

Sierra Nevada Watershed Improvement Program
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February 10, 2015

Save Our State: The Urgency to Restore California's Watershed

Failure is not an option

Sierra Nevada forests and watersheds are at a critical point. Failure to understand the urgency of the situation in the Sierra Nevada will have devastating impacts on California's economy and water supply. The potential for more megafires like the Rim Fire is high, and research demonstrates that, in many Sierra Nevada forests, there is a clear upward trend of larger, more intense fires. A changing climate will only exacerbate the situation and have additional impacts on these watersheds. A well-coordinated, comprehensive program that increases the pace and scale of restoration is essential to address the conditions that currently exist and are not going away.

Why do we need a Sierra Nevada Watershed Improvement Program?

The Sierra Nevada Region is the source of more than 60 percent of the state's developed water supply (water that is stored in reservoirs and delivered for consumptive use). It provides all or part of the drinking water for 23 million people. Up to half of the water flowing into the Sacramento-San Joaquin Delta starts its journey in the Sierra's forested watersheds. Snowpack in the Sierra Region provides a natural form of water storage, and Sierra forests and meadows play a role in ensuring water quality, yield, and reliability.

The Sierra Nevada Region also provides a variety of other critical benefits. The Region stores massive amounts of carbon, thereby helping to combat climate change. It provides crucial habitat to hundreds of species. The Sierra Nevada is home to world-class recreational opportunities enjoyed by millions of people. And, the Region is a major producer of wood products and hydroelectric power.

There is scientific consensus that the forests, streams, and meadows of many Sierra Nevada watersheds are in decline and that the benefits they provide are at serious risk – a condition that must change. Decades of fire suppression, a changing climate, and a shortage of forest restoration efforts have led to unhealthy conditions in many Sierra forests, where drinking water originates. The result has been an increase in larger, more damaging wildfires. While moderate intensity wildfires can have ecological benefits, conditions in the Sierra right now are resulting in wildfires that far too often do significantly more damage than good.

Mercury, sediment, and other substances from abandoned mine lands travel downstream, impairing many of California's reservoirs and accumulating in the Sacramento-San Joaquin Delta and the San Francisco Bay. Additionally, many Sierra meadows are significantly degraded, no longer performing their "sponge-like" function of storing water into the summer months. Crucial habitat and a number of listed or

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soon-to-be listed species face a variety of challenges from extreme fire, climate change, and conversion to development.

The California Water Action Plan, Safeguarding California Report, and the State Water Plan Update all identify the importance of restoring the health of these watersheds. The State of Sierra Nevada's Forests Report raised the alarm about the dire conditions of our forests, and the many repercussions that could result from not taking active steps to restore them to a state of resiliency. And, according to the U.S. Forest Service, "Only an environmental restoration program of unprecedented scale can alter the direction of current trends."

What is the Sierra Nevada Watershed Improvement Program?

The Sierra Nevada Watershed Improvement Program (WIP) is a coordinated, integrated, collaborative program to restore the health of California's primary watershed through increased investment and needed policy changes.

The WIP builds upon the broad consensus that more must be done to restore Sierra Nevada forests and watersheds. The pace and scale of science-based ecological restoration needs to dramatically increase in order to stem the tide of large, uncharacteristic wildfires and further degradation of these ecosystems. This comprehensive effort is being organized and coordinated by the State's Sierra Nevada Conservancy (SNC) and the federal United States Forest Service (USFS), in close partnership with additional federal, state, and local agencies, and diverse stakeholders.

Objectives of the WIP

The key objectives of the Sierra Nevada Watershed Improvement Program are:

- Identify and quantify the level of restoration activity needed to restore Sierra Nevada watersheds to a state of proper function and resilience, as well as the cost of implementing these activities.
- Increase state and federal investment in restoration activities, as well as securing investment from those who benefit from the Region, such as the urban, business, and agricultural communities who receive water from the Region.
- Identify and address state, federal, and local policy issues that serve as impediments to increasing the pace and scale of restoration and improving the socio-economic well-being of Sierra communities.

Desired Outcomes of the WIP

Successful implementation of the WIP will result in a number of important outcomes:

- Protection of people, communities and property from large, damaging fires
- Protection of California's water supply through improved water quality, yield, and reliability

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- Protection of existing water storage capacity through reduced erosion and increased snowpack retention
- Stabilize and increase storage of carbon in healthy forests
- Reduced greenhouse gas (GHG) and particulate matter emissions from intense wildfires
- Protection and restoration of important habitat and the Region's biodiversity
- Protection of hydroelectric infrastructure
- Protection of recreational opportunities
- Increased economic and social well-being in Sierra communities through increased forest management, biomass-to-energy, and wood products industries
- Increased awareness among policy-makers, other stakeholders, and those who benefit from the resources flowing from the Region regarding the urgent need for, and the benefits of, watershed restoration in the Sierra Nevada

Focus of the WIP

The WIP will be a large scale restoration program designed to address a variety of ecosystem health issues in the Sierra Nevada. Restoring and protecting the health of forests, soils, streams and meadows; improving habitat conditions; preserving working landscapes; and improving local socio-economic conditions will be key outcomes of the WIP. Developing and implementing this program in a strategic, integrated and collaborative manner will maximize the investment made and ensure that policy changes are made with a comprehensive understanding of needs.

Because forests link all of these issues, they are the first area of focus for the WIP. The Sierra Nevada Forest and Community Initiative (SNFCI) Action Plan has been developed through a collaborative process and will serve to guide initial actions to restore forest resiliency throughout the Sierra. The needed restoration of our forests includes the thinning and management of forests through both mechanical and prescribed fire treatments.

Key Next Steps

A key next step in the development of the Sierra Nevada WIP is an assessment of needed restoration, costs and impediments developed at a watershed level. The assessment will serve as the basis for an action plan for the watershed, building from and complementing the action identified in the SNFCI action plan. Together these efforts will further identify and refine the scope, scale and cost of ecological restoration of the entire Sierra Nevada Region.

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The SNC and the USFS are organizing a multi-state/federal/local agency effort to work with Regional stakeholders, as well as those outside the Region who are impacted by the watershed's degradation, to develop and implement the WIP. A plan to guide the overall program is being created at a Regional level and collaborative watershed level assessments and plans will be developed to implement the program. Specific metrics will be developed and tracked in order to measure the success of the WIP.

The Sierra Nevada WIP will require significant efforts by many agencies, stakeholders and the public. The challenges to achieving the WIP's objectives are numerous, but at the same time the opportunity to build off of the consensus around the need to act swiftly is substantial. Our failure to seize this opportunity will have implications throughout California for many decades to come.

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Sierra Nevada Watershed Facts

- The amount of area consumed by fire in the Sierra Nevada continues to increase. More land has burned in the first four-and-a-half-years of this decade than in each of seven entire decades in the past.
- Between 1984 and 2010, there was a significant increase in the number of acres within a forest fire burning at high-intensity, from an average of 20% in mid-1980s to over 30% by 2010.
- Not only are wildfires becoming more damaging, they are also becoming more expensive. Suppression costs alone for the 2013 Rim Fire exceeded \$127 million.
- High-intensity burn areas can experience runoff and erosion rates five to ten times greater than low- or moderate-intensity burn areas. The sediment that is carried in the runoff not only degrades water quality and damages infrastructure, it fills reservoirs, reducing storage capacity. These fires can also sterilize the soil making recovery more difficult.
- The 2013 Rim Fire, the largest fire in the recorded history of the Sierra Nevada, burned 257,000 acres, almost 40% of which was at high intensity. Estimates are that that fire produced the same amount of greenhouse gas (GHG) emissions that 2.3 million vehicles produce in a year.
- The majority of mercury-impaired reservoirs are found in central California, many of which store water that comes from Sierra Nevada watersheds. As sedimentation reduces storage capacity, the presence of these toxins significantly complicates restoring capacity.
- A recent study in the Sierra Nevada shows that, historically, many forests were sparse and dominated by large trees that sequestered over 25 percent more carbon than the overgrown, small tree-dominated forests of today.
- Overgrown forests can impede snow from reaching the ground to create snowpack. Managing forests to create openings for snow to accumulate and also maintain adequate shade to protect the snowpack, will become even more important as the amount of snow falling in some parts of the Sierra are predicted to decrease dramatically.
- Sierra meadows have become degraded, resulting in a loss of natural storage that would be released slowly over the dry months when flows are needed most. Healthy meadows also filter sediment and pollutants, contributing to higher quality drinking water.
- Habitat for many species, including listed or proposed-for-listing species such as the California spotted owl, great gray owl, and Pacific fisher, can be drastically altered by large uncharacteristic wildfires. For example, the 2014 King Fire in Eldorado and Placer counties consumed 14 spotted owl Protected Activity Centers (PACs), or areas where the owls are known to roost and nest.