

Background

Over the past six years, the Sierra Nevada Conservancy (SNC) has been actively involved in issues relating to forest and community health. The Sierra Nevada Forest and Community Initiative (SNFCI) was adopted by the Board in 2011 and was endorsed by all 22 Sierra counties, as well as numerous other groups and organizations. It called for parties to work together in a collaborative manner with the objectives of restoring forests to ecological health and improving local communities' social and economic well-being.

As a part of SNFCI, the SNFCI Regional Coordinating Council was formed under SNC's leadership. Representatives on the Coordinating Council include a wide range of diverse perspectives including local government, environmental and conservation organizations, the wood products industry, fire safe councils, community organizations, recreational groups, and public land management agencies. Boardmember Bob Kirkwood serves as the Board Liaison to the Coordinating Council. At the same time, a number of local collaborative efforts with objectives consistent with SNFCI have begun in the Region. The SNC has provided substantial financial and staff support to many of these collaboratives and was instrumental in the creation of several of them.

Shortly after this initiative began, the U.S. Forest Service (USFS) Region 5 released its "Leadership Intent for Ecological Restoration" which articulated the need to increase the pace and scale of forest restoration. This document is consistent with SNFCI and has helped to further bring parties together on the many challenges that we face in achieving our objectives. During this period, the USFS has been a key partner in furthering the objectives of SNFCI.

At the June 2014 Board meeting, the Board directed SNC staff to develop a plan that ensures that the issues being addressed under SNFCI were the organization's top priority. In response to this direction, the [State of Sierra Nevada's Forests Report](#), which represents our best understanding of current forest conditions and potential consequences at this time, was developed by staff and approved by the Board at the September 2014 Board meeting. At the December 2014 Board meeting, the Board approved the [SNFCI Action Plan](#), which was developed to further the objectives of SNFCI by more actively addressing forest and community issues at the Regional level as well as the watershed/county/National Forest level.

Also at the December 2014 Board meeting, the Board instructed SNC staff to move forward with further development of a Sierra Nevada Watershed Improvement Program (WIP), a coordinated, integrated, collaborative program to restore the health of California's primary watershed through increased investment and needed policy changes. This Program will include the actions identified in the SNFCI Action Plan and expand upon them to include a variety of other watershed health issues.

Current Status

Attached to this Staff Report is a draft plan ([Attachment A](#)) to guide development of the WIP. Staff is recommending Board approval of this plan in order for development of the

WIP to move forward. This comprehensive effort is organized and coordinated by the SNC and the USFS, in close partnership with additional federal, state, and local agencies, and diverse stakeholders. The USFS Region 5 leadership has been fully engaged in developing this plan, and has indicated that all of the National Forests in the Sierra Nevada will be active participants in the WIP. The USFS co-hosted the March 4 Summit with the SNC.

The WIP will enhance and build upon our ongoing efforts to restore Sierra forests to ecological health. By identifying and quantifying the need for, and cost of, restoration at the watershed level, as well as the impediments to taking such action, we will create a clearer roadmap for moving forward. Engaging other state and federal agencies who support restoration activities will ensure a more strategic and effective approach. The program will also provide critical information for policy makers and “downstream beneficiaries” to consider their role in this restoration effort. At the same time, building on existing collaborative efforts ensures that key interested parties are engaged in the assessment process and in project development and implementation and that ongoing efforts will be enhanced.

Next Steps

Upon approval by the Governing Board, SNC staff will continue further development and implementation of the WIP. Initially the WIP will use the SNFCI Action Plan as its centerpiece. While the SNFCI efforts will continue to focus on the forest/fire/community issues, there is a need to develop a more comprehensive approach to watershed health to ensure that aquatic, meadow, habitat and recreational resources are protected and restored. The success of the Tahoe Environmental Improvement Program, upon which the Sierra Nevada WIP is loosely modeled, has shown that a well-articulated program with clear objectives and specific projects can be very successful in drawing investment and support.

The assessment of restoration needs of the USFS lands will serve as the starting point for a broader watershed assessment to address other lands and additional watershed issues. The SNC and USFS will work with other state, federal and local agencies, and stakeholders in completing the necessary assessment of restoration needs. It is anticipated that this effort will begin in two or three watersheds and over time expand across the Region. The aggregation of these assessments and resulting action plans will form the WIP.

The SNC is coordinating with USFS Region 5 and the Tahoe National Forest in refining and “ground truthing” the assessment approach. The Tahoe National Forest is in the process of completing initial data analysis for the lands they manage, which will help inform the best path forward for USFS lands throughout the Region. The WIP builds upon the significant consensus that more must be done to restore Sierra Nevada forests and watersheds. 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 watershed degradation, to develop and implement the WIP.

SNC staff will use the State of the Sierra Nevada's Forests Report as a companion piece to our SNFCI Action Plan and in development of the WIP. This report will be updated from time to time to add new information or address emerging issues.

Staff will provide regular updates to the Board as to progress in the development and implementation of the WIP.

Recommendation

Staff recommends that the Board approve the plan to guide the development of the Sierra Nevada Watershed Improvement Program and authorize staff to take the necessary actions to develop and implement it.

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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.