

Burning for Butterflies, Birds, and Blooms: Prescribed Fire in the Willamette Valley

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Cascadia Prairie and Oak Partnership Conference
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The Walhamette River from a Mountain, Paul Kane, 1847



Indians playing the spear game, foothills of Mt. Hood, Joseph Drayton.
Courtesy Oreg. Hist. Soc. Research Library, OrHi 102218

(Johannessen, 1971; ODFW, 2006; Christy, 2011)

Types of Burning

Firewood

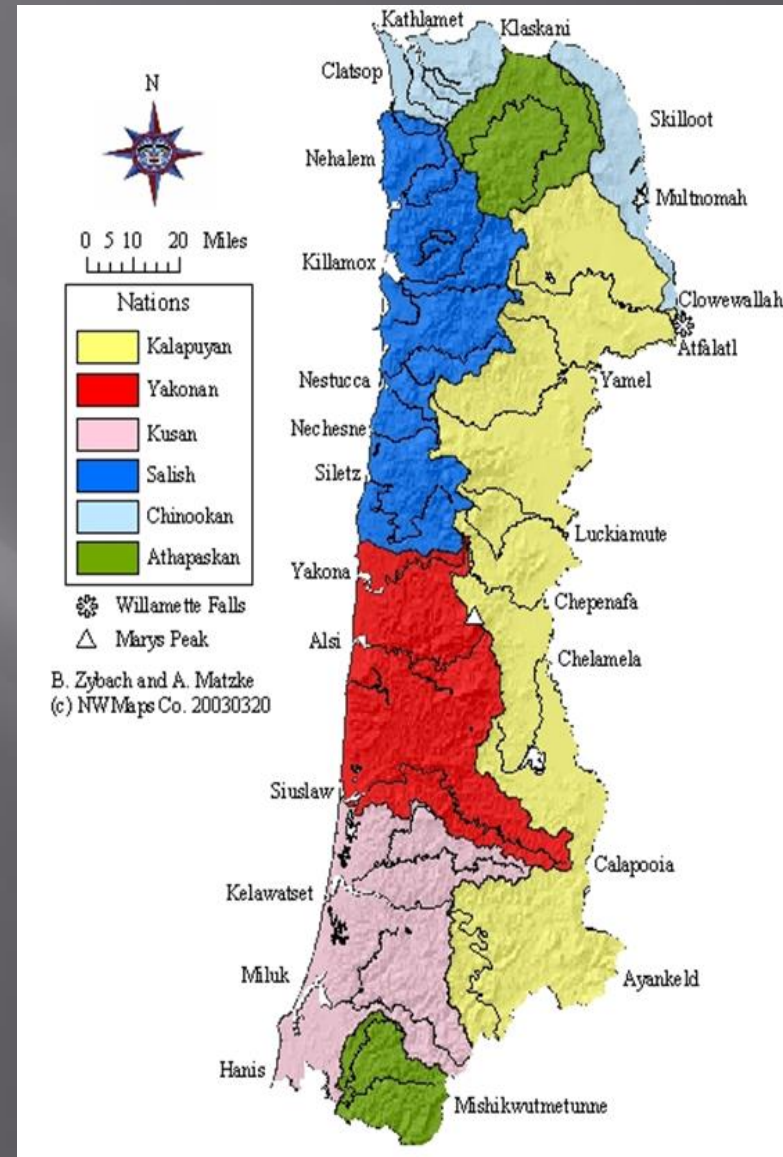
Heat, light, cooking, boiling, cleaning, celebration, ceremony

Patch Burning

Hunting, berry patches, root harvest, pest control, weaving materials, trail maintenance, seasonal, situational

Broadcast Burning

wildlife habitat; curing seeds; hunting; transportation; weaving materials; acorn harvest, late summer, early fall for grasslands.
(Boyd 1986; Gilsen 1989).



(Zybach and Lake 2003)

Willamette Valley Ecoregion, Oregon

1850 Vegetation

Figure 2-2

General Classification

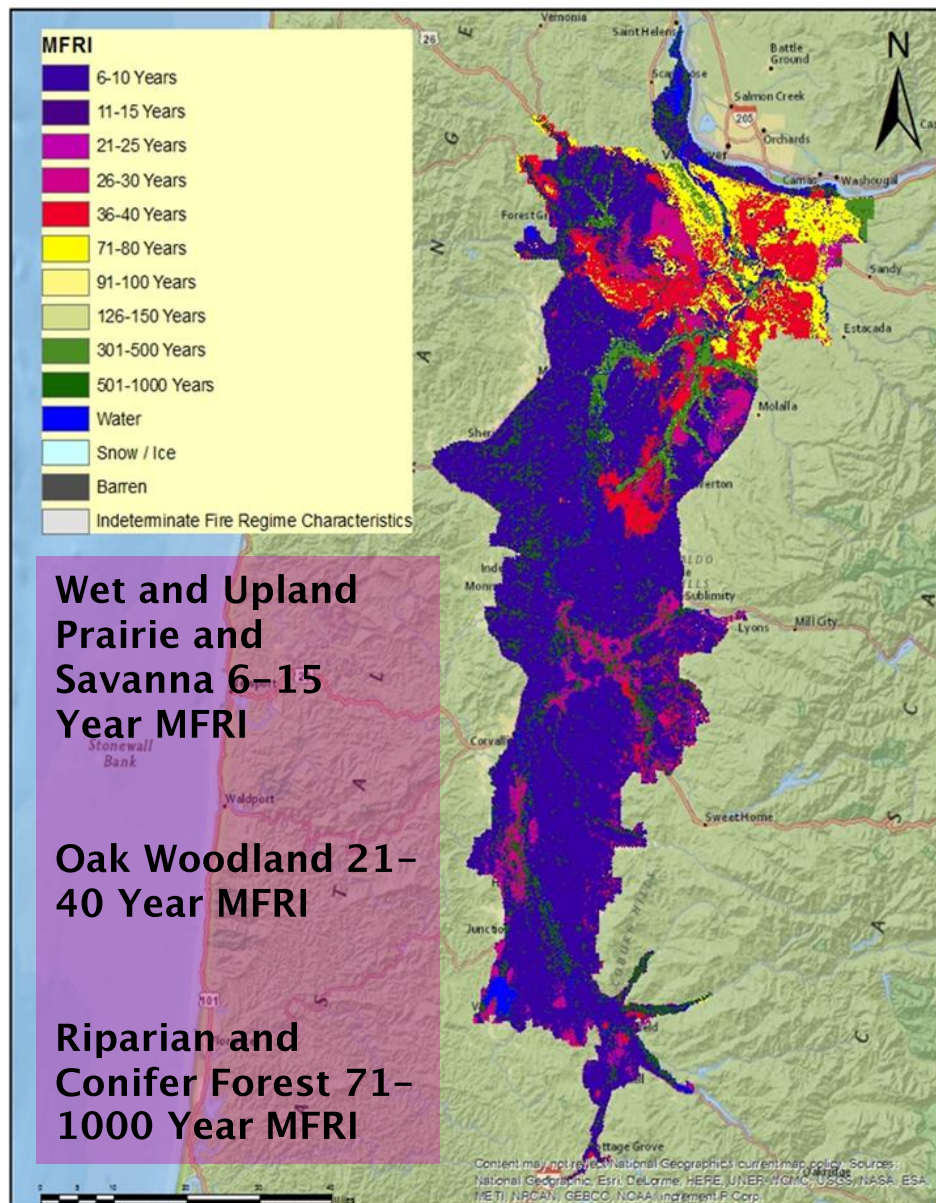
- Upland Prairie (742,060 Ac)
- Wet Prairie, Mounded Prairie, Emergent Wetland, Shrub Swamps (331,014 Ac)
- Herbaceous Upland Communities (239 Ac)
- Savanna, mixed, Oak, & Oak-Conifer (607,205 Ac)
- Woodland, Fir, & Fir-Oak (486,687 Ac)
- Riparian Forest, Ash Savanna, Scrub, Brush, & Thickets (240,051 Ac)
- Upland Forest, Fir, Oak, & Oak-Conifer (938,188 Ac)
- Unvegetated, Rock Outcrop, Sand & Gravel (645 Ac)
- Water as mapped by GLO (50,624 Ac)

Rivers (current location)

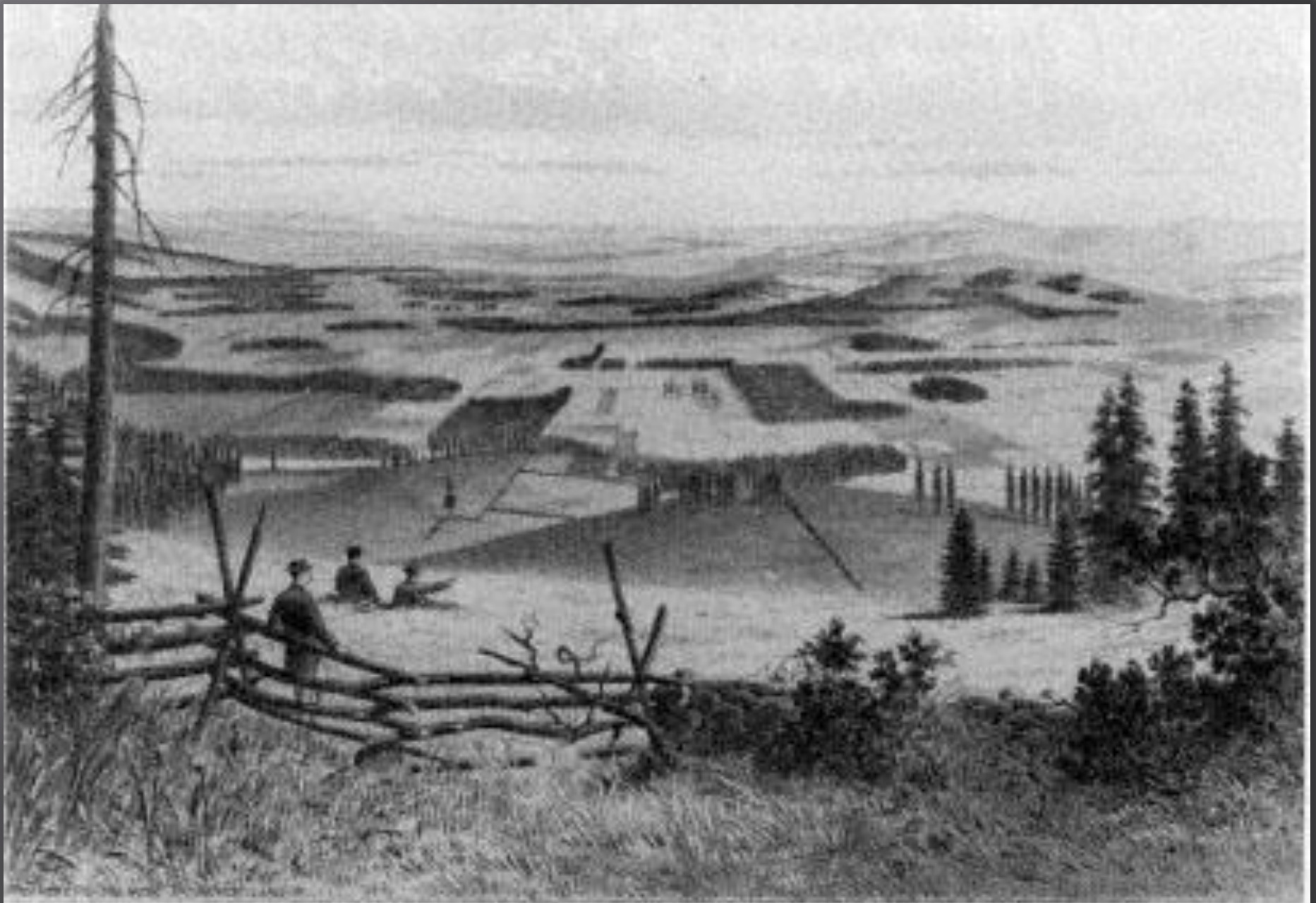
"On the 10th, the country was somewhat more hilly than the day previous, but still fine grazing land. ...The country had an uninviting look, from the fact that it had been overrun by fire, which had destroyed all the vegetation except the oak trees, which appeared not to be injured."

-Lieutenant Charles Wilkes, describing a location along the Willamette River, September 1841.

0 10 20 miles
Scale



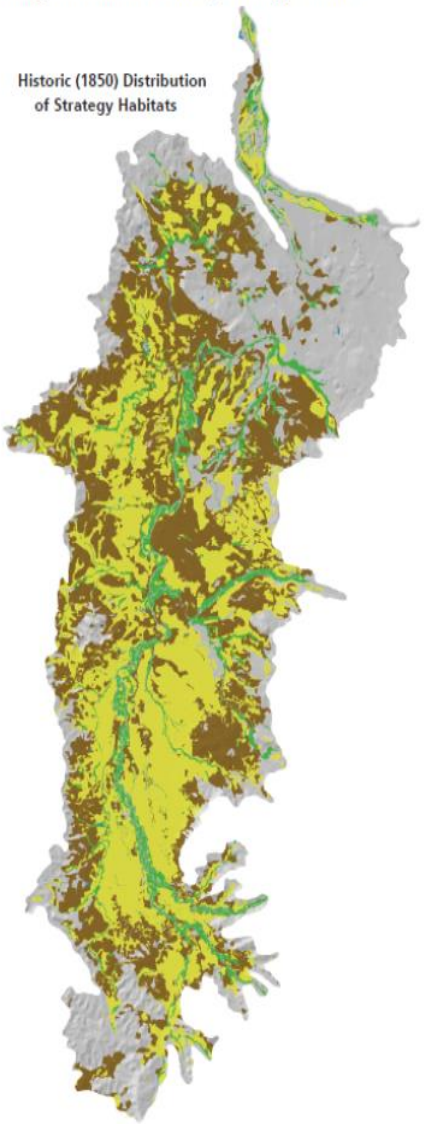
Presumed Historic Mean Fire Return Intervals Willamette Valley



CHEHALIS VALLEY, THE GREAT FRUIT-GROWING SECTION OF OREGON.

Change in Willamette Valley Strategy Habitats

Historic (1850) Distribution of Strategy Habitats



Current (2004) Distribution of Strategy Habitats

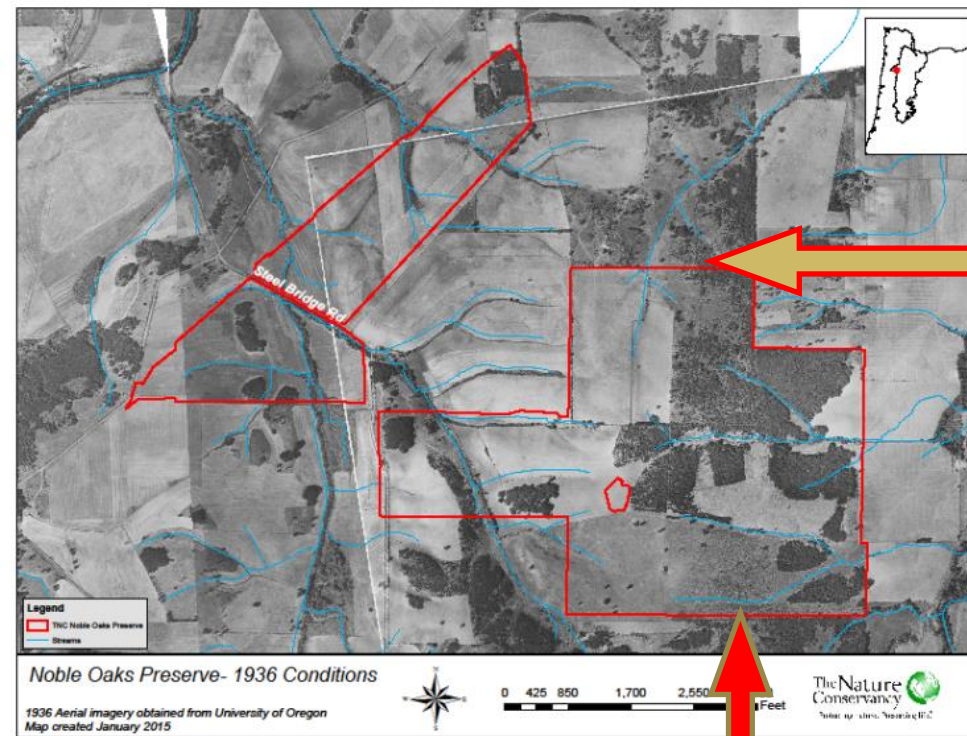


- Grasslands
- Oak woodlands
- Riparian
- Wetlands and wet praries



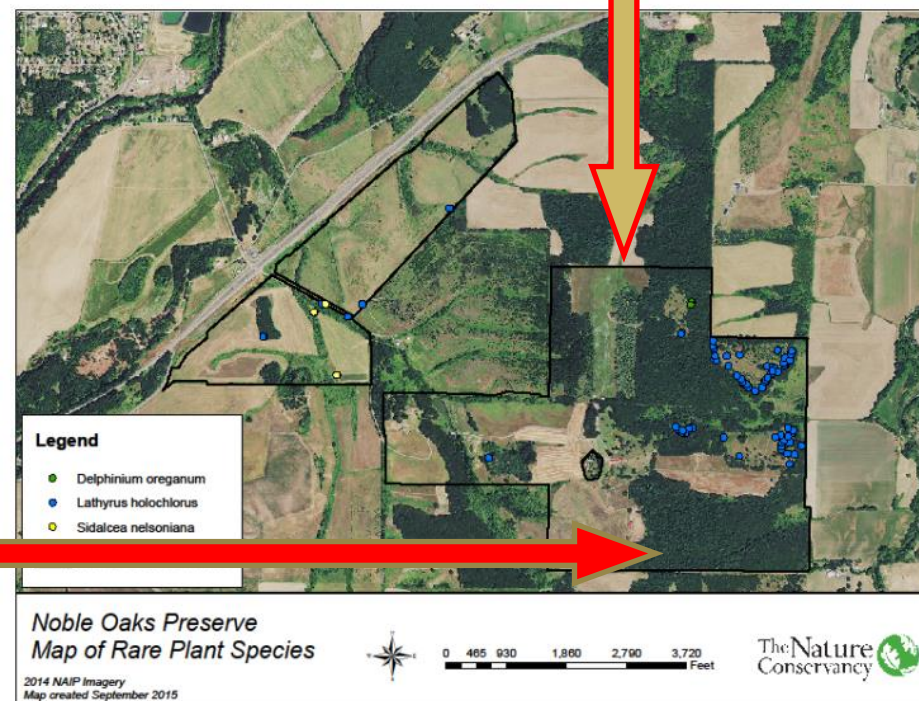
Data Source: Oregon Natural Heritage Information Center, 2004.





Increased tree density
and changes in canopy
structure

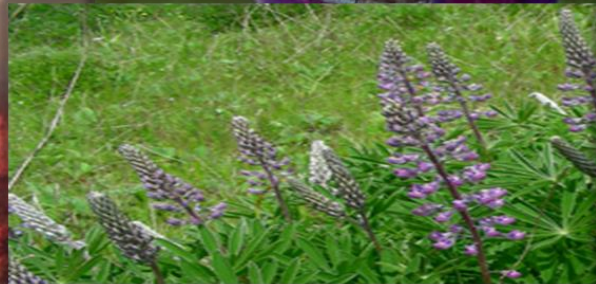
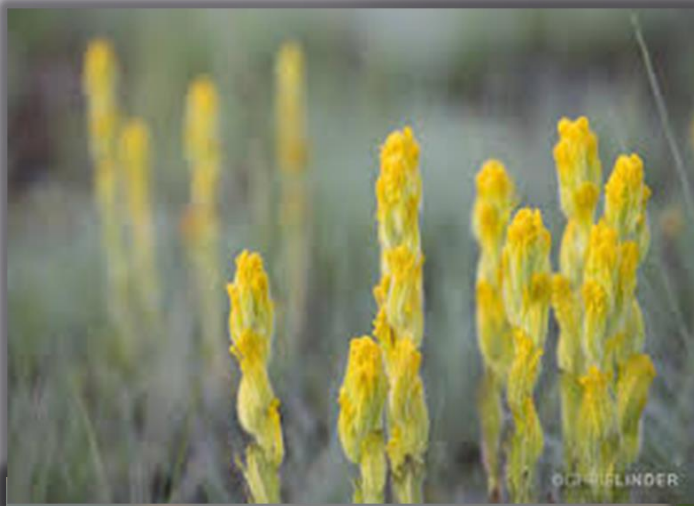
Altered overstory and
understory species
composition



Wet Prairie



Upland Prairie and Oak Savanna



Oak Woodland

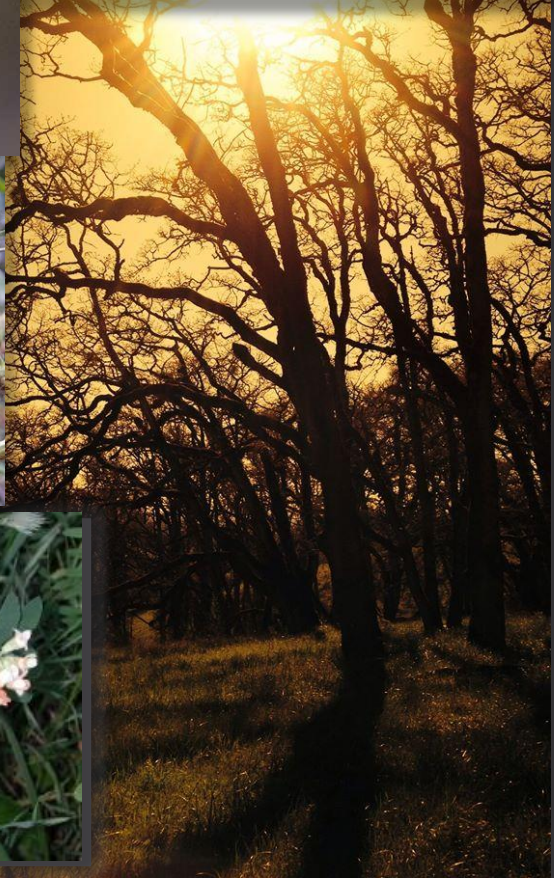


Photo Credit: Tom Kaye

Pile Burning $\neq$ Broadcast RX

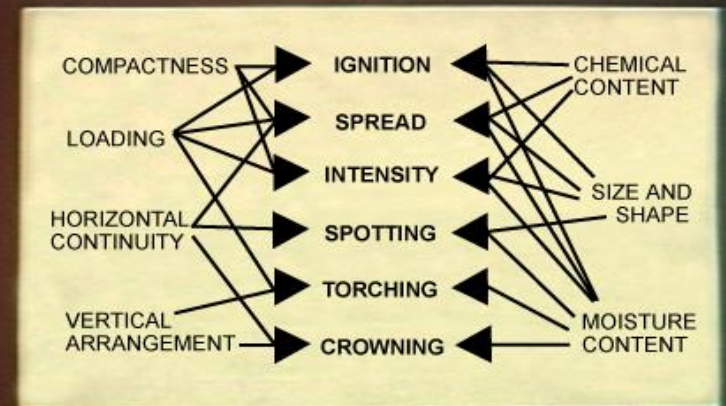


pyrotechnician with legal authority and good intentions





Assessment of Vegetation (Fuel Conditions)



Does it need to burn?

If so, how will it burn?

Can it be burned?

Burn Plannin'



ELEMENT 10.2: WEATHER AND FUEL PARAMETERS

*TNC REQUIRED ELEMENT

ACCEPTABLE PARAMETERS

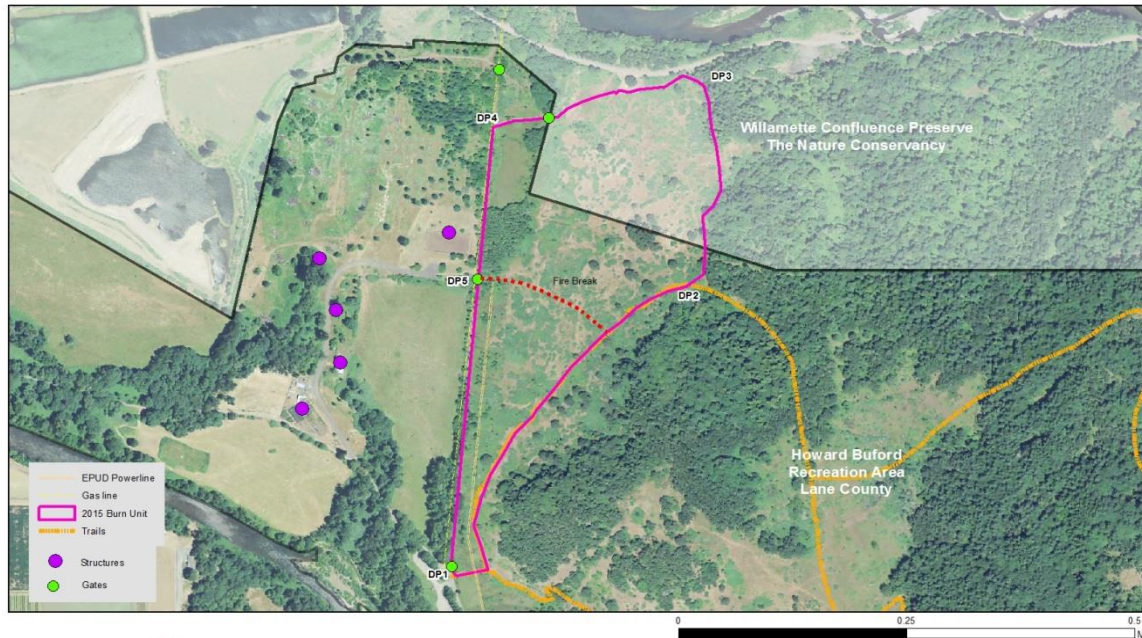
Enter the range of parameters that will produce fire behavior adequate to meet prescribed fire objectives. Low and High are defined as the limits of each prescription element as they contribute to extreme behavior. E.g. the "low" humidity parameter should be the maximum humidity conditions under which the burn would be conducted as max humidity may result in cool, slow, patchy and incomplete fuel consumption.

	LOW (end of range contributing to extreme behavior)	PREFERRED	HIGH (end of range contributing to extreme behavior)	Notes (including how holding constraints outside unit may be influencing parameters entered)
TEMPERATURE (F°)*	60	75	90	
RELATIVE HUMIDITY (%)	60	35	25	
DAYS SINCE RAIN	2	15	30	
MIDFLAME WIND SPEED (MPH)*	0	4-6	10	
20 FOOT WINDSPEED (MPH) *	0	10	20	
WIND DIRECTION (AZIMUTH)*	N	NW	NE	
1-HOUR FUEL MOISTURE (%)	10	4	2	
10-HOUR FUEL MOISTURE (%)	20	10	3	
100-HOUR FUEL MOISTURE (%)	20	10	5	
1000-HOUR FUEL MOISTURE (%)	n/a	n/a	n/a	
LIVE FUEL MOISTURE (%)	100	75	50	
DUFF FUEL MOISTURE (%)	n/a	n/a	n/a	
SOIL MOISTURE (%)	n/a	n/a	n/a	

OTHER (e.g. KBDI, HAINES)

EXCLUDED COMBINATION OF PARAMETERS:

Winds from the W-SW pushing heavy smoke onto Kingston-Lyons Road on the eastern and northern boundaries that could impact road conditions or heavy smoke to the closest residences. Forecasted or observed thunderstorm activity with erratic wind shifts and extreme downdrafts. * high end wind speed only acceptable in short gusts or at high fuel moistures as shown in fire behavior calculations.



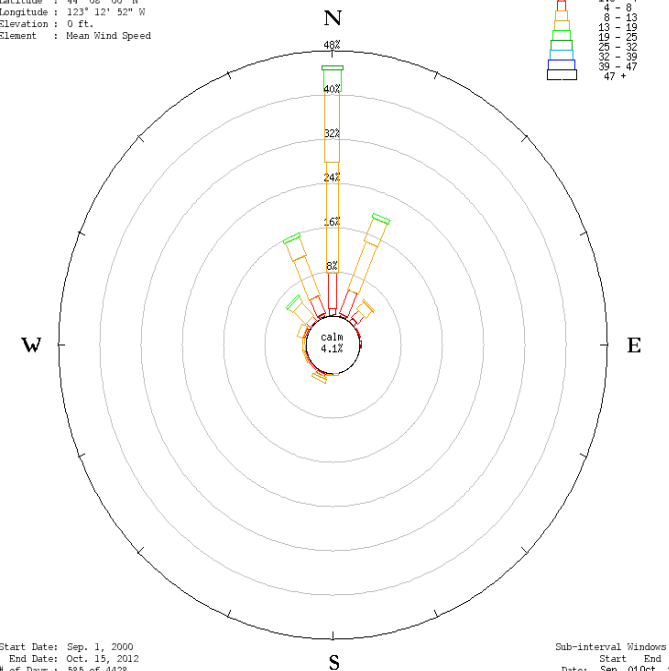
Station : Eugene/Mahlon Sweet Field Oregon

Latitude : 44° 08' 00" N

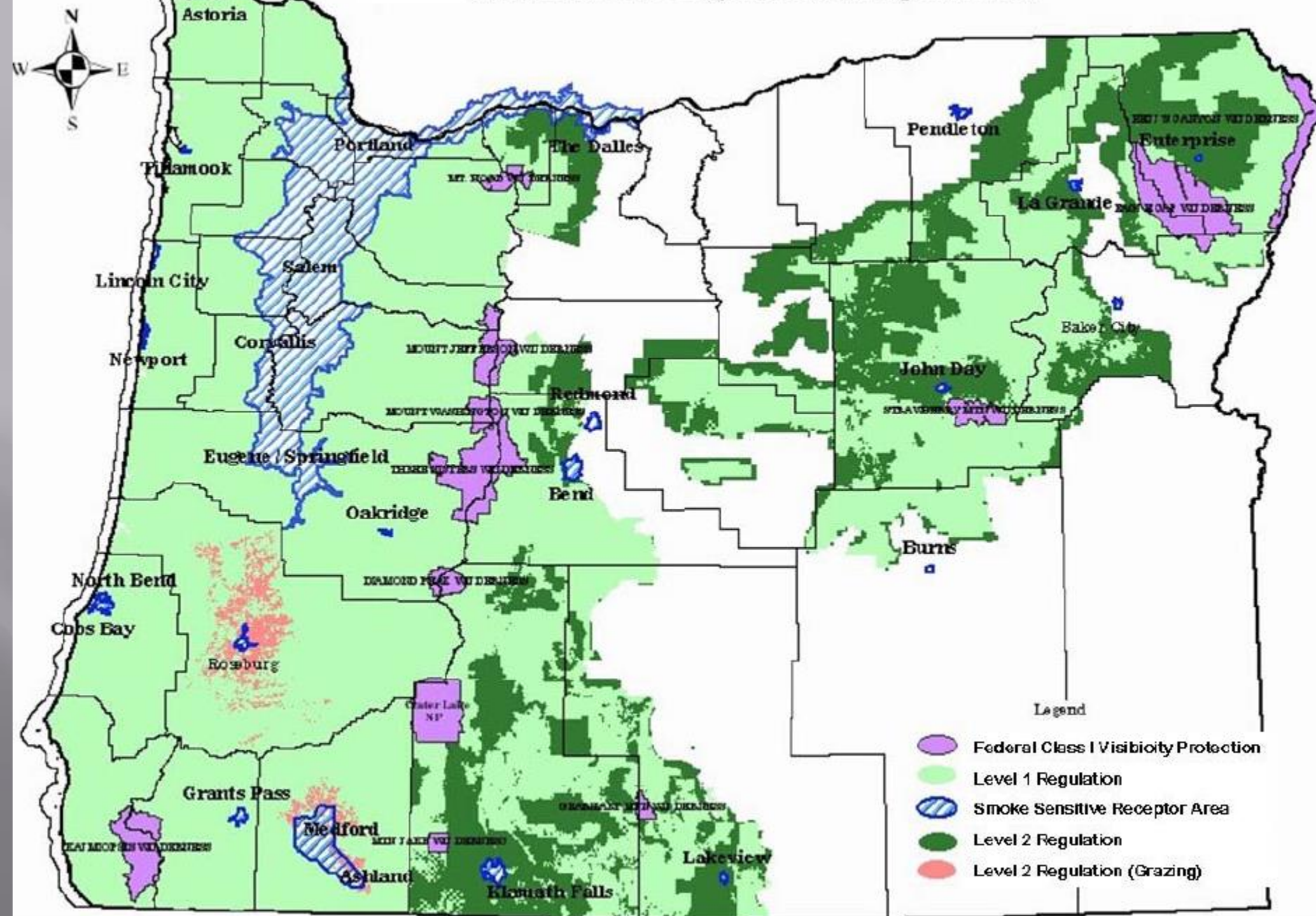
Longitude : 123° 12' 52" W

Elevation : 0 ft.

Element : Mean Wind Speed



Application of the Oregon Smoke Management Plan



Willamette Valley Prescribed Fire Partnership



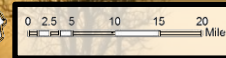
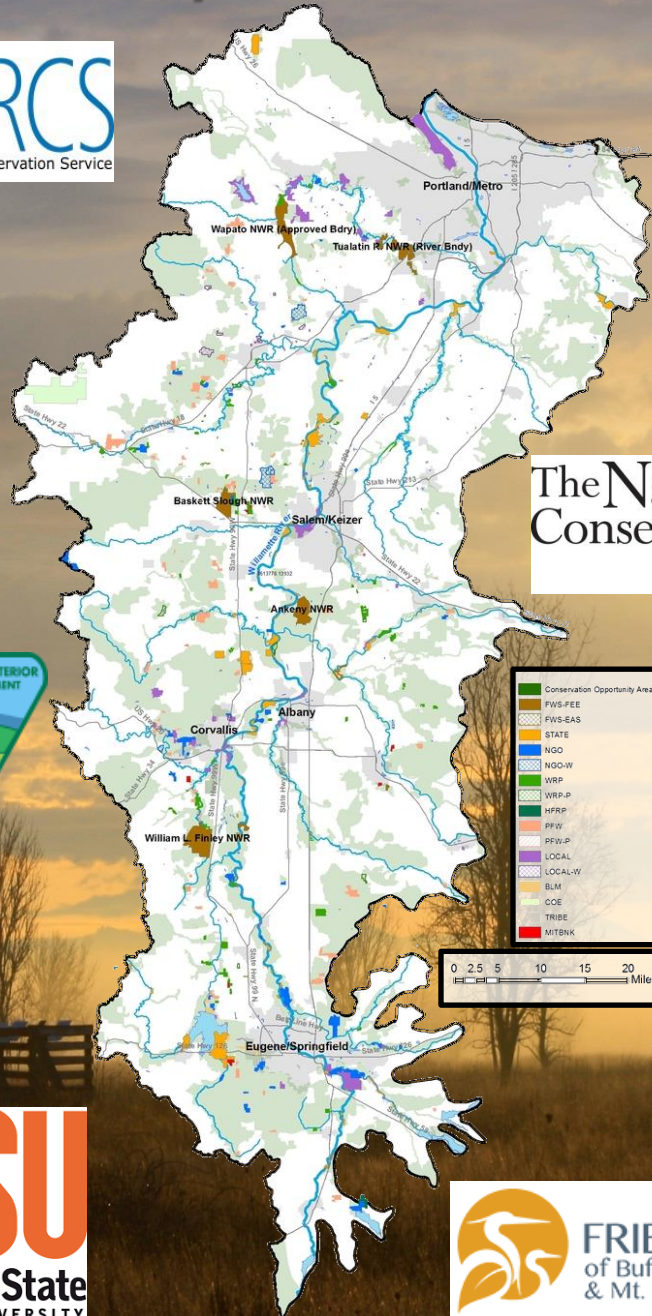
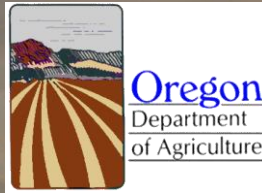
EUGENE
SPRINGFIELD



FIRE



US Army Corps
of Engineers®



INFORMAL PARTNERSHIPS

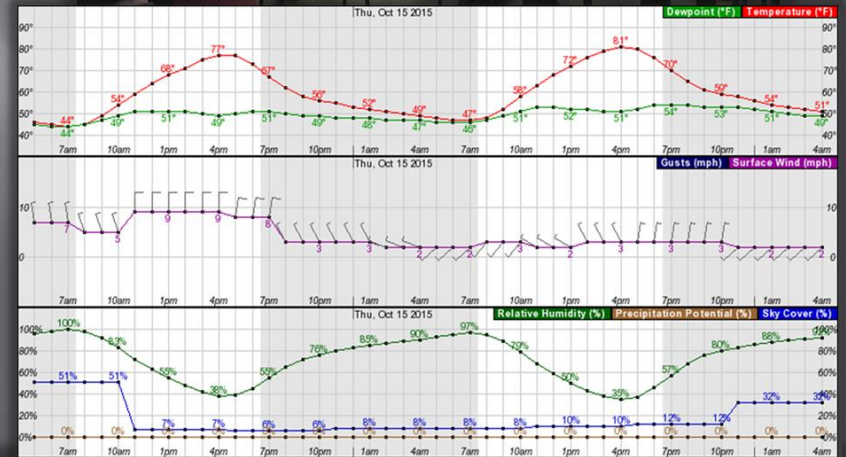
Sharing training opportunities

- Annual Work Capacity Fitness Testing
- RT-130 Fire Refresher
- S-219 Firing Operations



Project / Technical assistance

- Mapping, burn plan tech reviews, smoke modeling, decision support



Satisfying resource needs

- Equipment, operational resources, logistical assistance, horse trading



FORMAL PARTNERSHIPS

Memorandums of Understanding (MOU) and Agreements

MOU's provide for parties being able to work together for a common goal without the exchange of funds or assumption of liability for the other.

Cooperative Agreements can include provisions for exchange of funds.

Participating Agreements with the US Forest Service include provisions for matching funds.

FORMAL PARTNERSHIPS

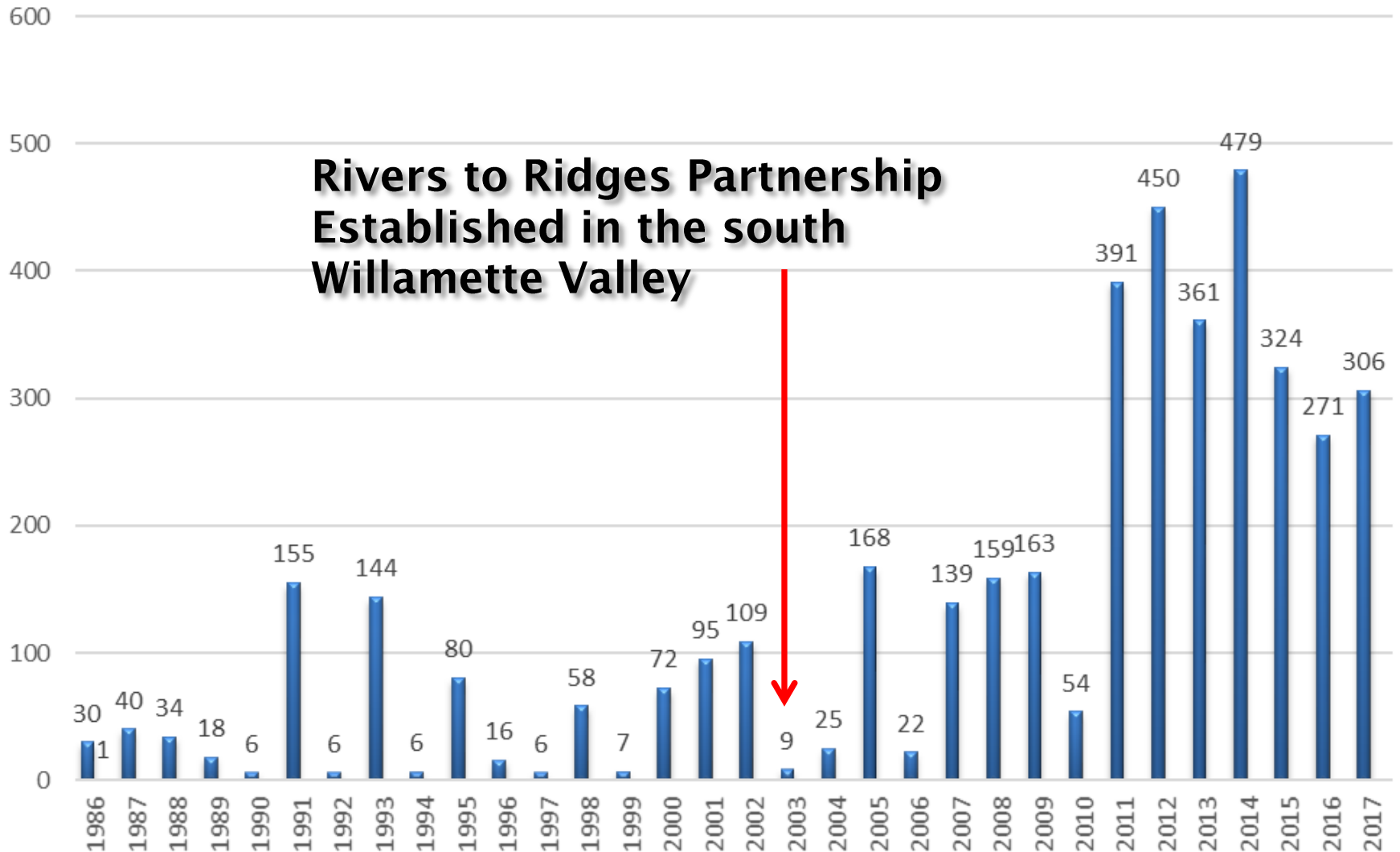
Memorandums of Understanding (MOU) and Agreements

Interagency Agreements used by federal agencies to transfer funds to other federal agencies.

Intra-Agency Agreements used by federal agencies to transfer money within the same department.

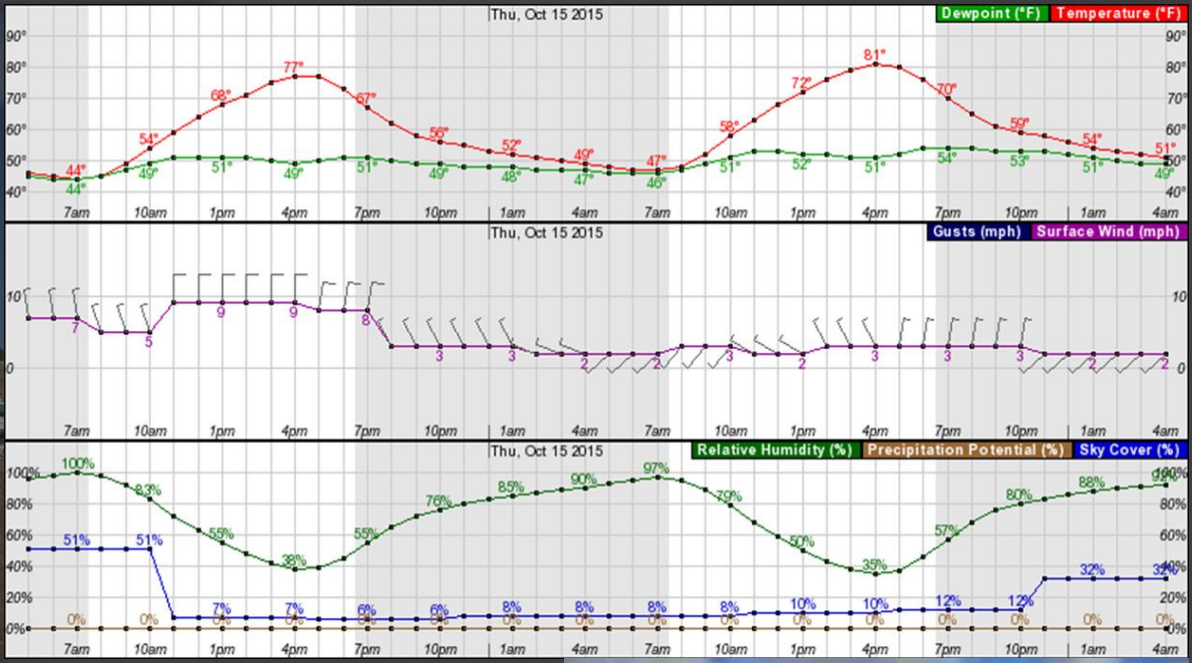
Rivers to Ridges Historic Acres Burned 1986-2017

**Rivers to Ridges Partnership
Established in the south
Willamette Valley**



Pre-Burn Preparation





Burn Day!

Ignitions



The Art of Burning



Holding



©2015 Larry Shapiro



Post Burn Tasks













