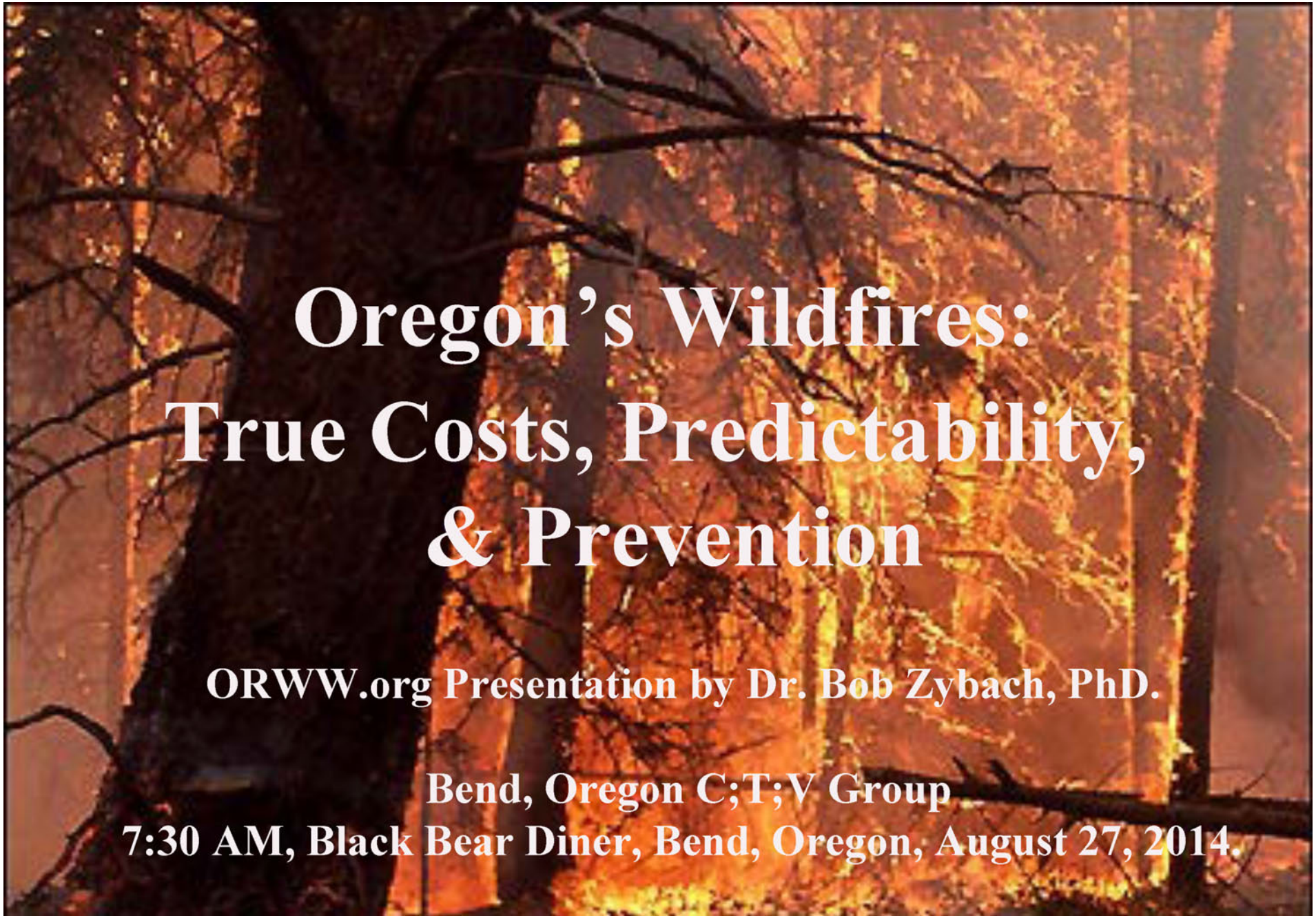
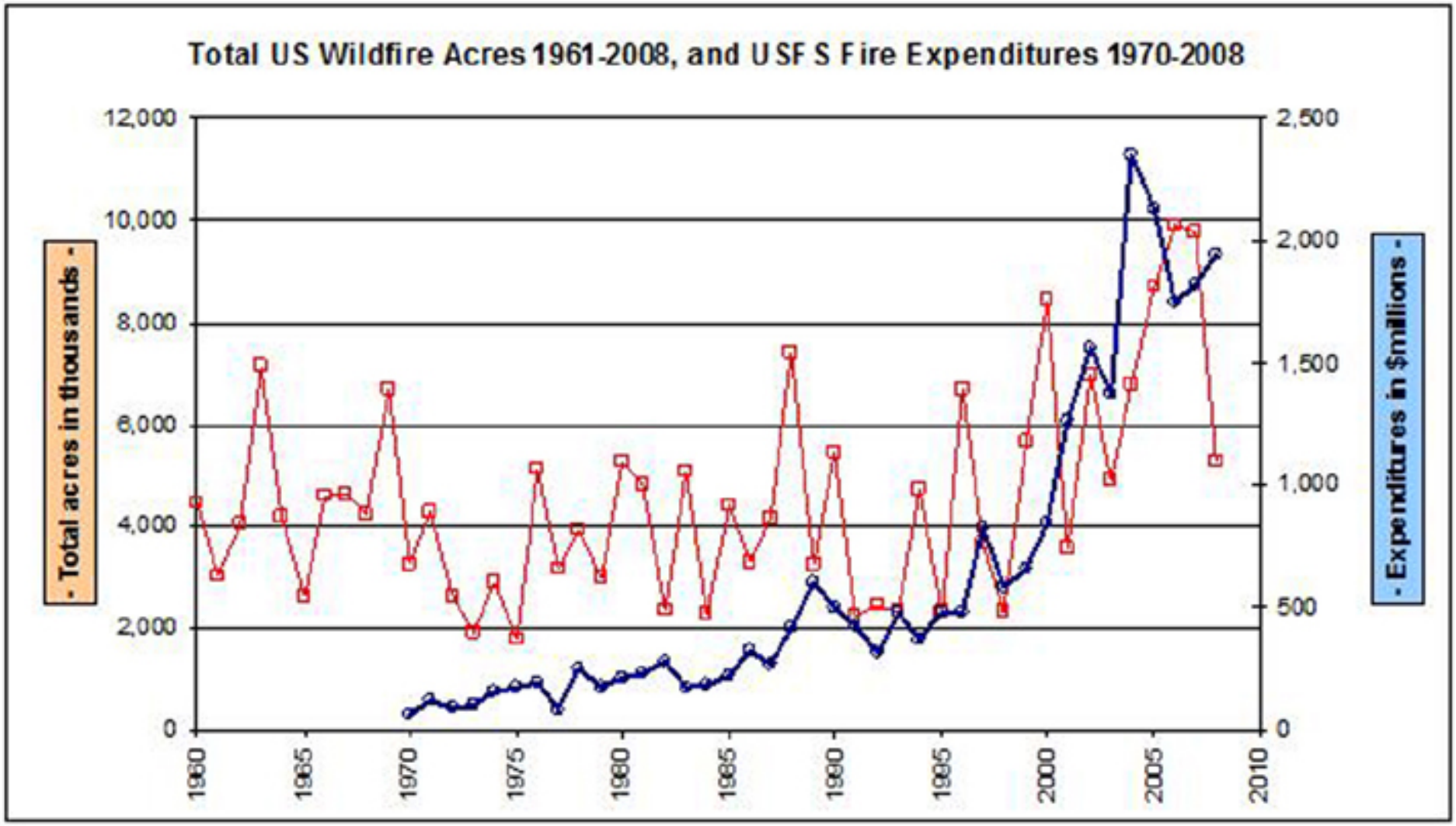

Oregon's Wildfires:
True Costs, Predictability,
& Prevention
ORWW.org Presentation by Dr. Bob Zybach, PhD.
Bend, Oregon C;T;V Group
7:30 AM, Black Bear Diner, Bend, Oregon, August 27, 2014.

What are the true costs of a wildfire?


Total US Wildfire Acres 1961-2008, and USFS Fire Expenditures 1970-2008
- Total acres in thousands -
- Expenditures in $millions -
12,000
10,000
8,000
6,000
4,000
2,000
0
2,500
2,000
1,500
1,000
500
0
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010

SUMMARY

U.S. forests have been experiencing an escalating number of catastrophic scale wildfires during the past 20 years. During the same time, federal, state, and local wildfire suppression outlays have also escalated dramatically, from less than $500 million to nearly $2 billion/year.

These costs, when coupled with simultaneous agency reductions of active timber and recreational resources management, have caused wildfire suppression to become "the big business" of the USFS.

However, preliminary research indicates that wildfire agencies' suppression costs may represent only 2% to 10% of the total cost-plus-loss damages to burned forests and adjacent areas – ***that is, recent public losses attributable to major U.S. forest wildfires may likely, and more accurately, total anywhere from $20 billion to more than $100 billion per year*** (Zybach et al., 2009).

Table 1. Wildfire 'Cost-Plus-Loss' Ledger Checklist Form

Fire Name _____ County _____ State _____ Country _____
Ignition Date _____ Containment Date _____ Total Acres _____
Cause: Human___, Lightning__, Operation__, Prescription__, Maintenance__, Other___
Major Landowner(s) _____ Human Fatalities ____ Homes Lost _____

Cost-Plus-Loss Category	A. Direct	B. Indirect	C. Post Fire	Totals
1. Suppression Costs a. Public				
b. Tribal/Private				
2. Property Damage a. Public				
b. Tribal/Private				
3. Health Effects a. Public				
b. Tribal/Private				
4. Vegetation a. Public				
b. Tribal/Private				
5. Wildlife a. Public				
b. Tribal/Private				
6. Water a. Public				
b. Tribal/Private				
7. Air and Atmospheric a. Public				
b. Tribal/Private				
8. Soil-Related a. Public				
b. Tribal/Private				
9. Recreation a. Public				
b. Tribal/Private				
10. Energy a. Public				
b. Tribal/Private				
11. Heritage a. Public				
b. Tribal/Private				
Totals				

Name _____ Title _____ Affiliation _____

Date _____

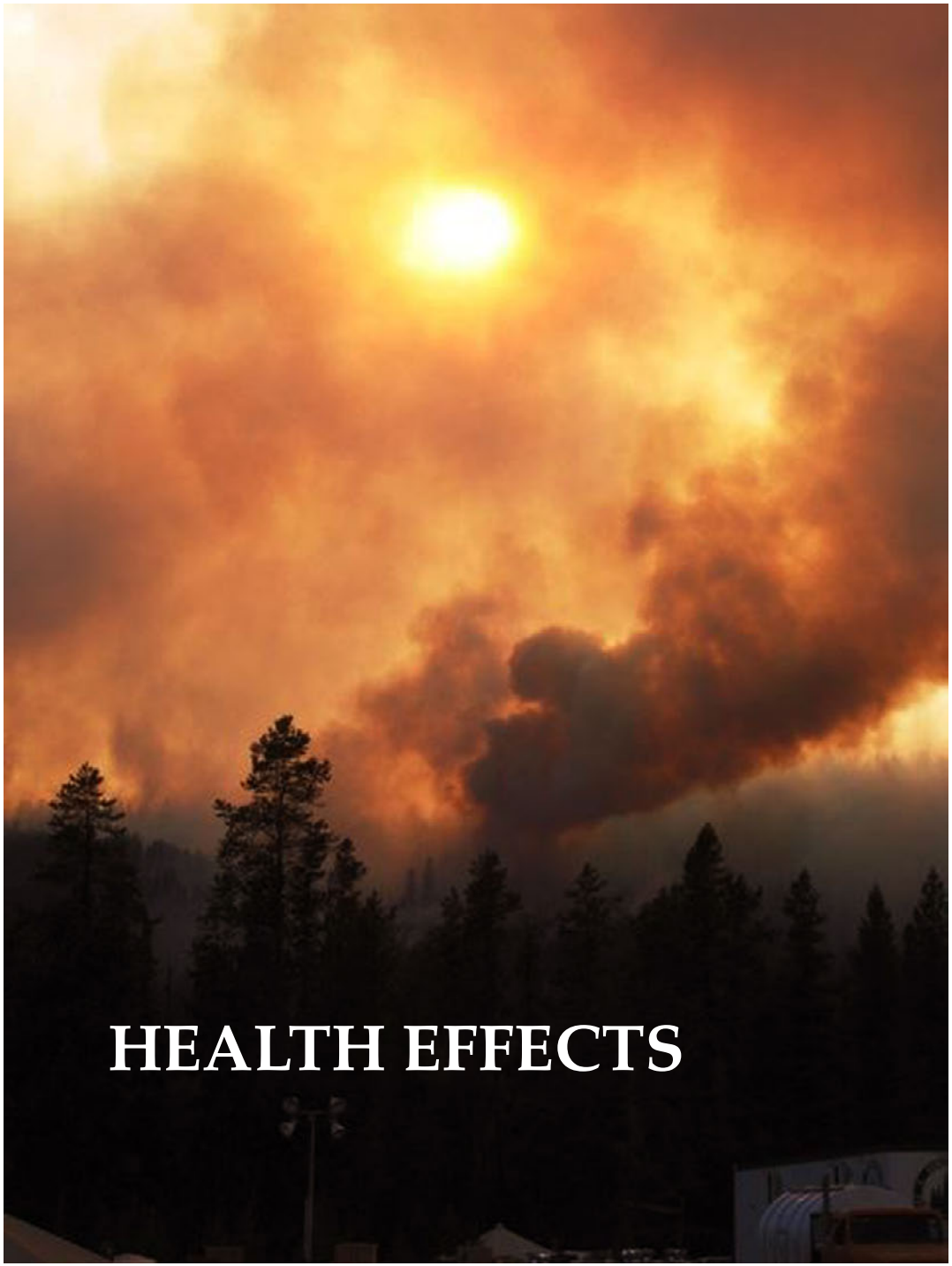
© 2009 Dubrasich, Zybach, Brenner, Marker, & Thomas

THE "ONE-PAGER"

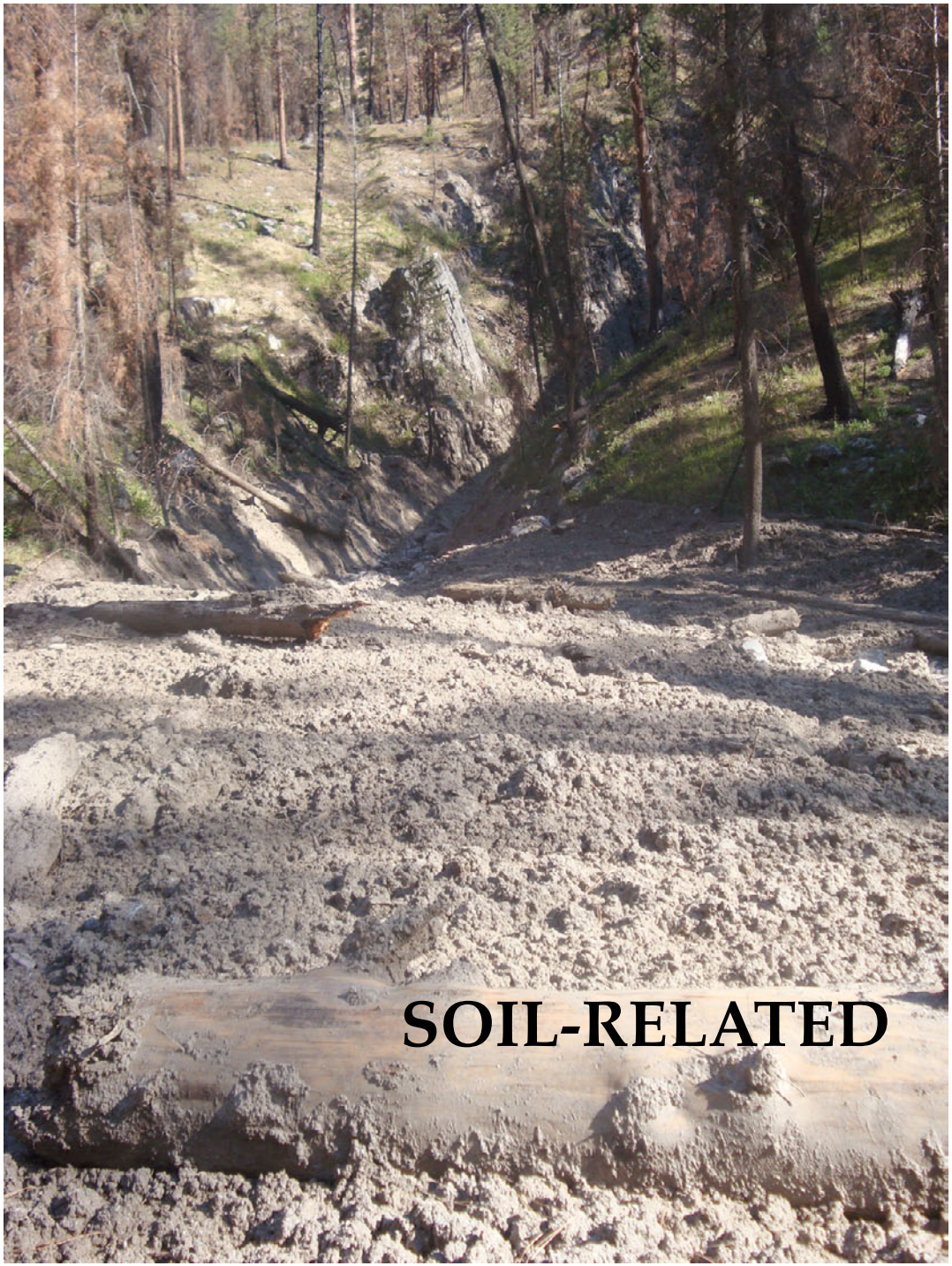
SUPPRESSION COSTS


PROPERTY DAMAGE


AIR & ATMOSPHERICS


HEALTH EFFECTS

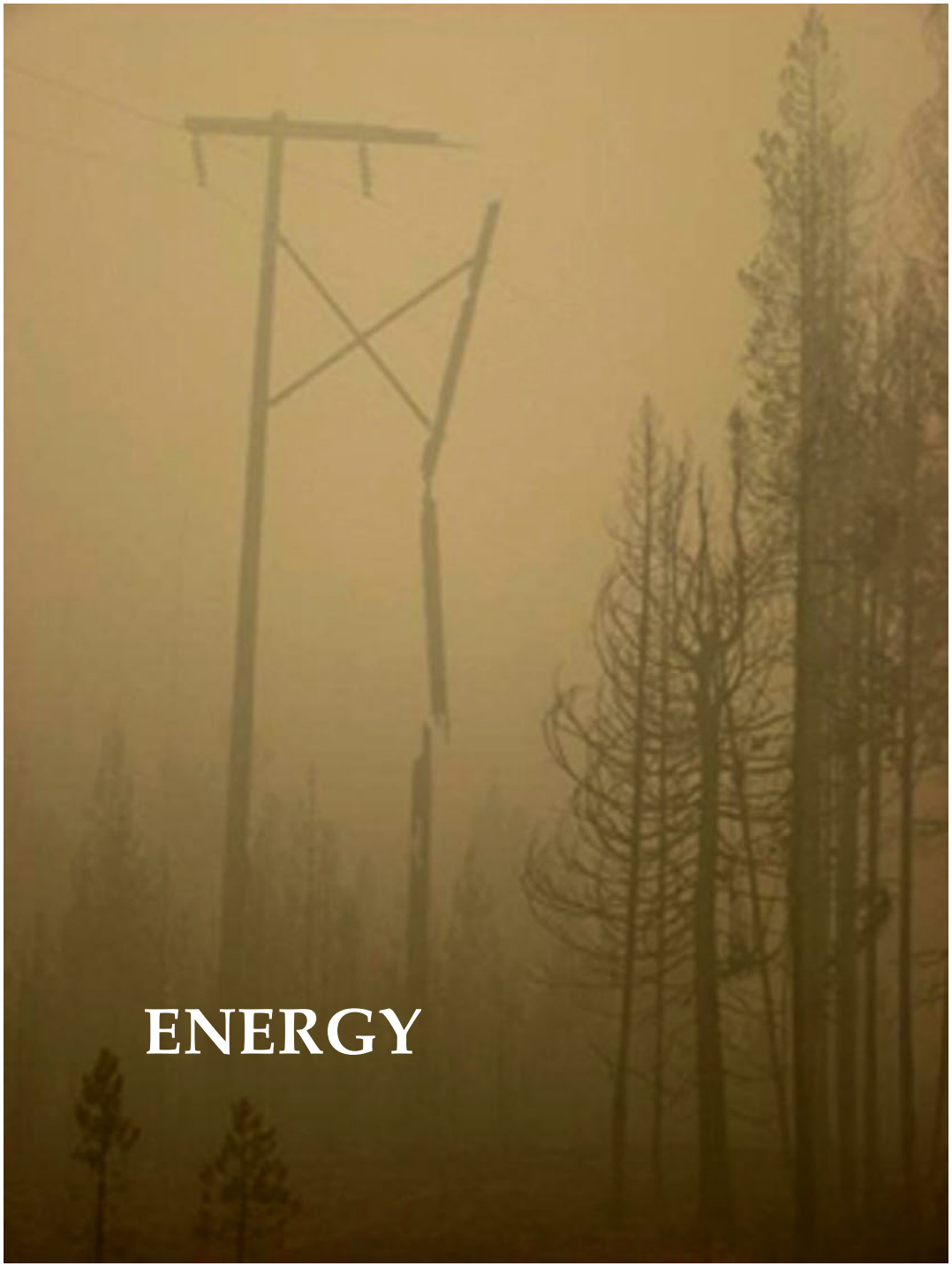

WATER


SOIL-RELATED


VEGETATION


WILDLIFE

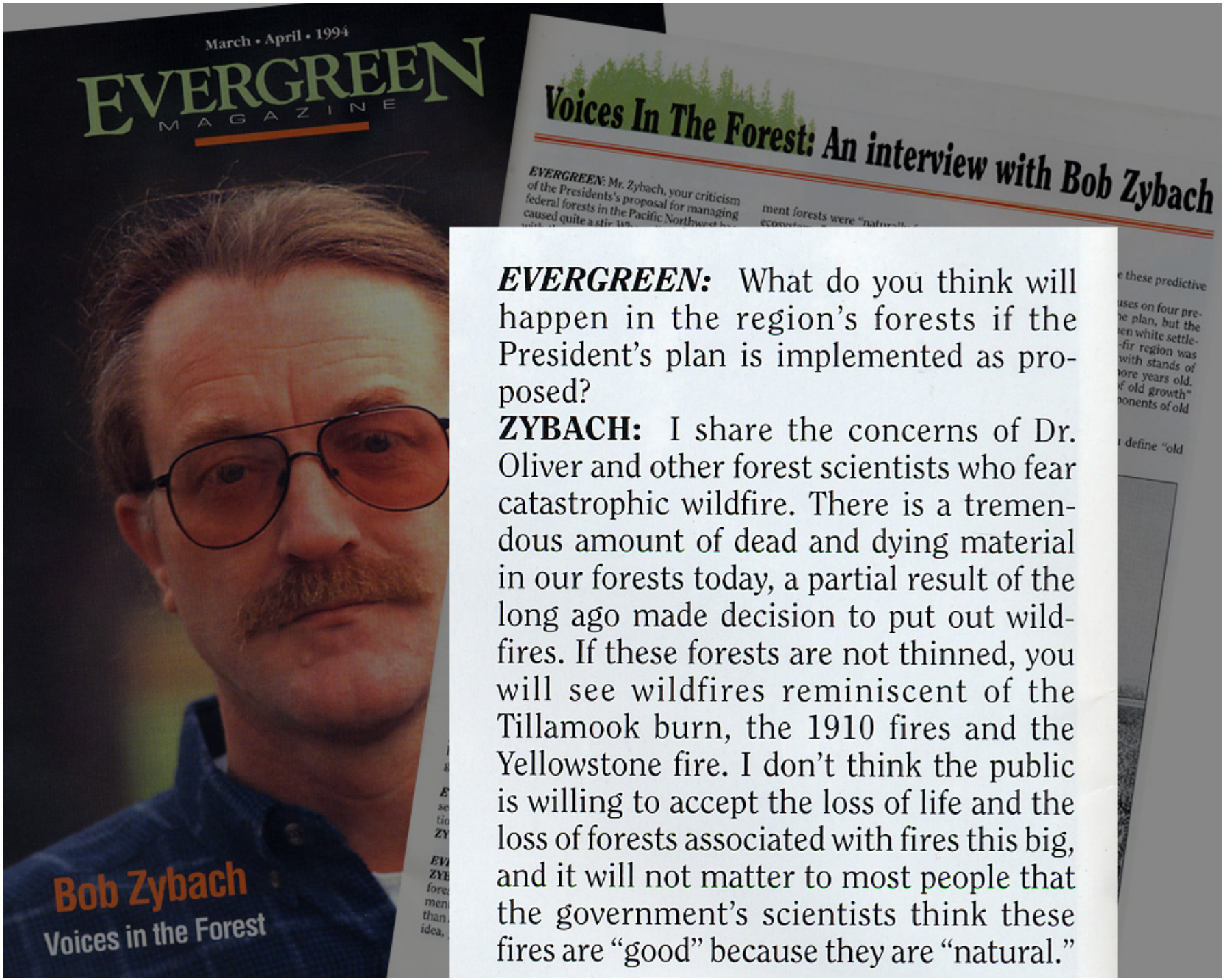

RECREATION

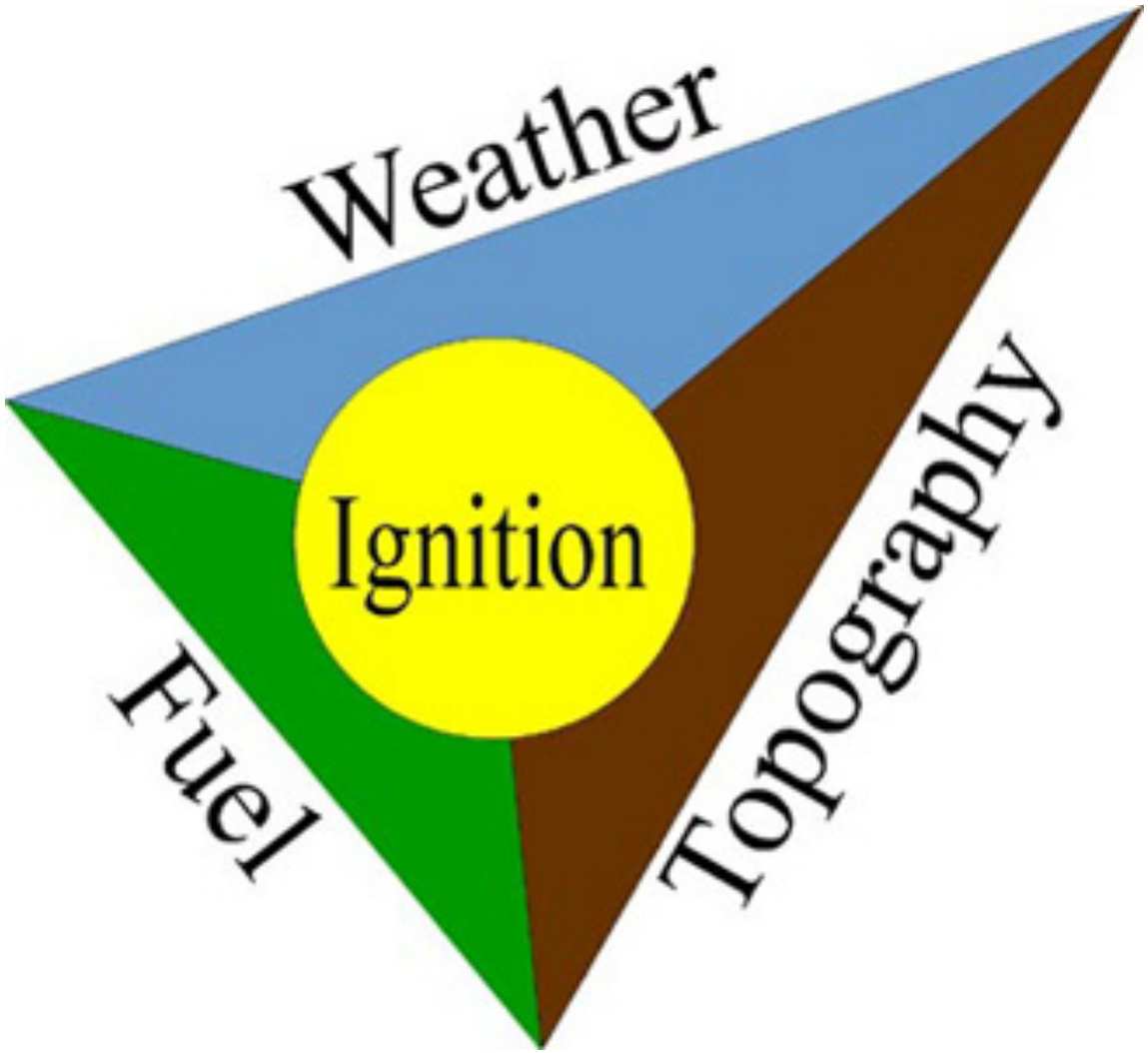

ENERGY

HERITAGE RESOURCES

US wildfire events have become increasingly large, destructive, and costly during the past 20 years, and particularly since the turn of the century. During this time wildfire suppression costs have also increased dramatically. ***Suppression costs, however, represent only a small fraction of over-all wildfire cost-plus-loss. Other concurrent direct and indirect losses together with long-term post-fire losses can total 10 to 50 times (or more) the suppression costs***. A more comprehensive economic and risk analysis and awareness on the part of decision-makers and the public of wildfire cost- plus-losses is needed, as are land and property management reforms, to help reverse these trends.

Our one-page checklist is intended to make initial estimates of total fire costs, and to ultimately be used in conjunction with a more comprehensive ledger for better tracking costs and losses over time. We believe that the use of these tools will better inform land and resource managers in the management of fuels and wildfires by identifying true costs of decisions, and by allowing better judgment in the establishment of resource use priorities.


March • April • 1994
EVERGREEN
MAGAZINE
Bob Zybach
Voices in the Forest
Voices In The Forest: An interview with Bob Zybach
EVERGREEN: Mr. Zybach, your criticism of the Presidents's proposal for managing federal forests in the Pacific Northwest
ment forests were "natural
these predictive
uses on four pre-
he plan, but the
en white settle-
-fir region was
with stands of
ore years old.
of old growth"
ponents of old
define "old
EVERGREEN: What do you think will happen in the region's forests if the President's plan is implemented as proposed?
ZYBACH: I share the concerns of Dr. Oliver and other forest scientists who fear catastrophic wildfire. There is a tremendous amount of dead and dying material in our forests today, a partial result of the long ago made decision to put out wildfires. If these forests are not thinned, you will see wildfires reminiscent of the Tillamook burn, the 1910 fires and the Yellowstone fire. I don't think the public is willing to accept the loss of life and the loss of forests associated with fires this big, and it will not matter to most people that the government's scientists think these fires are "good" because they are "natural."


Weather
Ignition
Fuel
Topography

Oregon Large-Scale Forest Wildfire Predictive Criteria

1. **Historical Weather and Wildfire Patterns**

   Appear to be about the same for past 235 years.

2. **Land Ownership Patterns**

   Federal vs. State vs. Industrial vs. Tribal vs. Private.

3. **Current Fuel Loads, Structures, and Locations**

   Strong correlations to federal land management policies.

NOTE: There is no evidence that climate change during historical time has had an effect on wildfire seasonality; however the wildfires of the 1930s took place during a period of widespread drought.


Fuel Loads & Structure
Dead Wood

Human interference — such as politics and modern techniques to protect forests from blazes — allows tree parasites to lay waste to 90,000 acres of the Deschutes and Willamette national forests.

A natural disaster runs amok

By Theresa Novak
The Statesman Journal

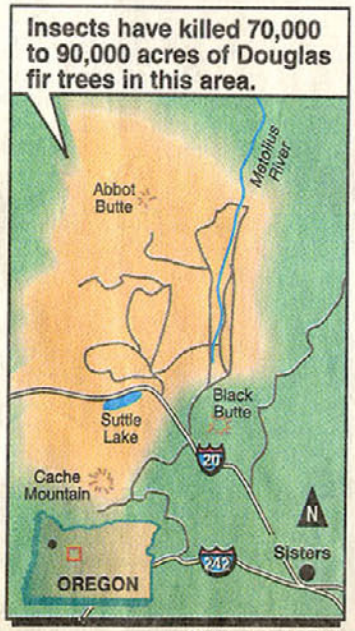
Tiny worms and voracious beetles that have decimated almost 90,000 acres of trees are almost gone. Many of the dead trees they left behind soon will be gone, too.

For the first time in almost four years, the U.S. Forest Service will sell salvage timber sales on the Sisters and Mckenzie ranger districts. There, drought and infestation by spruce budworms and bark beetles have killed a vast number of trees in an area bisected by the Santiam Pass.

The damaged area crosses over two federal forests and encompasses some private timberland. Most of the damage is in the Deschutes National Forest, with a smaller portion in the Willamette National Forest near Suttle Lake.

Rich Mathis, who has owned the Suttle Lake resort for three years, said it is about time that the Forest Service did some-

ENVIRONMENT



Statesman Journal

The Associated Press

DYING FOREST: Dead and weakened trees overlook the Santiam Pass on Highway 20 about 85 miles east of Salem. Green and blue paint on the trunks indicates trees that are to be removed.

Youth Resources Building at 1605 Monmouth St. The center there will serve children from 6 weeks to 30 months old and is open Monday through Friday, 7 a.m. to 6 p.m.

Costs for all care services vary, depending on the length and frequency of the child's stay.

For information on the Dallas center's services, call 623-8891; for preschool, after-school or infant-care services in Monmouth and Independence, call 838-4042.

eration and prayers that you have given my son, Jim Hill, these past 20 years. And thank you to **Drs. Ben R. Gifford** and **Darald E. Bolin** for your concern for me and for going beyond the call of duty in relieving the pain in my right leg.

Lucille Hill, mother of
Oregon state Treasurer Jim Hill
Atlanta, Ga.

The Salem Public Library Youth Services Department would like to thank **all the local merchants who donated prizes** to our 1994 summer reading programs for children and teens. We had more than 3,500 sign-ups this year for "Catch the Wave, Read" for preschool to grade 6 and "Reading Frenzy" for grades 7 to 12.

Susan Dunn
Young Adult Librarian
Salem Public Library

Please understand our inadequacy to express the depth of our thankfulness and gratitude for all the kindness and generosity shown at the loss of our beloved husband and father, Harold. We feel truly privileged to have lived and shared in this community.

Ardis E. Christensen
and family
Salem

To thank someone, write Morning Salute, Statesman Journal, P.O. Box 13009, Salem, Ore. 97309. Please include your name, address and telephone number. Publication can take as long as three weeks.

Environmentalists go to court to warn logging-rights buyers

The Associated Press

ENVIRONMENT

WASHINGTON — Federal timber purchasers beware:

Just because the Forest Service sells you trees from national forests where northern spotted owls live doesn't mean you'll be able to log them.

Environmentalists went to court Friday to try to get that warning attached to all federal timber sales in forests with spotted-owl habitat in Oregon, Washington and Northern California.

The Native Forest Council of Eugene filed papers in U.S. District Court in Seattle asking Judge William Dwyer to clarify the status of the forests since his decision earlier this year lifting a 3-year-old injunction that protected the threatened owl.

The council said private timber companies bidding on those previously enjoined timber sales should be warned that conservationists intend to challenge the logging again.

"This is sort of a let-the-buyer-beware situation," said John Karpinski, the council's lawyer in Vancouver, Wash.

"We think the buyers should have a right to know what is going on. And we think the government should be protecting itself from any potential breach of contract claims by these purchasers," Karpinski said.

Tim Hermach, the group's executive director, said timber companies are "being deceived into believing if they get the timber bought now they won't be subject to an injunction down the road.

"Any sales that are sold or awarded we are going to seek an injunction on, and we are going to get it. The Forest Service is making these sales knowing full well they aren't legal," he said.

The Forest Service referred telephone calls Friday to officials at the Agriculture Department overseeing the agency. A USDA spokesman said the department had no comment.

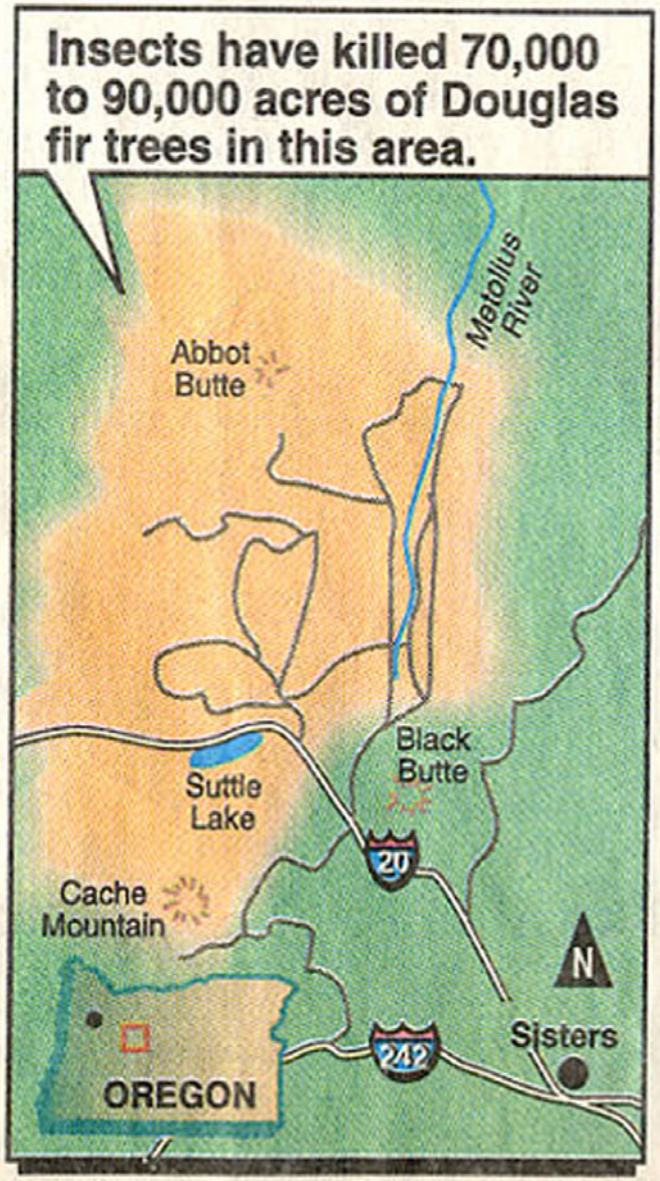
The petition, filed in a case involving a series of lawsuits against President Clinton's Northwest forest plan, asks that Dwyer order the Forest Service to provide the council with a list of all bidders for sales in forests with spotted owls, so the council can send them a notice.

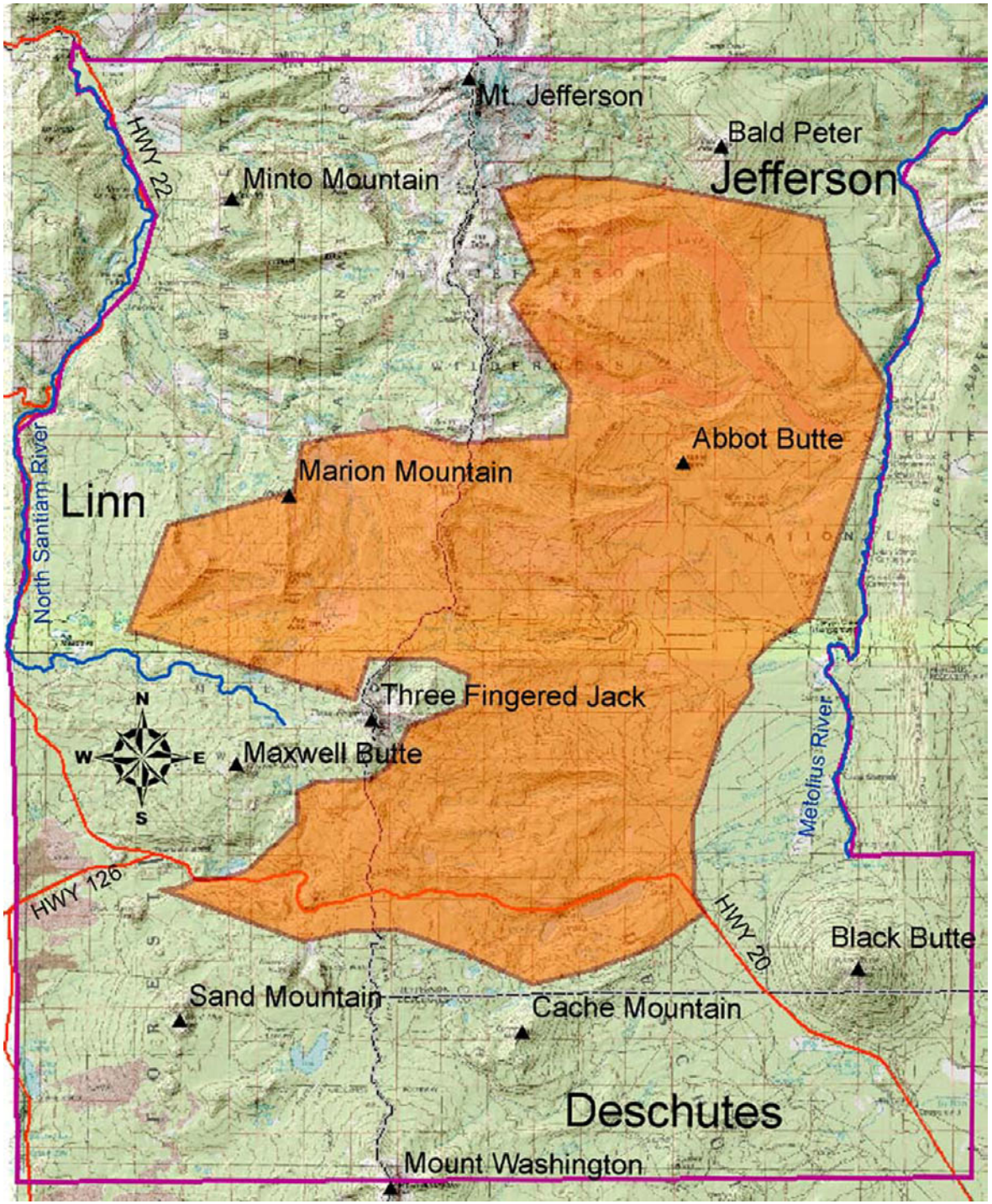
The council "is concerned that neither the notices it has received, nor the materials which have been provided to potential bidders, advise bidders of the risk that these sales may be enjoined," the petition said.

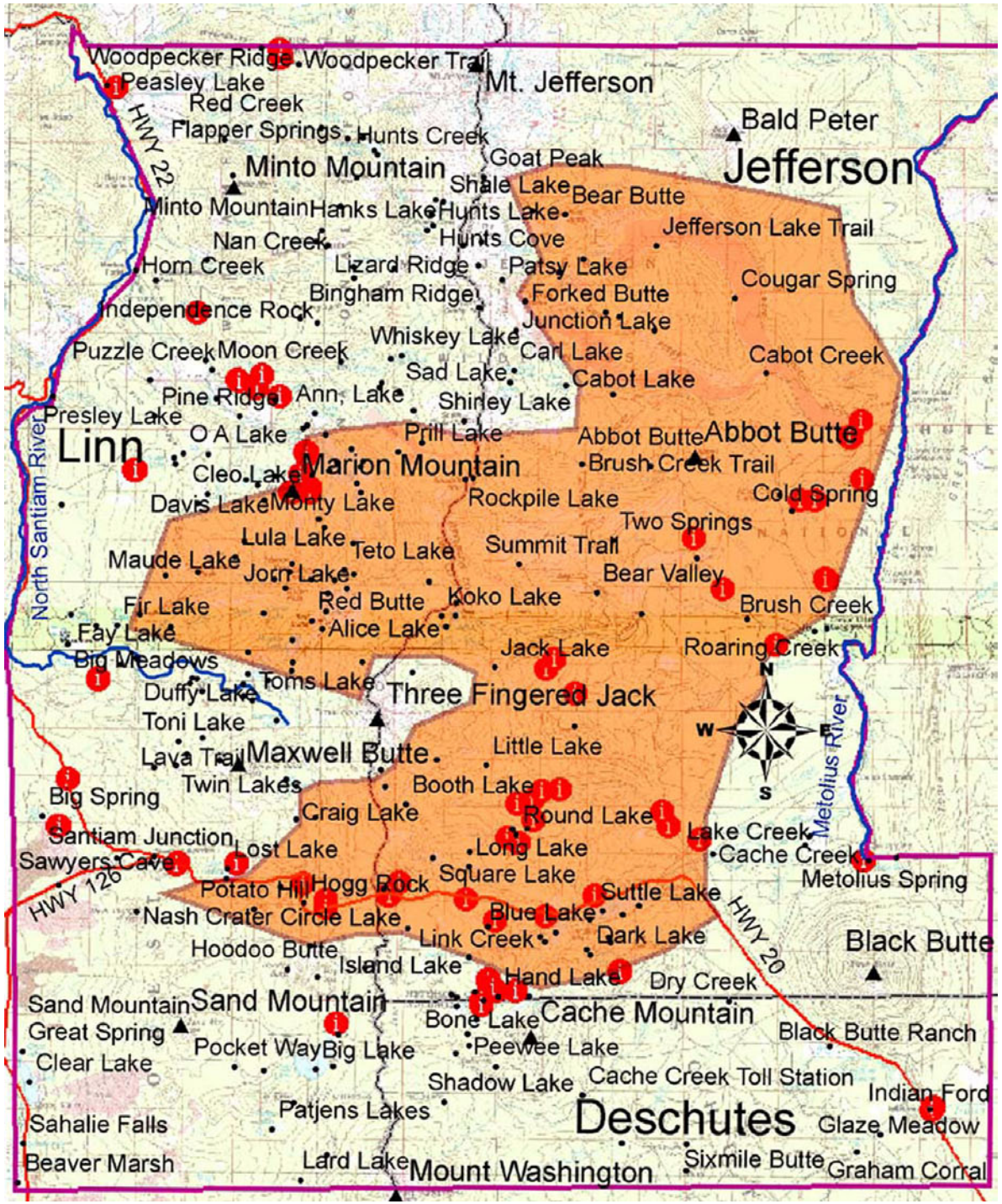
Dwyer is handling five lawsuits, filed by environmentalists and the timber industry, challenging Clinton's plan to allow some logging in the region's federal forests while protecting millions of acres of old-growth trees.

The judge recently postponed the first hearing in the case from Sept. 12 to Nov. 10.

ENVIRONMENT




Mt. Jefferson
Bald Peter
Jefferson
Minto Mountain
HWY 22
North Santiam River
Linn
Marion Mountain
Abbot Butte
Three Fingered Jack
Maxwell Butte
N
W
E
S
Metolius River
HWY 126
HWY 20
Black Butte
Sand Mountain
Cache Mountain
Deschutes
Mount Washington


Woodpecker Ridge
Woodpecker Trail
Mt. Jefferson
Peasley Lake
Red Creek
Flapper Springs
Hunts Creek
Bald Peter
Jefferson
HWY 22
Minto Mountain
Goat Peak
Shale Lake
Bear Butte
Minto Mountain
Hanks Lake
Hunts Lake
Jefferson Lake Trail
Nan Creek
Hunts Cove
Horn Creek
Lizard Ridge
Patsy Lake
Cougar Spring
Bingham Ridge
Forked Butte
Independence Rock
Junction Lake
Whiskey Lake
Puzzle Creek
Moon Creek
Carl Lake
Cabot Creek
Sad Lake
Cabot Lake
Pine Ridge
Ann Lake
Shirley Lake
Presley Lake
O A Lake
Prill Lake
Abbot Butte
Abbot Butte
Linn
Marion Mountain
Brush Creek Trail
Cleo Lake
Davis Lake
Monty Lake
Rockpile Lake
Cold Spring
Two Springs
Lula Lake
Teto Lake
Summit Trail
North Santiam River
Maude Lake
John Lake
Bear Valley
Koko Lake
Brush Creek
Fir Lake
Red Butte
Alice Lake
Fay Lake
Jack Lake
Roaring Creek
Big Meadows
Toms Lake
Three Fingered Jack
Duffy Lake
Toni Lake
Little Lake
Lava Trail
Maxwell Butte
Twin Lakes
Booth Lake
Big Spring
Craig Lake
Round Lake
Lake Creek
Santiam Junction
Lost Lake
Long Lake
Cache Creek
Sawyers Cave
Square Lake
Metolius Spring
Potato Hill
Hogg Rock
Suttle Lake
HWY 126
Nash Crater Circle Lake
Blue Lake
HWY 20
Link Creek
Dark Lake
Black Butte
Hoodoo Butte
Island Lake
Hand Lake
Dry Creek
Sand Mountain
Sand Mountain
Bone Lake
Cache Mountain
Great Spring
Black Butte Ranch
Pocket Way
Big Lake
Peewee Lake
Clear Lake
Shadow Lake
Cache Creek Toll Station
Indian Ford
Patjens Lakes
Deschutes
Sahalie Falls
Glaze Meadow
Beaver Marsh
Lard Lake
Mount Washington
Sixmile Butte
Graham Corral
Metolius River
N
W
E
S

Lightning

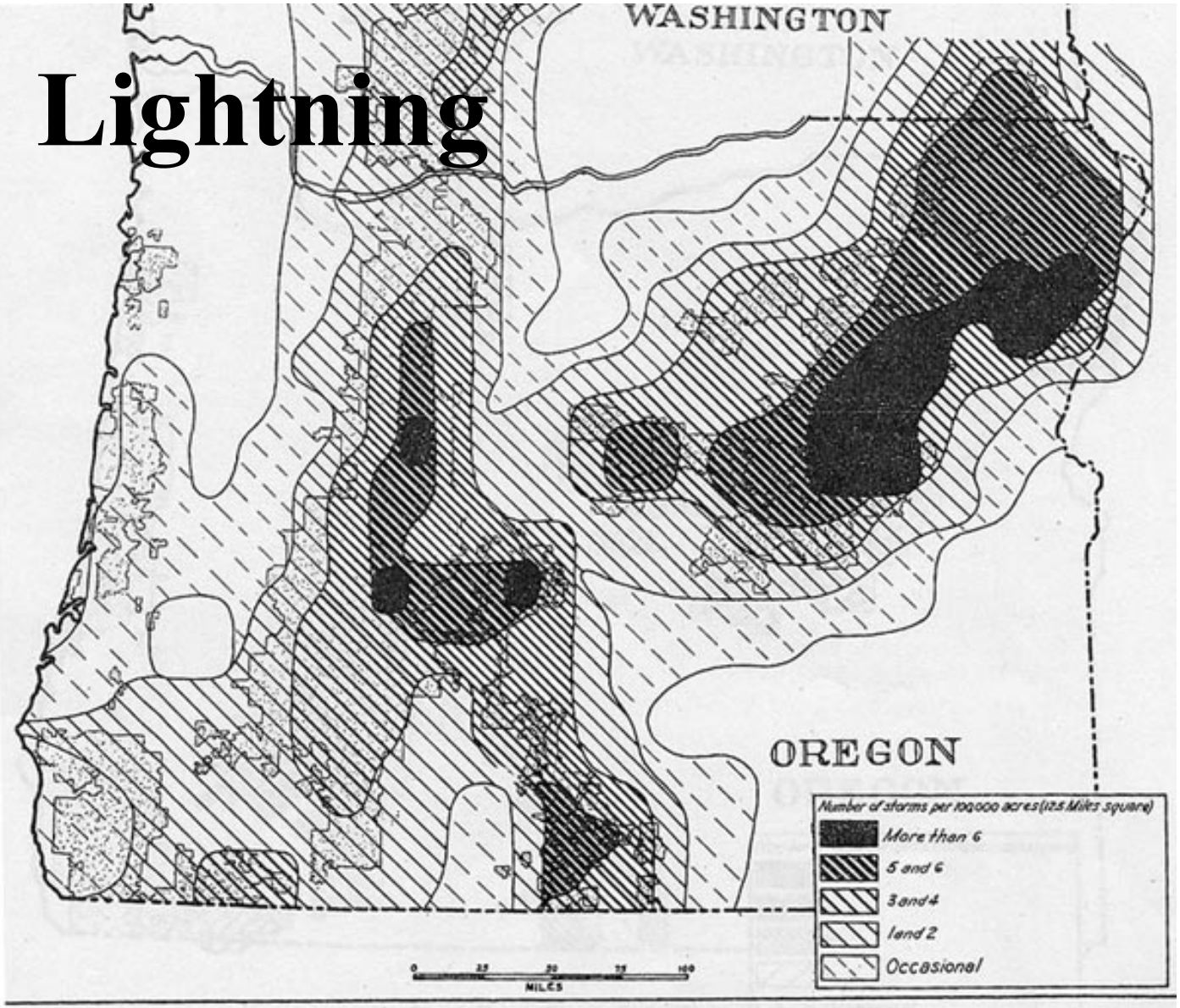
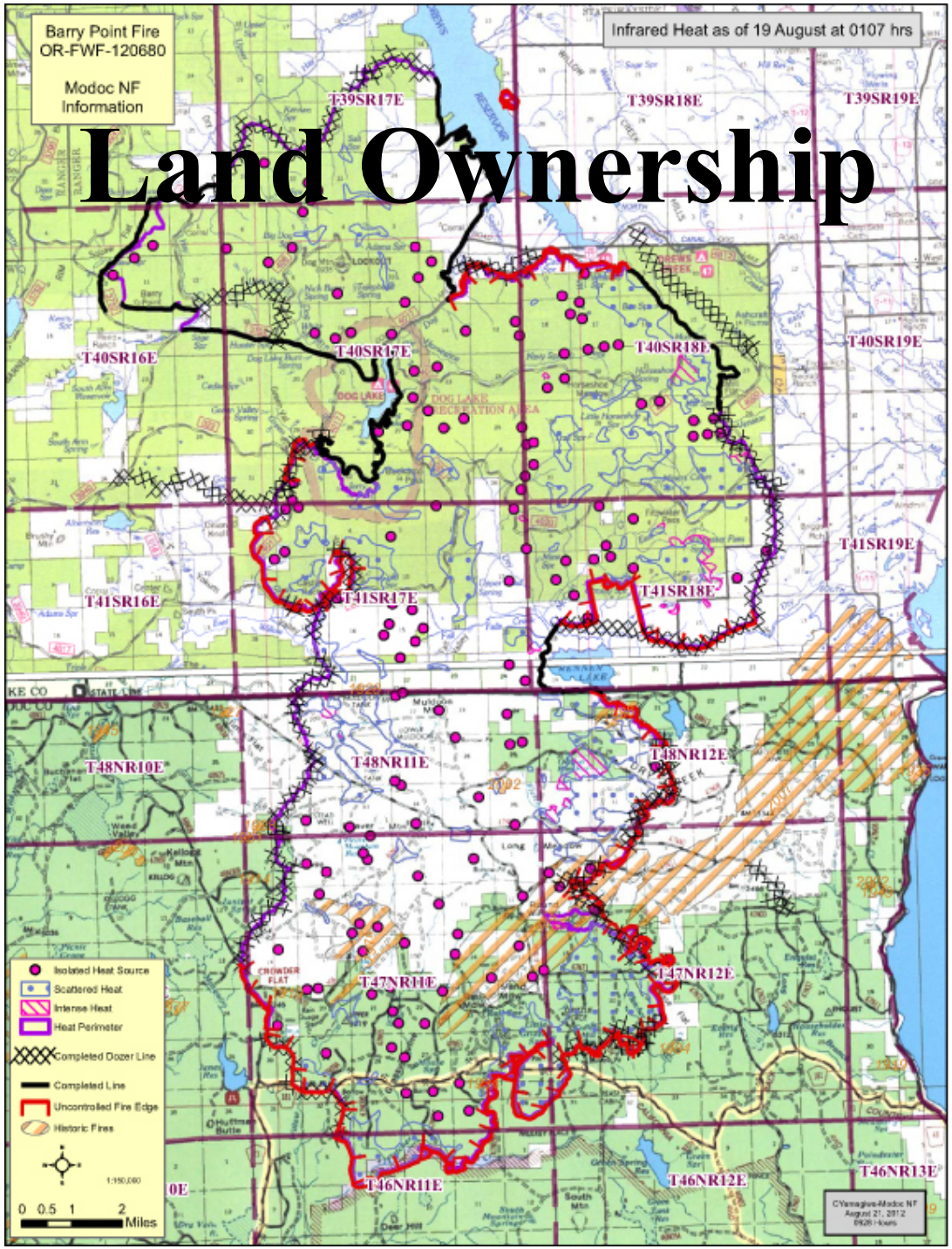


FIGURE 13.--Zones of average yearly lightning storm distribution in the vicinity o the national forests of Oregon and Washington as determined from more than 2600 storms reported by national forest fire lookouts during the 7-year period from 1925 to 1931.

Land Ownership



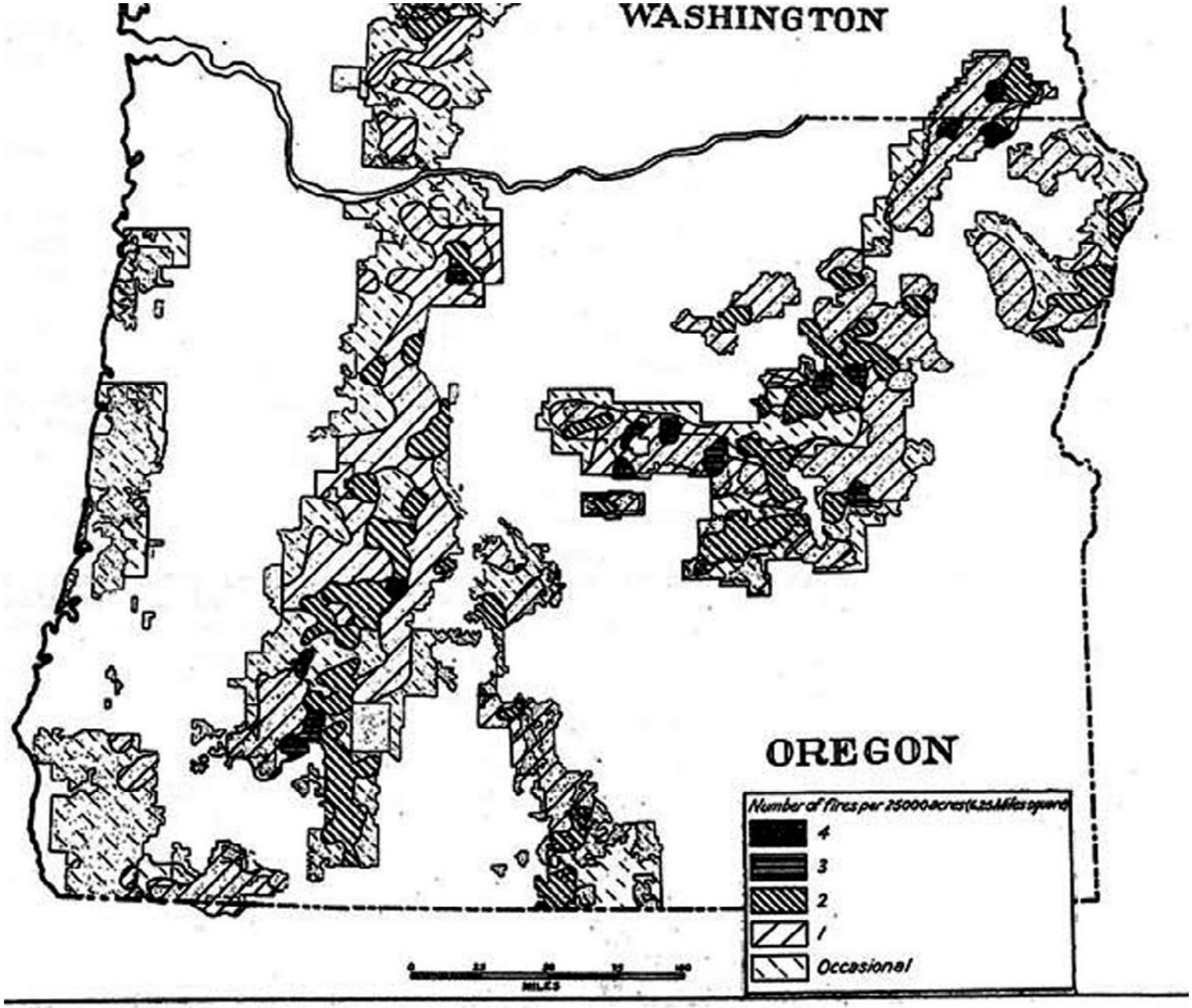
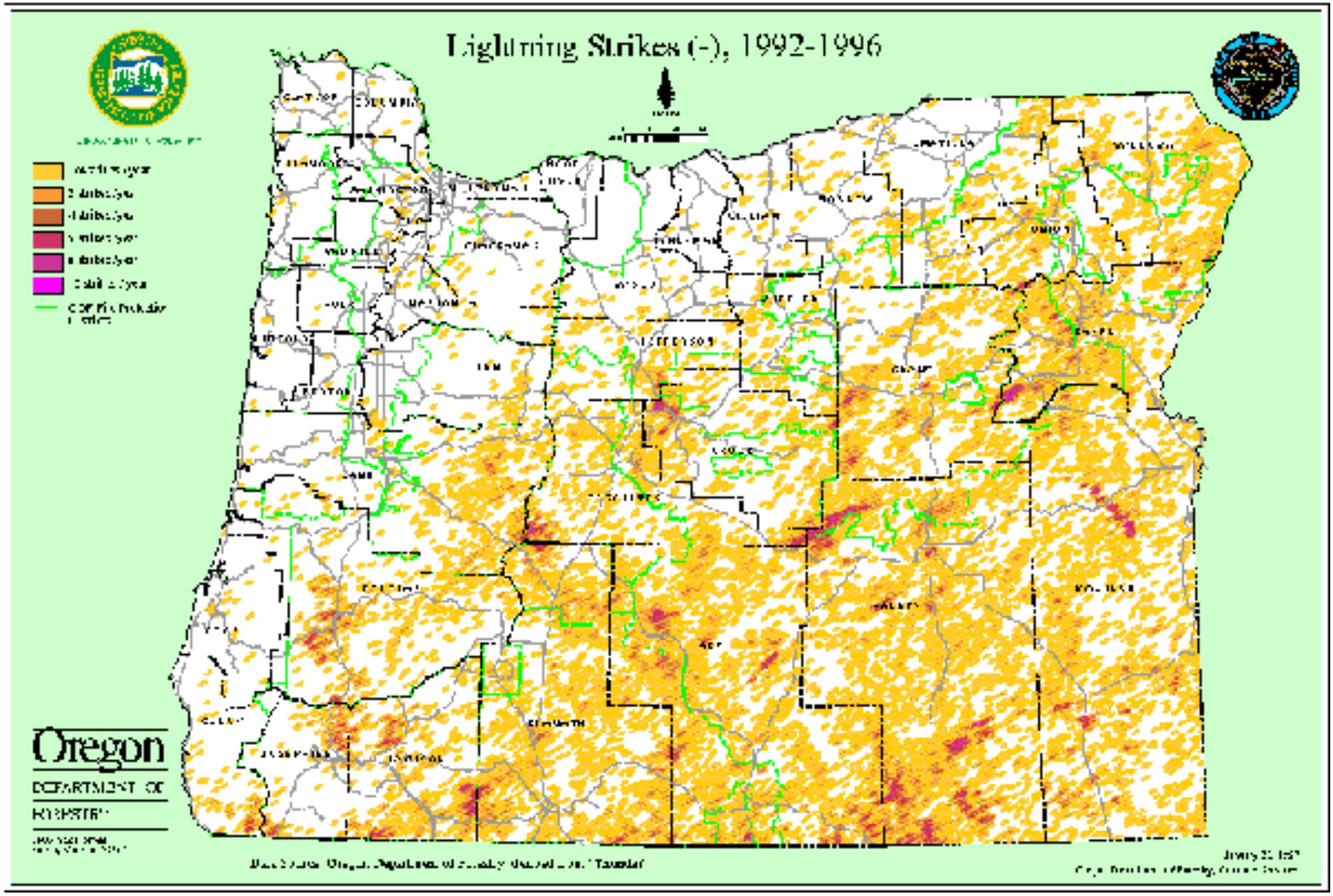


FIGURE 14.--Zones of average yearly lightning fire distribution on the national forests of Oregon and Washington obtained by plotting the locations of the 5300 lightning fires reported from 1925 to 1931.


Lightning Strikes (-), 1992-1996
Oregon
DEPARTMENT OF


09/22/2009

Human Ignitions

Zybach's Annual Oregon Large-Scale Wildfire Prediction

1. **Large-scale wildfires are most likely to occur in August and September in western Oregon.**

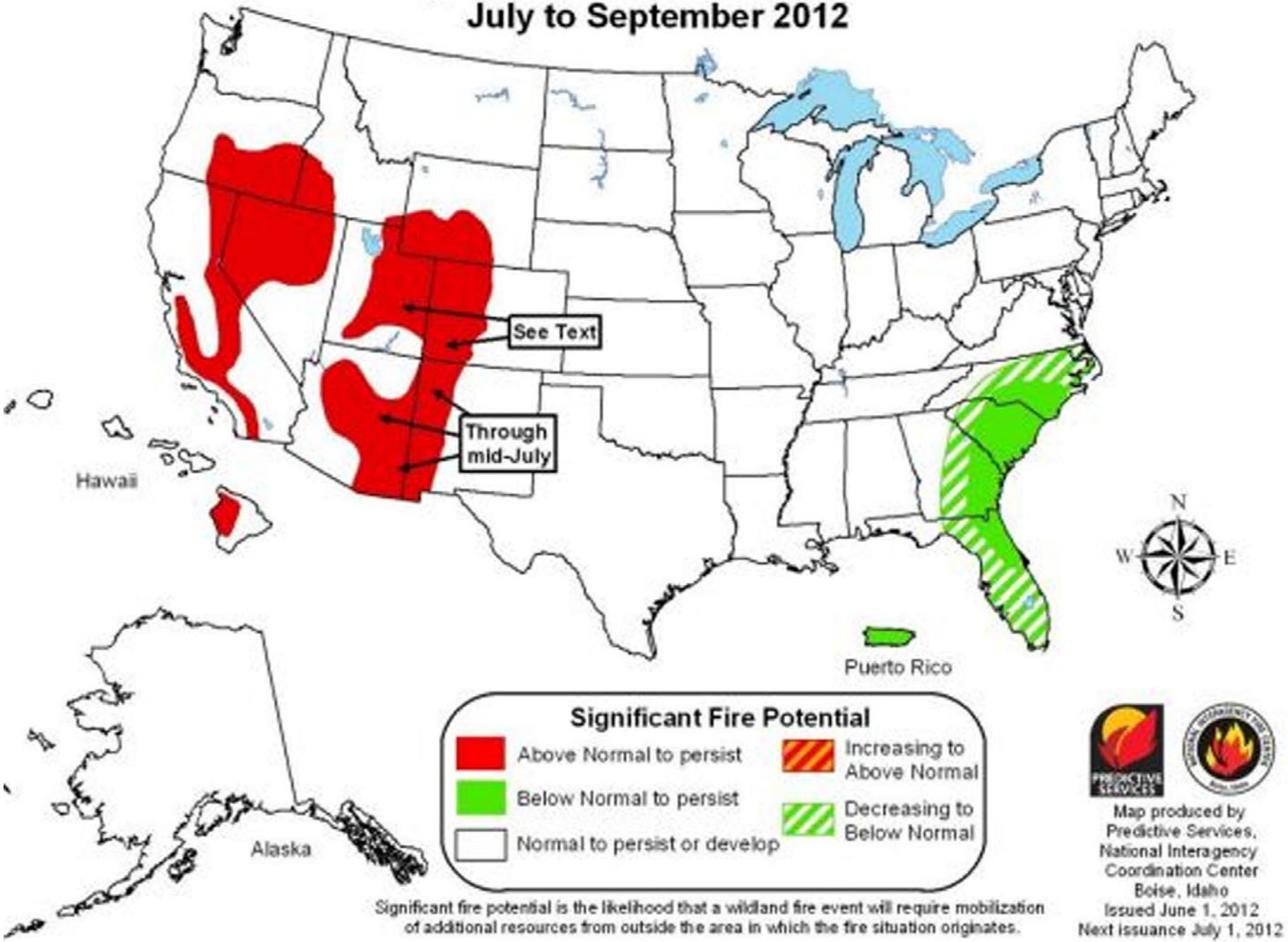
2. **Large-scale wildfires are most likely to occur from July through October in eastern Oregon.**

3. **Large-scale wildfires are most likely to occur on federal lands.**

4. **Wildfire risk and spread are greatest during east wind events.**

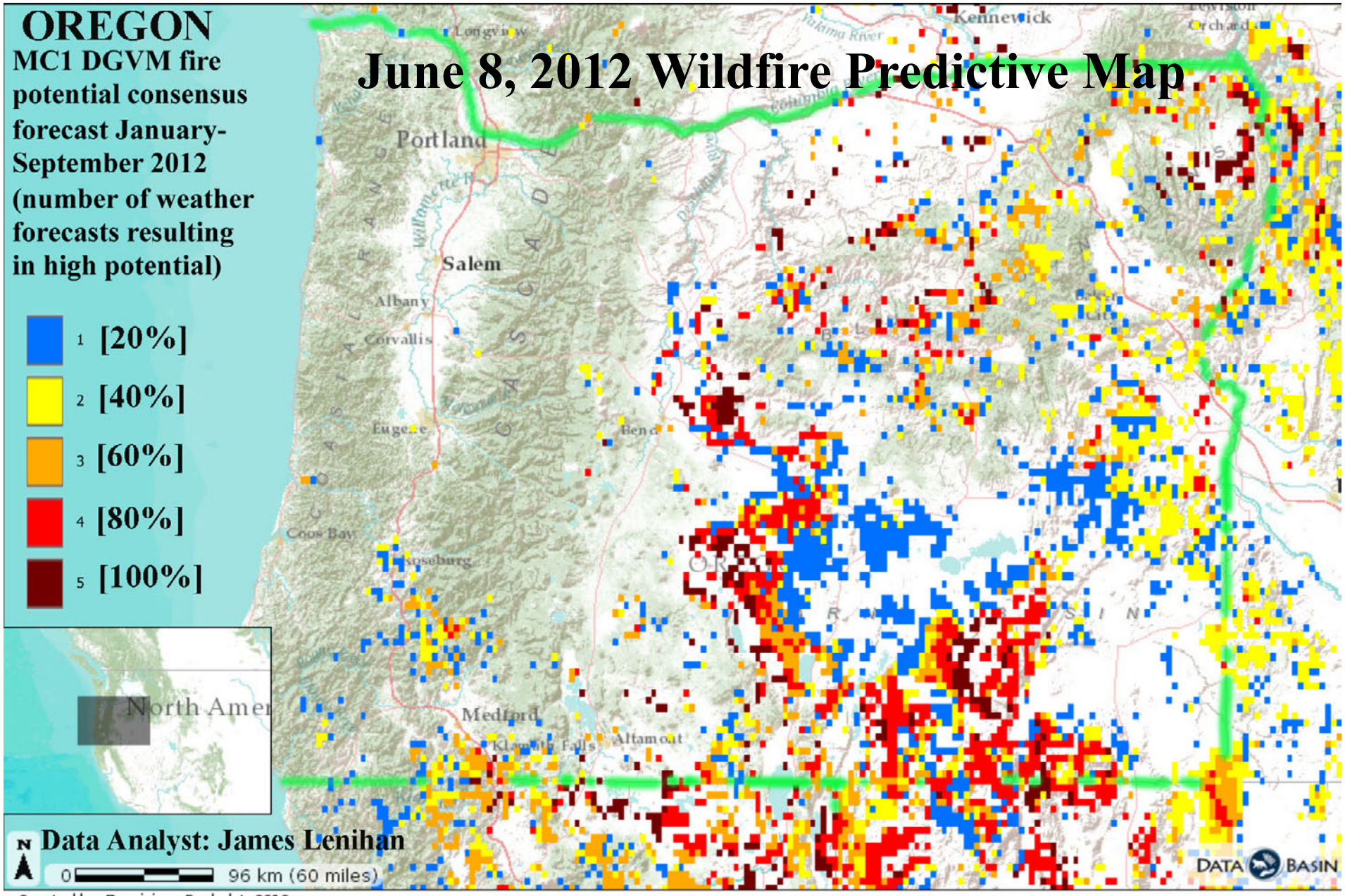
5. **Wildfire severity is directly proportionate to the type, condition, continuity and volume of fuels involved.**

Seasonal Significant Wildland Fire Potential Outlook
July to September 2012



Significant fire potential is the likelihood that a wildland fire event will require mobilization of additional resources from outside the area in which the fire situation originates.

Map produced by Predictive Services, National Interagency Coordination Center
Boise, Idaho
Issued June 1, 2012
Next issuance July 1, 2012



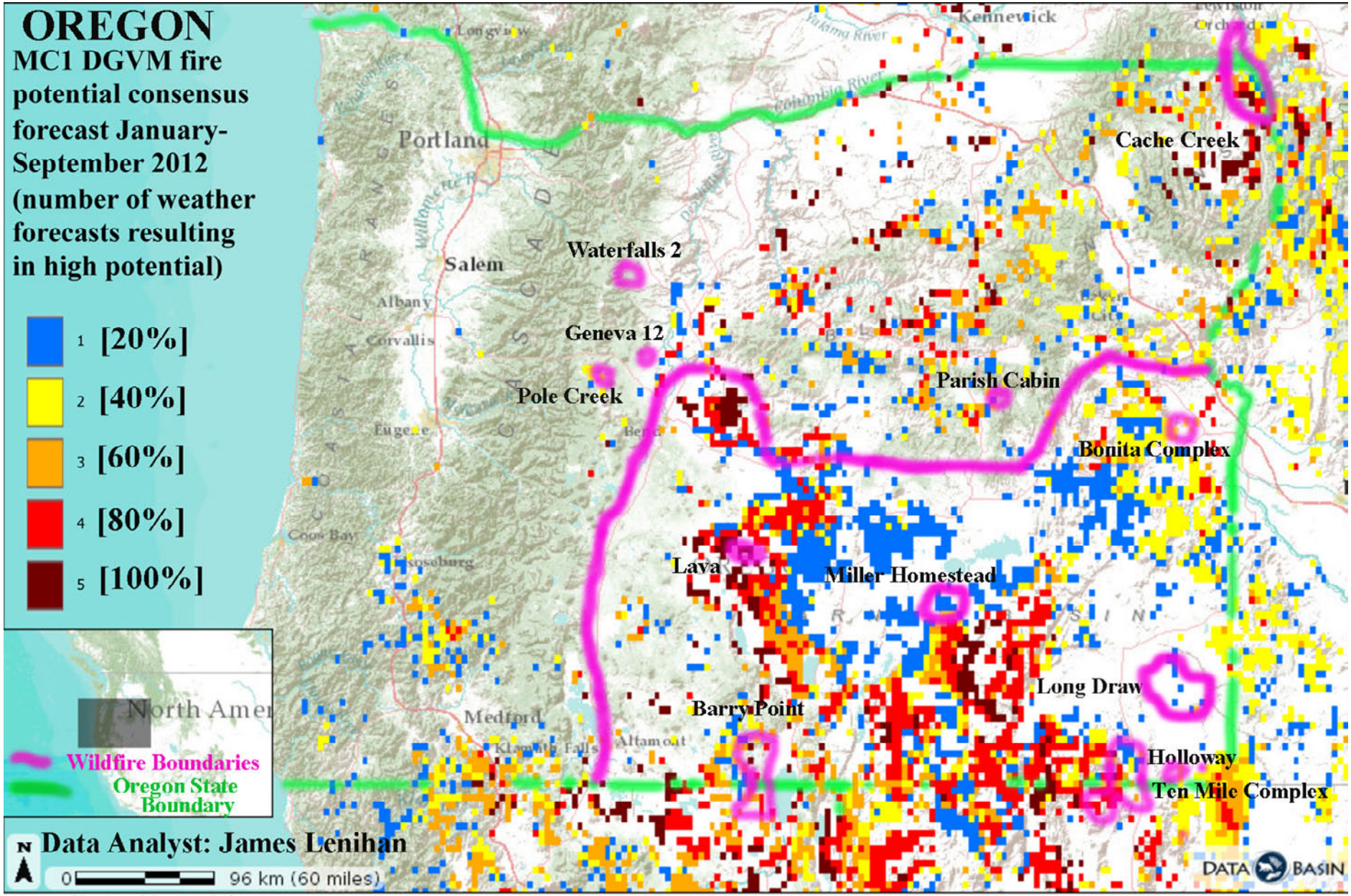
Created by: Dominique Bachelet, 2012

Oregon 2012 Large-Scale Wildfire Summary

Wildfire Name	Cause	Location	Started	Total Acres
Miller Homestead	Lightning	Burns BLM	July 8	160,853
Long Draw	Lightning	Vale BLM	July 8	557,648
Bonita Complex	Lightning	Vale BLM	July 9	18,188
Lava	Lightning	Lakeview BLM	July 23	21,300
Waterfalls 2	Lightning	Warm Springs Res.	August 4	12,265
Holloway	Lightning	Winnemucca BLM	August 5	461,047
Barry Point	Lightning	Fremont-Winema NF	August 6	93,071
Geneva 12	Lightning	Ochoco NF	August 6	1,337
Ten Mile Complex	Lightning	Vale BLM	August 10	14,036
Cache Creek	Lightning	Wallowa-Whitman NF	August 20	73,697
Parish Cabin	Human	Malheur NF	August 28	6,481
Pole Creek	Unknown	Deschutes NF	September 9	24,392

SUMMARY:

1) **Oregon experienced 12 large-scale wildfires in 2012.**
2) **Lightning caused 10 (or 11) of these fires; people caused 1 (or 2).**
3) **Six fires started on US Forest Service land; five on BLM land.**
4) **BLM fires averaged 205,000 acres; USFS fires averaged 40,000 acres.**
5) **A total of 1,400,000 acres burned; all in July, August, & September.**



Created by: Dominique Bachelet, 2012

INDIAN BURNING

It would be difficult to find a reason why the Indians should care one way or another if the forest burned.
It is quite something else again to contend that the Indians used fire systematically to "improve" the forest.
Improve it for what purpose?
Yet this fantastic idea has been and still is put forth time and again because somebody's grandfather said that is what happened.

--C. Raymond Clar 1959: 7.

California Government and Forestry: From Spanish Days until the Creation of the Department of Natural Resources in 1927.
Division of Forestry, Department of Natural Resources,
State of California, Sacramento, California: 623 pp.

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."


Vision for the Future

Conclusions

1. **Catastrophic-scale wildfires are deadly, costly, and destructive.**

2. **Regular landscape-scale prescribed fires -- as exemplified by historical Indian burning practices -- can significantly reduce the likelihood and severity of modern wildfire risks.**

3. **Fuel levels must first be greatly reduced before prescribed fires can be safely and effectively reintroduced into the environment.**

4. **Removing dead trees and shrubs and invasive conifers from forests and grasslands allows the safe and effective reintroduction of prescribed fire.**

5. ***"Landscape restoration" means restoring people to the landscape, including (maybe especially) children.***

RECOMMENDATIONS

"If wildfire can be predicted, it can be prevented."

1. **Restore active management of our nations' resources on our federal lands, including salvage logging, thinning, mining, grazing, road maintenance, recreation, hunting, fishing, trapping, and food gathering;**

2. **Restore regular use of prescribed fire on our managed forest, woodland, shrubland, and grassland landscapes.**

3. **Restore people to the land.**

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

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

Oregon Websites and Watersheds Project, Inc.

www.ORWW.org