Concept for new Regional Haze strategy to protect Oregon Class I areas

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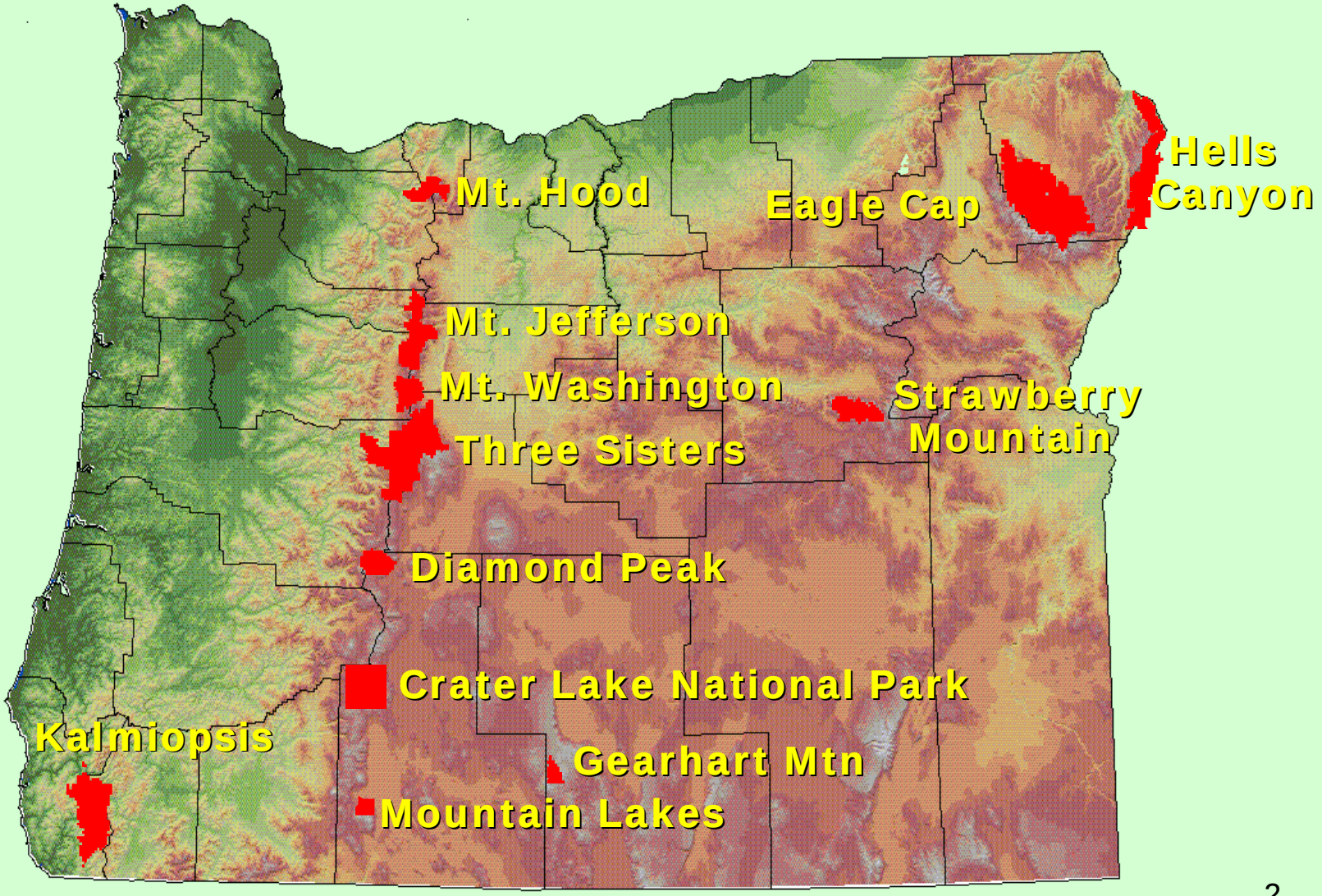
April 15, 2008

Map of 12 Oregon Class I areas



Scenes from Oregon Class I Areas

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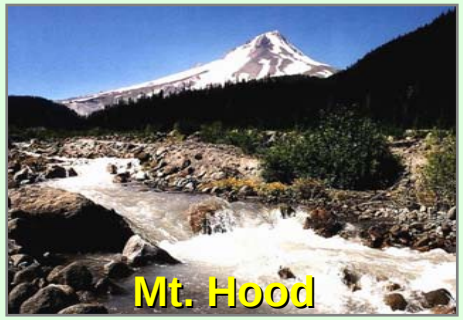
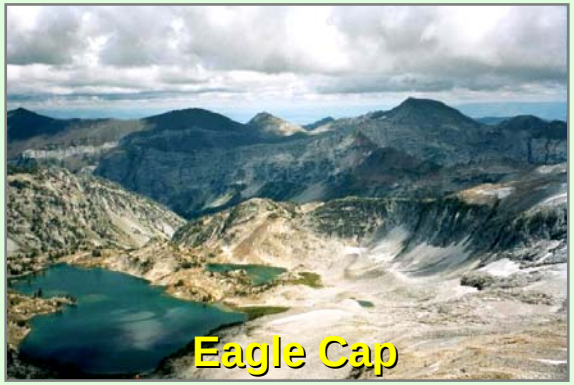
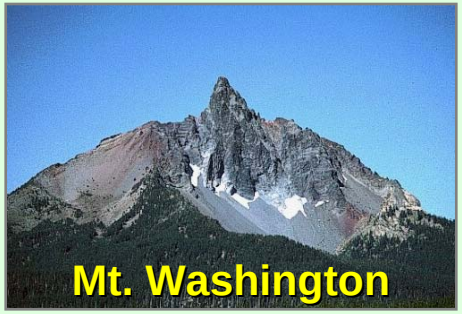
Environmental
Quality

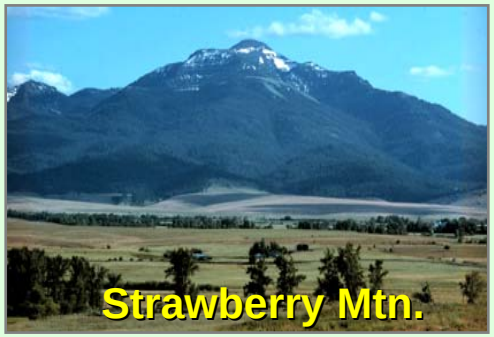

Mt. Hood


Three Sisters


Eagle Cap

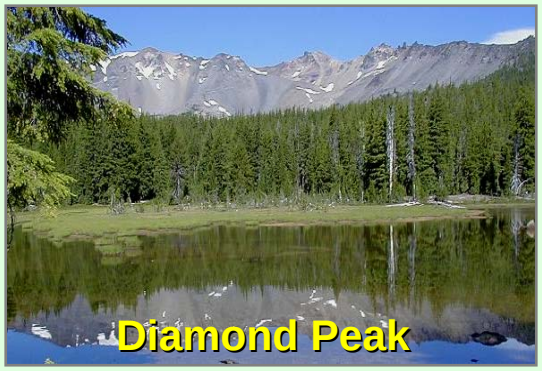

Mt. Jefferson


Mt. Washington

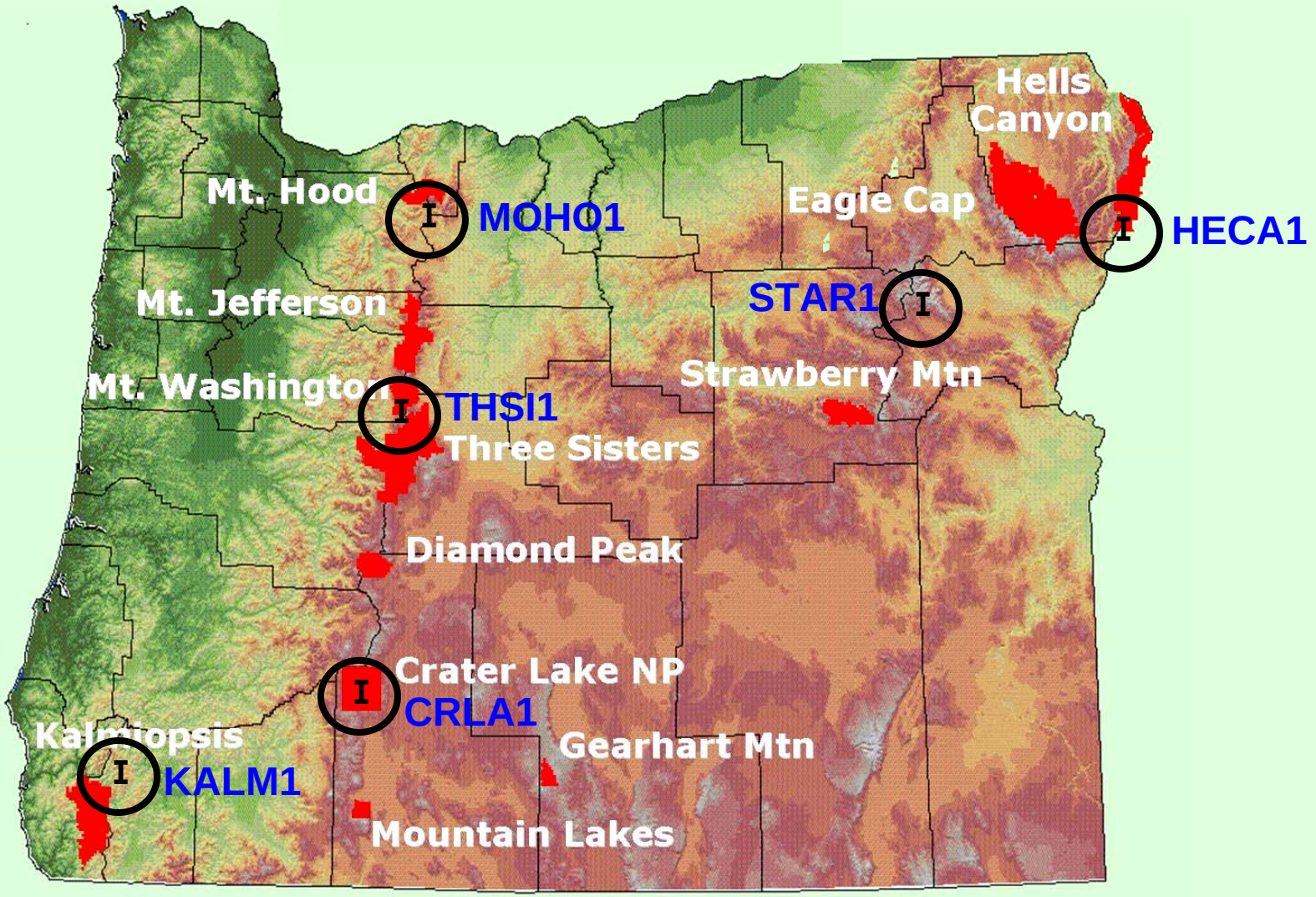

Strawberry Mtn.


Crater Lake

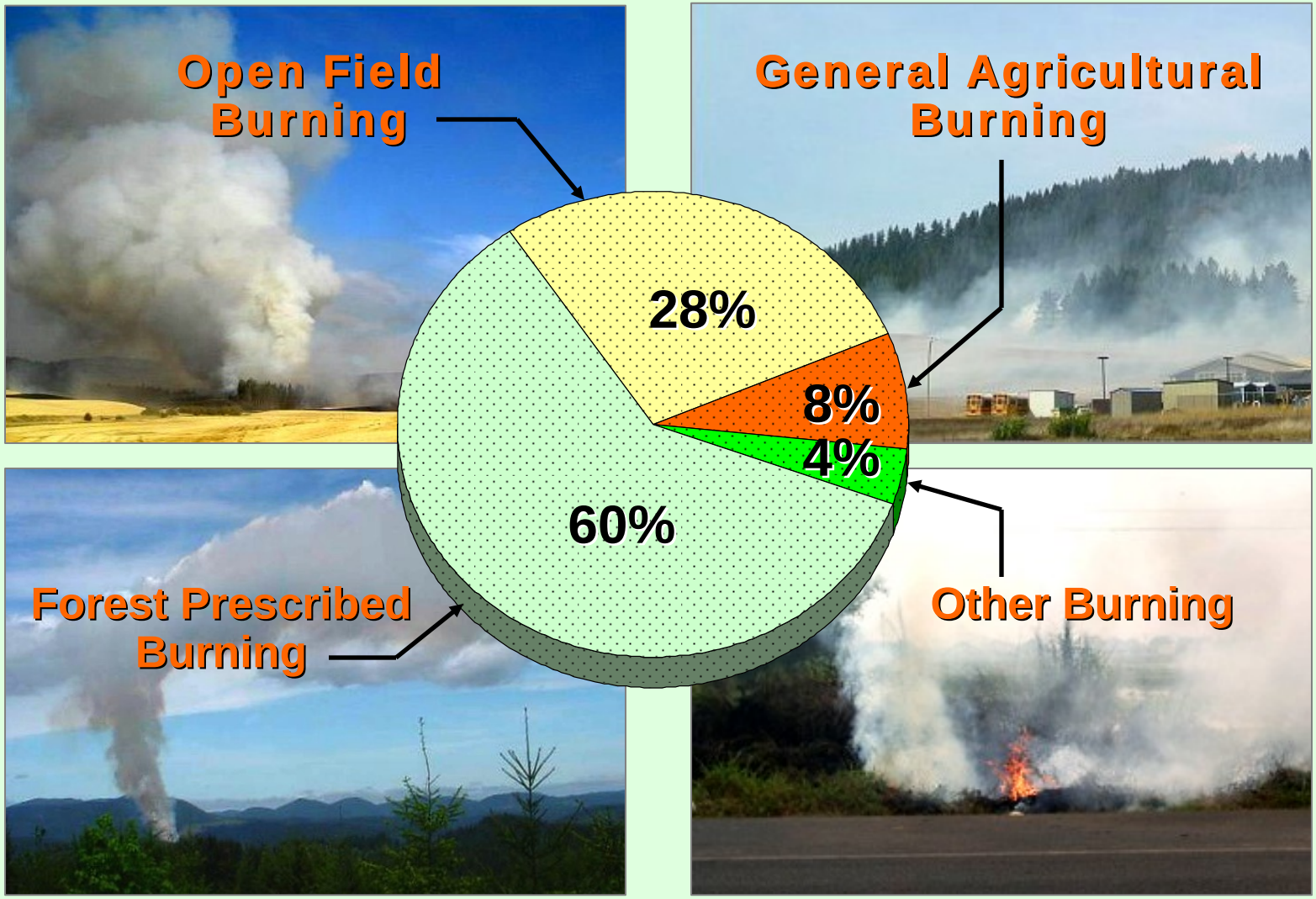

Mountain Lakes


Diamond Peak

Oregon Class I IMPROVE sites



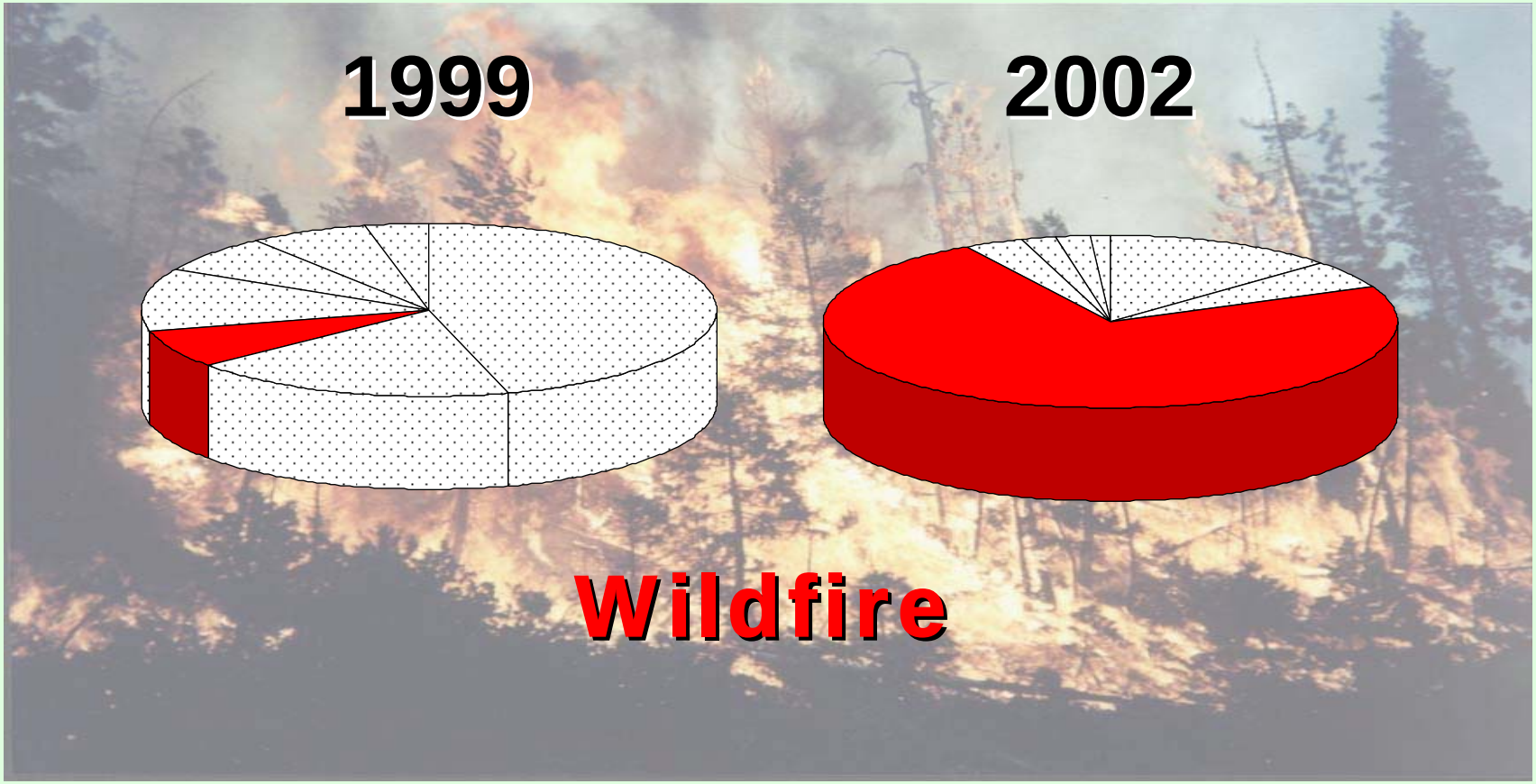
Major sources of vegetative outdoor burning in Oregon



And then there's wildfire…

2002 Biscuit Fire in southern Oregon burned 499,965 acres

Wildfire fluctuation year to year
(total statewide emissions)

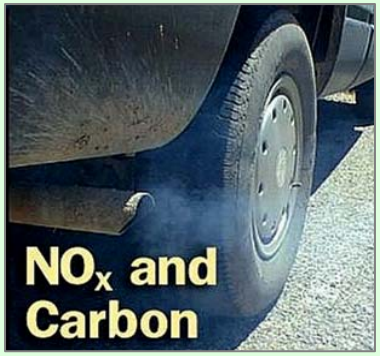


Why is a new strategy needed for prescribed burning?

✉ **EPA's Regional Haze Rule**

Air pollution from multiple sources that travels long distances into Class I Areas and affects visibility

Sources and Pollutants that cause Haze



Pollutant Species of Concern

- **Sulfates** – from combustion of fuels containing sulfur, point sources.
- **Nitrates** – from high temp. combustion, point sources and motor vehicles.
- **Organic and Elemental Carbon (OC, EC)** – mostly fire sources (wildfire + prescribed burning), some biogenics.
- **Fine Soil** – from dirt roads, farmland, bare ground, dust storms.
- **Coarse Mass** – mostly dust.

The Regional Haze Rule

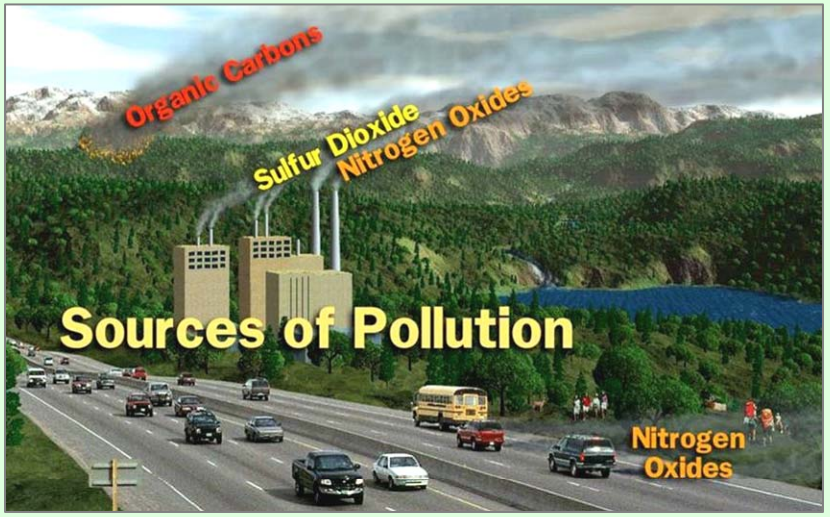
- Requires making visibility improvements in Class I areas over next 60 years.
- Rule focuses on protecting the best 20% days and improving 20% worst days.

20% Best Visibility Day

20% Worst Visibility Day

The Regional Haze Rule

- Requires identifying sources that are significant contributors to haze.
- Requires strategies to reduce haze from significant sources (that are controllable).



Why focus on Prescribed Burning?

- Largest source of “controlled” burning. Likely contributor to 20% worst days.
- Willamette Valley Field Burning is already restricted upwind of central Cascade Class I areas (weekends only).
- Current OSMP effective in reducing prescribed burning smoke impacts in urban areas.
- Similar protection for Class I areas makes sense.

DEQ developing RH Plan:
Must address Prescribed Burning

- This DEQ RH Plan (2008):
  - No new strategies for PB – cite that current OSMP meets “Enhanced Smoke Management Program” criteria for now.
- Next RH Plan (2012):

  ✉ **Look at new strategy for PB**

What a new strategy might look like

- Avoid causing/major contributor to 20% worst visibility days.

Prescribed Burning near Crater Lake

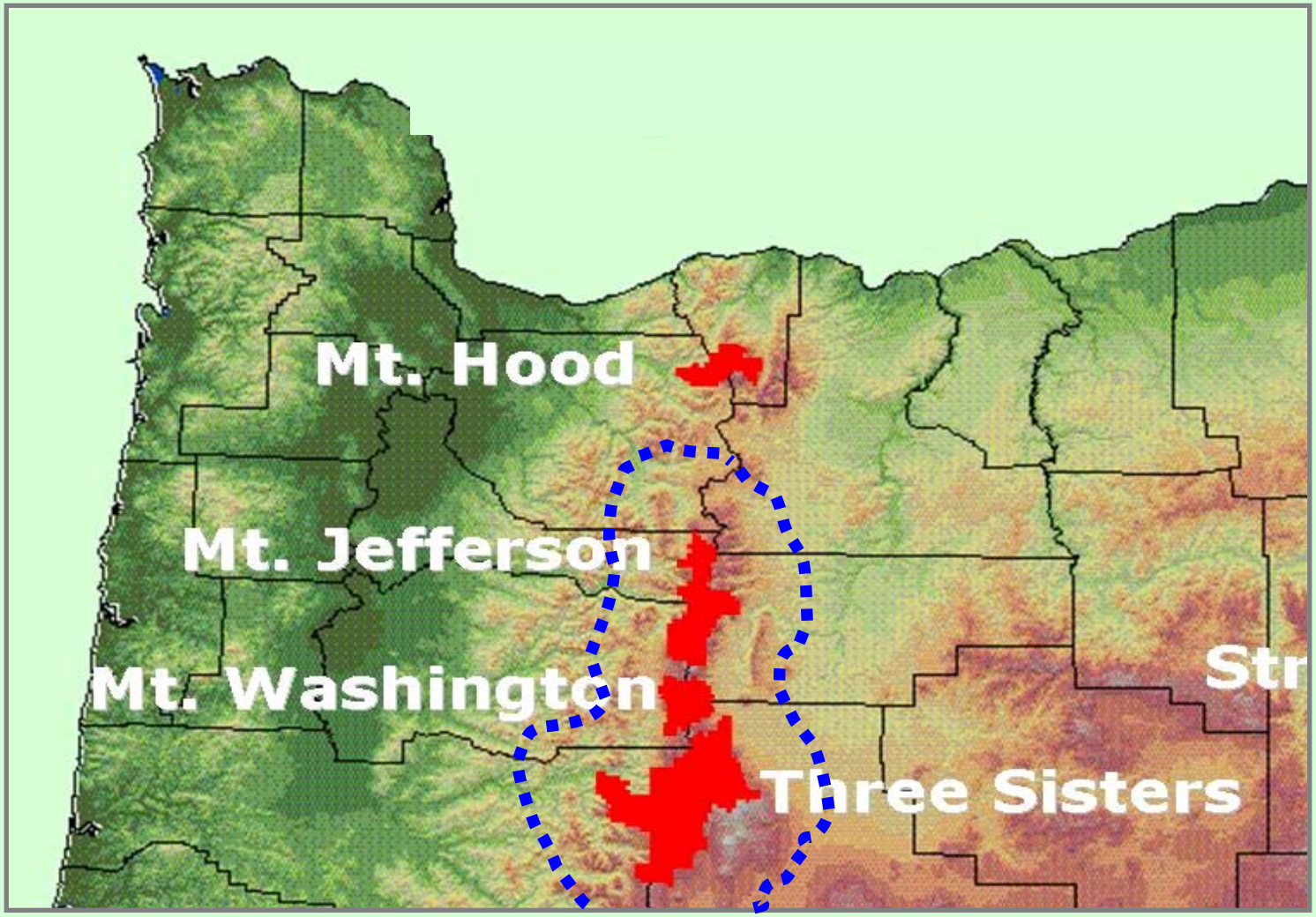
What a new strategy might look like

- Apply “basic” smoke management upwind of Class I areas where PB found to be significant contributor to 20% worst days.
- Restrict burning to avoid direct plume impacts and major smoke intrusions (at ground level).
- May only need to address burning within distance of 25-50 miles.

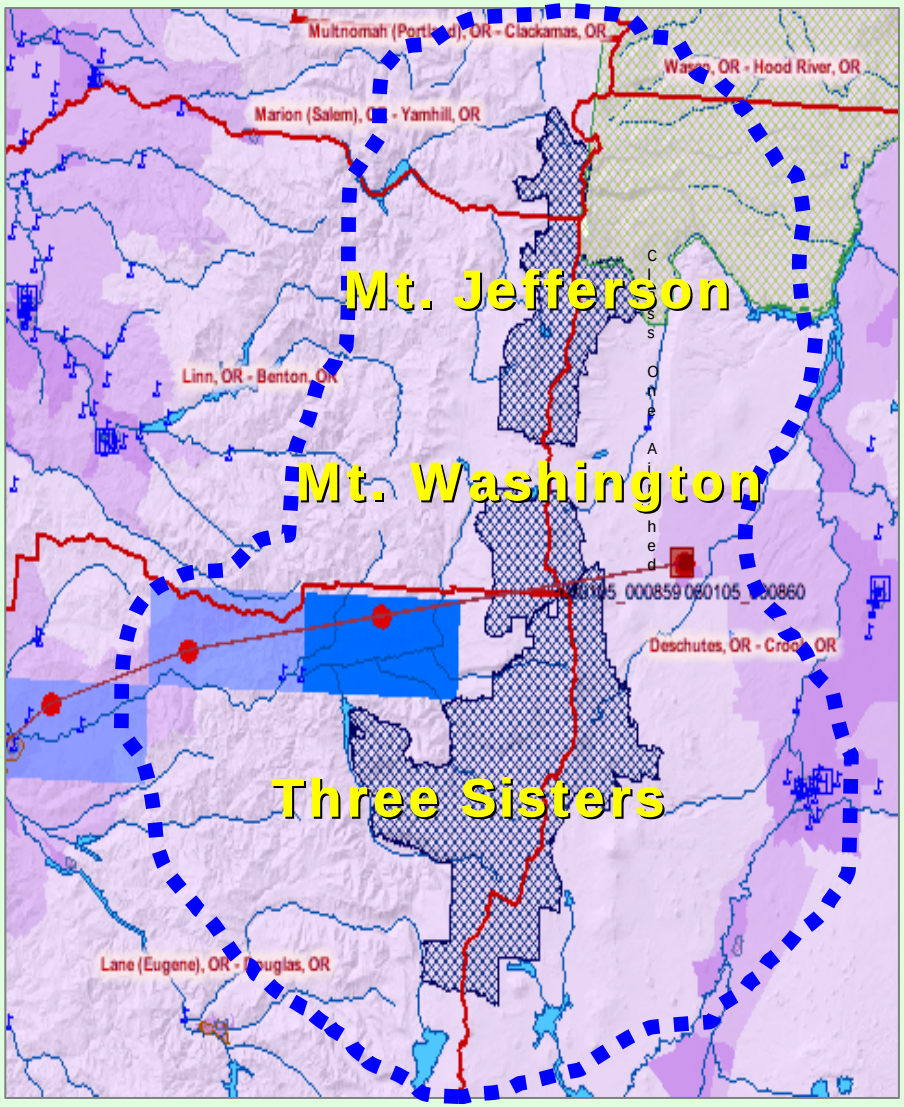
How to develop new strategy for prescribed fire

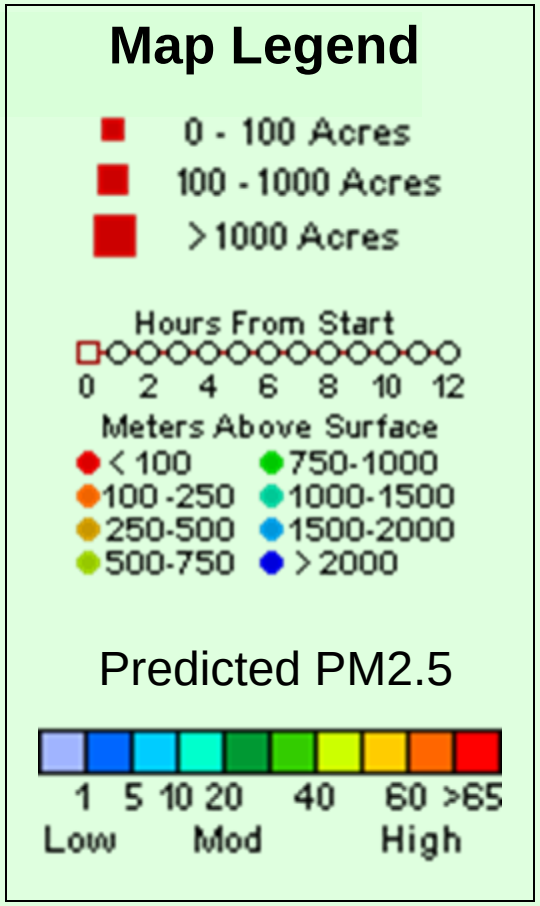
- Review monitoring and met data to determine if PB has been significant contributor to 20% worst-days.
- See slides on “Evaluation Method”.
- Consider establishing a Special Protection Zone 25-50 miles around Class I area.
- Burning within SPZ more intensely managed to avoid major impacts.

Example of Special Protection Zones for Central Cascades



Example SPZ
Using BlueSkyRains tool





Evaluation Method

- Review Oregon IMPROVE monitoring data and aerosol species composition on 20% worst days.
- Look for significant contribution of OC and EC as indicator of vegetative burning.
- Can assume most summertime OC/EC is mostly wildfire (although open field burning could be contributor).

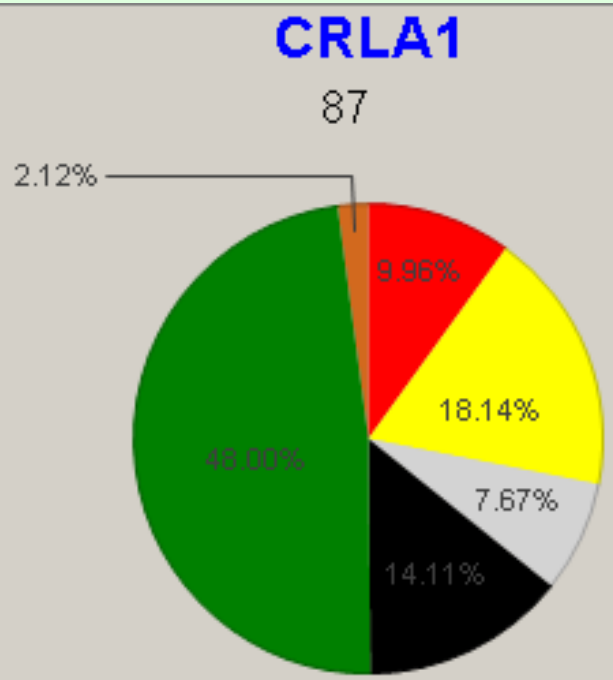
Evaluation Method (cont.)

- Focus on 20% worst days in spring and fall burning when prescribed burning is occurring.
- Review PB burning records to see if PB burning was occurring in the area.
- Review review daily meteorological data to determine likelihood of impact.

Next Slides

- Random examples of individual years.
- Pie charts – shows pollutant species on 20% worst days only.
- Graphs - pollutant species annual trends with 20% worst-days noted by “W”.
- 20% worst days in spring/fall (circled) need evaluation to see if caused by PB.
- Big “spikes” of organic carbon in summer likely wildfire (especially 2002).
- No review conducted of PB burn records and met data to confirm impacts.

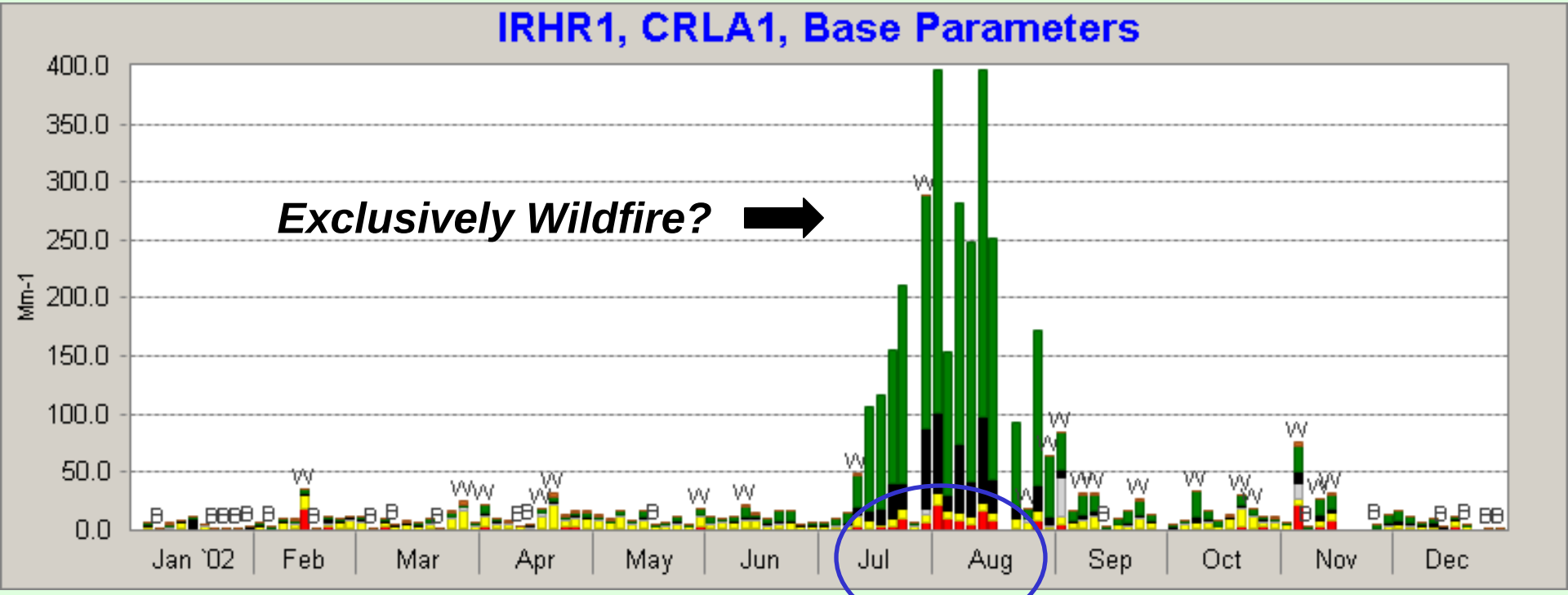
Crater Lake
20% worst-case days
2002 Species Contribution



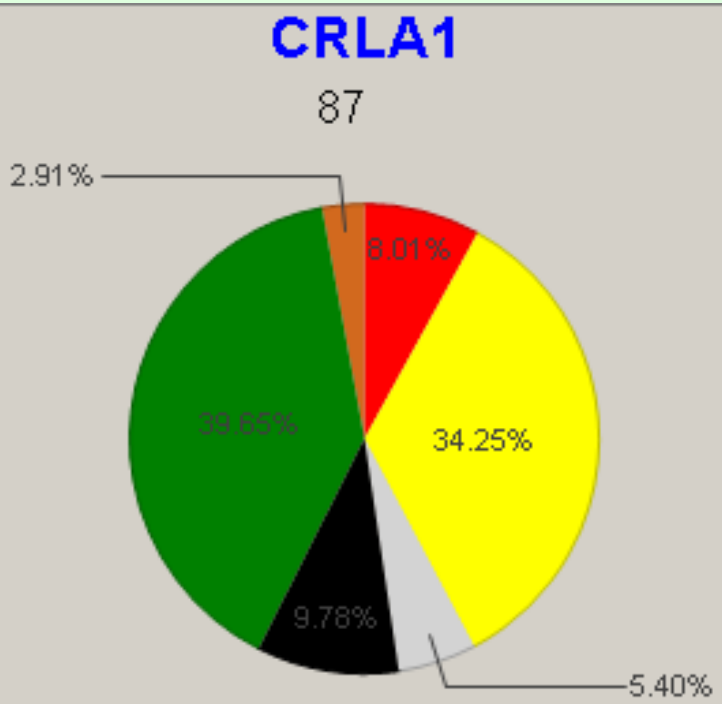
Pollutant Species

- SO_2 (sulfates)
- NO_X (nitrates)
- OC (organic carbon)
- EC (elemental carbon)
- Fine Soil
- Coarse Mass

Crater Lake
2002 Seasonal Species Trends



Crater Lake
20% worst-case days
2004 Species Contribution



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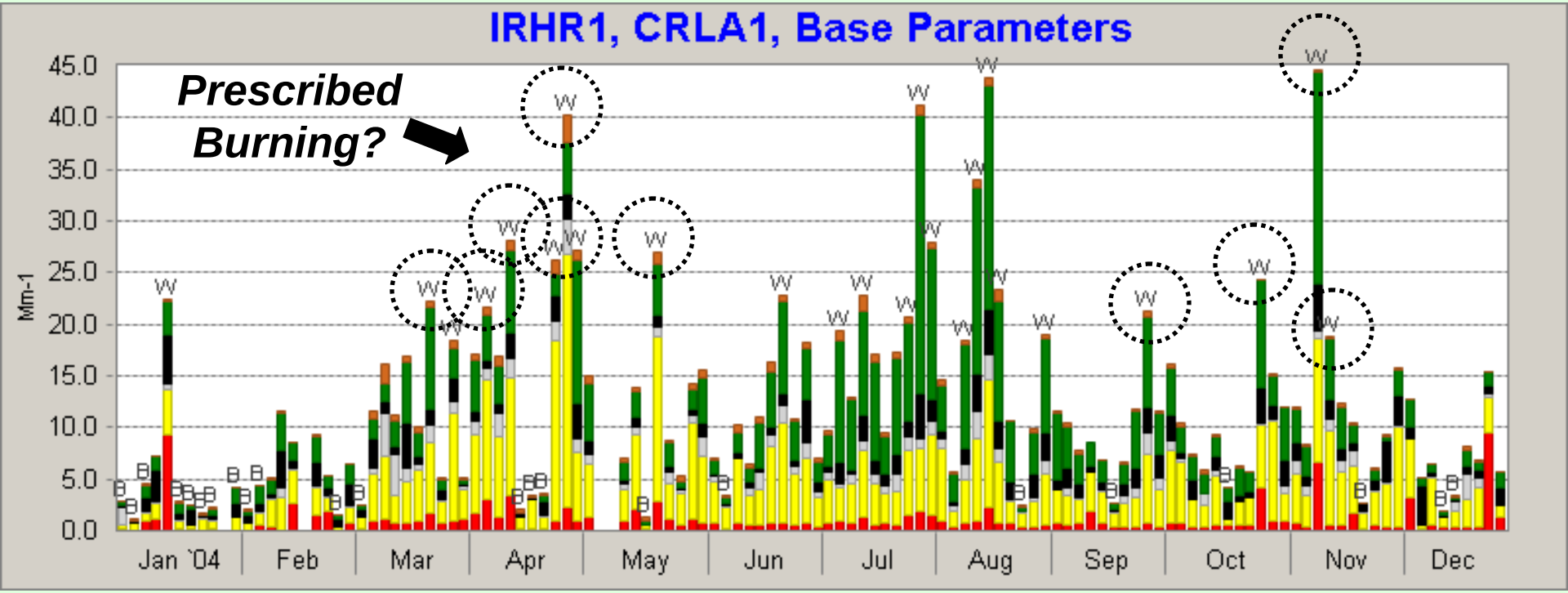
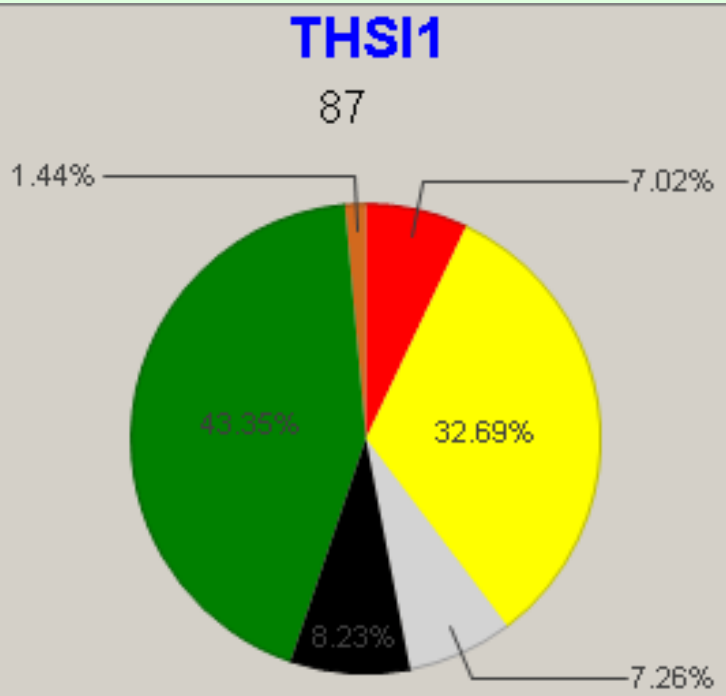
Crater Lake
2004 trends



Three Sisters
20% worst-case days
2004 Species Contribution



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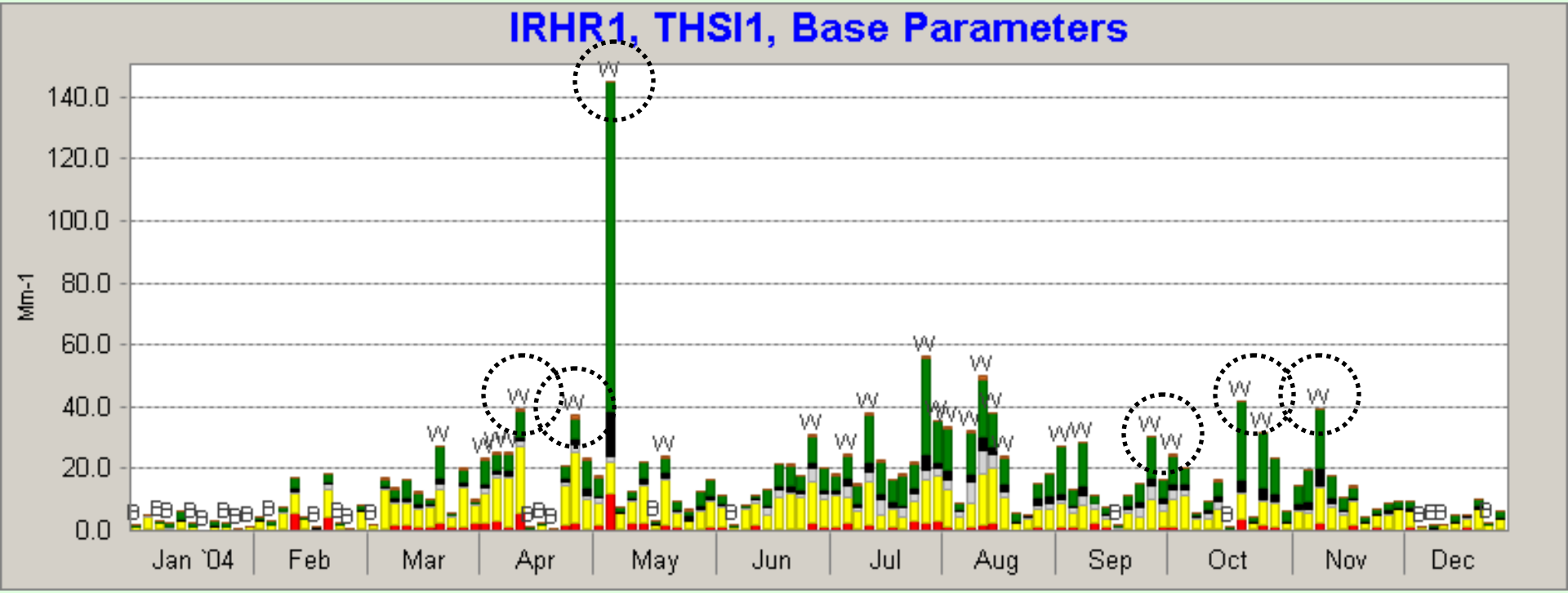
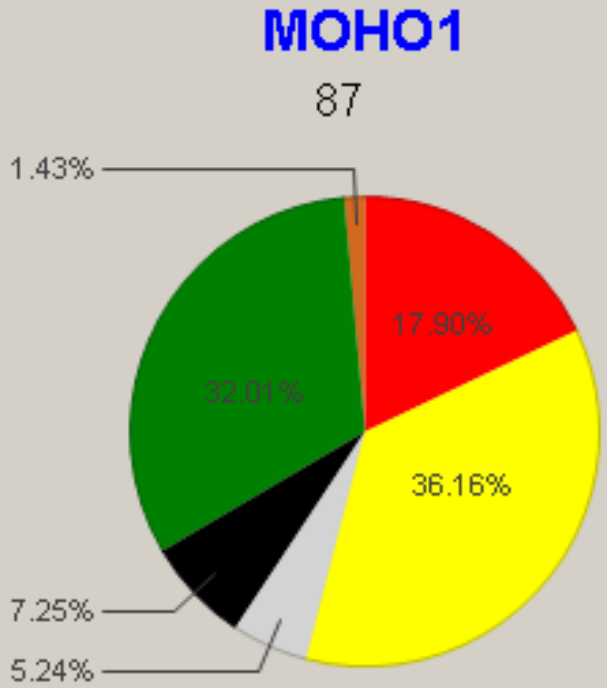


Mt. Hood
20% worst-case days
2004 Species Contribution



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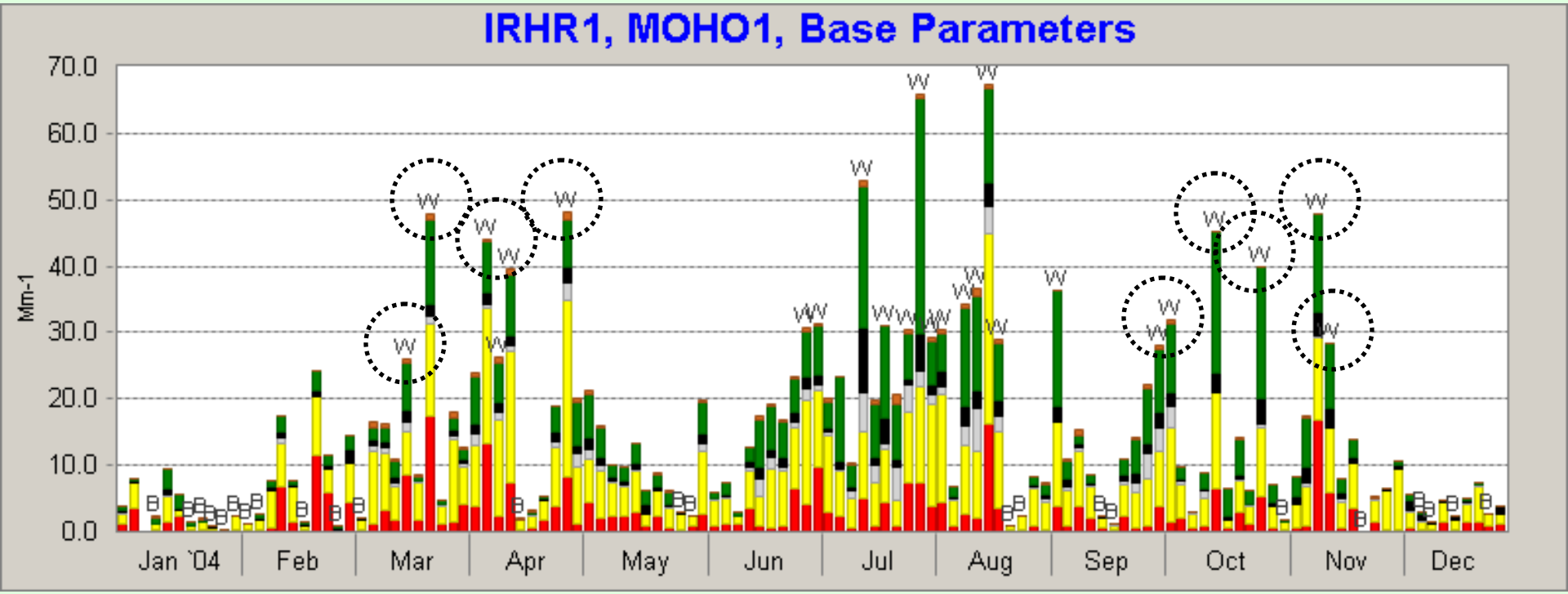
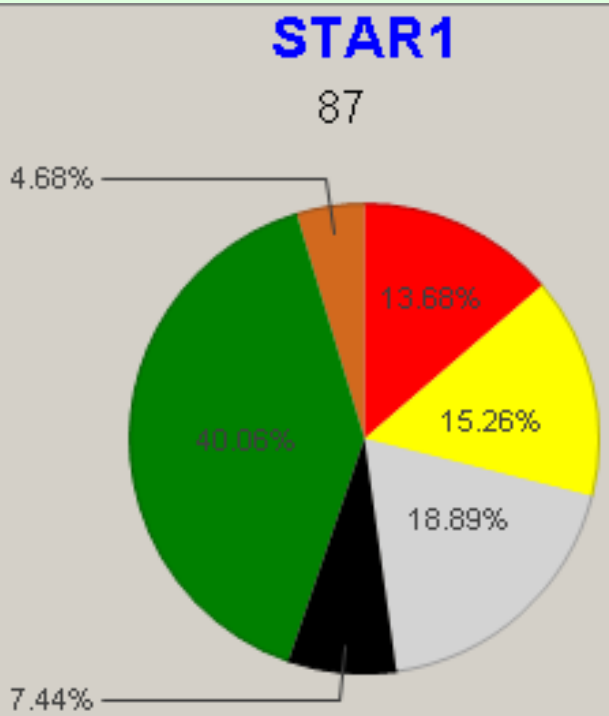


Strawberry Mtn / Eagle Cap
20% worst-case days
2003 Species Contribution



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Strawberry Mtn / Eagle Cap
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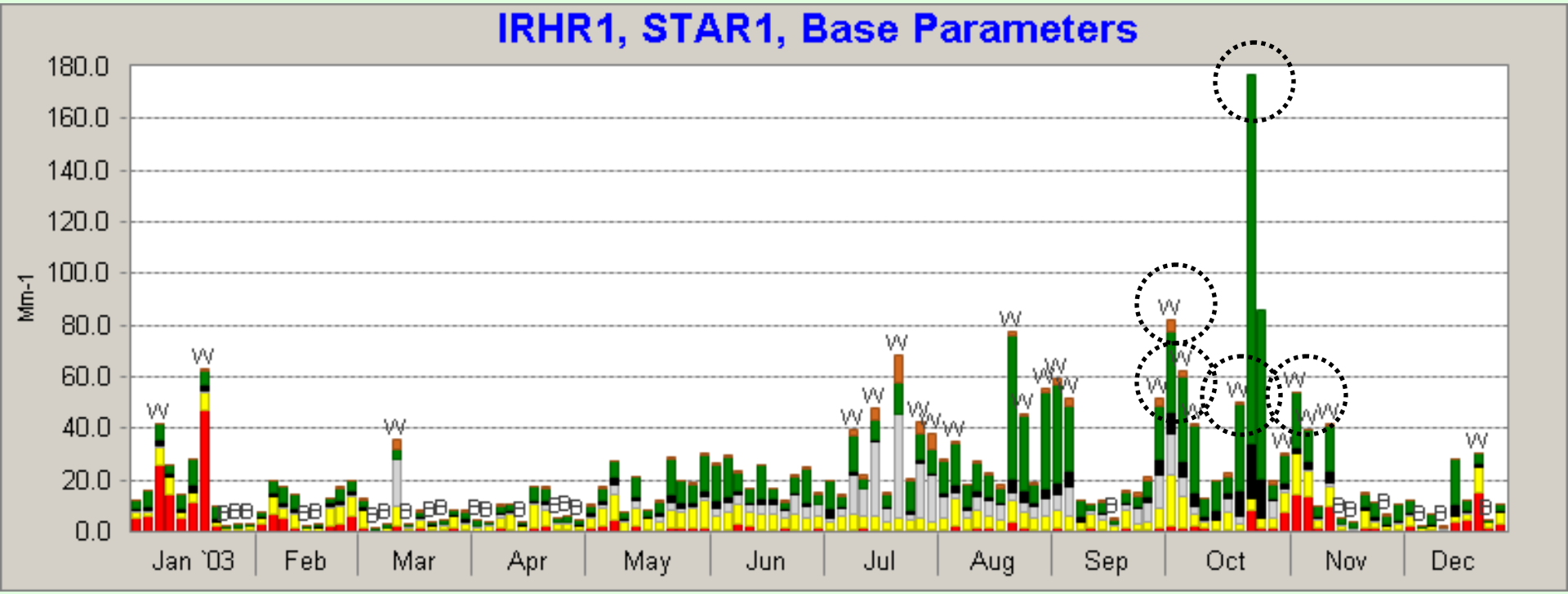

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