

MEETING SUMMARY | Save CA: The Urgency to Restore Our Primary Watershed Summit

SIERRA NEVADA CONSERVANCY

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Prepared by the Center for Collaborative Policy, CSUS

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General information and Summit materials are available on the Sierra Nevada Conservancy website, here: <http://www.sierranevada.ca.gov/our-work/sierra-nevada-wip>

1. Welcome and Opening Remarks

Jim Branham, Executive Officer, Sierra Nevada Conservancy (SNC), opened the meeting by expressing appreciation and thanks to all in attendance, and made the following remarks:

- The purposefully chosen headline of the summit, “*Save California – The Urgency to Restore our Primary Watershed*”, gets directly at the severe reality that our state faces today. Sierra Nevada forests and watersheds are at a critical point where the potential for megafires, like the Rim Fire, is high.
- In an effort to develop a more cohesive strategy for addressing watershed health in the Sierra Nevada region, SNC in partnership with the U.S. Forest Service (USFS), Region 5, agreed to develop a Sierra Nevada Watershed Improvement Plan (WIP).
- The WIP is a collaborative program that builds upon the broad consensus that more must be done to restore Sierra Nevada forests and watersheds.

Randy Moore, Regional Forester, USFS, Region 5, expressed his gratitude for being part of the WIP partnership, and provided additional opening remarks:

- The USFS recognizes that restoration of the Sierra Nevada wilderness is too large of a challenge for any one agency or organization to address alone. This issue must be addressed via partnership, collaborative work, and sharing of resources.

- As an example of the urgency faced, around 500,000 acres burned under wildfire conditions last year, while there was only enough funding to complete 150,000-180,000 acres of restoration work.
- The scale and the pace of ecological restoration activities must increase significantly.
- This summit should be an opportunity to have an open conversation about the situation in the Sierras and how the agencies and organizations can work together.

Following opening remarks, Dorian Fougères, Center for Collaborative Policy facilitator, reviewed the agenda, ground rules, and the following meeting goals:

1. Alert and inform people of the urgent need for restorative action in Sierra Nevada forests and watersheds, and the foreseeable consequences of inaction.
2. Assess state, federal, local, and partner commitments to collaboratively develop and utilize a robust, integrated framework for restoration policy and investment across the Sierra Nevada.

2. The Need for the Sierra Nevada Watershed Improvement Program

Presentation Session: The underlying science behind the issues that are signaling the need for the Sierra Nevada Watershed Improvement Program.

A. Forest Health and Wildfire Trends

Dr. Hugh Safford, Regional Ecologist, USFS Pacific Southwest Region, presented on the health of Sierra Nevada forests and projected wildfire trends in the face of drought of climate change. He noted that his presentation would not explicitly address carbon soil and air quality impacts.

Presentation Summary:

Climate Change: Past, Present and Future

- Average increase of 1-2 degrees in nighttime air temperatures statewide over the last century.
- California's Mediterranean climate is characterized by extreme variability. It has areas both with the largest loss in climatic water availability, and the greatest increase in climatic water availability in the nation.
- The *variability* in annual precipitation rates statewide is increasing.
 - Precipitation on average is up in the Sierra Region, with high variability of rain events. Mean annual precipitation is dropping in the southern portion of the state.
 - Species must be able to tolerate long summer drought, and high unpredictability in precipitation.
- The predictability of high elevation snow is lower than ever before

- Winter snow pack is down across the state, but is increasing in the southern Sierra. This is important to consider in terms of future impacts to ecology and biology.
- The snow-to-rain ratio is decreasing.
- Future climate models predict more of the same:
 - In 100 years, the average temperature in July will be 9 degrees hotter than now (i.e. Sacramento will be akin to current-day Phoenix).
 - Based on paleodata, the current drought is the lowest amount of annual precipitation in more than 1,000 years.

Changing Patterns in Wildfire Occurrence, Area, and Severity

- Average wildfire burn acreage is increasing.
 - The concern here is not as much in the amount of acreage – which in most years is still well below the probable average before Euro-Americans settled in California- but in the way the forests are burning: the increase in high severity fires.
 - There is also a recent increase in fires at higher elevation (directly related to the diminishing snowpack and the freezing line moving up).
- Fire severity is increasing in semi-arid forestlands (fuel-limited types), but not yet changing in wetter and/or higher elevation forests or in Southern California chaparral (climate-limited types).
 - This has biodiversity implications.
- Primary plant types burned are shrub and conifer forest. There is an increase in hardwoods and grassland, with major loss of subalpine forest.
- The increases in fire trends of annual burned area, mean fire size, maximum fire size, and fire severity have been occurring for the last approximately 75 years.
 - This data comes from 17,000+ vegetation maps since 1930s, recently digitized by the University of California, Davis.
 - On Forest Service lands, fire severity is increasing in low elevation forests (yellow pine, mixed conifer) but not in high elevation forests.
- Trend: Overall burned area is (proportionally) increasing more rapidly in high elevation forests.
- Future fire trends: All models project increases in fire activity in the Sierra Nevada.
 - Once conifers burn, they will most likely not grow back in an area. In the case of Topaz Lake, cheatgrass and beetle invasions made reestablishment of bigger species impossible.
 - Forestland is getting converted to shrub land and grassland.
- A focus is needed on the important role of fire suppression, and the importance of fire as a disturbance.
 - The survival rate for the native community is 80-100% for prescribed burns.
 - Most species diversity is where plants have burned in low-moderate burn plots.
 - In much of the Sierra Nevada, lack of fire is just as serious an ecosystem disturbance as uncharacteristically severe fire.

Ecological Implications for Terrestrial Ecosystems

- Interactions among fire, insects, disease, drought, pollution, and other stressors are provoking vegetation changes across California.
 - Sierra Nevada forest mortality due to insects and disease rose over 300% between 2013 and 2014.
- Projected changes in vegetation are already underway:
 - Loss of yellow pine dominated forest (logging combined with fire suppression combined with climate)
 - Increase in hardwood density and forest cover (climate combined with disturbance)
 - Loss of subalpine forest (climate)
 - Loss of blue oak woodland (urban and agricultural expansion)
- Overall species numbers on the landscape (gamma diversity) are highest in the areas of low and moderate severity disturbance.
- If current climate and fire trends continue, habitat for old forest obligate species will retract, and habitat for post-fire specialists will retract.

Concluding Thoughts

- Restoration should focus on ecosystem services, restoring ecosystem functions, and climate change adaptation and mitigation.
- The occurrence of uncharacteristically infrequent and severe fire in yellow pine and mixed conifer forests is the most important land management issue in the Sierra Nevada; it will require major economic and political investment, and the reinvigoration of fire as a major ecosystem process.
- While the Sierra Nevada has been only moderately affected to date, major outbreaks of insects and disease can be expected if drought persists.
- Landscapes are going to look dramatically different in 50-100 years.
- The use of wildland fire for ecological benefits remains the exception rather than the rule. Mechanical means of applying fire is an important tool, but additional tools are needed.
- Agencies should adopt a more experimental, learning-focused approach to managing for global change and its effects. Experiment → monitor → course-correct.
- Response to all of these issues will require unprecedented integration of science, management, and public participation, but environmental problems rarely attract public interest or investment until they become catastrophes. Let us get out in front of these problems now.

B. Wildfire Emissions and Air Quality Impacts

Dr. Leland Tarnay, USFS, Pacific Southwest Research Station presented on strategies for minimizing smoke and carbon impacts to air quality and climate change while increasing the scale of fire treatments.

Presentation Summary:

- The scale of the fires in California is unprecedented.
 - The footprint of the 2013 Rim Fire is visible from space (255,000+ acres).
 - The 2014 King Fire was 98,000+ acres.
- Landscape context: 2013 and 2014 megafires have started at the bottom of major drainages in the Sierra.
- The vastness of the recent fires has had large regional impacts on air quality. Signatures from megafires are readily visible in air quality monitoring results.
 - Particulate Matter (PM) for the Rim and King fires spiked into the extremely hazardous zone.
 - The carbon emissions from the Rim Fire in one day were more than the total emissions from the four million cars visiting Yosemite National Forest in one year (on the order of 10 times greater).
 - Emissions are still being released, even though the fire is out.
- Smoke migration crosses local and state boundaries. It is necessary to address the Sierra Nevada ecoregion as a whole.
 - Working across agencies is the only option for addressing smoke impacts.
- When trees die, the carbon in those trees is released into the atmosphere (approximately 20% of the carbon will remain in the soil).
- What plant species burn and what species die varies depending on low, moderate or high fire severity.
 - At low to moderate severity, most smoke emissions come from the small live trees and dead plant matter on the ground.
 - During high severity fires, most trees die, start decaying, and no longer sequester carbon. This is an opportunity cost.
 - Live trees produce more biomass every year for carbon sequestration.
- Total PM could increase by 50% in the next 50-100 years.
 - Smoke from previous burns goes into the air in summer months when it is hot and dry. This is also the time of year when new fires occur most frequently.
- Moderating the severity of fires has a chance at halving smoke and greenhouse gas emissions.
 - Prescribed and managed fires are commonly done when weather is cooler/drier and there is better dispersion.
 - Matching emissions to dispersion is one strategy that might be very useful to reduce air quality impacts in the future.
- Title 17, a law that governs smoke management, talks about minimizing fire impacts but not preventing them. This is one area that could possibly be addressed.

- For future fire management, anchor points on the landscape should also be considered as opportunities to proactively “attack” fires. Anchor points exist that have not yet been identified.
 - Example: the prescribed Boulder Burn proposed to proactively “plug the drain.”
- Concluding thoughts:
 - Every patch of forest in the Sierra Nevada will burn. Managed and prescribed fire projects can shift those emissions into better dispersion times, minimizing impacts of the smoke.
 - Building landscape mosaics takes decades, and starts with anchor points created by prescribed and/or managed wildfire, chosen by a prioritization process that crosses land management agencies.

C. Questions and Discussion

- **Question:** Does mechanical management and natural management (wildland fire use) for fire management result in different regeneration of plant species in the long term? And are the new generation species more or less climate-adapted?
 - **Dr. Safford’s Response:** There is more control available in regard to species regeneration with the use of mechanical management, which means land managers have more choices for a variety of species. Wildland fire use maintains more of the natural or current ecosystem. Where we can do mechanical management [before prescribing fire], we should. The issue is not the work itself, but funding and scale of this work.
 - **Dr. Tarnay’s Response:** Dr. Stafford’s emphasis on scale is an important one. We are not able to treat entire landscapes. Mechanical management is more expensive per acre than prescribed fire treatments, so the focus must be on places that make the most sense on a scale large enough to make a difference.
- **Question:** Regarding the recent and projected increase in precipitation in the southern Sierra range, there will be an overall change in the hydrology of the region (i.e. increase in yield, runoff, evapotranspiration, etc.). What are the appropriate mechanisms to put in place to capture this increased runoff? What are the outcomes from the policy perspective related to the increases in precipitation?
 - **Dr. Safford:** Models are done probabilistically because there are too many factors to consider when predicting changes to watersheds. After a massive wildfire, the water tables go up, as the “number of straws drinking water from the ground” are significantly reduced. And the climate will be warmer and drier, all which contribute to changes in hydrology and make predictability of future conditions complex. The key for agencies and managers, including the Forest Service, is adaptive management. After an action is implemented, there needs to be an assessment of the work effort, and course corrections made. Further, adaptive management efforts need to be made public.

- **Dr. Tarnay:** Changes in snowline altitudes is another large factor contributing to the changing hydrology of watersheds. We should emphasize use of a watershed model when considering applications of adaptive management actions.
- **Question:** Are the recent dry-weather January months a new opportunity for prescribed fires? Why or why not?
 - **Dr. Tarnay:** January is not optimal because, while there are dry periods, the land and plants do not dry out as quickly because of the low angle of the light and cold temperatures, and there are differences in dispersion. The windows of time for prescribed burns during winter are much smaller. Additionally, there are more resources available for prescribed fire in the summer months as wildfire control resources can be leveraged. Prescribed fire in winter months is still an option, but it is a learning edge for managers.
 - **Dr. Safford:** Most of winter burning happens at a very small scale. This is not a solution in itself. And as Dr. Tarnay noted, a great many things can easily get in the way of successfully completing a prescribed fire anyway.
- **Question:** In regard to emphasis on increasing the landscape scale of mechanical management and/or prescribed fires and the associated challenge of cost, it would seem that there is also a great need for collaboration between private landowners. What has been considered for incentivizing the cooperation of private landowners?
 - **Dr. Safford:** Speaking as scientists, we are not the appropriate parties to respond to this question. However in the northern part of the state, there is more of a devoted culture of prescribed fire.
- **Question:** What is the relationship of the emerging trends of increases in megafires and their emissions to the goals of Assembly Bill 32 (AB32)?
 - **Dr. Tarnay:** Measurements for carbon sequestration of forests is conducted on an annual basis. The public does not yet consider places like the Sierra Nevada a major source for sequestration.
 - **Dr. Safford:** In viewing this region from the perspective of an ecologist, the Sierra Nevada forest is very small compared to the Amazon rain forest, and so its ability to sequester carbon is also very small. In addition, the Sierra is effectively a big peninsula; there is not much room for the footprint of the forest to expand. Mediterranean climates, such as California's, are not the optimal places to think about carbon sequestration opportunities by plant matter.
- **Question:** The analyses presented showed a higher than expected mortality rate for conifer pines, and higher overall biomass. Were human elements included in these analyses?
 - **Dr. Safford:** To clarify, at higher elevations we are not yet seeing higher mortality rates of conifers. There is a slight effect of fire suppression seen at higher elevations, but nothing very significant. When fires are suppressed for 100 years in a system, perhaps 10-12 natural burn cycles are stopped at lower elevations

and only 1-2 at higher elevations. Climate change on its own is changing these systems: the growing season is extending, temperatures are rising, more seedlings are getting dispersed, there is less area of annual snow pack, etc. These changes will lead to more severe fires in the future.

- **Question:** Were the recent fires in Yosemite less severe than they might have been because of the pre-treatment conducted there? Also, can you speak to sterilization of soil after severe fire events?
 - **Dr. Tarnay:** Firefighters took advantage of changes in fire behavior to attack it more directly rather than allowing it to burn for several additional days. Re-measurement plots are still being conducted for the Yosemite burn region, and so there is not enough information as yet to answer.
 - **Dr. Safford:** Fires usually only affect the topsoil. Soils in the Sierra Nevada are adapted to fires, so post-fire soil content does not change too dramatically (i.e. there are not vast areas of sterilization). Soil issues should be considered in the context of the scale of fire events. The amount of snag habitat is much greater than historical measurements because of the scale of high-severity fire.

- **Question:** The change in biological composition of the foothills over the next century is projected to be extreme. What are your thoughts on if or how this can be stalled, especially by way of policy?
 - **Dr. Safford:** Yes, it is possible to make a really big difference by way of mitigation and adaptive management. Policy makers, managers, agencies, etc, must all consider what to do in a system that is based on preserving the past, when the past is no longer preservable. We may need to be more accepting that hardwoods will dominate the forest in the future, and this is not necessarily a bad thing. We can look to Europe as an example of a country that is centuries ahead of the United States in terms of management, and stay optimistic.
 - **Dr. Tarnay:** The fires that burn at low and moderate severity leave behind big trees that continue to grow. As we try to minimize our impact on carbon, we need to keep these big trees growing as long as possible.
 - **Dr. Safford:** Furthermore, big trees don't just preserve carbon, they preserve the ecosystem. The pace and scale of mitigation and restoration efforts must be increased to realize a real effect.

3. Restoring Sierra Nevada Watersheds

A panel of agency representatives, policy and forest experts convened to discuss policies that affect Sierra Nevada forest restoration efforts, how associated policies could be modified to still meet their intent while allowing for greater restoration to occur, and to identify areas to strategically align investments and discuss the best approaches for doing so.

A. The California Water Action Plan, Safeguarding California and Proposition 1

Kris Tjernell, Special Assistant for Water Policy, California Natural Resources Agency, provided basic background information on the California Water Action Plan, and several opening remarks for the panelist discussion:

- A catastrophe is often required to push policy change. From the Natural Resources Agency's perspective, the Rim Fire was a catastrophe.
- The panel is encouraged to have a frank and honest discussion about regulatory impediments to restoration efforts.
- In 2014, the state released several high level planning documents:
 - **The Safeguarding California Plan** augments previously identified adaptation strategies in light of advances in climate science and risk management options.
 - It emphasizes nine broad sectors, including forestry and biodiversity, and focuses on increasing habitat connectivity.
 - It further emphasizes the need for scientific inquiry and adaptive management.
 - **The California Cooperative Forest Management Plan** addresses both adaptation and mitigation strategies together.
 - Financing is available for achieving AB32 goal of reducing Greenhouse Gas (GHG) emissions, and for mitigation projects with climate adaptation values.
 - **The California Water Action Plan**, released in January 2014, includes ten actions with sub-actions that set the foundation for long-term water management efforts.
 - This short, concise plan includes a policy and financing approach to long-term water management efforts.
 - A goal of this plan is to restore 10,000 acres of forest meadow habitat.
 - There is an implicit link with habitat restoration, water quality and water supply.
- New financing opportunities are available:
 - Proposition 1 Water Bond has associated funds.
 - California Department of Fish and Wildlife (CDFW) has \$238 million available via a new statewide restoration program.
- A lot of great work can be accomplished at the local level, though because of limited funds, it is necessary to develop grant guidelines carefully and be thoughtful with how the funding is applied.
- To the extent that the WIP effort continues, project partners should make strong links to the Water Action Plan and the Safeguarding California Plan such that state and federal funds are more easily leverage and collaborative projects improve restoration.

B. The Sierra Nevada WIP as an Integrated Framework for Policy and Investment

Bob Kirkwood, Boardmember, SNC, provided a personal account of his history in the Sierra Nevada region and how he, as a local landowner, supports the WIP:

- The stream on his property in the Sierra was once year-round, and is now ephemeral.
- Mr. Kirkwood invested in erosion control for the stream, though was not granted permits to raise the water table under nearby meadows.
- He also worked to improve the defensible space around his property via mechanical treatment efforts, and would like to address improvements to snow storage.
- His personal efforts led him to the mindset that there is an optimal approach for maintaining habitat and reducing the risk of and from fire for each plot of land.
 - This requires watershed-by-watershed strategic collaboration in such a way that will achieve the goals of all stakeholders both upstream and downstream, with agencies and locals in alignment. This is the underlying principal of the WIP.

Barnie Gyant, Deputy Regional Forester for Resources, USFS, also provided information and context for the WIP:

- The WIP coincides with what the USFS hopes to accomplish in terms of increasing the pace and scale of restoration efforts.
- Working together through the WIP, more than just fire and fuels can be addressed, including invasive species habitat, sediment movement, abandoned mines, trail and road maintenance, water use efficiency, etc.
- Investments in the WIP should be considered from both ecological and social benefit and policy angles.
 - As an example, restoration efforts resulting from catastrophic fire events, such as the Rim Fire, will down the line lead to controversial proposals to raise dams.
- Agencies typically function in silos, sometimes even within departments of the agency itself. It is apparent now, more than ever, that these methods of operation can no longer continue.
 - The WIP can be used as a tool to outline the priority areas to do collaborative work, regardless of agency or organizational affiliations, in order to make measurable change.
 - It is about linking habitat, taking the watershed approach.
- Partners need to identify where efforts overlap, what resources can be leveraged, how can all of the individual plans connect together, what are the priorities for restoration? and so on. The “no action” alternative is no longer an option.

C. Discussion: Policy Impediments, Increasing Investment and the WIP

In advance of the summit, the panelists were presented with the following three questions to consider for the open discussion period:

1. How do we address existing policies that may be impeding restoration efforts?
2. Where are the best opportunities for investment for restoration and infrastructure to support restoration?

3. How can the Sierra Nevada WIP be most effective in integrating state, federal and local efforts to restore these watersheds?

Panelists included (alphabetized by LAST name):

1. Lee ADAMS, Rural County Representatives of California
2. Nate BEASON, Rural County Representatives of California
3. Dave BISCHEL, California Forestry Association
4. Dave BOLLAND, Association of California Water Agencies
5. Chuck BONHAM, California Department of Fish and Wildlife
6. Jim BRANHAM, Sierra Nevada Conservancy
7. John BUCKLEY, Central Sierra Environmental Resource Center
8. Edie CHANG, California Air Resources Board
9. Ashley CONRAD-SAYDAH, California Environmental Protection Agency
10. David EDELSON, The Nature Conservancy
11. Kamyar GUIVETCHI, California Department of Water Resources
12. Bernie GYANT, United States Forest Service
13. Russ HENLEY, California Natural Resources Agency
14. Bob KIRKWOOD, Sierra Nevada Conservancy, Boardmember
15. B.J. KIRWAN, Sierra Nevada Conservancy, Boardmember
16. Jonathan KUSEL, Sierra Institute for Community and Environment
17. Randy MOORE, United States Forest Service
18. Vance RUSSELL, National Forest Foundation
19. Frances SPIVY-WEBER, California Department of Water Resources
20. Kris TJERNELL, California Natural Resources Agency
21. Kerri TIMMER, Sierra Business Council
22. Ken PIMLOTT, Cal FIRE

Panelists spoke in succession to the questions above. What follows below is an alphabetized list of the general topics discussed by various panelists, with accompanying comments.

- **Building Collaborative Capacity and Trust within the WIP**
 - Ms. Spivy-Weber: WIP partners should anticipate having many meetings in the coming future, which is essential to regular, frequent and timely communications, and to building trust.
 - Mr. Bischel: Stakeholders have come a long way from working together 15-20 years ago, and collaboration will continue to grow. It is no longer a matter of if forests will burn, but when, and collective risks must be taken in order to move forward with restoration efforts. The WIP can seek to develop a bold agenda that recognizes the drought, climate change, the current conditions of forest, and seeks to find interagency, cooperative solutions at an operational scale, using the best science.
 - Mr. Buckley: The Yosemite Stanislaus Solutions (YSS) group is an example of a group where members were able to move past positions and come to agreements. This can certainly be replicated with the WIP. The challenge to

consider in regard to increasing the pace of our efforts is how to move from this summit to the next steps.

- **Capacity**

- Mr. Beason: Another issue is that of capacity. Approximately 40% of the lands we are discussing are federal lands. If we go forward with a cohesive restoration plan in the immediate future, it is unlikely the capacity exists yet to fully leverage that plan. Therefore, leveraging funds and cooperation from the private sector is essential. One consideration is to require owners of a certain parcel size of unimproved land to establish a fuel break.
- Mr. Buckley: The Forest Service is limited in what they can do for planning and implementation. There is a need to increase their staff.

- **Downstream and Urban Community Support**

- Mr. Beason: All Californians have a stake in this effort, including the urban areas. There is a direct connection to where their timber comes from, water supply, food supply, etc.
- Ms. Timmer: There is interest in making connections with businesses downstream, ensuring they are aware of the benefits derived from the Sierra Nevada region, *and* that these business owners are communicating their concerns with decision makers. More vocal support from urban and downstream communities is needed to garner committed support for Sierra restoration from elected officials.
- Mr. Bolland: The stories and staggering statistics shared today should be shared with the public at large to increase support and buy-in for the value of forests and remediation/restoration efforts.

- **Funding and Capacity**

- Mr. Russell: Nearly all state and federal agency-funded programs are over-subscribed, in part due to the limited capacity of local organizations. It may be more beneficial to determine ways to deliver these programs better and faster. The National Forest Foundation recently funded a round of grants, and most of the applicants were from the Sierra Nevada region, which speaks to the value and community support for this area.
- Mr. Guivetchi: The Water Action Plan helped to frame Proposition 1, so leveraging these funds to implement actions is perhaps the best opportunity available. Including forest management is a way to advance multiple-resource funding. Additionally, investments must be made in innovations and infrastructure, just as in water resources management.

- **Funding Opportunities**

- Ms. Chang: The **Air Resources Board** does have a fund and is developing a new three-year investment plan this year. This is a great opportunity for the forest community to identify target priorities, and how to address them in a smart way so they can be incorporated into this plan. There are proposal requirements to ensure the selected programs provide air quality benefits, and there are creative ways to integrate in forest management, including testing and research.
- Ms. Spivy-Weber: The **California Association of Sanitation Agencies** is interested in funding a pilot project related to the rapid restoration of nutrients to burnt areas. WIP partners are encouraged to consider odd bedfellows when considering innovate, collaborative projects.
- Mr. Bonham: Soon the California Department of Fish and Wildlife will distribute grant funding totaling \$25 million via the **Wetlands Restoration for GHG Reduction Program**.
 - The funding will support projects that reduce GHGs and provide co-benefits such as enhancing fish and wildlife habitat, protecting and improving water quality and quantity, and helping California adapt to climate change.
 - All applications are undergoing a detailed review to see if they meet carbon sequestration and monitoring program requirements stated in the grant.
 - One of the three identified priority habitats is mountain meadow.
 - This type of grant program will be conducted again. WIP partners are encouraged to review the California Water Action Plan, page 9, related to headwaters and restoration of mountain meadow habitat, and consider how projects can leverage these future funds.
- Ms. Conrad-Saydah: California is competing for \$1 billion in resiliency aid via the **Catastrophe Resiliency Design Competition**, specifically related to the Rim Fire, and is also considering how to apply this funding to areas that have not yet burned. A draft of the submission is available now, and a final proposal is due to the federal government on March 27, 2015. There is a public trust element to this proposal, especially in regard to GHG reduction dollars. The proposal attempts to balance experimentation with proven methods of restoration to address the needed increase in pace and scale of efforts.
- Mr. Henley: The AB32 scoping plan calls for the development of a **Forest Carbon Plan** for California. Many entities are supporting the policy, integration, and investment of this effort. While carbon is the key focus, the plan will include a full range of the value of the forest systems. It builds on the Governor's goal that our forests become net sinks for carbon. The California Natural Resources Agency is now hosting public meetings on this effort, and this could be an important venue for the WIP projects. The Resources Agency is also trying to secure funds for forest restoration activities and fuels management through AB 1492.

- **Landscape-scape Management**

- Mr. Kusel: These are also social and economic issues. Collaboration at the levels being proposed can and has succeeded. There are some young projects underway through the Forest Service and Cal FIRE working collaboratively to implement landscape level management. This includes programs that benefit forest communities in areas like rural education and employment. The Sierra Cascades All-Lands Enhancement (SCALE) project is another example of a group focusing on how to more rapidly plan and implement landscape-scale projects. Other projects involved private landowners and CalFIRE and other state agencies, and developed a timber harvest plan that rapidly went through the National Environmental Policy Act review process, although a constraint remains the facilities to process this timber.
- **Markets for Biomass**
 - Mr. Buckley: There is a lack of a market for biomass. Biomass can be used for various products and energy production. The collection of biomass aids mechanical restoration efforts. Partners may consider ways to increase the market for biomass as one component of the WIP. Where can timber identified for removal be transported, and what can it be used for?
- **Monetary Value of Forests**
 - Ms. Spivy-Weber: The San Francisco Public Utilities Commission went before the Federal Accounting Bureau last year in an attempt to get the Bureau to include forests on their list of things that could be bonded, as having value, because their Federal Emergency Management Agency (FEMA) funds could only be spent on building restoration/repair. Unfortunately, forests are not currently recognized as being monetarily valuable, but wetlands are. This is an opportunity to change policy.
 - Mr. Edelson: The Nature Conservancy (TNC) is preparing a report on quantifying water-related benefits to forest restoration. This economic case needs to be made downstream so these beneficiaries will want to invest in restoration efforts. More and better research is required to quantify these benefits. This should be a priority for the WIP.
 - Mr. Pimlott: Forests are one place where we can sequester carbon. Further research and demonstration of this in the Sierra Nevada is also needed.
- **Pilot Projects**
 - Mr. Bolland: From the Association of California Water Agencies' (ACWA) perspective, the impacts of forest fires are direct (sedimentation, water quality, water supply) and they affect headwaters management efforts. ACWA will debut their Headwaters Framework Document on March 19, 2015. This document encourages the use of pilot projects and bold actions to anticipate and avoid impacts of large-scale fires.
- **Policy and Agency Alignment**

- Ms. Conrad-Saydah: The fifth goal in the Governor’s State of the State Address concerns climate change. Four of the five goals are related to the natural resources sector. This demonstrates a commitment by our government to addressing this situation. Big-picture restoration opportunities should attempt to fit into the water goals for the State.
- Mr. Guivetchi: The Department of Water Resources (DWR) has undergone transformative developments in the last 15+ years. The 2013 Water Plan Update was developed with more than twenty state agencies, pulling recommendations from forty of the plans developed by these agencies. A plan of this endeavor with such a level of success requires collaboration, compromise, good communication, and above all trust among partners. Trust is where implementation can stall.
 - The State has embarked on the Integrated Regional Watershed Management (IRWM) effort to better facilitate this. For this first time, three or more entities within an IRWM region generate and implement plans by mixing and matching their problems and assets. This is an example of how the WIP group can leverage dollars for multi-benefit projects that are conducted at the appropriate regional scale.
 - Agency alignment is also critical. If we are serious in addressing Sierra Nevada forest health, the government must align its policies, plans and regulations to make solutions more attainable.
- **Regulatory Barriers and Opportunities**
 - Mr. Edelson: The scale of forest-based restoration work needs to be increased ten-fold. We can look to increasing the size of projects that already underway, such as the size of prescribed fires. Regulatory barriers preventing this should be addressed as soon as possible.
 - Mr. Beason: In California, we face impediments that other parts of the country do not, in part due to the size of our state. Many political issues emerge when large landscape efforts are attempted, and we need to institute the political will to overcome these challenges, pursuing the people who typically put up “road blocks.”
 - Mr. Buckley: Hurdles and barriers to fire management are often caused by regulatory restrictions, such as managed burn emissions. Federal and State agency leaders should meet with the California Air Resources Board staff to talk about what policy changes are possible.
 - The National Environmental Policy Act (NEPA) process is lengthy and cumbersome, and effectively stifles the speed of action. For example, it will take two years following the Rim Fire for approval to plant trees. Conversations should be had with leaders on how to streamline the NEPA process for restoration efforts.
 - Ms. Chang: The Air Resources Board is aware of the smoke management issue, and how current regulations restrict the ability to employ prescribed fires. They are open to conversations on how to address this.

- Additionally, the Air Resources Board is now reviewing the Forest Carbon Plan, how it compliments the low-carbon fuel emissions standards program, and looking at opportunities to provide improved regulatory procedures in this regard. A fair amount of focus is being dedicated to natural resources.
- **Stream Reconfiguration**
 - Mr. Edelson: TNC is encouraged by the Water Action Plan to address mountain meadow restoration, though one obstacle is the predominant approach to using heavy machinery to reconfigure streams, and the difficulty and expense of bringing machinery into these select areas. Perhaps the groups should look more closely at the role of beavers for achieving environmental benefits, as beavers are cheaper than bulldozers.
 - Mr. Bonham: CDFW does agree there may be a role for beavers moving forward. Introduction of beavers should be less controversial than the reintroduction of wolves.
- **Urgency to Restore**
 - Mr. Bonham: The window of opportunity for many policy makers to implement change is directly related to election periods. Because of the people currently in place in various agency positions, there is more opportunity now to act.
 - Mr. Adams: Rural County Representatives of California is interested also in moving from collaboration to compromise, especially when messaging the urgency to urban areas.

Following the panel discussion, the facilitator summarized emergent themes and topics:

1. The urgency of action.
2. The need to work at a landscape scale. Existing collaboratives are building planning and implementation tools, social capital, and trust, and beginning to lead projects that are double and triple the historical project size.
3. The need to clarify the shared value of the Sierra Nevada as a whole. This includes moving from the summits to the ocean, rural and urban areas, quantified benefits, interagency responsibilities, public and private partnerships, shared risk and responsibility for action and a bold agenda, and sustained action.
4. The desire for pilot projects, experimentation, and the replication of successful project development and delivery approaches, as well as monitoring results and then scaling up.
5. The need to increase capacity, including staffing for fieldwork, processing facilities, biomass markets, and institutional coordination.
6. The need to prioritize in advance multiple items: (1) policies, plans, and regulations that need alignment; (2) impediments to address; (3) strategic project locations, anchor treatment sites, and vulnerable watersheds; (4) investments; and (5) multiple benefit projects.

D. Public Comment Period

- **Comment:** The considerations stated regarding the NEPA process for air quality are appreciated. Perhaps the same considerations for shortening and strengthening the process can be applied to the California Environmental Quality Act (CEQA). Additional points for the panelists to consider are:
 - Increasing the capacity to utilize biomass
 - Increasing the price provided for energy generated by biomass
 - Organizing a meeting focused on the Forest Service's newly expanded Good Neighbor Authority, which allows the Forest Service to enter into cooperative agreements or contracts with states to perform watershed restoration and forest management services on National Forest System lands.
- **Comment:** Some of the identified potential grant funding needs to be spent at the local level. This would help to generate trust. Agency staff should work with locals on the actual development of grant programs.
- **Question:** Please elaborate on the idea of working together. What interagency actions and/or changes does the Forest Service foresee to support this goal?
 - **Mr. Gyant:** In many cases, FS staff are out in the field, conducting their projects. They are now emphasizing integration among different internal programs, asking branches for the top five projects in their respective area and identifying ways for them to complement each other.
 - **Mr. Kusel:** The Northwest Forest Plan is an example of agencies working together to implement a program. Successful collaboration at a watershed level is key, including with on-the-ground persons.
 - **Mr. Russell:** In the Tahoe region, many of the nonprofit organizations do work together. They are not competing for funding, which has resulted in project prioritization. Comparatively, in the Angeles National Forest there are hundreds of nonprofits and agencies occupying that area, making it especially challenging to collaborate. Collaboration and coordination is challenging in a bigger place.
- **Comment:** To the point on building the public support for these efforts: There was a meeting in San Francisco one year after the Rim Fire, and the attendees were not well informed about the status of the Sierras and the urgency for action. This message needs to be communicated regularly, clearly and emphatically via a coordinated and unified public education campaign.
- **Comment:** A good catalyst pilot project would involve biomass and bioenergy. The North Fork Bioenergy Project is a good example, focused on the construction and operation of a combined heat and power facility co-located with an existing forest products manufacturing operation. Additional focus and attention would help to speed it becoming operational.

- **Comment:** The Placer County Biomass Project has been in progress for a decade, but it continues to stall due to lack of education of the general public and making the benefits of the project known to downstream users. At its core, this project is a watershed improvement program. The same incentives that are provided to solar and wind energy projects should be available for bioenergy, particularly that which comes from the forest.
- **Ms. Conrad-Saydah:** The folks in this room do speak the same language, and it is up to every one of us to educate our friends and family. California is what it is because of our resources. This critical message has to be a part of our daily lives.

4. Next Steps and Closing Remarks

The panelists agreed to support the development and implementation of the Watershed Improvement Program.

Mr. Moore, USFS, thanked the panelists and public members for their participation, and provided several closing remarks:

- We have seen success across the State at a small scale, so let us work together to magnify these efforts to a scale that make a significant difference.
- All of the agencies have pots of money to distribute, and traditionally many programs all receive a small portion of this funding. The result is that action is only accomplished on a small scale. Can this change?
- California is a leader of our nation. Let us demonstrate that we can make this work.
- This convening meeting was an important first step, and we should soon consider the next step.

Mr. Branham, SNC, also expressed his sincere gratitude for the day's efforts, and acknowledged the attendance of the SNC board members and former Natural Resources Secretary Mike Chrisman. He further commented:

- Our actions are not keeping up with the level of collaboration and compromise that was recommended during the day's discussion.
- There is real commitment within the Administration to work together, and much we can build on. There is hope for the Sierra, we will not sit by and watch our land burn.

As follow-up, SNC staff will post meeting materials onto their website, and soon contact project partners regarding next steps.

The facilitator closed the meeting.