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Sierra Nevada Forest and Community Initiative (SNFCI) Action Plan

On December 4, 2014, the
Sierra Nevada Conservancy Governing Board
approved the SNFCI Action Plan.

This plan was created in collaboration with
the SNFCI Regional Coordinating Council
and will serve as a roadmap for restoring
forest health in the Sierra Nevada Region.

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Introduction

There is a growing understanding that many Sierra Nevada forests are not healthy and that overgrown forests are susceptible to disease and intense wildfire. There is likewise broad consensus that science-based ecological restoration of our Sierra Nevada forests must be dramatically increased in order to stem the tide of large, uncharacteristic wildfires. These wildfires threaten the very lifeblood of California – the forested watersheds of the Sierra Nevada.

The State of Sierra Nevada's Forests Report, released in September 2014, identified the wide range of benefits provided by our Sierra Nevada forests and watersheds that are at risk, including but not limited to providing 60% of California's developed water supply through the Sacramento-San Joaquin Delta; massive amounts of carbon storage, assisting in the State's efforts to combat climate change; crucial habitat to hundreds of species; world-class recreational opportunities enjoyed by millions from around the world; and major production of wood products and hydro-electric power.

The key findings from this report included:

- The United States Forest Service (USFS) Region 5 estimates that between six and nine million acres of lands for which they have management responsibility are in need of restoration. In order to return these lands to ecological health, a two to three times increase in the pace and scale of ecological restoration must occur.
- 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 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.
- 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.
- 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 report also identified the main impediments to increasing pace and scale, and potential solutions to these challenges, which included: inadequate funding available in relation to the need for forest restoration, the need for more efficient planning processes and larger landscape restoration through collaborative efforts, the need for enhanced wood and biomass processing, and the need for increased use of fire as a forest restoration tool.

Failure to understand the urgency of the situation in the Sierra Nevada will have devastating impacts on California's environment and economy. The potential for more megafires like the Rim Fire is high and the trend of larger, more intense fires is clear,

with the current drought and ongoing temperature increases making the situation all the more urgent.

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. Through the Sierra Nevada Forest and Community Initiative (SNFCI) Action Plan, the Sierra Nevada Conservancy (SNC) has developed a framework for aggressively addressing these issues. It will require a renewed commitment at the state, federal, and local levels. The alternative of the status quo is simply not acceptable.

The focus of the SNFCI Action Plan is to address key issues and impediments affecting successful achievement of increased forest resiliency through restoration in the Sierra Nevada Region. This plan largely serves as a Regional blueprint and will guide the development of watershed level plans. Together these efforts will further identify and refine the scope, scale, and cost of ecological restoration of our forests. It is also anticipated that this Plan will be integrated into a Sierra Nevada Watershed Improvement Program, aimed at addressing watershed health in a coordinated and holistic manner.

Goals and Objectives of the SNFCI Action Plan

The key objectives of the Action Plan are:

- Identify and quantify the specific projects needed to restore Sierra Nevada forests to a state of resilience and the cost of their implementation. This data will include factors beyond the natural landscape, including but not limited to wood and biomass processing infrastructure capacity and local capacity for collaboration.
- Increase state and federal investment in forest restoration activities, as well as securing investment from downstream beneficiaries and the private sector. The SNFCI Action Plan will be used as an engagement tool to attract investment in the Sierra Nevada by clearly identifying the benefits of restoring forest resiliency, as well as the negative consequences of failing to do so.
- Address state and federal policy issues that will remove impediments and increase the pace and scale of forest restoration and improving the socio-economic well-being of Sierra communities. While additional investment for needed restoration is critical, this plan identifies a number of policy issues currently serve as impediments to restoration.

Desired Outcomes

Because federally managed lands comprise more than half of the forested land in Sierra Nevada, and many of these forest are unhealthy, increasing the pace and scale of forest restoration on these lands is the primary focus of this Plan. Implementation of the Plan will improve forest resilience, thereby reducing the risk of large damaging fires. This will result in a number of important outcomes:

- Increased investment in ecological restoration of forests in the Sierra Nevada

- Increased awareness among policy-makers, downstream beneficiaries and other stakeholders regarding the urgent need for and benefits of forest restoration in the Sierra Nevada
- Protection of people, communities and property for large damaging fire
- Protection of California water supply through improved water quality, yield and reliability
- Protection of existing water storage capacity through reduced erosion
- Enhanced storage of carbon in healthy forests
- Reduced GHG and particulate matter emissions from wildfire
- Protection of important habitat
- Protection of recreational opportunities
- Increased economic and social well-being in Sierra communities

Building on Existing Efforts

The Plan is being developed by SNC in cooperation with the wide variety of partners that share the SNC Vision on these issues. This effort builds upon and integrates a number of existing efforts at the state, federal and local levels, including:

- The 2011 SNFCI Resolution
- The vision articulated in the USFS Region 5 Leadership Intent for Ecological Restoration
- Existing local collaborative efforts throughout the Sierra Nevada
- The SNFCI Regional Coordinating Council's (Coordinating Council) effort to address key policy issues affecting the pace and scale of restoration
- The California Bioenergy Action Plan
- The California Water Action Plan
- The State Water Plan and Integrated Regional Water Management (IRWM) Plans
- The AB 32 Scoping Plan Update and the Safeguarding California report

Working with Current and New Partners

In order to be successful, partnerships must be established and expanded. Through SNC's work on these issues over the past few years, there is a strong foundation of collaboration and partnership in the Region. The SNC works closely with our federal partners, the SNFCI Coordinating Council and its members, county governments, resource conservation districts, local water agencies, local collaboratives and organizations and key state agencies. At the watershed level, the SNC may work with interested parties to create a Memorandum of Agreement (MOA), Memorandum of Understanding (MOU), or Joint Powers Authority (JPA) committing parties to work together to achieve agreed upon objectives in a more formal way. The watershed-based efforts will include coordination with the IRWM organizations in the area.

In order to maximize opportunities for successful implementation, initial targets for new or enhanced engagement in this effort include the following:

- Downstream Beneficiaries (Including water and irrigation districts, electric utility providers, the agricultural community, etc.)
- Water agency associations
- CAL FIRE
 - Coordination on various grant funding programs that focus on private lands
 - Use of the CA Fire Plan
- CA Department of Fish And Wildlife
 - Review key plans such as Wildlife Action Plan to identify overlapping objectives
 - Coordinate on various grant funding programs aimed at improving watershed conditions.
- CA Department of Water Resources (DWR)
 - Work through the IRWM program to secure additional funding for watershed health activities
 - Work with DWR to identify other investment opportunities to address water yield and existing storage issues
- CA Water Commission
 - Initial interest has been expressed in the potential of increasing water yield and protecting existing storage
- Air Resources Board
 - Work with them in the various implementation efforts of AB 32, as well as addressing increased air pollution resulting from large wildfires
- Private Sector Investment
 - Private investment will be needed if efforts to establish additional infrastructure are to be successful
- Tribal Organizations
 - Most local collaboratives have tribal involvement, but opportunity exists to expand the role of tribes

Potential Performance Metrics (as more data and analysis occurs, these may change)

- Increase in federal, state and beneficiary funding for restoration efforts
- Increase in restoration occurring
 - Acres of fuels reduction, forest restoration
 - Acres of meadow restored
 - Communities and other at risk values protected
 - Critical habitat protected
 - Energy and water infrastructure protected
- Maintain existing, and develop new, wood and biomass processing facilities (including currently non-operational facilities)
 - Bone dry tons of biomass utilized
 - Board feet produced
 - Kilowatts of Forest Biomass Energy Production Capacity Maintained or Created
- Increase in amount federal contracting dollars staying in local communities
- Tons of carbon sequestered or emissions avoided

Implementation

In coordination with the USFS, Bureau of Land Management (BLM), the Coordinating Council, Sierra Nevada counties, other State agencies, and key partners identified above, the SNC will coordinate implementation of the SNFCI Action Plan in the Sierra Nevada Region. This document, with additional refinements, will serve as a regional plan and will help to guide more detailed efforts at the watershed level. Initial efforts at the watershed level include working cooperatively to identify 10 year forest restoration goals by watershed/National Forest, including estimates of acres in need of treatment by type and costs associated with such treatment. Working with local stakeholders, additional restoration needs will be identified. As policy and investment issues are addressed at the Regional level, these plans will provide the specific projects and activities needed to achieve restoration goals.

The following three main goals have been identified, along with initial actions needed to accomplish them.

GOAL 1: Identify and quantify the scope and cost of specific projects and activities needed to restore Sierra Nevada forests to a state of resilience.

It is important that the full scope of the problem we face and the costs associated with addressing it are well understood. Initial rough estimates suggest that three to five million acres of USFS lands in the Sierra are in need of restoration. By identifying the lands in need of restoration forest by forest a more refined estimate of need and cost will be developed (a similar exercise is being discussed with the Bureau of Land Management).

The SNC will work with the agencies and key stakeholders in the watershed in developing the watershed-specific action plan. There will also be an effort to actively engage downstream beneficiaries of the watershed in the process. While initial assessment of needs will occur across the Region, the SNC is proposing working initially with one or two National Forests and the stakeholders in those watersheds in developing the site specific plans.

Key Actions

- Using available data, existing restoration targets and local knowledge a watershed level assessment will be conducted to establish the scope and cost of the restoration projects needed.
- The assessment will use the following categories as the starting point for developing the quantification of restoration activities needed.
 - Mechanical Fuels Reduction
 - Prescribed Fire
 - Disease/Forest Stand Improvement
 - Post-fire Restoration
 - Meadow and Stream Restoration

- Wood Processing Infrastructure
- Habitat Restoration
- Identify the gap that exists between the financial and other resources that are available and needed to get our forests back to a state of resiliency at both a regional and local level, and use that to build a case for increased investment in restoration.
- Identify critical relevant GIS data layers to be used to guide the watershed level assessment using the initial list below to begin the analysis:
 - National Forest boundaries overlaid with watershed boundaries (to assist in identifying the most appropriate level of local assessment) (SNC has completed this.)
 - Fire history
 - Fire Return Interval Departure
 - Past forest restoration treatment areas (over past ten years)
 - Areas identified for treatment through National Forest Vegetative Management plans, National Environmental Policy Act (NEPA) and other planning processes
 - Existing (open) and closed wood and biomass processing facilities in the Sierra Nevada
 - Research on areas where restoration activities are constrained
 - Basic Carbon Storage in the Sierra Nevada (above ground)
 - Water Yield
 - Fire vegetative and soil burn intensity

GOAL 2: Increase state and federal investment in forest restoration activities, as well as securing investment from downstream beneficiaries.

Current funding levels are inadequate to meet the need for forest restoration, especially for critical projects that don't "pay for themselves" with removed material (projects where there is little or no value/market for materials). The development of a sound quantification of the need and the potential adverse impacts of inaction will serve as the basis for increasing investment in forest restoration. The State of Sierra Nevada's Forests Report provides a more detailed description of the values and benefits at risk given the current and predicted future conditions, making a compelling case for increasing pace and scale of restoration.

A number of key actions have been identified to achieve this goal, including the following:

Key Actions (will be expanded further as the Action Plan is developed)

- Further engage other state and federal agencies whose mission would benefit from successful restoration efforts (many are already engaged in our efforts), including:
 - CAL FIRE, California Department of Fish and Wildlife, Department of Water Resources, Department of Conservation, Wildlife Conservation Board, California Conservation Corps, California Air Resources Board (CARB), and Energy Commission at the state level;

- United States Department of Agriculture (USDA) Rural Development, Natural Resources Conservation Service, Fish and Wildlife Service, and the Bureau of Reclamation at the federal level;
- Support efforts to ensure that funding for restoration efforts is not used to pay for unanticipated fire suppression costs at the federal level. The current practice results in a never ending cycle of inadequate restoration activity resulting in more large damaging fires, which once again strips funding for restoration.
- Identify and secure state, federal, local, and private funding sources that present potential new investment, including California Cap and Trade Auction Revenue, California Water Bond Funding and increased federal appropriations for restoration.
- Engage downstream beneficiaries who have a stake in the health of Sierra Nevada watersheds.
 - Agricultural and municipal water agencies that utilize Sierra water
 - Electric utilities with infrastructure in the Region
- Continue to focus SNC resources on funding projects that align with the SNFCI Action Plan.
- Work with key partners to build a coalition to support the plan and educate decision-makers and funders about the needs using best available information as to the benefits of increased investment and the consequence of failing to do so.
- Develop performance measures to assess our level of success in meeting plan objectives at the regional and local levels

GOAL 3: Address state and federal policy issues that will remove impediments to increasing the pace and scale of ecologically sound forest restoration.

Though there are many positive efforts underway in the Sierra Nevada, the need for restoration is so great that our progress towards restoring balance and health to our forests, communities and economies is inadequate. Major impediments beyond funding exist, and must be addressed on the appropriate scale if we expect to make meaningful progress towards our goals.

An initial effort to identify and address significant impediments is being undertaken through the Coordinating Council, working in concert with the USFS and local collaboratives. These issues, described below, will remain the focus of the Council. Positively addressing these issues, together with increased investment, creates our best opportunity to significantly increasing the pace and scale of forest restoration work in the Sierra.

Issue 1: Inadequate wood processing infrastructure: In order to adequately handle the pace and scale of needed restoration, wood and biomass processing infrastructure in the Sierra Nevada must be enhanced. The increase of large fires, such as the Rim Fire, puts additional pressure on the system as the limited capacity for wood processing in the Sierra Nevada becomes focused on processing salvage logged timber. This throws into question the fate of the desperately needed restoration treatments slated for unburned but overgrown areas, if there is nowhere for this wood to go for processing.

Key Actions (will be expanded further as Plan is developed)

- Identify and support highest priority opportunities to establish community scale biomass energy facilities, continue coordination with partners on Public Utilities Commission (PUC) SB 1122 process and identify additional policy actions needed.
- Identify actions that can be taken to protect existing infrastructure and opportunities to open closed facilities.
- Explore opportunities for co-location of associated wood product businesses on existing wood processing properties.
- Work with USFS Region 5 to engage more actively with other federal agencies who could provide funding and/or technical assistance with enhancing wood processing infrastructure in the Sierra Nevada (USDA Rural Development, Department of Energy, Department of Commerce, etc.) so that federal investment opportunities are maximized.
- Explore new opportunities to make biomass utilization more profitable through the production of biochar and other byproducts.
- Explore cutting edge biofuel production technology (like oxygen extraction from biomass, which is showing promise in laboratory testing).
- Promote large landscape restoration efforts and the use of stewardship contracts, which will help address supply reliability, a key component to gaining capital investment.
- Utilize and encourage well-grounded scientific studies to build the case for biomass utilization

Issue 2: Increased use of fire as restoration tool: Acknowledging the important ecological role of fire and increasing the use of prescribed and managed fire as a forest restoration tool is necessary. The CARB and local air districts impose very tight restrictions on burn windows and duration of prescribed fires, which can make it difficult to implement them. Unfortunately, this may have the unintended consequence of enabling larger, more damaging fires to occur, which emit far more pollution into the atmosphere than would have been released by the prescribed fires. Providing greater flexibility to use fire to prevent megafires is essential to restoring our forests to resiliency. There is also the need to investigate the issue of liability for the public agencies and private landowners as it relates to the use of prescribed fire. A key component of this effort includes working proactively with local communities and those affected by the smoke resulting from prescribed fire to that impacts can be minimized and a greater understanding of the need for this activity established.

Key Actions (will be expanded further as Plan is developed)

- Encourage and support efforts to build stronger communication and coalition building around this issue, such as the conferences and communications of the Northern and Southern Sierra Prescribed Fire Councils, which is focused on increasing the pace and scale of managed fire and landscape scale prescribed fire (December 2-3, McClellan, CA).
- Maximize stakeholder involvement to include the critical players beyond just the Sierra Nevada (Air Resources Board, Health Advocacy Groups, etc.). This may

include highly collaborative prescribed burns such as the Boulder Burn (executed) and Caples Burn (planned).

- Use best available data of recent large fires to educate decision makers at the federal, state, and local levels on the benefits of using controlled fire versus the inescapable alternative of uncontrolled wildfire, including engaging USFS leadership from USFS Region 5 in delivering this message. This outreach should include engaging CARB, Federal Environmental Protection Agency (EPA), and Forest Service leadership more effectively and developing strong messaging that stakeholders must “Pick Your Smoke” given the realities of life in a fire-prone environment and the potential for increased fire size and intensity if we don’t take immediate action. Key messages include:
 - The consequences of uncontrolled wildfires are far more detrimental than fire used as a management tool.
 - Use of prescribed fire is also cost effective: per acre prescribed fire is the lowest cost treatment, mechanical often two to four times more, and wildfire six to 15 times more, and likely to increase.
 - As fuel loads increase, rural home construction expands, and budgets decline, delays in implementation will only make it more difficult to expand the use of managed fire.
 - Without proactively addressing some of these conditions, the status quo will relegate many ecologically important areas (including sensitive species habitat) to continued degradation from either no fire or wildfire burning at high-intensity.
- Identify policies and statute relating to potential liability from unintended consequences of controlled fire.

Issue 3: Increased treatment of steep slope areas of the forest: Increasing awareness of and access to technology and equipment to allow greater access to steep slope mechanical treatments on public lands, including removing policy level impediments. A significant portion of USFS lands are currently not available for mechanical treatment given restrictions on areas with steeper slopes. Today’s equipment has the potential of operating on some of these slopes without adverse ecological impacts.

Key Actions (will be expanded further as Plan is developed)

- Conduct a series of field trip demonstrations of some of the equipment USFS may want to utilize in Steep Slope Areas. (Several field trips have already been completed with favorable results under a variety of conditions).
- Work closely with USFS staff to ensure that language regarding steep slopes in early adopters’ forest plan revisions is open enough to enable those forests to try some new and different approaches in steep slope areas. (This is already underway.) However, other forests with more restrictive plan language are required to develop site-specific amendments to do the same. It is critical that USFS staff understand enough about this opportunity to feel comfortable utilizing it, therefore consistent training and direction should be provided to forests in this area.
- Because the Plumas National Forest has already developed a site specific amendment for steep slopes work in one of their NEPA-completed projects, utilize this project as a detailed demonstration project to widen our outreach in

terms of results, as well as the process of creating the amendment that worked for them. This includes other Forests as well as more environmental groups, timber operators, and other interested parties.

- Utilize a large landscape demonstration project to move forward in increasing steep slope demonstration treatments, as well as utilizing the SNFCI Action Plan forest-by-forest research to also identify steep slope implementation opportunities.

Issue 4: Keep economic benefit from restoration activities in the local community:

Identify and utilize a wide range of USFS contracting options to help keep economic benefits of restoration projects on public lands within local communities. As wood and biomass processing infrastructure has sharply declined, many communities face severe and persistent socio-economic challenges. Despite the USFS's expressed desire to keep economic benefits in local communities and a number of innovative collaborations underway throughout the Sierra Nevada, it has proven very difficult to achieve this objective.

Key Actions (will be expanded further as Plan is developed)

- Continue the work of the Coordinating Council, USFS Region 5, and Sierra Cascades All Lands Enhancement group (SCALE) to develop a toolkit that will help forest supervisors and collaboratives throughout the Region give greater weight to local socioeconomic benefit when awarding contracts.
- Continue efforts with USFS forests where local preference is being appropriately weighted in the bidding process and assess effectiveness of this approach.
- Establish this as a key objective for USFS forests, with support and assistance from USFS Region 5 staff to make the paradigm shift that will be required to overcome institutional barriers.

Issue 5: Promote large landscape treatments: In order to even start to approach the pace and scale of restoration needed to restore resilience in our forests, it is imperative that we develop and implement one or more large landscape pilot projects, on the order of a watershed or ranger district, that embodies adaptive management. These projects should include opportunities to address the four issue areas described above, as well as promote economically healthy and fire safe communities, promote forest resilience and reduce the risk of high-severity wildfire, assess ecological impacts with a strong research component, and capture and transmit lessons learned to effectively increase pace and scale. These projects should involve but not be limited to:

- Include an active and formal partnership between the Coordinating Council and the USFS that promotes collaboration in the development of critical pieces of a land landscape management demonstration project including, but not limited to, funding, monitoring, and project design.
- Conduct research to measure the impacts of fuel treatments on water quality, quantity, and timing of flow (in paired watersheds if possible); carbon storage and GHG emissions; and assessment of effects of treatments on vegetation and wildlife.
- Identify and test ways to improve the efficiency of environmental regulatory compliance processes, such as NEPA, the California Environmental Quality Act (CEQA), and the Endangered Species Act (ESA), as a way to increase pace and

scale. This should include ensuring that future NEPA also includes CEQA, or meets CEQA requirements.

- Ensure that additional resources are made available for the project; it should not be conducted in lieu of other needed activities on the Forest. Dedicated funding and staffing must be identified.

Conclusion

Failure to understand the urgency of the situation in the Sierra Nevada will have devastating impacts on California's environment and economy. The impacts will include reducing California's water supply reliability, impairing the State's efforts to reduce GHG emissions, increasing particulate matter air pollutions, destroying crucial habitat, and negatively impacting recreational activities and local economies. The foundation for such an effort exists, but the strong policy and investment actions identified in this document must be taken by federal and state government.

This SNFCI Action Plan is built upon, and will enhance, existing efforts both at a Regional and a watershed level. The SNC will provide leadership and focus, and engage interested parties who share our vision and commitment to restoring our forest to health and resiliency.

This report provides a framework through which these issues can be addressed. It will require a renewed commitment at the state, federal and local levels. The alternative of the status quo is simply not acceptable.