

Sierra Nevada Conservancy-Final Report

**Sierra Nevada Conservancy Grant Program
Safe Drinking Water, Water Quality and Supply, Flood Control
River and Coastal Protection Act of 2008 (Proposition 84)**

Grantee Name: **California Department of Parks and Recreation**

Project title: **Vegetation Management – Forest Thinning, Brush
Mastication and Prescribed Burning**

SNC Reference Number: **SNC 070236** **Submittal Date:** **4/26/2012**

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Check one:

6-Month Progress Report
 Final Report

<p>6-Month Progress Reports should reflect the previous six months. Final Reports should reflect the entire grant period.</p>

A. Progress Report Summary: (Please provide a general description of work completed during this reporting period.)

The grant agreement for this project became effective in June 2008. Despite various delays including a freeze on bond funding and waiting for appropriate conditions for prescribed burning, the project work was completed in December 2011. The three different treatment areas of the project, hand crew forest thinning followed by pile burning, mechanical brush mastication, and prescribed understory burning, were all completed with great success. The completed project provides protection of water quality through substantial reduction of the risk of high severity wildfire. The project achieved restoration of native forest composition, structure and function. And an additional benefit is that the project area is now a showcase of three different forest management treatment methods.

B. Deliverables or Outcomes completed during this Reporting Period or Milestones Achieved: (Include specific information, such as public meetings held, agency participation, partnerships developed, or acres mapped, treated or restored.)

A confidential archaeological report was completed for the project area.

Mastication equipment was purchased, installed, and tested.

Hand crew forest thinning and piling for burning was completed under a service contract on 31 acres. The forest thinning area was reduced from the originally scoped 35 acres for safety of fireline placement.

Brush mastication was completed on 25 acres. The brush mastication area was reduced from the originally scoped 29 acres due to: 1) protection of an archaeological site, and 2) the western end of the brush mastication plot proved to be too steep for the excavator to effectively operate. The brush mastication equipment performed very well, and the mosaic of mowed manzanita brush within the Jeffrey pine overstory looks really good.

In cooperation with CAL FIRE, we successfully prescribe burned all three targeted prescribed burn plots, 5 + 9 + 9 = 23 acres. All objectives were met including: provide for safety, hold fire within control lines, protect overstory trees, consume surface fuels, and provide firefighter training. Prescribed burns were implemented on 9/22/2010, 9/23/2010, and on 10/3/2011.

Pile burning was completed on the 31 acres that were thinned and piled. Over 1200 piles were burned and only about 70 piles remain in the interior of the plot. The remaining piles do not pose a threat to fire safety and will provide for small mammal habitat.

C. Challenges or Opportunities Encountered: (Please describe what has worked and what hasn't; include any solutions you initiated to resolve problems. If your project is not on schedule, please explain why here.)

A challenge arose in seeking permission from CalTrans to post prescribed fire information on their permanent highway information signs on Interstate 80. A permit was acquired to park temporary illuminated sign trailers along the interstate to inform motorists of the planned prescribed fire. Sign trailers were borrowed from North Lake Tahoe Fire Protection District.

Implementing the pile burning during appropriate conditions proved to be quite challenging. Although the piles were stacked in 2008, it was not until 2011 that the piles were burned. This was due to the local weather and fuel moisture conditions that are difficult to predict, and in some years, the complete absence of an appropriate burn window. In the fall of 2010, the piles went from too dry to safely burn, to buried in 5 feet of snow after one storm event. We did burn the piles in late fall of 2011 with great success. And we successfully avoided smoke impact to the town of Truckee and Interstate 80, which was a big concern. Knowing both when to wait and when to go burn is a critical ability that is only gained by experience. But when it comes to predicting the weather, a bit of luck is always involved as well. In December 2011 we experienced very dry and windy conditions which required ongoing patrol and mop-up of burned piles.

D. Unanticipated Successes Achieved: (Please describe any additional successes beyond completing scheduled tasks or meeting scheduled milestones.)

The different completed treatment areas look really good. We received compliments from park visitors and staff. In 2011, a school group visited the prescribed burns implemented in 2010. An unanticipated success was a boost in local support of prescribed burning.

E. Compare Actual Costs to Budgeted Costs: (Please refer to your grant agreement to list your deliverables/budget categories and budgeted costs compared to actual costs incurred during this reporting period in the table below.)

PROJECT BUDGET CATEGORIES	Budgeted SNC Dollars	Actual Dollars
Archaeological study	1,303.00	2,000.00
Equipment (mastication)	60,000.00	59,992.29
Brush mastication	17,400.00	8,672.94
Hand crew forest thinning	83,230.00	83,230.00
Pile burning	19,660.00	16,939.75
Prescribed burn support	4,532.00	12,274.11
Administration and oversight	27,919.00	26,218.76
GRAND TOTAL	214,044.00	209,327.85

Explanation: (if needed)

Prescribed burn support involved much more crew time than originally estimated due to required staffing for safety of fire control, and due to implementing the burns over the course of two years (2010 and 2011). The State Parks Fire Crew supported by this grant was on ignition during the day of the burn, and was on night patrol after the burn. The three separate prescribed burn plots were burned on three separate burn days. Staffing that was used through the course of the burns was critical to the success and safety of the burns.

After the mastication equipment was purchased, the staff time required to implement the brush mastication was much less than originally estimated. The equipment operator did an excellent job and completed the brush mastication faster than expected and without any problems or delays.

F. Do you have information to report on the project-specific Performance Measures for your project? (If so, please list the Performance Measures below and describe your progress.)

The project is completed.

G. Were there any other relevant materials produced under the terms of this Agreement that are not a part of the budgeted deliverables? If so, please attach copies. (Include digital photos, maps, media coverage of project, or other work products.)

Digital photographs were provided on CD.

H. Next Steps: (Work anticipated in the next 6 months, including location and timing of any scheduled events related to the project.)

The project is completed.

Please Complete this Section for FINAL Report ONLY

Capacity-Building Results and Collaboration and Cooperation with Stakeholders:

(What partnerships did you initiate or strengthen as a result of this project? How did they affect the project outcome? If applicable, how did this grant increase your organization's capacity? What is your plan to sustain this increase?)

We definitely strengthened our partnership with CAL FIRE as a result of this project. The prescribed understory burning of the three burn plots went very well and we worked very well together.

Although we have successfully implemented prescribed understory burning independently for many years, we chose to work with CAL FIRE on this project due to the high profile location, the complexity which required additional firefighting resources beyond our own, and the opportunity of having a local CAL FIRE burn boss in Truckee willing to participate. Coordination with CAL FIRE began before we even applied for the grant funding. Working with Doug Rinella, Battalion Chief and Burn Boss, was a great experience throughout. Not every CAL FIRE Battalion Chief is a prescribed fire burn boss. And not every CAL FIRE unit will take on prescribed burning. But we seized this opportunity to work together and the results were awesome.

In retrospect, we would not have been successful in completing the prescribed understory burning within the grant term without the partnership with CAL FIRE. The environmental conditions of the burn plots required that we burn under the dry end of the burn prescription. Both in 2010 and 2011, within a couple days after burning, the conditions became too wet to carry surface fire. We had to understory burn during relatively dry conditions, or we would not have burned at all. The conditions were dry enough that I would not have burned without assistance from CAL FIRE, for safety reasons. But with the numerous resources provided by both State Parks and CAL FIRE together, we implemented the understory burns safely and effectively. And the results look great.

Unfortunately for us, Doug Rinella, the local CAL FIRE Battalion Chief is due to retire later this year. It is unknown if his replacement will be a prescribed fire practitioner to the same level. But we have built a relationship with others in CAL FIRE and we have confidence that we will continue our prescribed fire program well into the future.

Description of Project Accomplishments:

1. Most Significant Accomplishment

Describe in one concise, well-written paragraph, the most significant accomplishment that resulted from this grant.

The most significant accomplishment of this project was implementing the prescribed burning and the pile burning successfully. The environmental conditions proved to be challenging for burning. The prescribed burn “window” under which all the appropriate conditions were met, proved to be very small, and during some years non-existent. Fuel moisture may turn from too dry to too wet during a single storm event with winds too strong to safely burn. Near the project areas are the town of Truckee and Interstate 80, both of which are highly sensitive to smoke. The topography is canyon-shaped, which can trap heavy smoke during atmospheric inversion conditions. Not only did we implement the burning, and the results looks great, but we did so without causing smoke impact to smoke sensitive areas. This truly is a great success story for prescribed fire.

2. WOW Factor

If applicable, please describe anything that happened as a result of the project or during the project that is particularly impressive.

The results of the prescribed understory burning and pile burning are particularly impressive. We have received compliments on the aesthetics of the completed project areas. And the project areas are easy to view and visit. Park visitors may drive their own vehicle right through the burn plots, which are only a few minutes from Interstate 80. The project area will continue to be a showcase of successful forest management for many years to come.

3. Design and Implementation

When considering the design and implementation of this project, what lessons did you learn that might help other grantees implement similar work?

When laying out project areas for prescribed burning, or even just pile burning, it is highly recommended to seek the advice of an experienced prescribed fire burn boss. It would be preferable to have the burn boss who will actually be doing the burning. In this case, I designed the burn plots (I am a burn boss) and I confirmed their design on the ground with the CAL FIRE burn boss before applying for the grant. We successfully implemented the understory burns as designed. Another lesson learned is that prescribed burns cannot always happen the year that they are planned. But with patience and persistence, they

can be implemented safely and effectively, and within the constraints of preventing impact to smoke sensitive areas.

4. Indirect Impact

Please describe any indirect benefits of the project such as information that has been developed as a result of the project is being used by several other organizations to improve decision-making, or a conservation easement funded by this grant that encouraged other landowners in the area to have conservation easements on their property.

An indirect benefit of the project was providing for the increased archaeological knowledge of the project area and Donner Memorial State Park. Prior to implementation of ground disturbing activities including tractor operations and prescribed burning, an archaeological survey and preparation of a confidential archaeological report were required. The general area is very rich in history relating to the pioneers of early California, and in prehistory dating back 10,000 years or more. There is physical evidence remaining from many different cultures, such as from Chinese railroad workers as an example. It is interesting to note that one of the main routes of the California Emigrant Trail went right through the prescribed fire burn plots treated by this project. Through preparations for implementation of project work, cultural resources were discovered, studied, and recorded to ensure protection now and in the future.

5. Collaboration and Conflict Resolution

If you worked in collaboration or cooperation with other organizations or institutions, describe those arrangements and their importance to the project. Also, describe if you encountered conflict in the project and how you dealt with it, or if there was conflict avoided as a result of the project.

We worked closely with our air quality regulators to prevent smoke impacts from prescribed burning, and to improve working relationships and knowledge of local environmental factors to provide for improved future practice of prescribed burning. Since we were burning in two counties, Placer and Nevada, we worked with both the Placer County Air Pollution Control District, and the Northern Sierra Air Quality Management District (which covers Nevada, Sierra and Plumas Counties). The town of Truckee is particularly receptive to potential air pollution due the shape of the Truckee River Canyon which can trap stagnant air during atmospheric inversion conditions. During this past fall of 2011 when we accomplished most of our burning, there was recorded impact to air quality in downtown Truckee as a result of another prescribed burn on US Forest Service property. An atmospheric inversion set in for a few days after their initial day of ignition. Prescribed burning and preventing smoke impact is a tricky business, and not all factors can be controlled or even well predicted, especially the

weather. Continuing to work closely with our cooperators and regulators will be critical to managing a successful prescribed burn program into the future.

6. Capacity-Building

SNC is interested in both the capacity of your organization, as well as local and regional capacity. Please describe the overall health of your organization including areas in need of assistance. SNC is interested in the strength and involvement of your board, significant changes to your staff, size and involvement of membership. In addition, describe how your project improved capabilities of partners, or the larger community.

California State Parks is definitely facing challenging times from a fiscal perspective. Our forest management and prescribed fire program is almost entirely special funded. That is, we rely heavily on grants to fund the implementation of project work. But even in these tough times, we are still here, and we will continue have a successful forest management program. Core staff including the Forester, Archaeologist, Senior Environmental Scientist and Administrative Chief are permanently funded positions, and we will continue to apply for grants and keep accomplishing outstanding, professional work. We are very proud of our program and our accomplishments. We absolutely recognize the critical need for stewardship of the State's outstanding natural and cultural resources, and the need to maintain our investments, including in this project area. Although our future is uncertain, we promise that as long as we are here, we will continue to manage and protect our parks to the best of our ability.

7. Challenges

Did the project face internal or external challenges? How were they addressed? Describe each challenge and any actions that you took to address it. Was there something that SNC did or could have done to assist you? Did you have to change any of your key objectives in response to conditions "on the ground"?

The most notable challenges were working within the local environmental factors to implement the prescribed burns and pile burns. Predicting, determining and seizing the appropriate "window" within which to burn requires experience, familiarity with the local conditions, accurate weather predictions, availability of resources, and a bit of luck. All of those factors and more had to be met to complete the burning within the term of the grant. And we did it with great success. It was frustrating to not have a pile burn window at all in the fall of 2010. The fuel conditions went from too dry to buried in 5 feet of snow during a single storm series with winds too strong to safely burn. We accomplished all the pile burning in fall of 2011.

8. Photographs

Grantees are strongly encouraged to submit photos, slides or digital images whenever possible. These images will be used for SNC publications such as annual reports or on the website. Please make sure you clearly identify location, activity, and your project with each submitted image. Images will be credited to the submitting organization, unless specified otherwise.

Before and after photos were taken from fixed photo points, showing sample areas from all three different treatments: forest thinning (and pile burning), brush mastication, and prescribed burning. Additionally we took great action photos during the prescribed burns. A CD with those photos was provided to the SNC.

9. Post Grant Plans

What are the post-grant plans for the project if it does not conclude with the grant? Include a description of the following (if applicable): (1) Changes in operations or scope; (2) Replication or use of findings; (3) Names of other organizations you expect to involve; (4) Plans to support the project financially, and; (5) Communication plans?

The project is completed. Maintenance treatments will be needed, but not for 10 years or more due to the slow growth rates of the native vegetation and short growing season. It is expected that we will want to implement prescribed burning and/or brush mastication again in 10-15 years. It is expected that the forest thinning area will need maintenance treatment in 15-20 years. We currently have another SNC grant to complete CEQA studies (wildlife, archaeology and rare plant surveys) in other areas of Coldstream Valley, Donner Memorial State Park. Within the next 5-10 years, we look forward to treating additional project areas using one or more the treatment methods used in this project.

10. Post Grant Contact

Who can be contacted a few years from now to follow up on the project? Please provide name and contact information.

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SNC-approved Performance Measures: (Please list each Performance Measure for your Project, as identified in your Grant Agreement, and the results/outcomes.)

1. Resources leveraged:

a. Resources leveraged to complete this Project (matching funds, in kind contributions, etc.).

The State Park Forester, State Park Archaeologist, and State Park Equipment Operator were all hard-funded and provided in-kind matching contribution to the project. The Forester was the project manager and provided the most contribution through project design and layout, contracting, day-to-day management of operations, crew supervision, coordination with partners, permitting, prescribed burn planning, reporting, etc. The Archaeologist contracted the archaeological survey and provided oversight of cultural resources protection. The Heavy Equipment Operator operated the mastication equipment and the transport and fuel vehicles associated with the brush mastication phase. Approximate in-kind matching contribution amounts are as follows (hourly rate is salary plus benefits):

Forester II	\$51.90 X 450 hours =	\$23,355
Associate State Archaeologist	\$42.65 X 100 hours =	\$4,265
State Park Equipment Operator	\$36.06 X 150 hours =	\$5,409
Total	=	\$33,029

b. Resources leveraged as a result of this Project.

As a result of this project, the State Park Forester (and Prescribed Fire Burn Boss) gained valuable experience in implementing forestry project work and prescribed burning in Donner Memorial State Park. Experience is critical for managing a prescribed fire program. Looking forward, experience gained from completing this project will assist us in developing more forestry and prescribed fire projects at Donner Memorial, and other State Parks. Specifically, we are currently working on developing future project areas in Coldstream Valley, Donner Memorial State Park.

2. Impact on collaboration and cooperation among stakeholders:

a. Number of people/entities involved in Project.

In addition to the project being managed by California State Parks, during the course of the project we cooperated with:

CAL FIRE
Truckee Fire Protection District

US Forest Service, Truckee Ranger District
California Air Resources Board
Placer County Air Pollution Control District
Northern Sierra Air Quality Management District
Desert Research Institute
Northern California Geographic Area Coordination Center
Truckee Donner Land Trust
California Department of Transportation (CalTrans)
Union Pacific Railroad
Nevada County Sheriff
California Highway Patrol
Truckee Radio Station 101.5 FM
Grass Valley Emergency Operations Center (fire dispatch)

b. Increased cooperation/decreased conflict among stakeholders.

During the course of the project, we increased cooperation with all of the above entities, but most notably with CAL FIRE, Placer County Air Pollution Control District, and Northern Sierra Air Quality Management District during the course of implementing the prescribed burns. Through successful use of prescribed fire in such a highly visible location, including successful prevention of smoke impacts, we increased support for prescribed fire among stakeholders. We received informal compliments from park visitors regarding the success of the prescribed burns.

3. Capacity building within region:

a. Description of how completion of this Project improved capabilities of grant recipients, partners, or larger community.

From the experience gained through implementing the prescribed burns, we are now better prepared to plan and implement additional prescribed burns in Donner Memorial State Park. During the upcoming field season of 2012, we will conduct wildlife, rare plant and archaeological surveys in Coldstream Valley, Donner Memorial State Park, to help prepare future forestry and prescribed fire projects. Experience with prescribed burning gained through the course of this project will help us in the layout and planning of future project areas designed to restore and protect forest resources.

4. One-page description of Project accomplishments:

a. Description of how the project succeeded in accomplishing its intent and the direct benefits that resulted from the Project.

The project accomplished implementation of three different forest management treatment methods: forest thinning followed by pile burning, brush mastication,

and prescribed burning. Forest thinning/pile burning treated 31 acres; brush mastication treated 25 acres; and prescribed burning treated 5 + 9 + 9 acres = 23 acres. The total accomplishment of the entire project covered 79 acres.

Direct benefits of the project include: restoration of forest composition, structure and function, improvement of wildlife habitat, protection of watershed values, and protection of human life and property from the threat of catastrophic wildfire.

b. Description of the follow-on or indirect benefits of the Project.

The direct benefits listed above will be realized for many years to come. Additionally, the project contributed to the archaeological knowledge of Donner Memorial State Park, which is a very culturally rich area, both historically and prehistorically. An indirect benefit that is difficult to quantify, but is nonetheless significant is the protection of natural and human values from the damaging potential effects of high intensity wildfire. The project achieved fuel reduction, and the reduction of the threat of wildfire. Therefore the project provides indirect benefits by protection of the values that could potentially be damaged by high intensity wildfire.

c. Description of any significant positive experiences and unanticipated occurrences, or other noteworthy events that happened during the Project and anything about the project that gives you “goose bumps”.

Absolutely the success of the prescribed burning and the pile burning were the most exciting experiences of the project. So much effort and planning go into prescribed burning, and it is so rewarding when all the right conditions come together and the burn is completed with great success.

d. Description of lessons learned during the course of completing the Project.

Lessons learned include: Stay flexible, be patient, become familiar with your local weather patterns, and the Prescribed Fire Burn Boss must be diligent and persevering to ensure success.

5. Number of acres treated, including number of miles in length and width of fuel break created, and amount of tonnage of fuels material removed.

Forest Thinning and Pile Burning	31 acres
Brush Mastication	25 acres
Prescribed Burning	23 acres
Total Project Area	79 acres

Tonnage pile burned	310 tons
Tonnage prescribe burned	92 tons

6. Resource values, including structures and types, watershed values, recreation values, etc., now protected by the fuel reduction work in the project area.

The project area was strategically located to protect the primary infrastructures of Donner Memorial State Park, the major thoroughfares of Interstate 80 and Donner Pass Road, and critically important portions Truckee from the threat of catastrophic wildfire through hazardous fuels reduction. The project area is located directly upwind, along the prevailing wind direction, of these critically important human values. The prevailing wind direction is from the southwest. Upwind of the project area are areas very prone to lightning strikes, including Schallenberger Ridge, part of which was treated for hazardous fuels reduction as part of this project. A very possible scenario is a wildland fire ignited by lightning that gets pushed by prevailing winds towards the human values named above. Depending on wind conditions, the treated project area may provide a roadside area where firefighters can make a stand and stop an oncoming wildfire. Within less than one mile, downwind of the project area (prevailing wind), is an urban core area of Truckee that includes schools, businesses, residences, the main Truckee Fire Station, and the only east-west travel routes in the area.

Natural values protected from potential impacts by high intensity wildfire as a result of this project include: soil resources, clean water, vegetation, wildlife habitat, and air quality.

Sierra Nevada Conservancy Grant Program Project Reporting Guidelines

Progress Reports are required periodically throughout the term of the Grant Agreement (Refer to Exhibit B of the Grant Agreement). These reports will allow you and the Sierra Nevada Conservancy (SNC) to see the degree to which the project is on track and achieving your projected outcomes. Your Progress Reports will further provide the SNC with information that will help us to explain your work to the Board Members and various other audiences. Timing of Progress Reports is specified in the Project Schedule included in Exhibit A of the Grant Agreement, but generally every 6 months until completion of the project.

A Progress Reporting Form is provided to Grantees on the SNC Website. **Six-month Progress Reports** should reflect the previous 6-month period; **Final Reports** should address each question for the entire grant period – looking at the project as a whole.

The form specifies the items you will need to report on. For the Six-Month Interim Report these include, but are not limited to: *A Progress Report Summary of work completed, Deliverables or Outcomes Completed, Challenges or Opportunities Encountered, Unanticipated Successes Achieved, Actual Costs compared to Budgeted Costs, Any Additional Relevant Materials Produced, and Next Steps.*

The Final Report will include additional information, such as: *Resources Leveraged, Capacity-Building Results and Collaboration and Cooperation with Stakeholders, a Description of Project Accomplishments, and SNC Approved Performance Measures.*

Please make sure that you submit complete reports by the dates requested in your Grant Agreement.