

**P. Joseph Grindstaff
General Manager
Santa Ana Watershed Project Authority**

**Testimony
Before the Committee on Resources
United States House of Representatives**

**Field Hearing on Recovering from the Fires: Restoring and Protecting
Communities, Water, Wildlife and Forests in Southern California
December 5, 2003**

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Chairman Pombo, and members of the Committee on Resources, thank you for providing me this opportunity to address the significant impacts to our water supply and quality throughout the Santa Ana Watershed from the October wildfires in the San Bernardino, San Geronimo and San Jacinto Mountains.

Also, I thank you for addressing the needs of the watersheds in California. The forests provide significant groundwater recharge for our region and their health is important to millions. Federal funding for fire impacts will significantly reduce the “urban drought” that is likely to follow the recent fires.

SAWPA was honored to be asked by Tom O’Keefe and Gene Zimmerman to participate in the Burn Area Emergency Response (BAER) team. We were impressed by the individuals and teamwork of the group to assess the devastation. In parallel, we developed the report we have provided to you. Our staff worked with dozens of the nearly 100 agencies in the watershed to integrate the broad needs resulting from the recent fires. These needed improvements range from flood control enhancements and habitat restoration to salt removal from groundwater. This collaboration enabled us to quickly assemble this information and bring a large portion of the effected agencies up to speed.

These efforts follow the model that Santa Ana Watershed Project Authority (SAWPA) created for the Integrated Watershed Program (IWP). The IWP has been very successful in collectively working with all agencies in the watershed to drought proof the Santa Ana Watershed. Through this program, the region will not require imported water during drought years. With help from funding in Proposition 13, the program is creating almost 300,000 acre feet of new water at an average cost to the state taxpayer of less than \$100 per acre foot. The \$235 million is being matched with local funding to build almost \$800 million in infrastructure. Additionally, it will improve and protect almost 10,000 acres of river habitat and wetlands.

We believe the IWP is a model that will work for regions throughout the state and will likely be a model to mitigate water quality impacts associated with fire. This model will address flood control problems, and enhance the environment through desalting, groundwater cleanup, improve water supply storage, storm and flood control management, water recycling, environmental and habitat restoration and conservation measures.

From our information, this same scenario is likely to be repeated throughout the state in the foothills and forest of the Sierras in California. Action is needed to prevent these disasters from repeating throughout the state.

Background

The Santa Ana Watershed provides a majority of the drinking water for over 5 million residents from the rainfall in and around the San Bernardino, San Geronimo and San Jacinto Mountains' forest areas. Rainfall in these mountainous areas provides surface water flows and groundwater recharge throughout the region via the Santa Ana River and its tributaries.

Recent fires in these areas were large and difficult to contain. The aftermath of these fire events have resulted in extraordinary impacts on the forests and the watershed. The recent Grand Prix, Old and Padua Fires burned over 120,000 acres (more than 185 square miles) in the Santa Ana Watershed of wild land habitat, primarily in the San Bernardino National Forest.



Grand Prix Fire

These fires will have significant impacts on the Santa Ana River and its associated water quality for an extended period and these impacts will occur in areas far from the burned sites. While the fires were confined to the top of the watershed, virtually the entire watershed is impacted by the fires, or will be impacted. It is estimated that the fires' effects will impact an additional 430 square miles beyond the burn area for a total impact to over one-quarter of the watershed. Without intervention, most of the associated costs will be borne by local government.

The area burned will significantly complicate our efforts to drought-proof the watershed. As presented above to prepare for greater water demands that are projected to increase nearly 30% within 20 years and seeking to drought proof the region so that no imported water would be required during drought years, SAWPA developed a 10-year IWP to address the water needs of the region. Over 200 water resource-related projects were identified as part of this program to date. Three billion dollars was initially estimated to implement the 10-year IWP. In 2000, SAWPA successfully contracted with the State Water Resources Control Board to use \$235 million in Proposition 13 Water Bond funds to begin construction of over \$800 million in projects that directly support the IWP. Costs borne by local agencies in responding to problems arising from recent fire events will significantly impact the ability of the agencies cooperating in implementing the SAWPA IWP to reduce the region's dependence on imported water and, therefore, will have a lasting impact on water supplies statewide.

Water Supply and Quality, Habitat, and Flood Control Impacts

An “urban drought,” caused by the inability of the forests to capture and percolate water into the ground and water basins, will likely damage water supply and quality. Significant conservation efforts are needed now. Federal and state funding are also needed to avert the disaster after the disaster.

The following areas of risk have been identified:

Future Fires: Less than **5%** of the trees with drought induced severe mortality have burned in the recent fires, which leaves more than 150,000 acres unburned. More fires are likely, further exacerbating the impacts.

Flooding and Debris: In the Old Fire alone about 300,000 acre feet (AF) acre feet of mud, rock and water are anticipated to fill streams, basins, and flood facilities. Removal of sediment and facilities improvements to mitigate flood impacts could cost \$190 million.

Mud and Rock Flows: From even a moderate (10-year storm), mud and rock flows would cause **100 sub-watersheds to produce 4,500 cubic feet per second or more of runoff, well over ten times the average year flows.**

Habitat: The Old and Grand Prix fires contain habitat for **sixteen** federally listed threatened and endangered species and numerous Forest Service sensitive and San Bernardino National Forest watch-list species. **Fourteen** of those species have known occurrences within the burn area (including all types of land ownership). Designated critical habitat for San Bernardino kangaroo rat and coastal California gnatcatcher also occurs within the fire perimeter.

Threatened and Endangered Species: Threatened and endangered species are negatively impacted not just in the burned area, but by sediment, and pollutants that occur for years after the burn in areas throughout the watershed.

Groundwater: **Seventy percent of the water used by its 5 million residents in the watershed is groundwater;** much of this is percolated rain water in the forest, or within approximately five miles of the forest.



Burned Area above Lytle Creek

Percolation: More than **70 groundwater percolation basins** will likely be impacted by mud and rock reducing recharge.

Ash Impacts: As much as **ten million cubic yards of ash** are expected to be washed into creeks, streams, rivers and percolation basins as far as Orange County and eventually the ocean.



Gully erosion in burned area

Water Loss: With these basins out of commission, as much as **60,000 AF of water will be lost to the ocean each year**, instead of percolated and used for drinking water. The cost of replacement water, if it is available, could be \$15 million per year.

Salt and Nitrate: Approximately **225,000 tons of salt** and nitrate will be added to the watershed from water

that would normally be high-quality drinking water. Desalting costs including operation and maintenance could be as high as \$182 million over 20 years.

Contaminants: Runoff water will likely bring **contaminants** - manganese, lead, phosphorus, mercury nitrates, total organic carbon, and uranium requiring treatment and removal before use.

Stress on State Water Supplies: Without mitigation from the fires' impact, the region will become more dependent on imported water from the Colorado River and the Bay-Delta, rather than less as is planned through the IWP. The impacts of the fires will be felt state wide.

For additional information, please reference a report entitled, *Old, Grand Prix, and Padua Fires (October, 2003) Burn Impacts to Water Systems and Resources* dated December, 2003, prepared by SAWPA in support for the United States Forest Services Burn Area Response Team working in the area. This report has been prepared to inform and aid decision makers and other interested parties throughout the watershed.

Fire Impact Cost Estimates

Costs of mitigating the effects of recent fires within the watershed are estimated to be nearly \$450 million, and are summarized below:

Fire Impact Cost Estimates

| Impact Type | Total Cost | First Year |
|---|----------------------|---------------------|
| Sediment Removal (5 years) | \$ 125,250,000 | \$12,525,000 |
| Flood Control Improvements (56 basins) | \$ 56,000,000 | \$5,600,000 |
| Basin Percolation Restoration (25 basins) | \$ 6,250,000 | \$1,250,000 |
| Habitat Restoration (7,500 Acres) | \$ 15,000,000 | \$1,500,000 |
| Toxic or Radiological Treatment | \$ 13,000,000 | \$500,000 |
| Inorganic Salt Removal (Capital and 20 yrs. Op) | \$ 182,000,000 | \$18,200,000 |
| River and Basin Quality Monitoring | \$ 8,850,000 | \$1,770,000 |
| Water Supply Emergency | \$ 35,350,000 | \$3,535,000 |
| Wetland Restoration (2,500 acres) | \$ 5,000,000 | \$500,000 |
| TOTAL | \$446,700,000 | \$45,380,000 |

In addition, local water agencies have expressed concern over direct damage to infrastructure such as wells and access roads resulting from increased debris and sediment flow from storm events following fires.

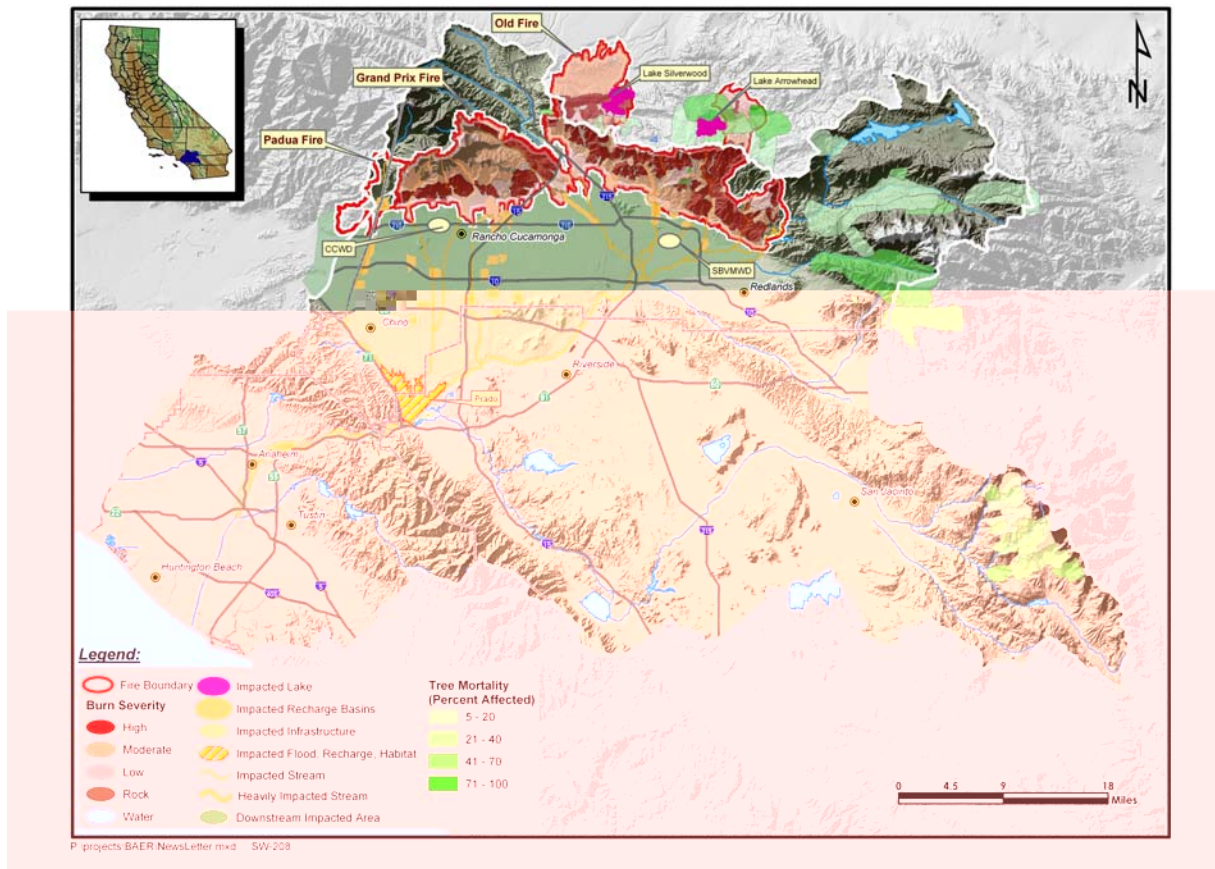
Although the fires did not burn all of the areas anticipated in earlier calculations, these impacts are likely to be severe over the next five or more years, depending on rainfall and storm intensity.

The estimated cumulative costs to the Watershed are estimated to be greater than **\$400 million**, not including fire damage to homes and habitat. Additional fires likely to occur in the near future could raise this figure.



Flood Control Channel Downstream of Fire

In addition, as much of the unburned area is still at extreme risk of a catastrophic fire, costs are likely to be higher than those projected from the recent fire events.



Requested Actions/Funding Recommendations

We urge the Committee to:

Continue to fund the restoration of the forest as it is the top of the watershed and from where the highest quality drinking water in the watershed comes.

Continue to support sustainable land use in the forest and the watershed.

Provide funding and support for immediate flood and debris measures to protect the area from additional disasters at the first heavy rains.

Understand the close connection that exists between the forest and the watershed below and provide support and funding for the mitigation of the fire impacts on the groundwater basins of the watershed.

The following table summarizes specific watershed improvements to mitigate the effects of the recent fires. These improvements are individually identified, as well as their benefits.

Table 1
Recommended Improvements to Mitigate Fire Impacts

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