

**Sierra Nevada Conservancy-Progress 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, Sierra District

**Project title:** Union Hills Fuel Reduction Project

**SNC Reference Number:** SNC 656 **Submittal Date:** 06/27/2014

**Report Preparer:** Daniel Lubin **Phone #:** 530-272-0298

**Check one:**

**6-Month Progress Report**  
 **Final Report**

<p><b>6-Month Progress Reports</b> should reflect the previous six months. <b>Final Reports</b> should reflect the entire grant period.</p>
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**A. Progress Report Summary:** (Please provide a general description of work completed during this reporting period.)

As of June 27th, 2014, the Union Hills Fuel Reduction Project has finished all project activities and fuel reduction and mastication work within the 81 target acres at the Union Hill portion of Empire Mine State Historic Park (SHP). The mastication contractor Sierra Nevada Forestry Services of Yuba City, CA completed work on February 21<sup>st</sup>, 2014. Actual mastication work commenced on January 13<sup>th</sup>, 2014. Hazard trees were removed in September 2013. Ongoing invasive plant removal of Scotch broom, barb goatgrass, and Italian thistle was performed in the spring and early summer of 2014, while French and Scotch broom were also removed during 2013 as well. Also performed in the spring of 2014 were inspections by the CA State Parks Forester, Archeologist, and Environmental Scientists of the project areas for wildlife and invasive plant monitoring, removal of project flagging, and for final forestry and fuel reduction goals.

A total of approximately 70 acres were masticated within the 81 acre project area. This was a lower acreage total than expected but on-the-ground project alterations were necessary due to cultural features protection and by the unanticipated expanses of Indian manzanita (*Arctostaphylos mewukka* ssp. *mewukka*) which is a re-sprouting shrub species. Initial project design and reconnaissance failed to recognize these large fields of Indian manzanita due to dense brush and small trees hiding most of the areas. A non-sprouting manzanita species, whiteleaf manzanita (*Arctostaphylos viscida*) was thought to previously be dominant and was targeted for mastication and reduction due to its flammability. Project manager and Environmental Scientist Dan Lubin decided in February 2014 to protect most of the remaining areas of all re-sprouting shrub species which also included hoary coffeeberry (*Frangula californica* ssp. *tomentella*), toyon

(*Heteromeles arbutifolia*), Sierra plum (*Prunus subcordata*), and both buck-brush (*Ceanothus cuneatus*) and deer-brush (*Ceanothus integerrimus*). Previous CA State Park attempts at and methods of fuel reduction at Union Hill had been to largely cut down most species of brush while ignoring the fact that some of these will resprout into eventually larger and denser bushes. Creating thicker fuels in the future invalidates most of the long-term goals of fuel reduction. Focus for this particular fuel reduction was always on small and dense incense cedar (*Calocedrus decurrens*) saplings threatening mature black oak and conifer forests. Two large areas were unsuitable for fuel reduction due to cultural resources protection, while two other areas were unable to be masticated due to overhead power lines.

The Union Hill Fuel Reduction Project timeline progressed well and accomplished all planned tasks even with a significant delay from the mastication contractor due to problems outside of CA State Parks control, and due to correct weather windows appropriate for project activities. All project activities are outlined below in the timeline:

- February 2013: first progress report completed
- March 2013 – October 2013: project boundary flagging commences
- March 2013 – January 2014: invasive plant mapping and control
- March 2013 – July 2014: Humboldt Lily protection measures
- March 2013 – September 2013: cultural features protection measures
- July 2013: mastication contract out for bid
- August 2013: second progress report completed
- September 2013: four sets of photo-points installed
- October 2013: mastication contract awarded to Sierra Nevada Forestry Services of Yuba City, CA
- November 2013: two additional sets of photo-points installed
- January 2014: mastication starts
- February 2014: mastication completed
- February 2014: third progress report completed
- March – May 2014: project boundary flagging removal
- March – May 2014: ongoing invasive plant control
- March – June 2014: project inspections and monitoring by CA State Park staff
- June 2014: final progress report completed and grant completed

CA State Park staff has enjoyed working on this project and are very pleased with the immediate benefits of the completed fuel reduction activities. These benefits are the reduction in amounts of ladder fuels, the creation of defensible space, the control of invasive plants and the structural improvement of 70 acres of forests and shrub-lands from mastication activities. Trails and fire roads are more accessible, views are improved, and a very thorough understanding of invasive plant populations in the area is now known. Invasive plant control is a long process and will be on a continued annual rotation of resource maintenance since many of these plants have long-lasting seed-banks (i.e. Scotch broom).

After the grant ends this month, June 2014, ongoing resource management work will continue in the Union Hill area including invasive plant species management, pruning of hardwood shrubs, and planning of future fuel reduction projects in adjacent units of Empire Mine SHP. CA State Parks has limited but ongoing funds for invasive plant removal and forest management but these funds are split amongst many different parks within the Sierra District (which includes parks such as the South Yuba River State Park, Donner Memorial State Historic Park, all parks surrounding Lake Tahoe in California, and parks on the east side of the Sierra Nevada including Grover Hot Springs State Park and Mono Lake Tufa State Reserve). This Sierra Nevada Conservancy grant-funded project has allowed CA State Parks to gain progress in invasive plant and forest management that otherwise would not have been financially feasible within the Sierra District.

Approximately 95% of all invasive plants within the project boundaries were mapped using a geographic positioning system (GPS) unit and plotted on a map, except for some Himalayan blackberry (*Rubus armeniacus*) which was too widespread and common in certain locations to accurately map within the project timeframe. Invasive plant removal consisted of pulling both Scotch and French brooms from the project areas before mastication occurred. Several Broom populations were not removed by hand and were instead masticated. Some of these broom populations will most likely re-sprout given moist soil conditions in the spring.

Several invasive plants that were found during surveys were necessarily quarantined from the contractor's equipment in the project area which included separate populations of oblong spurge (*Euphorbia oblongata*), tree-of-heaven (*Ailanthus altissima*), and barb goatgrass (*Aegilops triuncialis*). Oblong spurge and tree-of-heaven were not known previously to exist at Union Hill, and the oblong spurge population is the first one discovered in the Sierra District of CA State Parks.

Previously known and newly discovered populations of Humboldt lily (*Lilium humboldtii*) were also successfully avoided by the contractor's equipment. While Humboldt lily is not a ranked rare or endangered plant by the State of California, it is listed as "4.2 Uncommon in California .2: Fairly endangered in California" by the California Native Plant Society. This species may in fact thrive due to increased sunlight in neighboring project areas that were masticated.

The Sierra District of CA State Parks Wildlife Biologist performed several days of wildlife surveys and monitoring at Union Hill both pre-project in January and March 2012 and post-project in March 2014. Based on these surveys and previously known information about wildlife habitat, exclusion zones for wildlife and wildlife migration were incorporated into the project. Songbird nesting season (March 15<sup>th</sup> – August 15<sup>th</sup>) was avoided during the project, which was mostly in blackberry thickets. Approximately 100 woodrat nests were found and successfully avoided by the contractor's equipment. Unknown whether these nests were created by the "bushy-tailed" woodrat or the "dusky-footed" woodrat. Woodrats are very important for the food web and the ecosystem of these forests and shrub-lands. It is anticipated that woodrats will use the plentiful

masticated material on the ground to build new nests or improve existing nests. These nests were occasionally 3 feet high and 3-4 feet wide. Deer and coyotes were visually seen within the project area. A black bear, mountain lion, and bobcats have been spotted within the project area within the past year as well. Songbirds will have slightly diminished habitat within the project area due to masticated blackberry thickets, but plentiful suitable habitat surrounds this area.

Hazard tree surveys and removal were completed in September 2013. A total of 13 hazard trees were identified and removed, some of them threatening neighboring homes to the project area.

The Union Hill Fuel Reduction project has allowed CA State Park staff to gain a greater understanding about how to successfully initiate and complete a large fuel reduction project at Empire Mine SHP, which has not seen a similar project in many years and now with different staff and different local politics. Initiating contact and communication with the local and larger public was critical to the success of this project, and press releases and radio and television interviews helped transmit the importance of our project and what CA State Parks was trying to accomplish. Having staff being present on-site to communicate with park visitors was the most important single action taken with the public. Park visitors to Union Hill are mostly regular users from the local area and many were concerned with altering anything about this part of Empire Mine SHP. After project goals were communicated, many visitors concerns were alleviated while these discussions allowed for significant public education about fire ecology, defensible space, wildlife biology and local native plant community composition and structure.

Public interaction and education highlights:

- Significant unexpected personnel time was spent at the project site daily interacting with the public, closing and opening trails, cleaning up trails and masticated areas, and also re-flagging project boundaries. Flagging was continually removed by unknown people in certain areas of the project and had to be re-installed. Only 2 individuals communicated displeasure with the project, while at least 100 park visitors exclaimed support for fuel reduction activities. All park neighbors were in support of the project.
- Informational flyers were posted throughout Empire Mine SHP at all trailheads and information kiosks, including the Visitor Center, and Administrative Office. Flyers were handed out to all park neighbors to the project and were also left for park visitors to take at the “Gold Hill Drive” trailhead that detailed reasons behind fuel reduction activities and contact phone numbers for more information.
- Two official press releases were submitted to local press including the Union Newspaper and Yubanet.com, one in October 2013 and then again in January 2014.

- Two television stations in Sacramento and one local radio station also ran stories on the project with interviews from District Forester Rich Adams, and Supervising Ranger Don Schmidt during the week of January 13<sup>th</sup>, 2014.

The Union Hill Fuels Reduction project took many years of planning, while also working on-site for months flagging and inventorying the natural and cultural resources. The main project activity of mastication took only six weeks to complete though. Fall of 2013 was the original timeline for mastication, but this was delayed in October through December 2013 due to timing conflicts with our contractor, and also because of both dry and wet site conditions. Once mastication started in January 2014, the use of the masticator was shut down once for 2 days due to a “red flag warning” issued by CalFire and the National Weather Service, and then twice more due to wet and rainy conditions. Mastication included the use of one large masticator and with a hand held brush cutter and chainsaws for inaccessible locations.

CA State Parks stayed mostly true to the original outlined budget but realized that more time and money was needed for certain project activities. Project budget category funds were altered by request of CA State Parks to the Sierra Nevada Conservancy in early February 2014 for more personnel time in boundary flagging, closing trails, public interaction, invasive plant control, and daily project on-the-ground management. Project moneys were transferred from the mastication contract amount since the mastication contract bid of \$65,000 was significantly lower than the anticipated budgeted amount of \$99,225

Daniel Lubin, Environmental Scientist, was daily project manager with support from District Forester Rich Adams.

**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.)

- All 81 acres have been mapped for invasive plant species and control on about 50% of these populations has been completed, all on Scotch and French Broom. 85% of Himalayan blackberry was cut at ground level. Other invasive plants will need sustained removal efforts over years to complete which include everlasting pea (*Lathyrus latifolius*), vinca (“periwinkle”, *Vinca major*), English ivy (*Hedera helix*), oblong spurge and barb goatgrass and which is outside the scope of this grant.
- An approximate total of 50 households neighboring the project area have been contacted with an information sheet on the fuel reduction project.
- Two separate official press releases to the Union Newspaper and to Yubanet.com were conducted in October 2013 and again in January 2014 to relay project information.

- Two television stations in Sacramento and one local radio station in Grass Valley also ran stories on the project with interviews from District Forester Rich Adams, and Supervising Ranger Don Schmidt during the week of January 13<sup>th</sup>.
- Information flyers were placed at the one trailhead and public access point for the Union Hill area describing the project and listing contact information. In addition, an informational flyer was posted at the Empire Mine Visitor Center, at the Sierra Gold Sector office of the Sierra District of California State Parks at Empire Mine SHP, and at 3 additional trail access points. Contact was made with a local school near to the project site, Union Hills Elementary School, to relay project information.
- Contact with at least 150 park visitors was conducted to relay project information.
- A total of \$65,000 was awarded to Sierra Nevada Forestry Services of Yuba City, CA for the contract of mastication of up to 81 acres within the project area. It is estimated that two full-time jobs have been created/sustained from this contract, and this will help a local business sustain itself and several employees from this business will be working on the project.

**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.)

- Informational flyers have been vandalized at project site.
- Project flagging have been vandalized/removed at project site.
- Several contacts with park visitors and homeowners neighboring the project site have resulted in better communication with the public about creating defensible space to thwart the threat of catastrophic wildfires.
- Three unanticipated invasive plant species were found within the project area which has created small quarantine areas (oblong spurge, barb goatgrass and tree-of-heaven). .
- Both dry and wet conditions temporarily shut down project activities, but mastication still completed on time.
- Areas of dense re-sprouting hardwoods and “Indian manzanita” were discovered to have been previously cut by State Park crews in the 1980’s and 1990’s. These areas have re-sprouted vigorously over the past 20-30 years and created dense understory fuels. These areas were thus mostly avoided by the masticator (which would have again stimulated vigorous re-sprouting) and instead hand crews will “prune” these hardwoods in the future using different funds.

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

- One particular trail, the Indian Ridge Loop Trail, is now passable by vehicles after mastication occurred. This was an overgrown “trail” adjacent to homes that originally was earmarked as a Fire Road. The masticator helped actually widen this trail as soil had been improperly “bermed” previously.
- Contact with park visitors’ was overwhelming positive and helped to foster a new dialogue about fire ecology, defensible space and forest management with the public.
- Discovery of hundreds of native woodrat nests.

**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.)

<b>PROJECT BUDGET CATEGORIES</b>	<b>Budgeted SNC Dollars</b>	<b>Actual Dollars</b>
Project Staff: Surveys, Tree Marking and Boundary Flagging	\$15,262.00	<b>\$14,138.79</b>
Project Travel/Vehicle Expenses	500.00 (0)	
Project Contractor: Invasive Plant Removal	\$12,820.00	<b>\$12,203.28</b>
Project Contractor: Mastication	\$90,225.00	<b>\$64,999.26</b>
Project Contractor: Hazard Tree Removal	\$3,975.00	<b>\$3151.26</b>
Project Equipment: (survey, marking, flagging, forestry)	\$1,700.00	<b>\$1642.56</b>
Project Staff: Monitoring	\$900.00	<b>\$657.70</b>
Project Staff: Maintenance	\$1,520.00	<b>\$1469.24</b>
Performance Measure Reporting	\$3,560.00	<b>\$1567.26</b>
Clerical Support (local)	\$6,400.00	<b>\$6400.00</b>
<b>Administrative</b>	\$13,638.00	<b>\$10,622.93</b>
<b>GRAND TOTAL</b>	<b>\$150,000.00</b>	<b>\$116,852.28</b>

**Explanation:** (if needed)

Budget is **ESTIMATED** through June 30<sup>th</sup>, as staff only has exact figures through May 15<sup>th</sup>, 2014 due to lag in California State fiscal tracking system. These numbers are not FINAL, but should be very close. Final invoicing will be completed in July 2014 after grant ends and when all known project expenses are accounted for. In January 2014, budget categories were altered as more money was needed for Project Staff and Invasive Plant Control than previously thought.

**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.)

Performance Measures:

1. Number and Diversity of People Reached:
  - **Approximately 5,000 or more people have been reached in the “Information Distribution” category of outreach** from press releases, television and radio interviews, flyers, and personal contact and have had project, fuel reduction and defensible space information communicated to them. In addition, Sierra Nevada Conservancy was mentioned as the funder in a majority of this outreach.
  - **Approximately 150 park visitors and 25 homeowners (175 people TOTAL) were contacted directly on-site in the “Education” category of outreach.** Park visitors were given flyers and verbal communication about the project with substantial information about fire ecology, defensible space, and forest management.
2. Number and Type of Jobs Created: Several CA State Park jobs have been sustained and have had hours increased due to the project funds.
  - **Project has supported 0.62 FTE (Full-time equivalent jobs) within CA State Parks** from July 2013 – June 2014 (total of 1281 hours worked and charged to Union Hill Fuel Reduction Project).
  - **In addition \$65,000 was awarded for the mastication contract to Sierra Nevada Forestry Services of Yuba City, CA, which helped sustain at least 1 FTE** (estimated value as it is unknown how many hours were spent on the contract).
  - **Therefore a TOTAL of 1.62 FTE hours were created under the “Natural Resource and Mining” category**
3. Number and Value of New, Improved or Preserved Economic Activities: none
4. Acres of Land Improved or Restored:
  - **Approximately 70 acres of land have been “restored”** due to control of invasive plants and mastication of dense understory fuel loads.
5. Resources Leveraged for the Sierra Nevada:
  - No major in-kind contributions. Smaller in-kind salaries from the Forester, Archeologist, and Wildlife Biologist have contributed to project, which was anticipated.

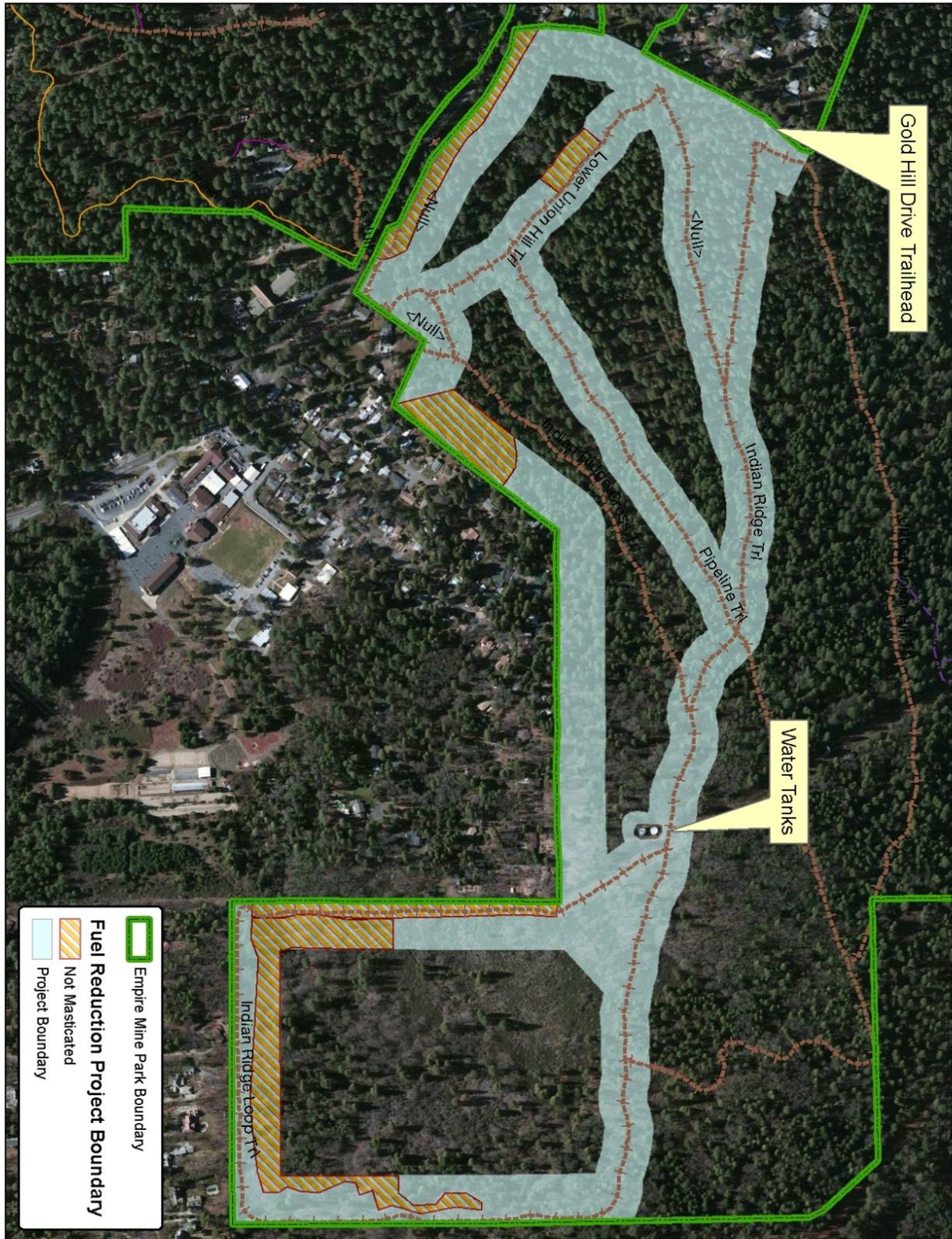
<b>Matching Funds</b>	<b>Source</b>	<b>Description Amount</b>
CA State Parks Forester II Salary – 40 hours	CA State Parks - Sierra District Home Base Funds	\$2200
CA State Parks Archeologist Salary – 40 hours	CA State Parks - Sierra District Home Base Funds	\$1032
CA State Parks Environmental Scientist Salary – 24 hours	CA State Parks - Sierra District Home Base Funds	\$1156
<b>TOTALS</b>		<b>\$4388</b>

**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.)

- A new updated map of invasive plant species has been created from project time and funds spent. It is attached as “ATTACHMENT #2” in this report.
- A series of project photos including before (pre) and after (post) photos of the project site is attached as “ATTACHMENT #4” in this report.

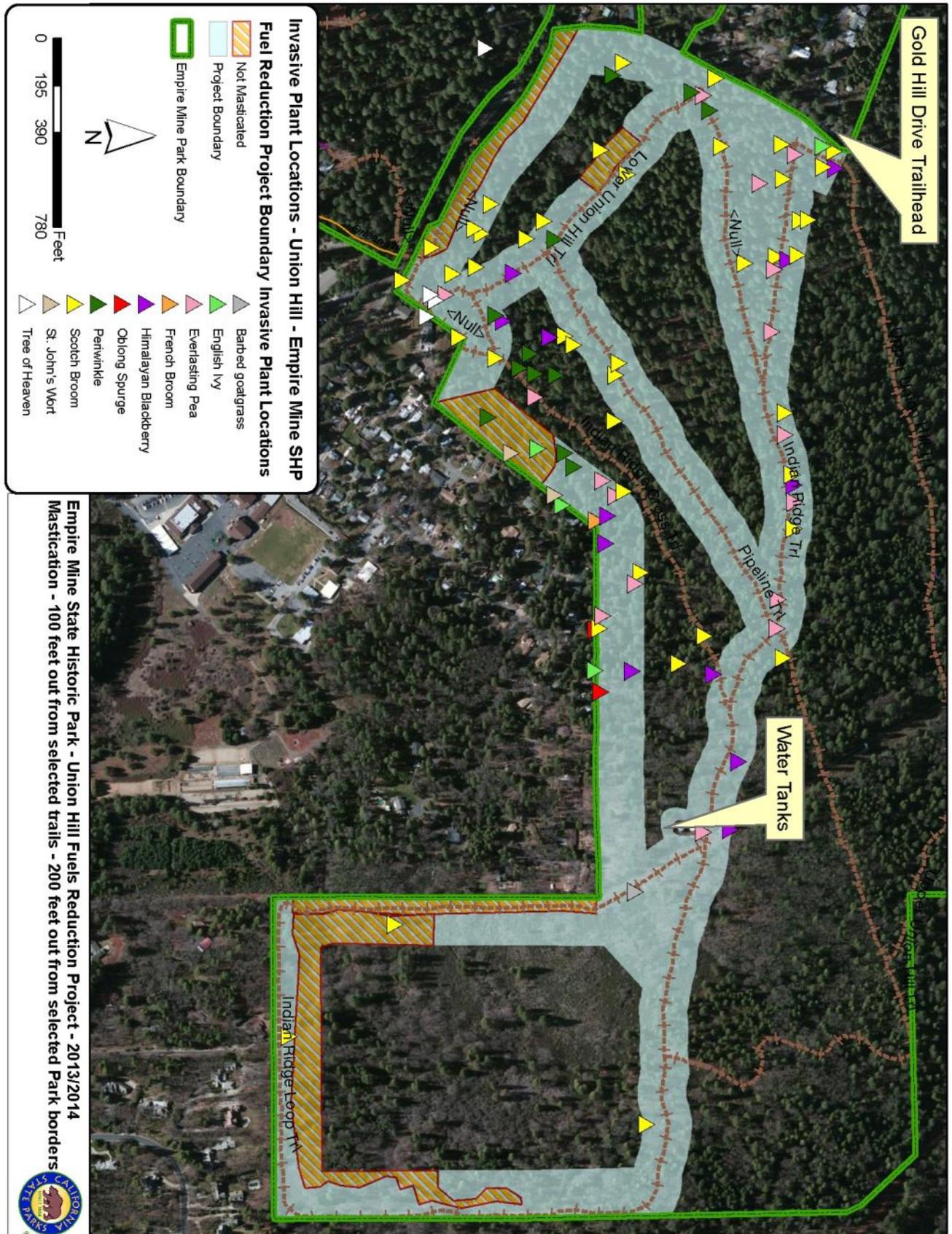
**H. Next Steps:** (Work anticipated in the next 6 months, including location and timing of any scheduled events related to the project.)

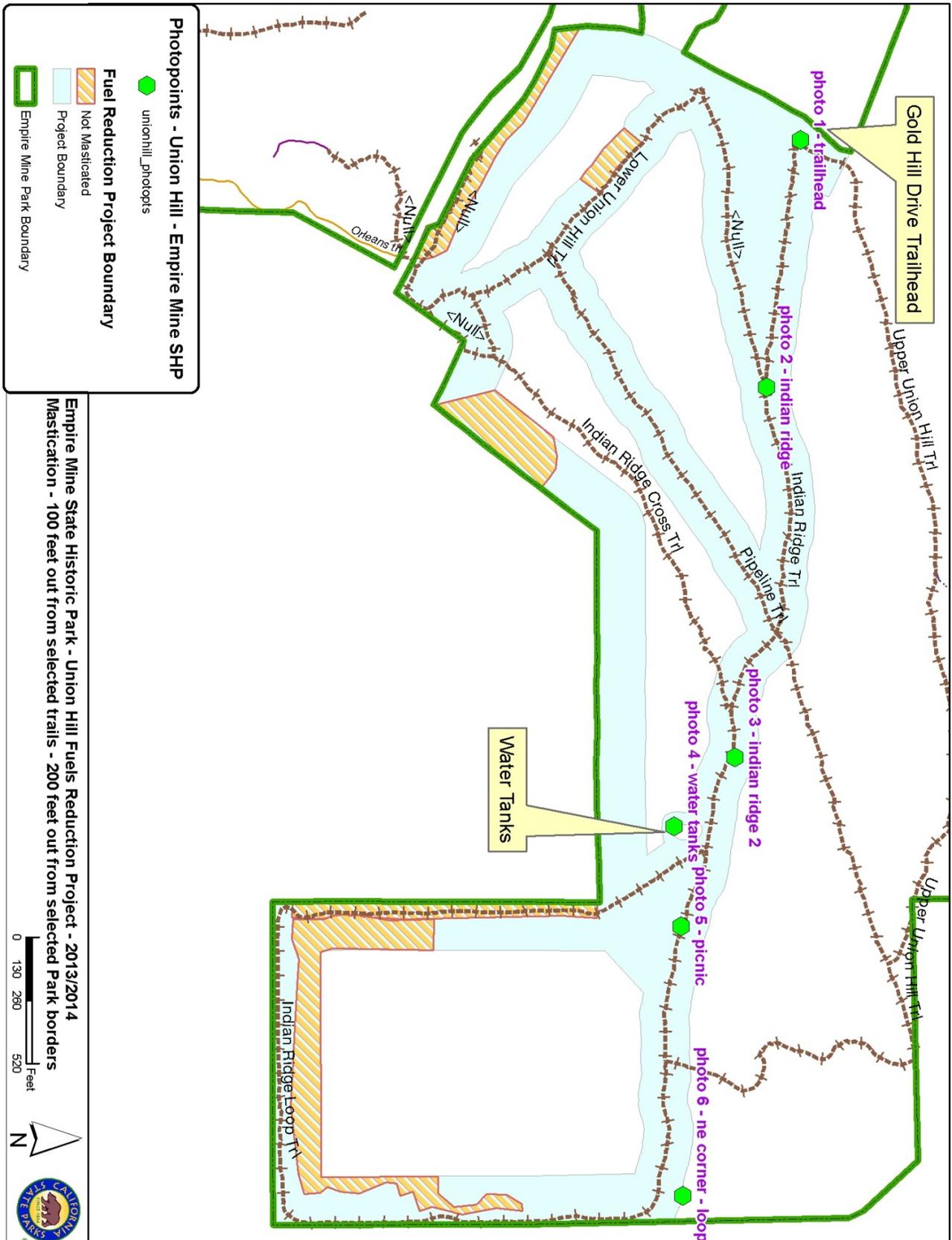
- Not applicable, grant and project completed except for final invoicing which will happen in late July 2014



ATTACHMENT #1 – Union Hill Fuel Reduction Mastication Project Boundaries and

Outline of Areas Not Masticated



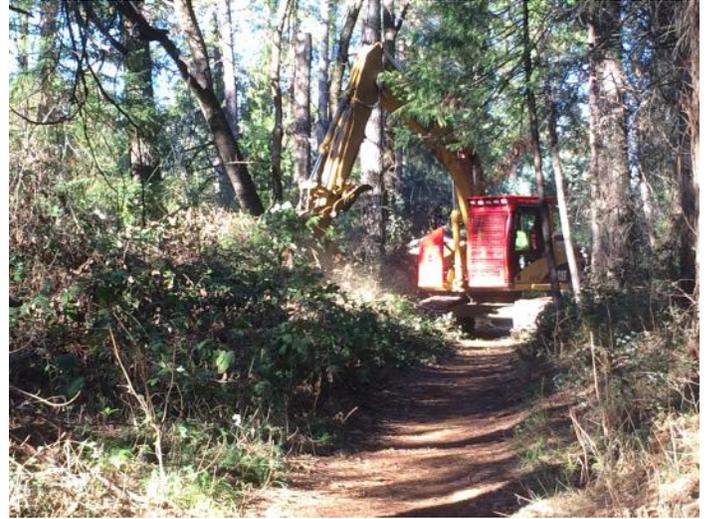


APPENDIX 15 - Map of photo-points

ATTACHMENT #4 - Photos – Project Activities and Photo-points (pre and post-project)



Sierra Nevada Forestry Services masticator



Masticator chopping down blackberry



Masticator spinning



Masticator finished area of dense cedars



Photopoint #1 PRE east uphill



Photopoint #1 POST east uphill



Photopoint #1 PRE south at Entrance Signs



Photopoint #1 POST south at Entrance Signs  
Photopoint #1 east at trail junction



Photopoint #1 PRE east at trail junction



Photopoint # 2 PRE Indian Ridge downhill



Photopoint #2 POST Indian Ridge downhill



Photopoint #2 PRE Indian Ridge downhill #2



Photopoint #2 POST Indian Ridge downhill #2



Photopoint #3 PRE Indian Ridge 2 south



Photopoint #3 POST Indian Ridge 2 south



Photopoint #3 PRE Indian Ridge 2 east



Photopoint #3 POST Indian Ridge 2 east



Photopoint #4 PRE Watertank north



Photopoint #4 POST Watertank north



Photopoint #4 PRE Watertank south



Photopoint #4 POST Watertank south

Photopoint #5 – no photos used as Picnic Area was not masticated.



Photopoint #6 PRE NE Corner



Photopoint #6 POST NE Corner



Photopoint #6 PRE NE Corner



Photopoint #6 POST NE Corner