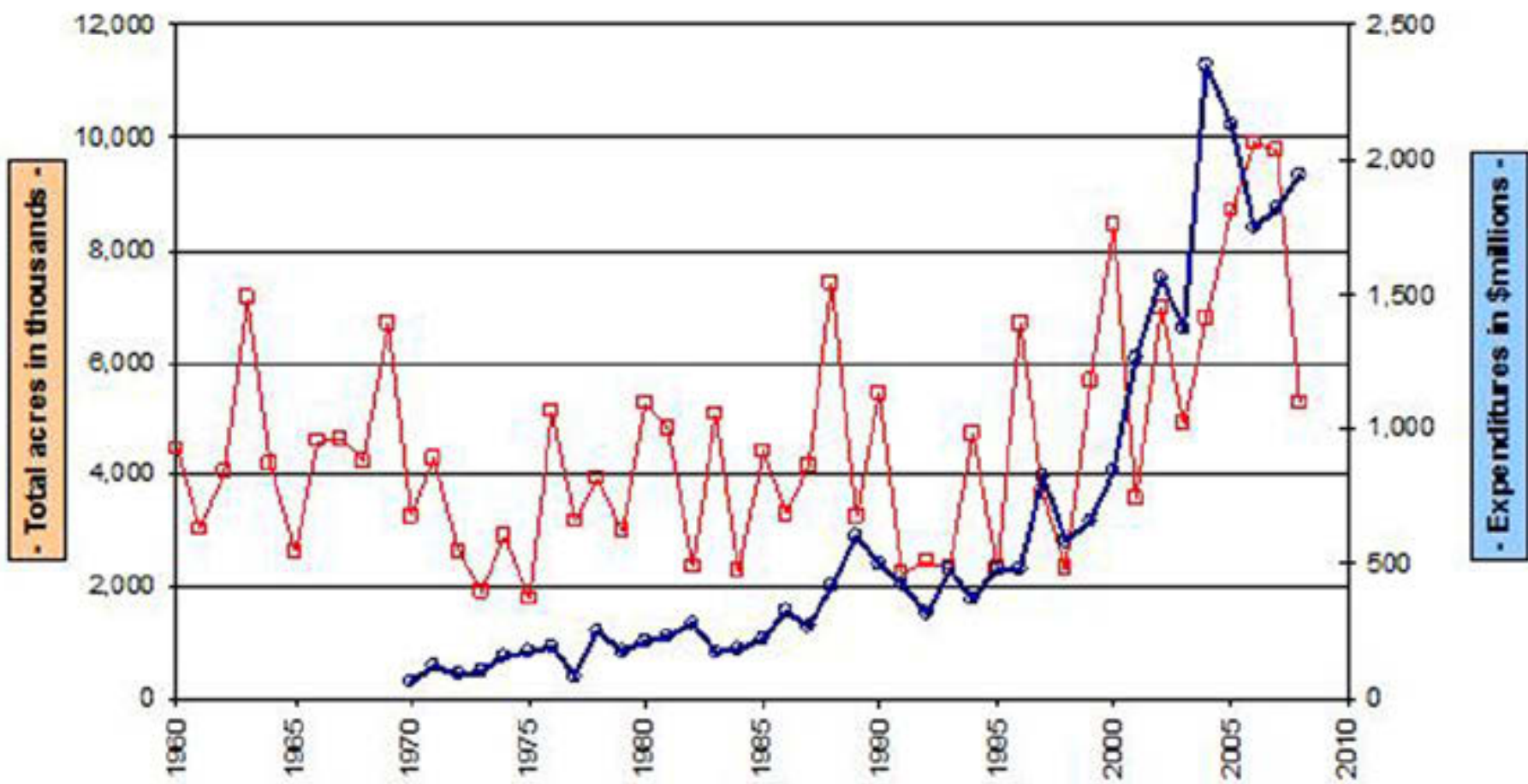
Vegetation attributes have been substantially altered.





Wildfire Protection

Total US Wildfire Acres 1961-2008, and USFS Fire Expenditures 1970-2008



SUPPRESSION COSTS



PROPERTY DAMAGE





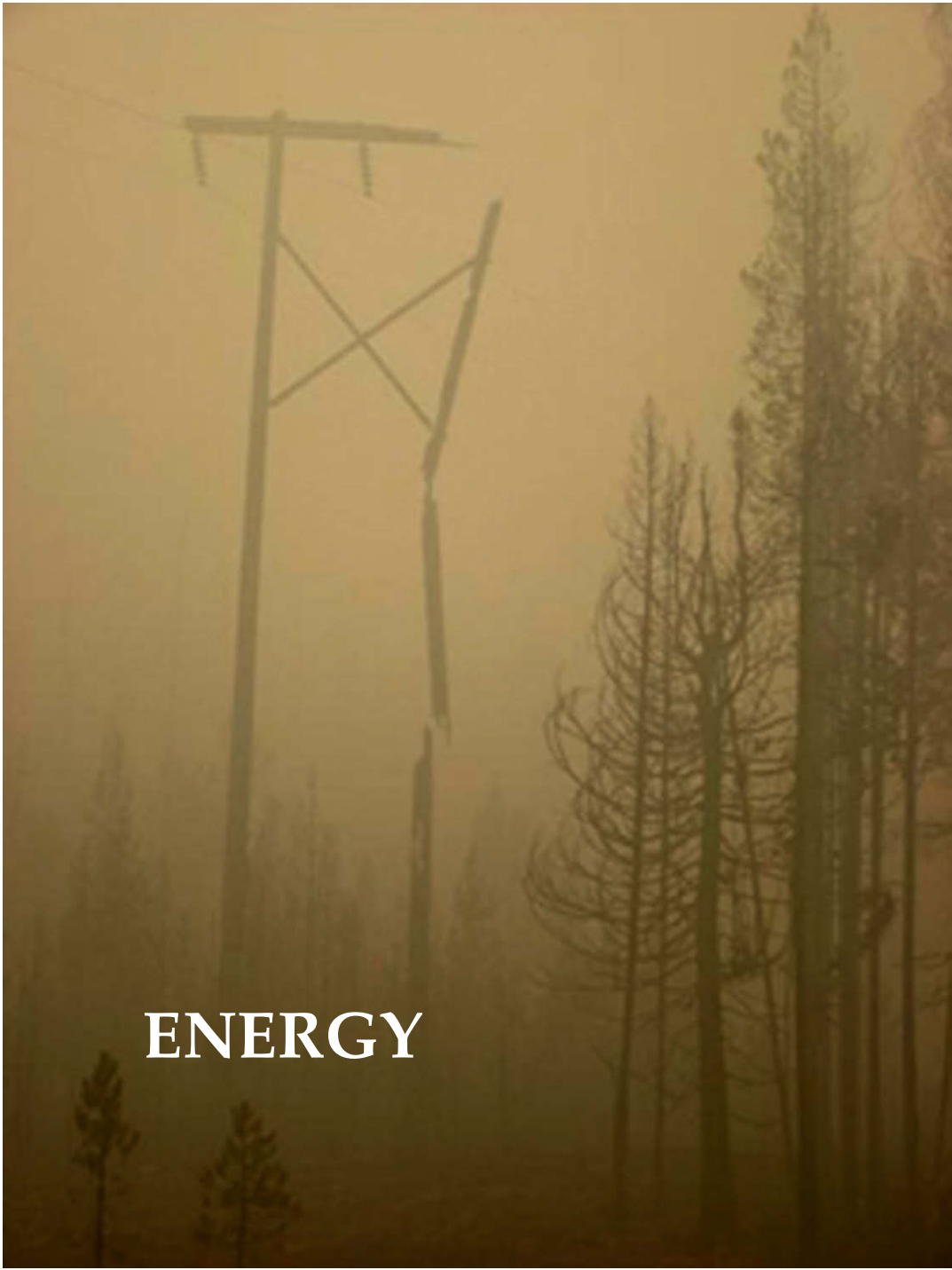
VEGETATION



WILDLIFE



AIR & ATMOSPHERICS



ENERGY



HEALTH EFFECTS

A photograph of a stream flowing through a rocky, eroded landscape. The stream is narrow and flows over light-colored, layered rock formations. The banks are steep and eroded, with numerous tree roots exposed and hanging over the water. The surrounding area is lush with green trees and vegetation. The sky is bright and clear. The word "WATER" is written in white, serif capital letters at the bottom center of the image.

WATER



SOIL-RELATED



RECREATION

HERITAGE RESOURCES

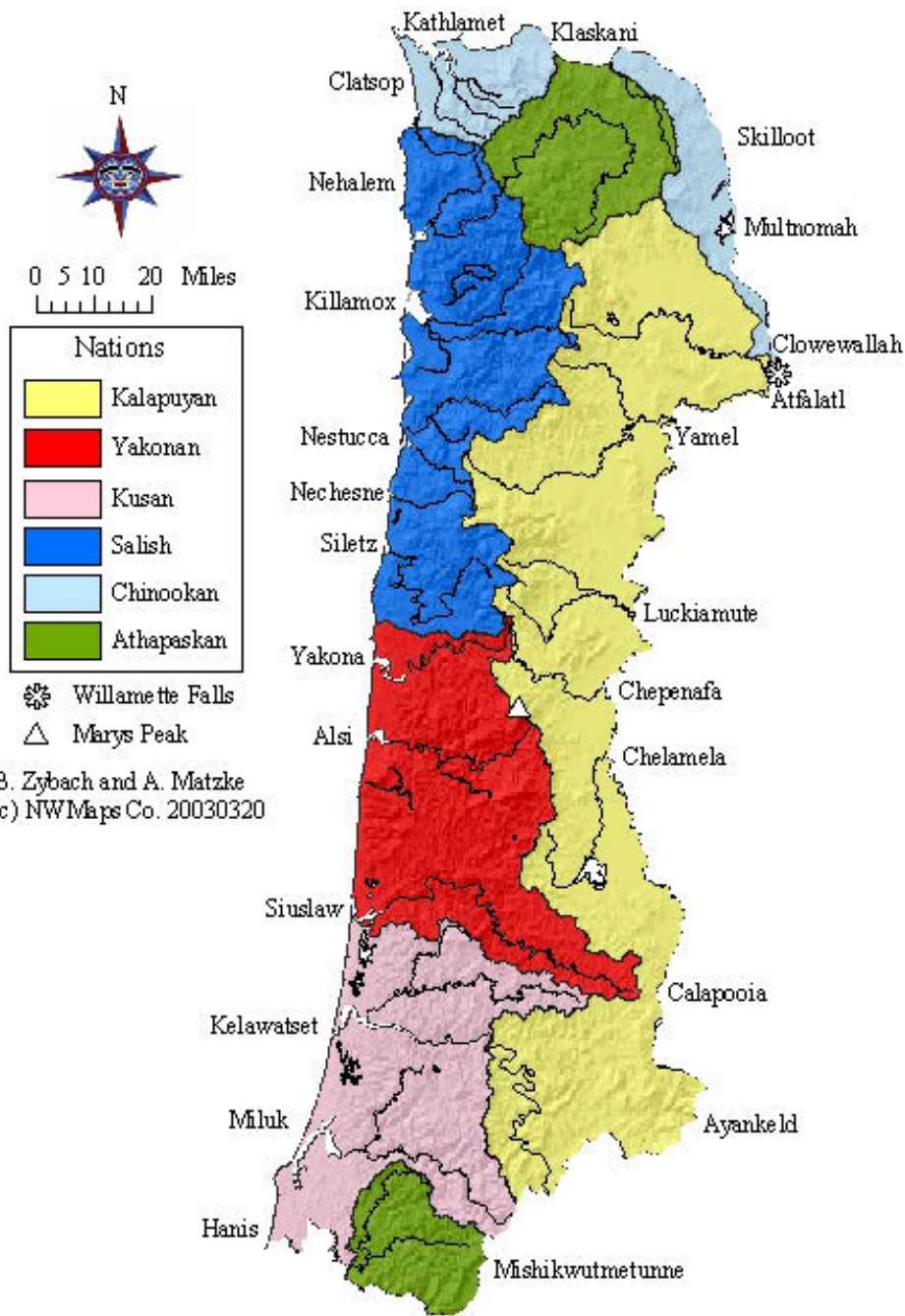


INDIAN BURNING



this Countray must be thickly inhabited by the many fiers we saw in the night and culloms of smoak we would see in the day time but I think they can derive but little of there subsistance from the sea but to compenciate for this the land was beautyfully diversified with forists and green veredent launs which must give shelter and forage to vast numbers of wild beasts most probable most of the natives on this part of the Coast live on hunting for they most of them live in land this is not the case to the Northward for the face of the Countray is widly different

--Robert Haswell, Oregon Coast, 1788



B. Zybach and A. Matzke
 (c) NWMaps Co. 20030320

Tribe	Language	River
Northern		
<u>Clowewallah</u>	Chinookan	Willamette
Multnomah	Chinookan	Willamette
<u>Kathlamet</u>	Chinookan	Columbia
Clatsop	Chinookan	<u>Youngs</u>
Klaskani	Athapaskan	Clatskanie
Nehalem	Salish	Nehalem
Eastern		
<u>Atfalatl</u>	Kalapuyan	Tualatin
<u>Yamel</u>	Kalapuyan	Yamhill
Luckiamute	Kalapuyan	Luckiamute
Chepenafa	Kalapuyan	Marys
Chelamela	Kalapuyan	Long Tom
Calapooia	Kalapuyan	Willamette
Western		
Killamox	Salish	Tillamook
Nestucca	Salish	Nestucca
<u>Nechesne</u>	Salish	Salmon
Siletz	Salish	Siletz
Yakona	Yakonan	Yaquina
Alsi	Yakonan	Alsea
Siuslaw	Yakonan	Siuslaw
Southern		
<u>Ayankeld</u>	Kalapuyan	Umpqua
<u>Kelawatset</u>	Kusan	Umpqua
<u>Hanis</u>	Kusan	Coos
<u>Miluk</u>	Kusan	Coquille
<u>Mishikwutmetunne</u>	Athapaskan	Coquille



YAQUIA BAY—INDIANS' FULL DRESS.



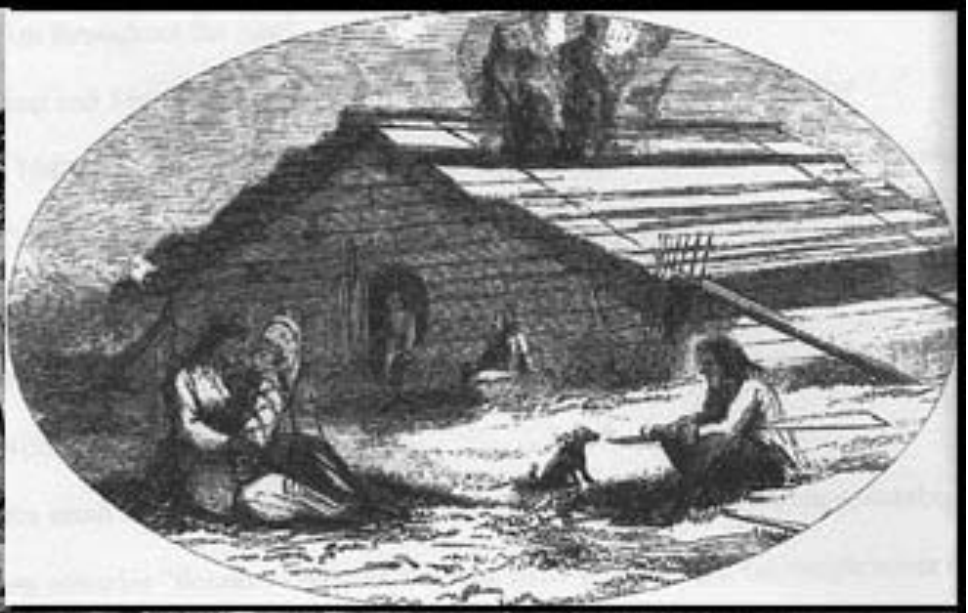
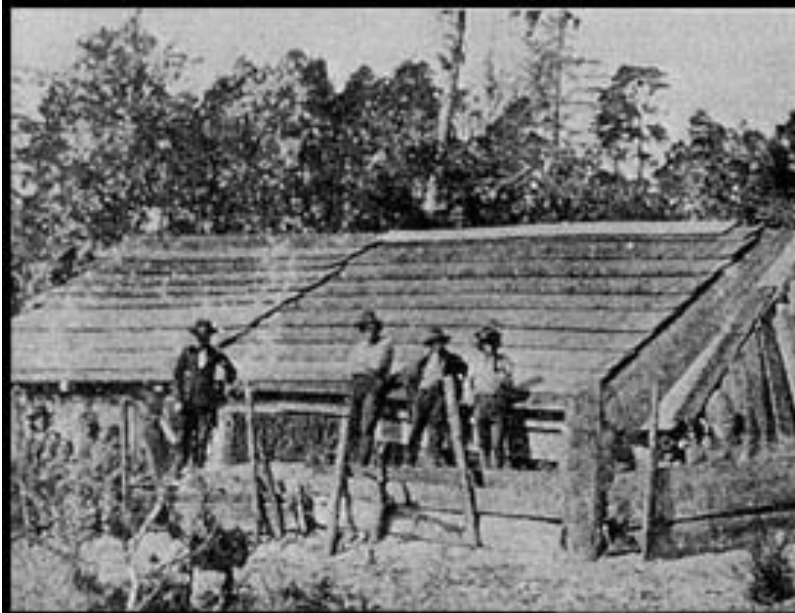


Types of Indian Burning Practices

Type of burning	Products and purposes	Timing
Firewood gathering and burning	Heat, light, cooking, boiling, fuel stores, celebration, ceremony, security	Daily, concentrated near homes, trails, settlements and campgrounds
Patch burning	Hunting, berry patches, root fields, pest control, weaving materials, trail maintenance	Seasonal and situational
Broadcast burning	Stable wildlife habitat, curing seeds, hunting, <u>transportation</u> , weaving materials, acorn harvest.	Seasonal: late summer, early fall for grasslands; late winter, early spring for brackenfern

OREGON COAST RANGE
Seasonal Burning Patterns, ca. 1600-1848

Mo.	Season	Weather	Temperature	Plant Fuels	Burning
Jan.	Winter	Wet	Freezing	Dormant	Firewood
Feb.	Winter	Wet	Freezing	Dormant	Patches
Mar.	Spring	Wet	Freezing	Budburst	Patches
Apr.	Spring	Mixed	Cool	New Growth	Patches
<i>May</i>	<i>Transition</i>	<i>Mixed</i>	<i>Warming</i>	<i>Growing</i>	<i>Projects</i>
Jun.	Summer	Dry	Warm	Growing	Firewood
Jul.	Summer	Dry	Warmest	Growing	Firewood
Aug.	Late Summer	Dry	Warmest	Dormant	Broadcast
Sep.	Late Summer	Dry	Warm	Dormant	Broadcast
<i>Oct.</i>	<i>Transition</i>	<i>Mixed</i>	<i>Cooling</i>	<i>Fall Growth</i>	<i>Patches</i>
Nov.	Fall	Wet	Freezing	Dormant	Firewood
Dec.	Fall	Wet	Freezing	Dormant	Firewood









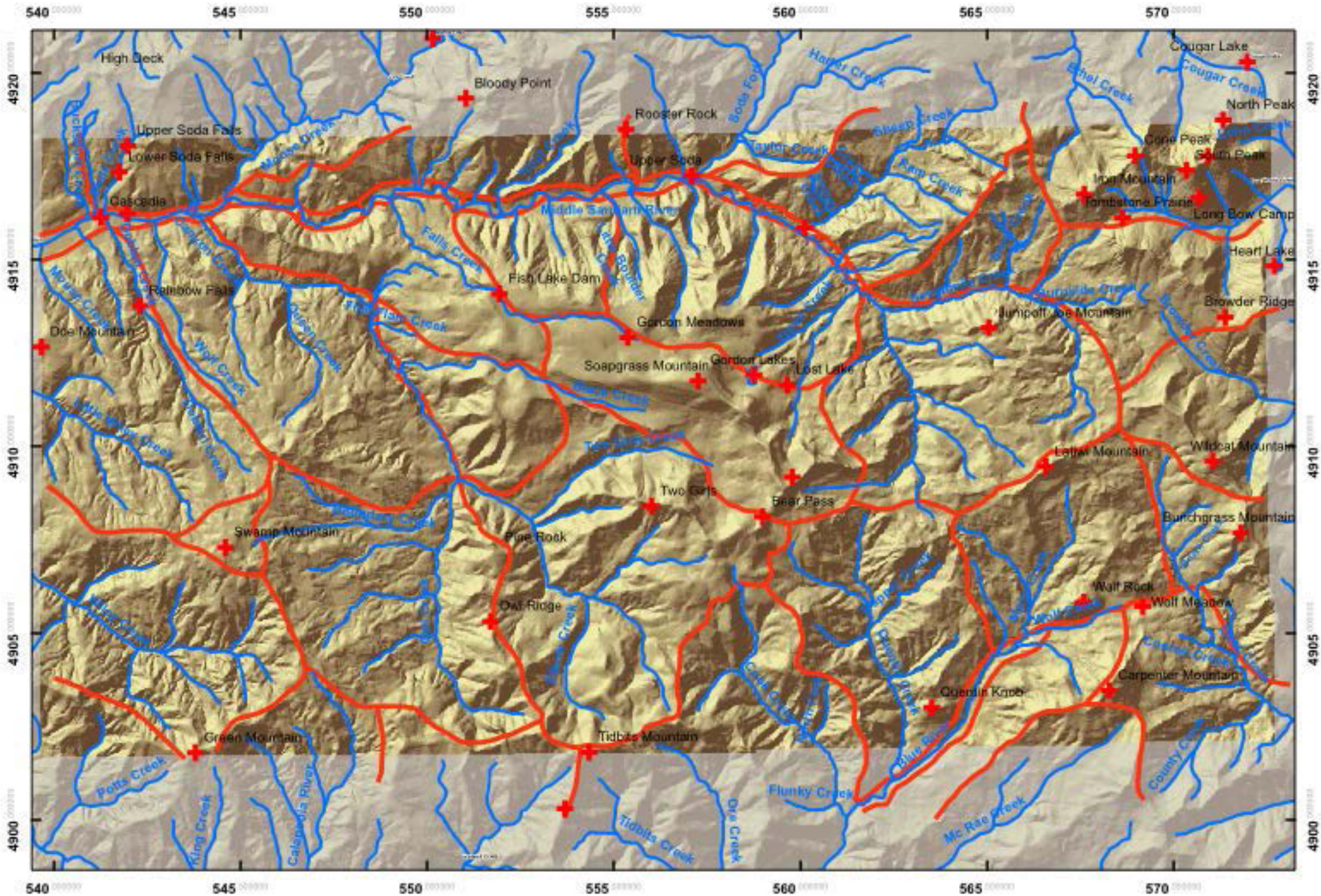
Sacred Landmarks



Gordon Meadows

Santiam Molalla Primary Trail System, 1750-1850: South Santiam River and Blue River, Oregon Headwaters

- + Place
- Trails
- Lakes
- Arcdata DBO_OR_STREAMS
- ▲ Peaks
- Meadows
- Streams





Native Plants

















Traditional Foods





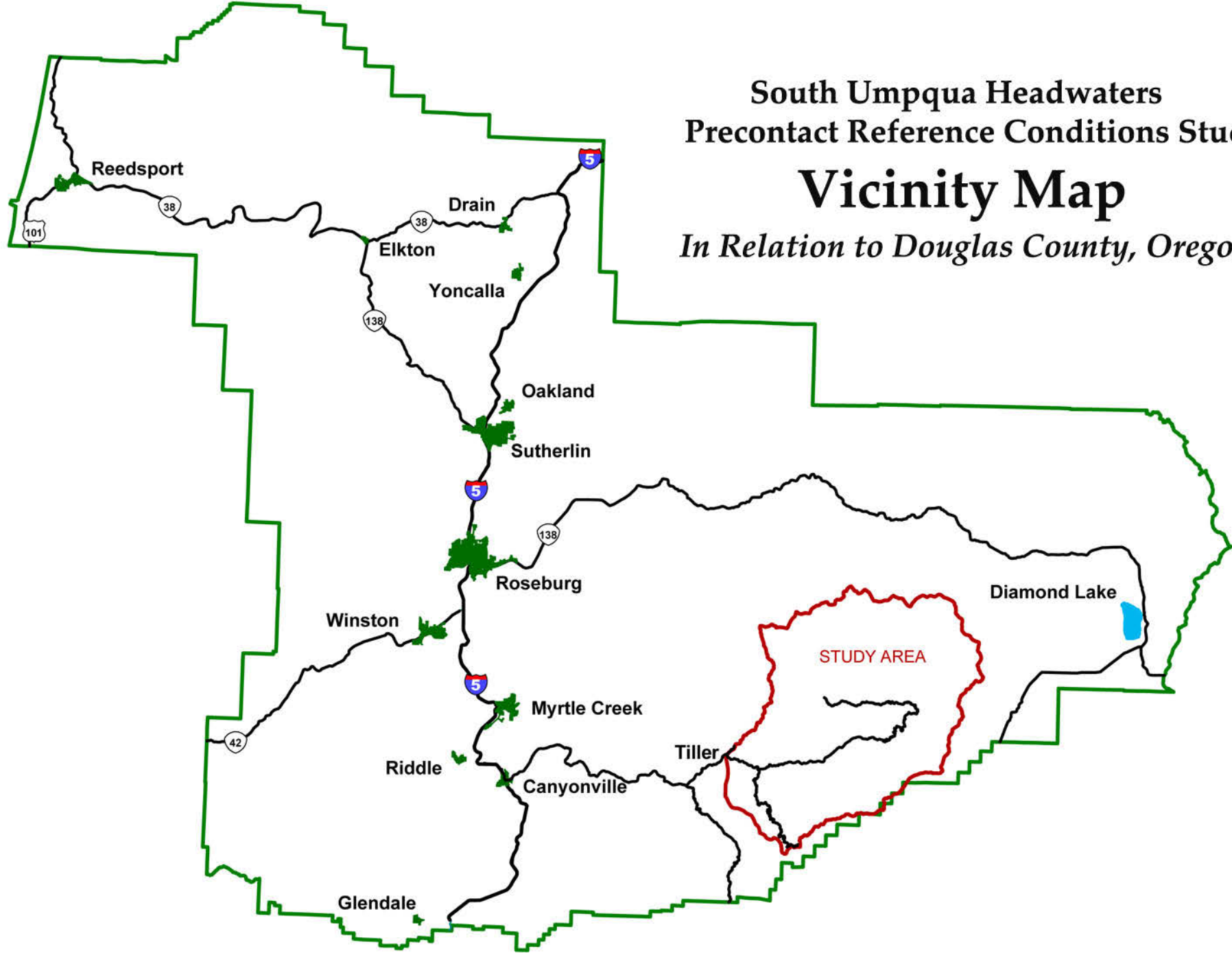
Vision for the Future

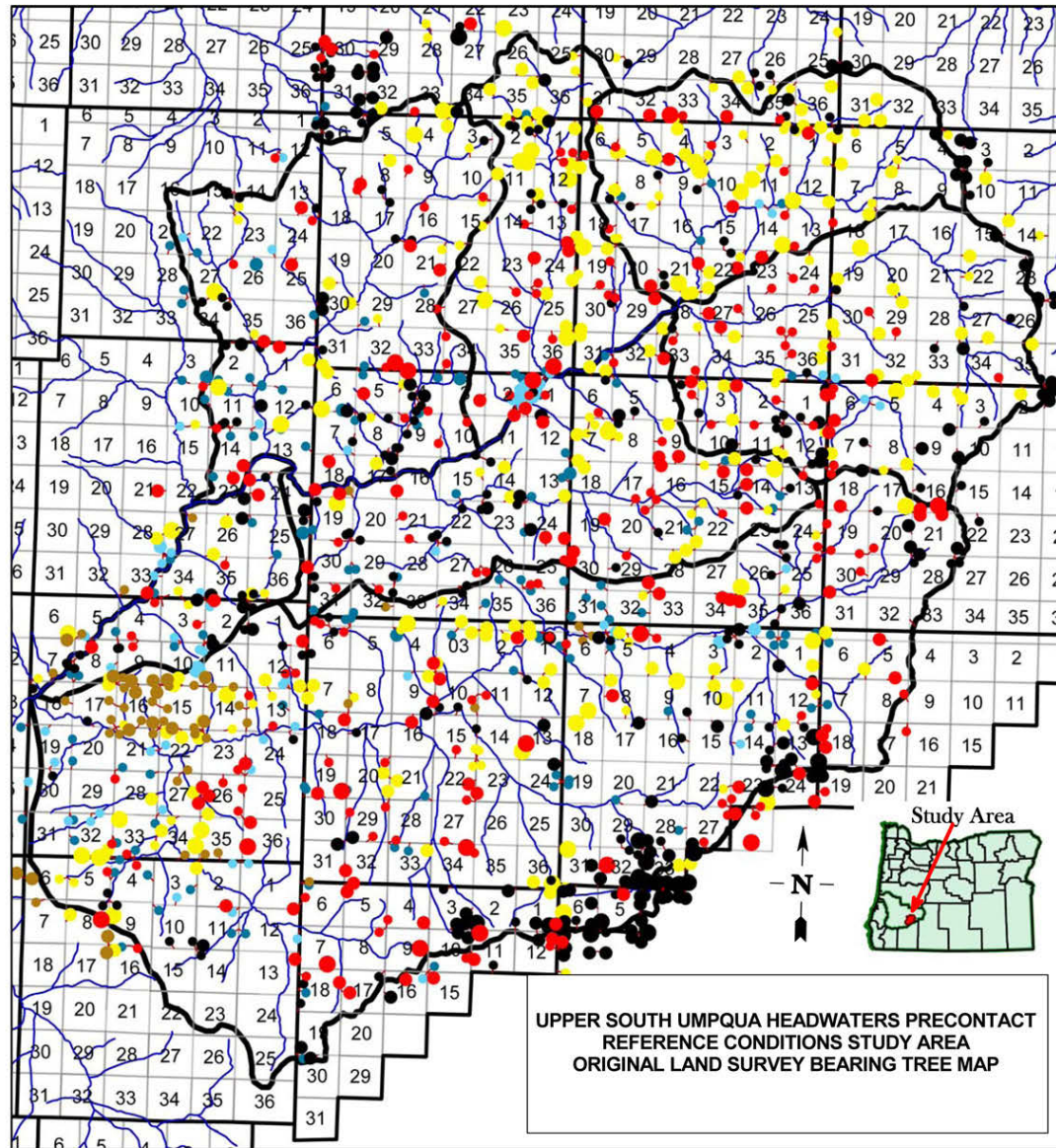


South Umpqua Headwaters
Precontact Reference Conditions Study

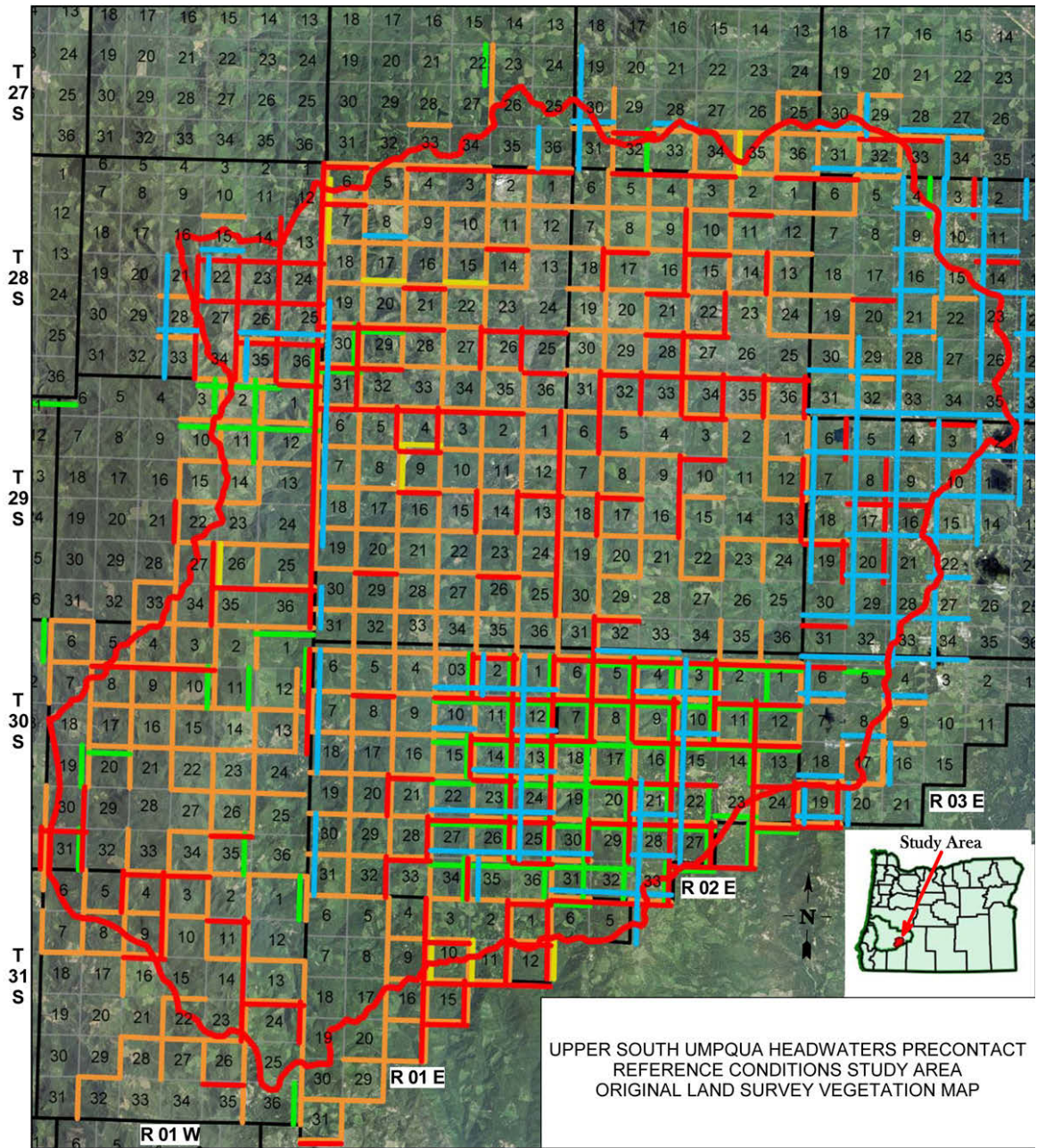
Vicinity Map

In Relation to Douglas County, Oregon



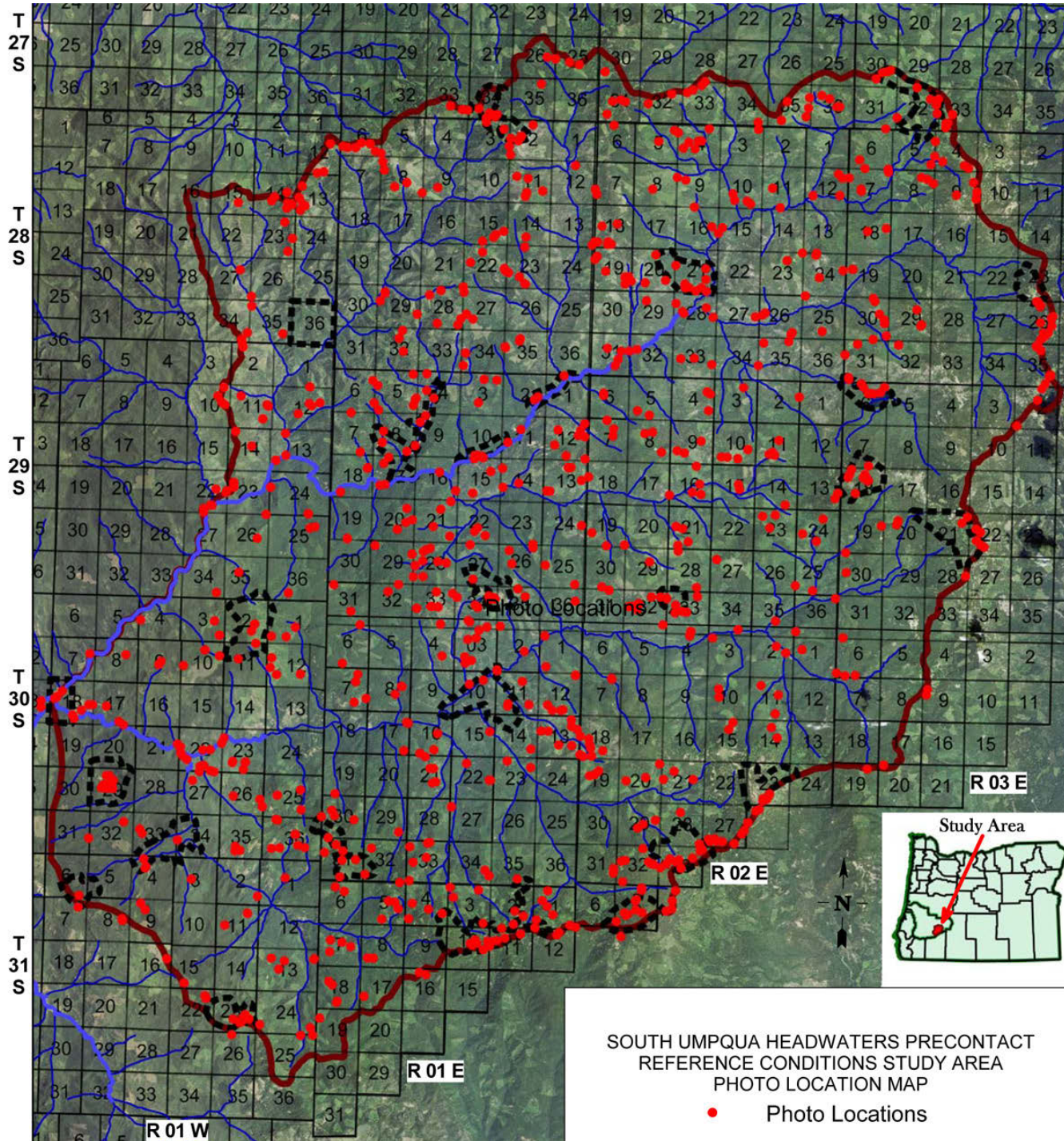


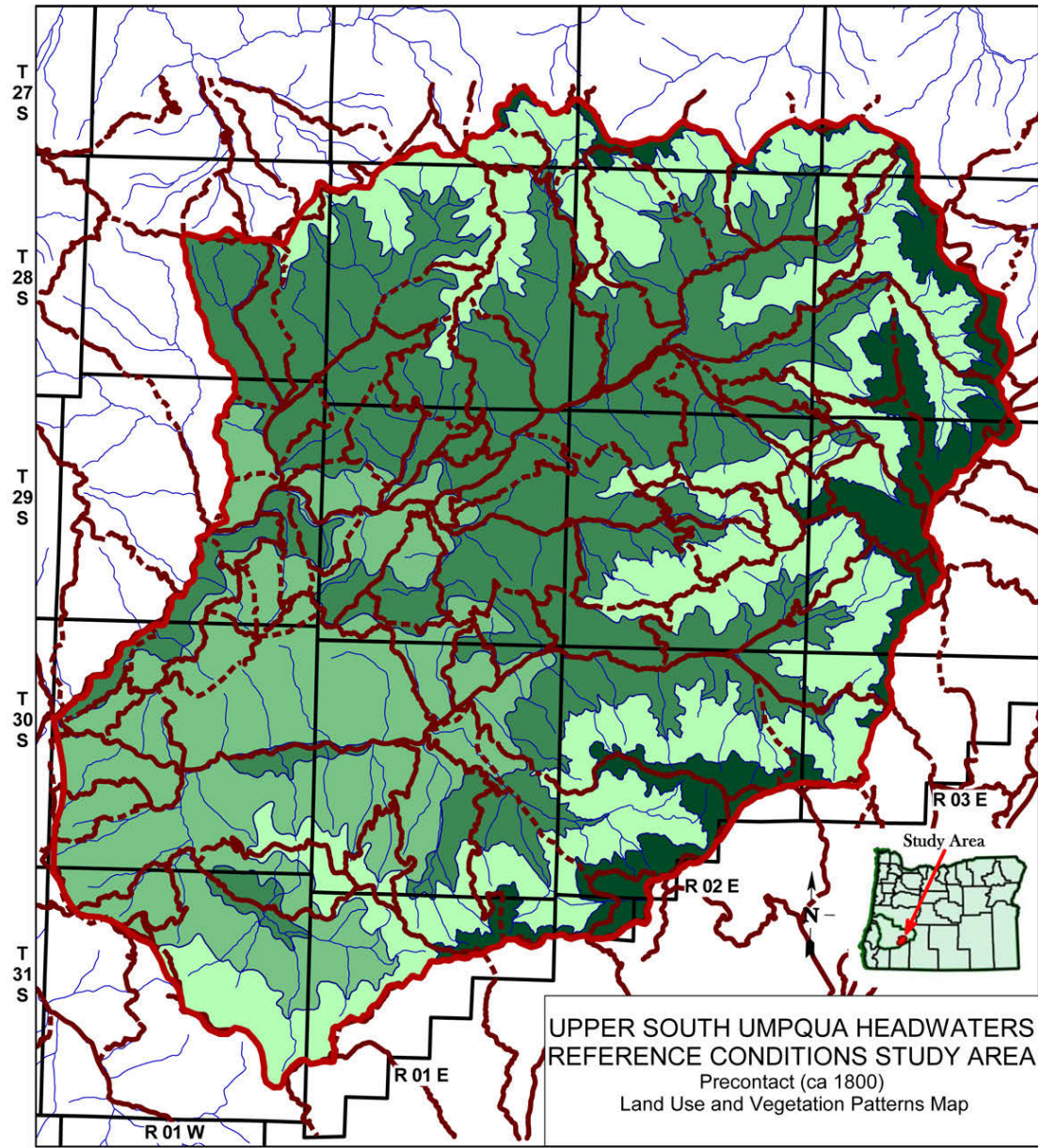
- | | | | |
|--------------------|-------------------|------------------------------|-----------------------------|
| ● Cedar Under 18 | ● Hem-Fir Over 36 | ● Pine 18 to 36 | ● Upland Hardwoods Under 18 |
| ● Cedar 18 to 36 | ● Oak Under 18 | ● Pine Over 36 | ● Upland Hardwoods 18 to 36 |
| ● Cedar Over 36 | ● Oak 18 to 36 | ● Riparian Hardwood Under 18 | ● Upland Hardwoods Over 36 |
| ● Hem-Fir Under 18 | ● Oak Over 36 | ● Riparian Hardwood 18 to 36 | ▭ Subbasins |
| ● Hem-Fir 18 to 36 | ● Pine Under 18 | ● Riparian Hardwood over 36 | |
- 1 = Boulder Subbasin** **3 = Black Rock Subbasin** **5 = Buckeye Subbasin** **7 = Jackson Subbasin**
2 = Quartz Subbasin **4 = Zinc Subbasin** **6 = Castle Rock Subbasin**




UPPER SOUTH UMPQUA HEADWATERS PRECONTACT
 REFERENCE CONDITIONS STUDY AREA
 ORIGINAL LAND SURVEY VEGETATION MAP

- Understory Huckleberry
 - Understory Salal
 - Study Area Boundary
 - Understory Evergreen
 - Understory Hardwoods
 - Section Lines
 - Understory Nut-Shrubs
 -
 -
- 2009 Aerial Flight





- | | | | | | |
|---|------------|---|------------------|---|------------------|
|  | Study Area |  | Trails Developed |  | Douglas Fir Zone |
| | |  | Trails Abandoned |  | Oak Zone |
| | | | |  | Pine Zone |
| | | | |  | Sub Alpine Zone |

FRCC-1



Figure 8.01 GLO Surveyor Norman Price and wife, ca. 1940.

Price helped survey much of the study area in the late 1930s (e.g., Price et al. 1929). His observations regarding his survey of Tsp. 34 S., Rng. 8 W. to the southwest of the South Umpqua River are relevant to the findings of this research:

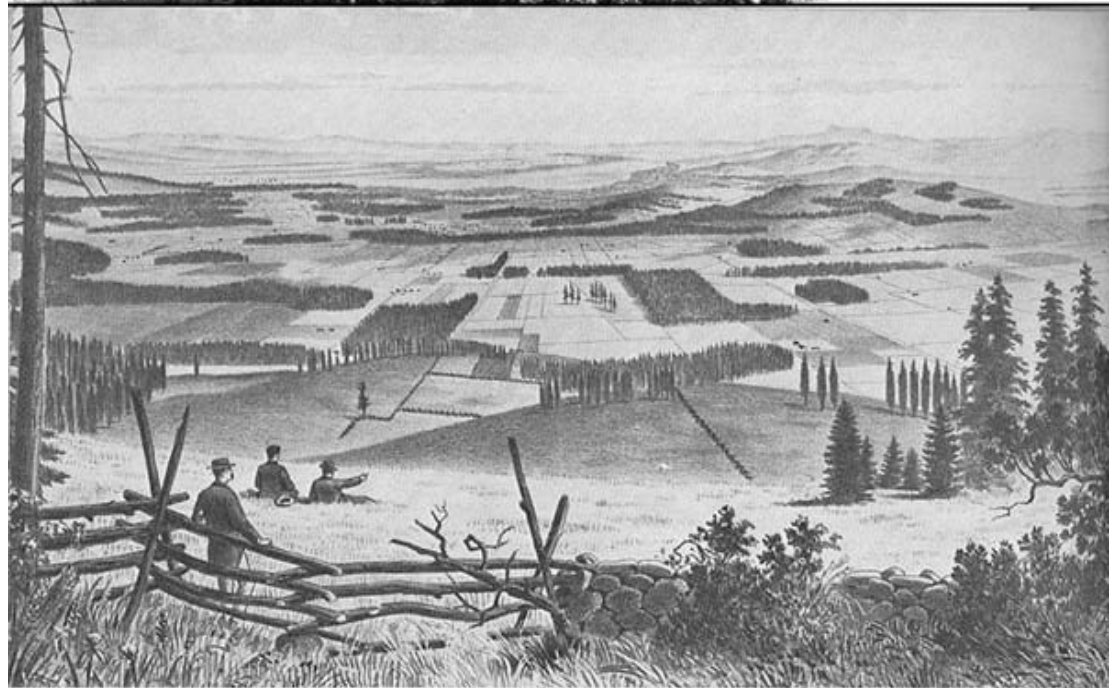
“Most of the township is covered with such a dense growth of buckthorn, manzanita, lilac, madrona, chinquapin, and sweet acorn that no grasses can thrive. A small area on what is known as Peavine Mountain, in sec. 21, sustains a growth of native peavine sufficient to graze a few head of cattle for about six weeks. It is an historical fact that in the days immediately following the occupation of this country by the Indians this country was all covered with a fine growth of native grasses and practically no underbrush. The Indians accomplished this by setting fire to the vegetation on one side of the river one year and the other side the next year. Thus they kept the country open and clean and were never in danger of a forest fire.”

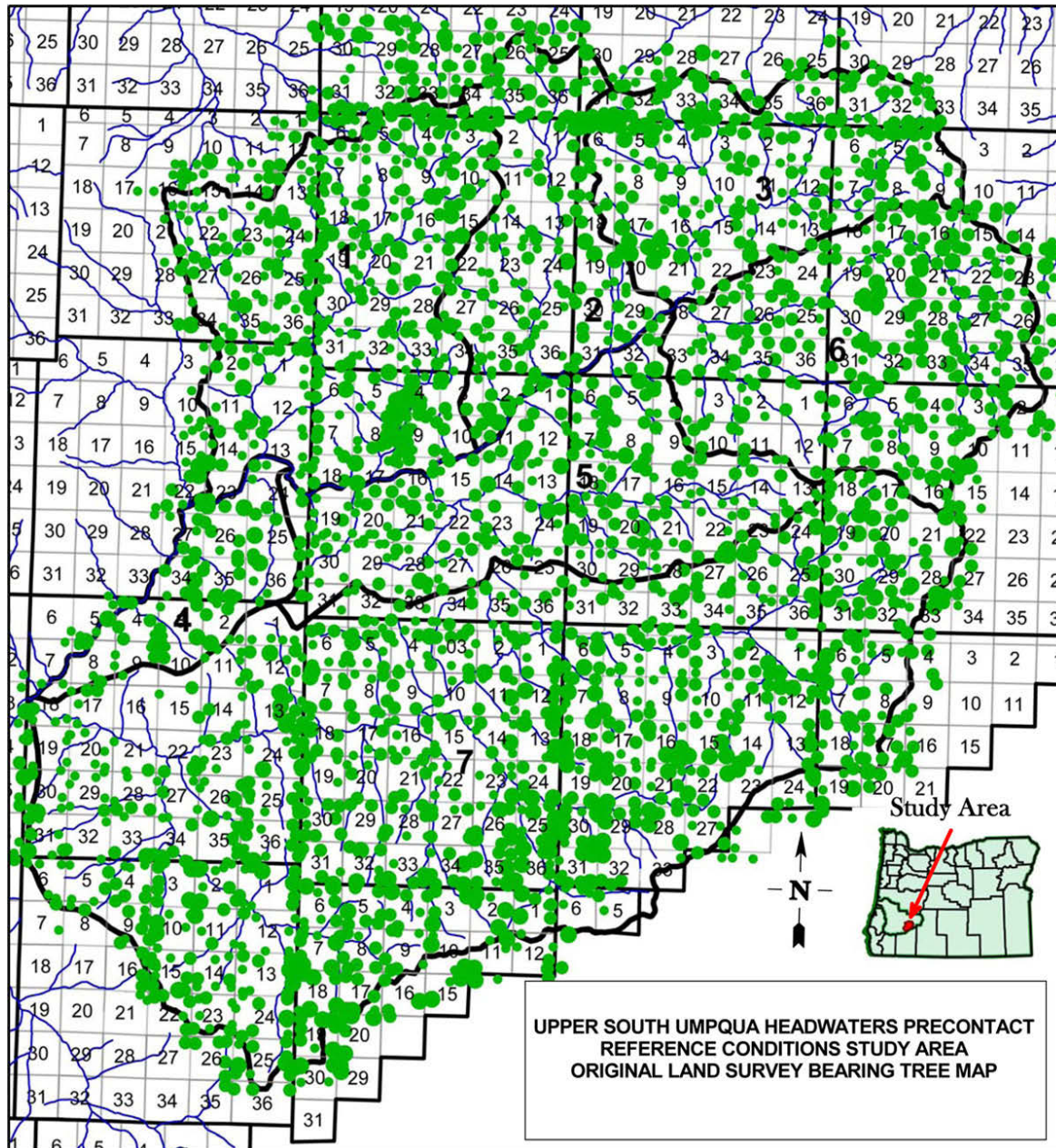
Willamette Valley, Oregon

1845



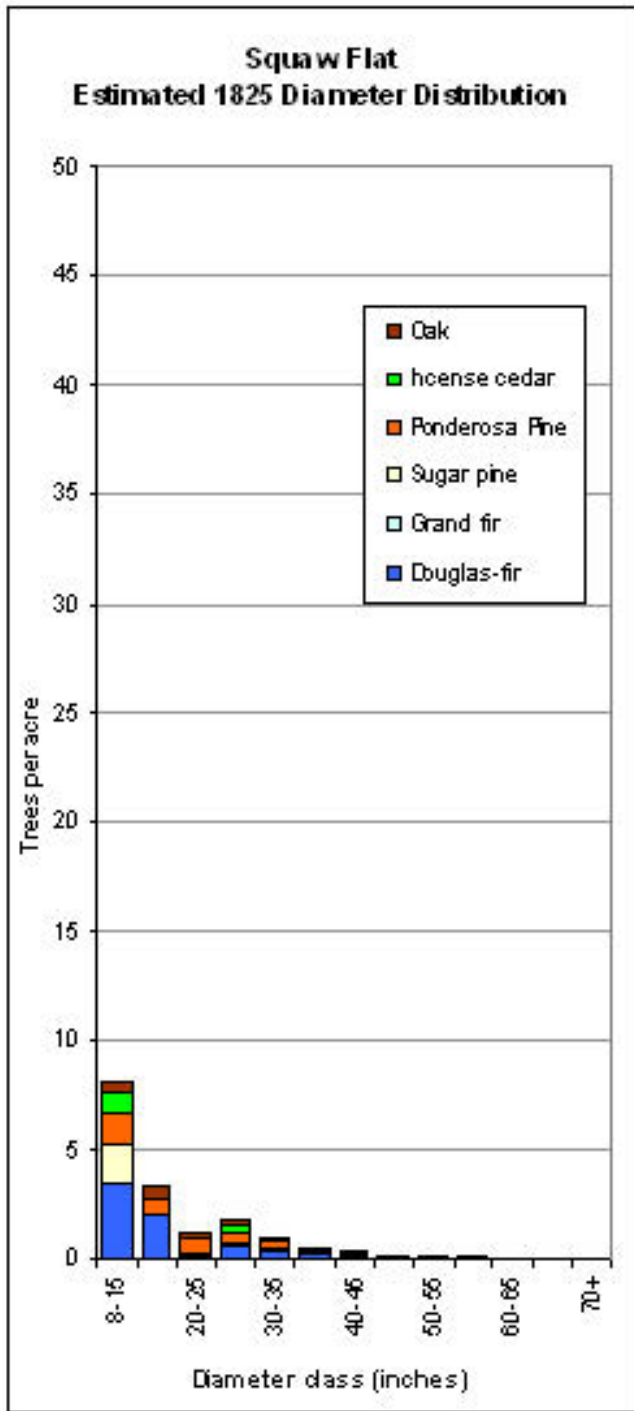
1885



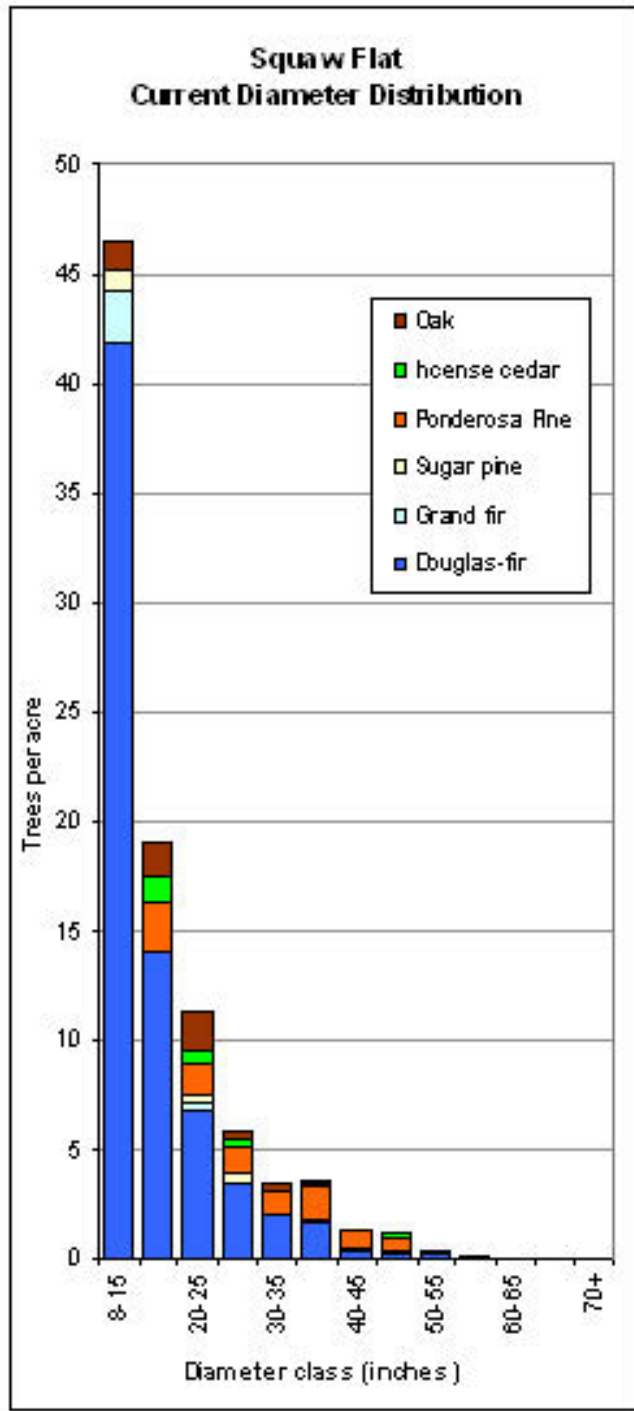


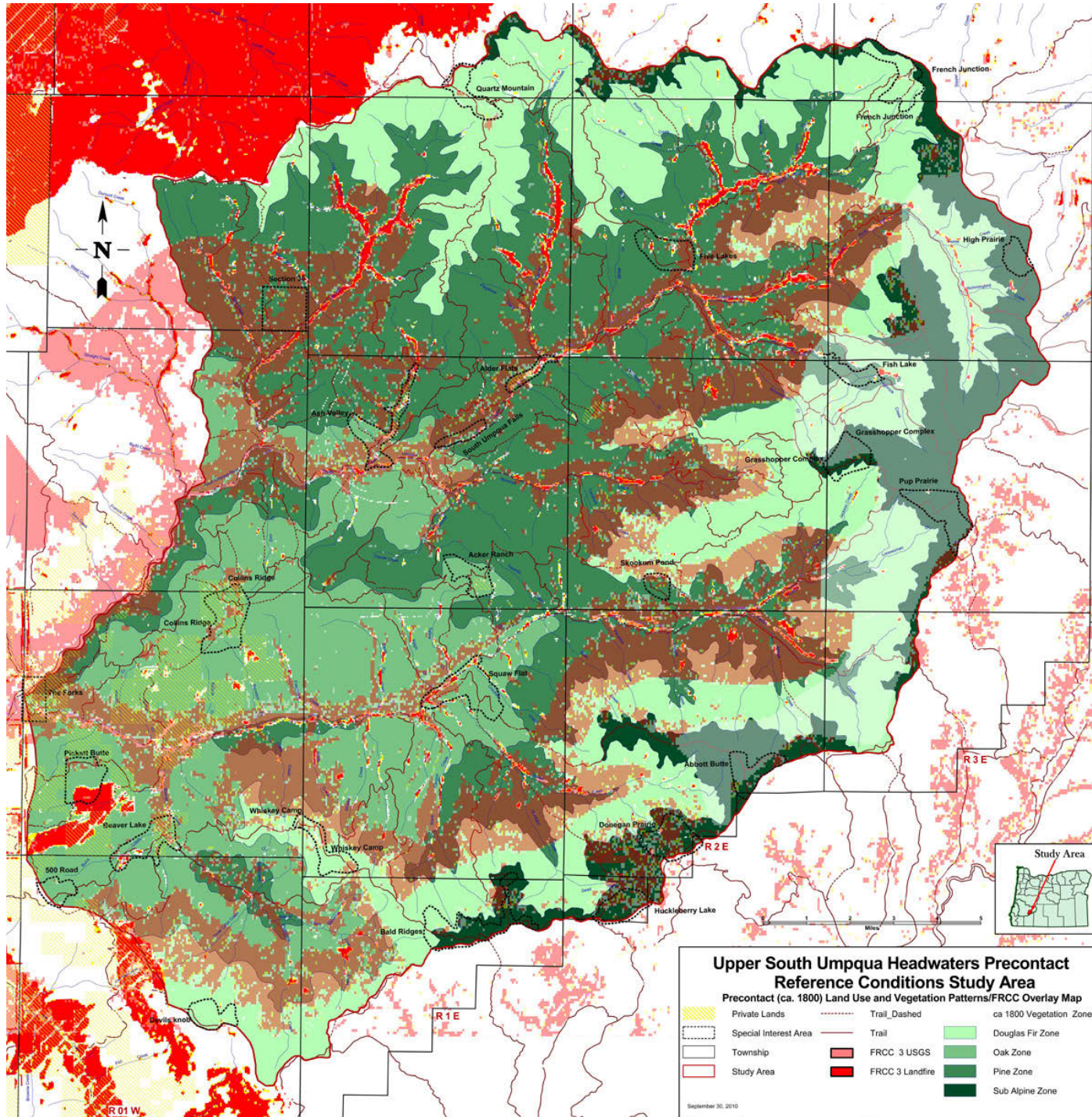
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1825



2010





Upper South Umpqua Headwaters Precontact Reference Conditions Study Area
 Precontact (ca. 1800) Land Use and Vegetation Patterns/FRCC Overlay Map

Private Lands	Trail_Dashed	ca 1800 Vegetation Zones
Special Interest Area	Trail	Douglas Fir Zone
Township	FRCC 3 USGS	Oak Zone
Study Area	FRCC 3 Landfire	Pine Zone
		Sub Alpine Zone

September 30, 2010













Dead Wood





09/22/2009





Conclusions

1. Catastrophic-scale wildfires are predictable, deadly, costly, and destructive – and they have increased greatly in size and scope since the turn of the century.
2. Total “cost-plus-loss” damages of recent large-scale wildfires are typically ten to 50 (or more) times greater than suppression costs.
3. Regular landscape-scale prescribed fires, as exemplified by historical Indian burning practices, can greatly reduce the likelihood and severity of wildfire risks.
4. Seasonality and general conditions (weather, fuel, and topography) are largely the same for wildfire and prescribed fire, although fuel loads for prescribed fires are typically significantly less than for wildfires.

U.S. Wildfire Cost-Plus-Loss Economics Project

<http://www.wildfire-economics.org/>



Oregon Websites and Watersheds Project, Inc.



www.ORWW.org