EPA Proposed Ozone Rule
Impacts to Wildland Fire

December 22, 2010

Background: On January 6, 2010, the EPA proposed to strengthen the national ambient air quality standards (NAAQS) for ground-level ozone. EPA also proposed an accelerated implementation schedule as part of this Rule. The primary standard is designed to protect public health and the proposal is to decrease the 8-hour average from 0.075 parts per million (ppm) to a level within the range of 0.060-0.070 ppm. The EPA is also proposing to establish a different secondary standard to protect sensitive vegetation and ecosystems. The proposed secondary NAAQS would use the hourly ozone data to calculate a cumulative statistic called the W126. The secondary NAAQS would utilize only 12 hours of data each day and the seasonal value used will be the consecutive 3 months with the greatest total W126 value. The EPA is proposing to set the level of the secondary NAAQS within the range of 7-15 ppm-hours. The public comment period closed 3/22/2010. The final Rule was expected 10/31/2010 and in early December EPA announced a delay in the **final issuance of the 8-hour ozone standard until no later than July 31, 2011.**

Additional information is available at the NWCG Smoke Committee (SmoC) public myfirecommunity (MFC) neighborhood "Air Quality and Fire Issues" at:
http://www.myfirecommunity.net/NeighborhoodPosts.aspx?ID=279&Topic=2239&Category=1.
The EPA website for this standard is: http://www.epa.gov/air/ozonepollution/actions.html#jan10s
Technical details of the W126 are available at: http://www.asl-associates.com/w126.htm

Emissions from Fire and Ozone Formation: Emissions from fire contain ozone precursors; volatile organic compounds (VOCs) and oxides of nitrogen (NOx). VOCs and NOx react in the presence of sunlight to produce ozone on the scale of 1-2 hours. Smoke from fire also obscures the sun, influencing these reactions. Furthermore, NOx concentrations tend to decay quickly within a smoke plume. Smoke from wildfires in northern California the summer of 2008 has been attributed to causing ozone NAAQS exceedances. Analysis of PM2.5 and ozone data for Atlanta show that while the two are typically correlated, during a large wildfire impact period there was either little change in that correlation or at some monitoring locations the two were no longer correlated, which would indicate that the wildfire may have only weakly impacted ozone concentrations. These initial analyses illustrate the complexity in the relationship between emissions from fire and ozone formation.

Nonattainment Boundaries: New non-attainment area (NAA) boundaries will be proposed by the states, based on recent and complete data. EPA is then expected to make the final designations. The Clean Air Act provides that the states would have at least 120 days before the decision was final if EPA did not agree with the state recommendation. The State Implementation Plans (SIPs), which demonstrate how ozone concentrations will be reduced to meet the standard through reductions in emissions from contributing sources of ozone, are due generally up to 3 years after designation, and States have 3 to 20 years to attain the new standard, depending on the severity of nonattainment. EPA had been planning to fast-track the due dates for the ozone reconsideration, but their original timeline is no longer tenable and they have not proposed a new one. Figure 1 shows current ozone NAAs. Figure 2 shows potential NAAs overlaid on federal lands for the 0.060 ppm proposed level of the primary standard and the 7 ppm-hrs proposed level of the secondary standard (note: these are the most stringent levels being proposed). **It is estimated that 153 million acres of federal lands could fall within NAAs for the primary standard if set at the 0.060 ppm level, and that 140 million acres of federal lands could fall within NAAs for the secondary standard if set at the 7 ppm-hrs level. For both standards combined, a total of 157 million acres of federal lands could fall within NAAs.** These estimates are based on 2006-2008 monitoring data and include datasets that may be incomplete, data that could be determined to be exceptional events at a later date, and datasets from the Clean Air Status and Trends Network (CASTNET). The greatest impact of lowering the ozone standard will be in setting it at 0.070 ppm. The difference between setting the standard at either 0.065 ppm or 0.060 ppm is not very large in the east and mostly impacts northern states west of the Mississippi. At the most stringent levels proposed most counties that exceed the secondary standard will also exceed the primary standard with the exception of some counties scattered mostly across the eastern US.

Monitoring Network: On July 16, 2009, EPA proposed changes to the ozone monitoring regulations which would increase the number of monitors in areas where monitoring has not traditionally been done. It would require three nonurban sites per state including one each in a rural area, park and metropolitan statistical area, (area with a population of 50, 000 but not urbanized as defined by the Census Bureau). Additionally, the N-Core monitoring sites, a group of sites with highly concentrated number of monitoring parameters, would require year-round ozone monitoring regardless of the ozone season for the state. Each state will have at least one N-Core

site, with larger states having 2-3. The new monitoring design would also increase urban monitoring by requiring monitors at all small metropolitan statistical areas. Figure 3 shows locations of current ozone monitors and areas targeted for additional monitoring. EPA is also increasing the ozone monitoring season in most parts of the country. Figure 4 shows the proposed extensions of the ozone season by state and highlights states where changes were made to increase the defined ozone season. **Currently there are approximately 1200 ozone monitors across the US, and if the new standard is set at the proposed 0.060 ppm level, over half of them are estimated to exceed the NAAQS.**

HOW CAN THIS RULE AFFECT FIRE PROGRAMS?

More Nonattainment Areas:

- **Greater restrictions on prescribed burning**: If prescribed burning is attributed to contributing to the NAA problem, then states may place greater restrictions on prescribed burning operations.
- **Need to develop basic smoke management practices (BSMPs)** applicable to smoke and ozone impacts. For example, one BSMP may be to not burn on ozone alert days.
- **More General Conformity Demonstrations**: Federal land managers contemplating projects within nonattainment areas must also comply with the General Conformity provisions of the Clean Air Act. General Conformity requires that prior to undertaking a project, conformity with the NAAQS SIP must be demonstrated. Your land management agency's local air quality specialist can assist. The process can be conducted concurrent with NEPA analysis and other plan development. Similar to NEPA documents, the Conformity Determination is required to have public as well as state regulatory review. This requirement needs to be built into all project planning that is funded with federal dollars.
- **More Exceptional Events**: Lower standards and more NAAs increase the likelihood of exceptional events occurring for wildfires and possibly prescribed fires. Providing the data and information necessary to demonstrate these exceptional events can be a large task. Note: in 2009 there were over 400 exceptional event demonstrations submitted to EPA in California.
- There are still many questions which will be left to future decisions including how fire management might be changed in NAA that are primarily driven by transport or violating the secondary standard, W126

More Monitoring Sites: Many of the proposed **monitoring sites are in more rural areas and wildland urban interface (WUI) areas**.

Extended Ozone Season: Extending the ozone season will impact Spring/Fall prescribed fire activities.

Air Quality Index (AQI): With a lower standard the AQI will be adjusted, therefore there will be **more days in one of the "Unhealthy" categories** when burners may be expected to refrain from burning.

Recommendations: Land Managers need to get involved in the Regulatory Process

- In developing a SIP, many States undertake stakeholder processes in which wildland managers can participate. In the absence of such processes, there will also be opportunities to provide public comment regarding the approach the State takes to achieve attainment. Prior to getting involved in stakeholder or other regulatory air quality processes, agency land managers should engage their local agency air quality specialist. The agency air quality specialist may already be engaged in the stakeholder process thus greatly assisting fire programs in interfacing with air quality regulators during SIP development. If not already engaged, then they can facilitate the communication process.
- Land managers may be able to affect the designation process by discussing appropriate inclusion or exclusion of wildlands in the NAA. For example, prescribed fire activities on the wildlands may not be found to contribute to the high ozone levels and thus should not be included in the NAA designation. Conversely, if the area is in exceedance of the secondary ozone standard, then some level of protection may be achieved for the wildlands if they are included in the NAA designation. Agency air quality and forest staff should interact with state air quality planners and EPA regional staff to understand factors contributing to a proposed NAA. Interaction supports 1) determination of where wildlands will be included in, or are proximate to proposed nonattainment areas, 2) whether meteorological, ambient air monitoring, source, and/or emissions data demonstrates that agency activities cause or contribute to the nonattainment designation, and 3) whether resources would benefit from designation.

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Total Acres by Federal Lands Exceeding New Suggested Ozone Levels				
	Acres (Rounded to nearest hundred thousand)			
Ownership	Primary (Levels > 0.060 ppm)	Secondary (Levels > 7 ppm-hrs)	Primary & Secondary Levels Overlap	All Areas Affected*
BIA	20,600,000	19,600,000	19,600,000	20,600,000
BLM	49,700,000	48,900,000	48,200,000	50,300,000
BOR	1,100,000	1,000,000	1,000,000	1,100,000
DOD	11,700,000	11,600,000	11,300,000	11,900,000
FS	49,300,000	39,100,000	35,900,000	52,500,000
FWS	4,900,000	4,500,000	4,400,000	5,000,000
NPS	15,400,000	14,900,000	14,800,000	15,400,000
Other Federal	500,000	500,000	500,000	500,000
Total Federal	**153,200,000**	**140,100,000**	**135,700,000**	**157,300,000**
Total Non Federal	**304,400,000**	**260,900,000**	**251,000,000**	**314,300,000**
Total	**457,600,000**	**401,000,000**	**386,700,000**	**471,600,000**

*Total acres exceeding either primary or secondary, or both levels.

Table 1. Estimated acres of Federal lands (by agency) and non-Federal lands that are within potential ozone nonattainment areas. The analysis uses the most stringent ozone levels being proposed; 0.060 ppm for the primary standard and 7 ppm-hrs for the secondary standard. It is based on 2006-2008 monitoring data and includes monitors with incomplete datasets and data that could be excluded in the future as exceptional events.

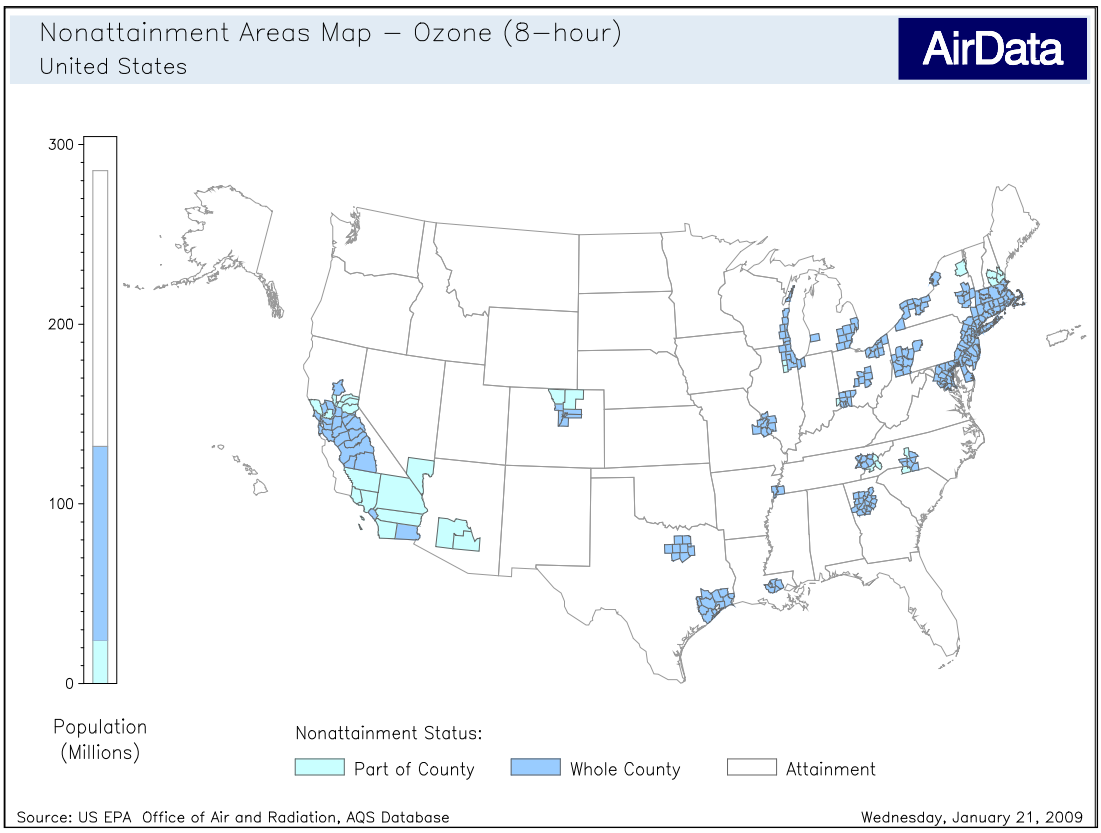

Figure 1. 8-hour average Ozone Nonattainment Areas based on 1997 NAAQS (0.08 ppm). The current NAAQS set in March 2008 is 0.075 ppm, however NAA designations have not been made for it.

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For additional information about SmoC go to: http://www.myfirecommunity.net/Neighborhood.aspx?ID=279

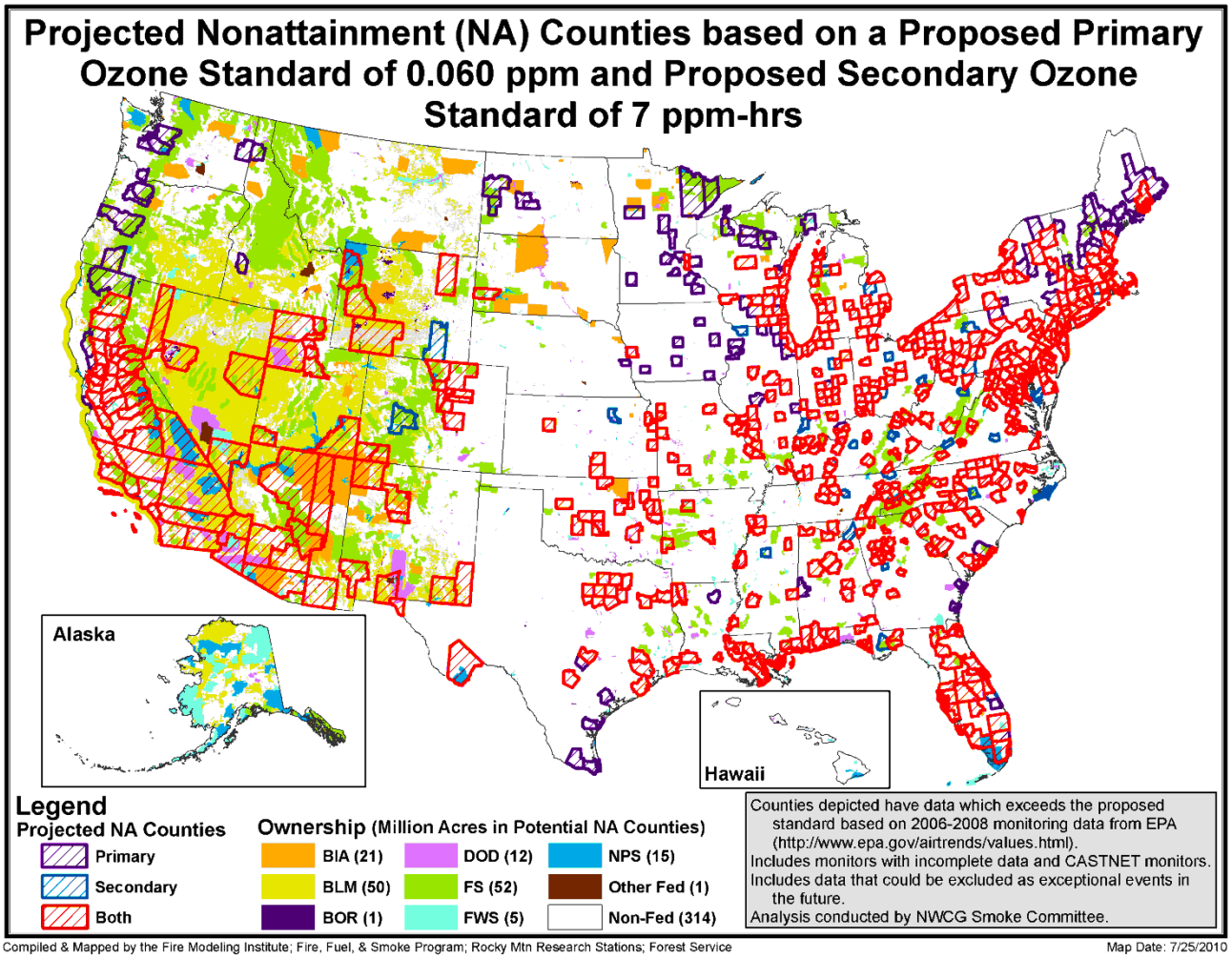

Figure 2. Figure 2 shows potential nonattainment counties overlaid on federal lands for the most stringent ozone standard levels being proposed; 0.060 ppm for the primary standard and 7 ppm-hrs for the secondary standard. These estimates are based on 2006-2008 monitoring data (http://www.epa.gov/airtrends/values.html) and include monitors with incomplete datasets, data from the Clean Air Status and Trends Network (CASTNET) network and data that could be excluded in the future as exceptional events.

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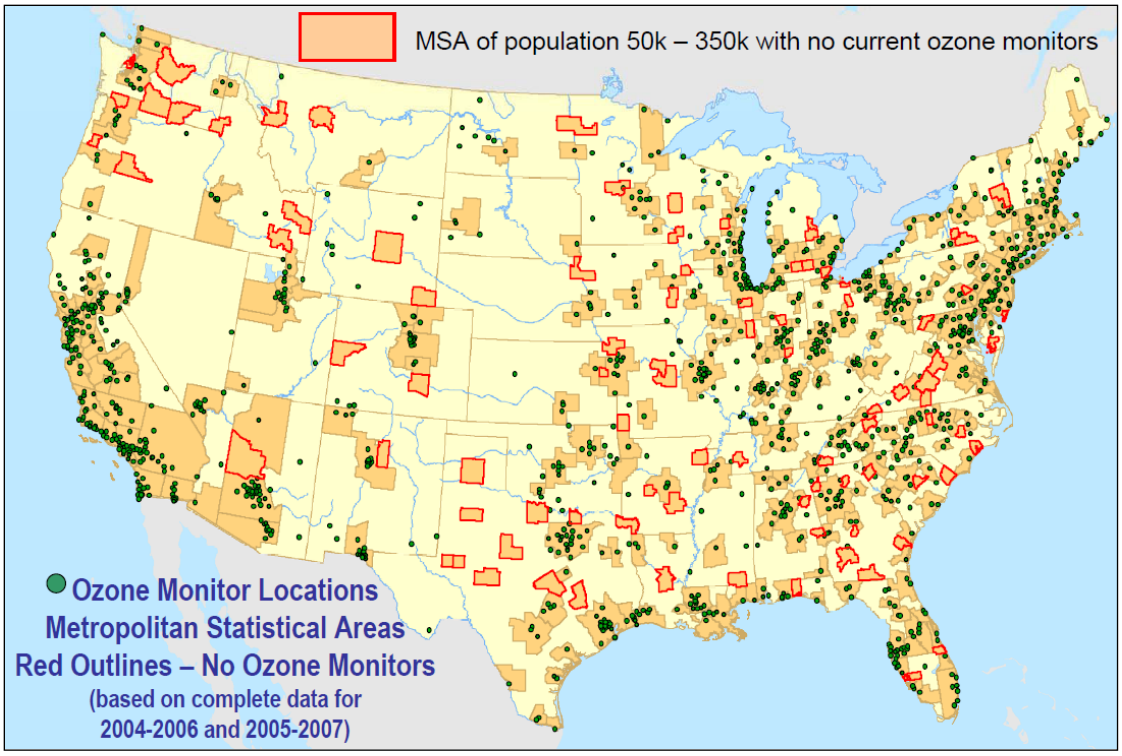

Figure 3. Locations of current ozone monitors and areas targeted for additional monitoring.

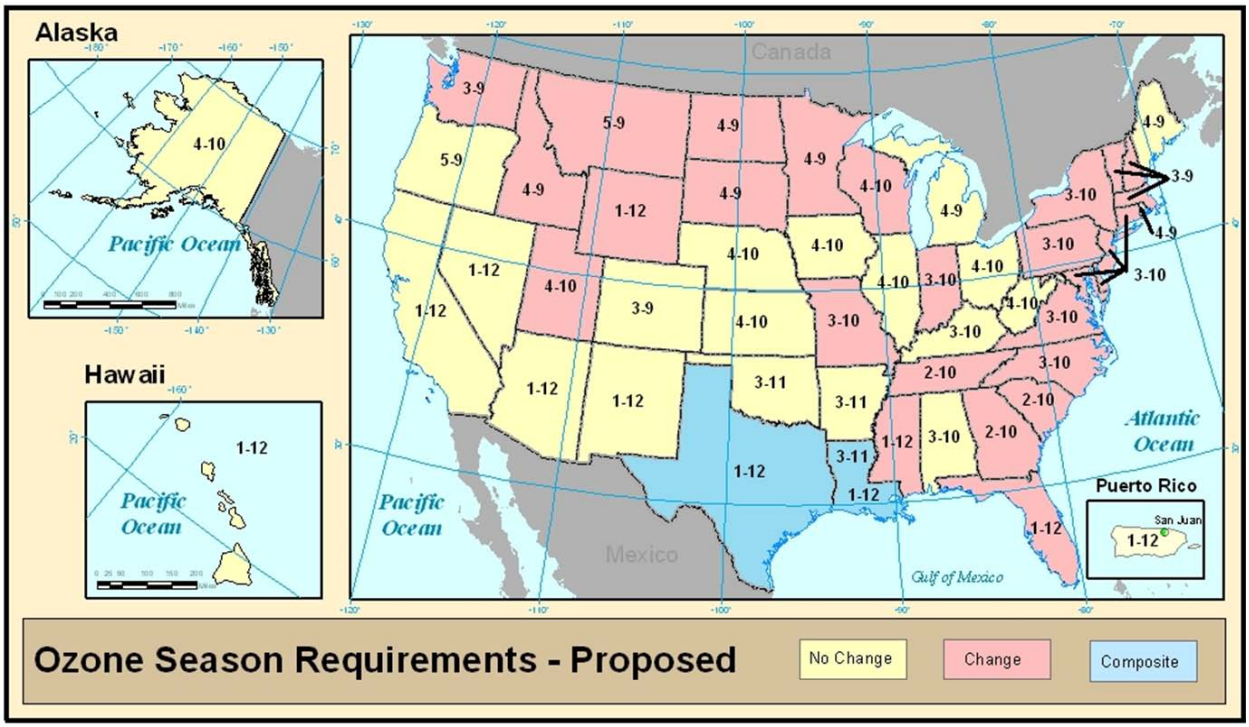

Figure 4. Proposed extensions of the ozone season by state. Highlights in pink and blue show states where changes were made to increase the defined ozone season. Numbers indicate month of the year.