NEWS RELEASE

Sequoia National Forest and the Giant Sequoia National Monument
1839 S. Newcomb Street, Porterville, CA 93257

Centennial 1908 - 2008

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For Immediate Release

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Two additional speakers for the Southern Sierra Science Symposium planned for Visalia

Porterville, CA….. The 1st Southern Sierra Science Symposium will be held tomorrow September 4-5, in Visalia, California at the Visalia Convention Center, from 9:00 a.m. - 5:30 p.m. The theme for the symposium is "***Agents of Change Affecting the Southern Sierra Ecosystems***." This event will bring together premier scientists for what will be an outstanding educational and networking opportunity.

The science symposium is organized around broad scale environmental "agents of change" affecting the Southern Sierra Ecosystems which include giant sequoia groves. The science topics focus on five agents of change: climate change, fire, forest management, pollutants and invasive species.

MANAGING NATURAL RESOURCES FOR CLIMATE CHANGE: A CONCEPTUAL FRAMEWORK

Millar, Connie
Senior Research Scientist, PSW Research Station, Sierra Nevada Research Center, Albany and Lee Vining, CA, US Forest Service

Connie Millar is a Senior Research Scientist with the PSW Research Station, Sierra Nevada Research Center (SNRC), Albany and Lee Vining, California. In her early career, she focused on population, evolutionary, and conservation genetics of western forest conifers with the Institute of Forest Genetics. In recent years she redirected her research direction within SNRC to Quaternary Sciences and to study responses of high-elevation conifers to historic and anthropogenic climate variability. Her research team now specializes in high-elevation dendrochronology, paleoecology, and climate change. She has long emphasized the applications of science in resource-management, serving as co-team leader of the Sierra Nevada Ecosystem Project, directing CIRMOUNT (the Consortium for Integrated Climate Research in Western Mountains), and providing a leadership role in developing resource management strategies for a climate-change context in western North America.

Publications and description of current studies may be found at:
www.fs.fed.us/psw/programs/snrc/staff/millar/

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Abstract

We offer a conceptual framework for managing forested ecosystems under an assumption that future environments will be different from present but that we cannot be certain about the specifics of change. We encourage flexible approaches that promote reversible and incremental steps, and that favor ongoing learning and capacity to modify direction as situations change. We suggest that no single solution fits all future challenges, especially in the context of changing climates, and that the best strategy is to mix different approaches for different situations. Resources managers will be challenged to integrate adaptation strategies (actions that help ecosystems accommodate changes adaptively) and mitigation strategies (actions that enable ecosystems to reduce anthropogenic influences on global climate) into overall plans. Adaptive strategies include resistance options (forestall impacts and protect highly valued resources), resilience options (improve the capacity of ecosystems to return to current conditions after disturbance), and response options (facilitate transition of ecosystems from current to new conditions). Mitigation strategies include options to sequester carbon as well as reduce overall greenhouse gas emissions. Priority-setting approaches (e.g., triage), appropriate for rapidly changing conditions and for situations where needs are greater than available capacity to respond, will become increasingly important in the future.

AN ASSESSMENT OF AIR AQUALITY IN THE SOUTHERN SIERRA NEVADA

Cisneros, Ricardo - *US Forest Service*

Ricardo Cisneros, Andrzej Bytnerowicz and Trent Procter

Abstract

Air pollution generated from urban and agricultural areas have pronounced effects on forests and other ecosystems of the Sierra Nevada. Air quality is also very important for the health of people who live in the foothill and mountain communities and the people that visit and recreate in the southern Sierra Nevada national parks and forests. Recently, air quality in the southern Sierra Nevada has seriously deteriorated, increasing risks to of negative impacts on public health and forest ecosystems.

High levels of photochemical air pollutants have been measured in southern Sierra Nevada since the early 1970s. Recently, the San Joaquin Valley of California has become of the most polluted by photochemical smog areas in the United States, resulting in a significant deterioration of air quality of the downwind southern Sierra Nevada Mountains. It has also been established that air pollution originating in the San Francisco Bay Area and even Los Angeles Basin affect air quality of southern Sierra Nevada. Elevated concentrations of ozone (O3) and nitrogenous (N) air pollutants are the main hazards to forests. Ozone is a powerful oxidant, causing visible injury to plant foliage and decline of sensitive ponderosa and Jeffrey pines. Elevated concentrations of ammonia (NH3), nitrogen oxides (NOx), nitric acid vapor (HNO3), particulate nitrate (NO3-) and ammonium (NH4+) increase N deposition affecting ecosystems in many different ways. Both elevated O3 concentrations and N deposition result in impairment of carbon (C) and N cycling, stand densification, weakening of trees, increased depth of litter, enhanced flammability of forests and higher risk of fires and toxic smoke emissions, increased nitrate runoff, etc. Integrated effects of O3 and N deposition seriously damage structure and function of native ecosystems and increase their susceptibility to other factors such as

drought, insect attacks, catastrophic fires, and extreme weather. In addition, elevated concentrations of O3, NOx and particulate pollutants (PM) have pronounced effects on health of residents and visitors to the southern Sierra Nevada.

In the last ten years, extensive use of passive samplers for monitoring O3 and N pollutants ambient concentrations as well as application of portable O3 monitors, have allowed for a much better understanding of air pollution status and distribution in the southern Sierra Nevada. Results of these monitoring efforts will be presented.

Southern Sierra Nevada is perhaps one of the regions most susceptible to air pollution impact from fires. Fires can significantly increase the already existing air quality problem in this region and affect possibility of using prescribed fires. Thus, potential effect of fires on air quality in the San Joaquin Valley Air Basin and southern Sierra Nevada is a serious air quality management issue.

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Editors note: For an earlier news release of all speakers (August 9, 2008) please visit the website at: www.fs.fed.us/r5/sequoia/news/releases/2008/science-symposium.html

Media: Press interested in attending should call Mary Chislock, Public Affairs Officer at 559-784.1500 x1112 to reserve a seat.

Website: For more information about the Southern Sierra Science Symposium you can visit:www.fs.fed.us/psw/southernsierrascience.

Accessibility: Anyone needing special accommodations (auxiliary aids or services) please contact Mary Chislock, Public Affairs Officer at (559) 784.1500 x1112.