## Narrative Descriptions - Detailed Project Description

### Introduction

The project goal is to improve key-use meadow rangeland and forage for livestock on the Sierra National Forest in nine meadows within the Soquel, Central Camp and Mugler range allotments. Restoration work will also provide for improved hydrologic function, water quality and riparian habitat within and downstream of these meadow systems. The work will be a collaborative effort between the U.S. Forest Service and the Yosemite-Sequoia Resource Conservation & Development Council (YSRCDC). The YSRCDC will act as fiscal agent and the U.S. Forest service will implement the on-the-ground work. NEPA for the project is complete and was done under Categorical Exclusion (FSH 1909.15 Chapter 30, 36 CFR 220.6 (e) (7)) and Environmental Impact Statement. The scope of the restoration activity is eligible for a NOE under section 15333, *Small Habitat Restoration Projects.* Although the NEPA planning has been completed via federal funding, the Sierra National Forest is not provided National or Regional federal funding for rangeland improvement and/or meadow restoration projects. As such, other funding needs to be procured.

### Project Goal

Stable montane meadows serve a vital role as key-use areas for livestock and wildlife forage, as well as water storage systems, thus it is essential that the hydrologic function of meadows be preserved, improved, or restored. Restoration activities, such as those described under this proposal, would stabilize and improve water tables and increase soil moisture in meadows, leading to increased meadow forage quality and value for livestock production. The removal of encroaching conifers in the meadows included in this proposal will improve forage through increased water storage and availability, and increase the area covered by meadow or riparian vegetation over time after treatment. Parallel to forage improvements, restoration efforts will also arrest water quality impacts from accelerated erosion and increase water availability in the meadows, which will improve both riparian-aquatic systems and wildlife habitat. Moreover, the results of the this project will serve as a model for other rangelands in the SNF as well as neighboring National Forests, acting as a pilot project for the region.

### Project Scope

Meadows are sensitive to changes in the watershed and can be adversely affected by land management activities such as road building, timber harvest operations, grazing, and fire suppression. Cumulatively, these activities (coupled with climate change) have put stressors on forest watersheds and their associated riparian-aquatic areas. This has resulted in unstable stream channels and gully formation in meadows. Where gully formation is severe enough, complete dewatering of a meadow system can occur and the water quality severely impacted by accelerated erosion from unstable channel banks – causing direct concerns for cattle and ranchers alike. Moreover, degraded

meadow systems will have lowered ground water tables, resulting in a change to soil moisture conditions. This can lead to conifer encroachment and an accelerated successional change to forest, with a complete loss of the meadow-riparian ecotype and forage for livestock. Although forage quality and resulting cattle performance will decline as the growing season progresses, for degraded meadows, the loss of water table and resulting transition from wet/moist meadow vegetation to dry land vegetation has real consequences for cattle performance and ranch viability such as lower stocker gains and revenue.

Nine meadows have been identified within the Soquel, Central Camp and Mugler range allotments as high priority key-use range sites all of which have compromised hydrologic function, with vertically and laterally unstable streams at the downstream end of each meadow and/or heavy conifer encroachment outside the range of natural variability. These allotments constitute summer rangeland for three ranch families in the region. Table 2 summarizes the permitee and cow/calf allocation.

Table 2. Summary of permitted grazing activity in project meadows

| Allotment | Meadow(s) | Ranch | Cow/Calf Pair |
|---|---|---|---|
| Mugler | Klette and Long (near Globe Rock) | Topping Ranch | 209 |
| Soquel | Meserve, Railroad, 504M208, Poison, 504M211, 504M292/, 504M293 | Lazy K Ranch | 185 |
| Central Camp | 504M220 | Pamplin Ranch | 101 |

If the vertical erosional features such as headcuts are left untreated, they will migrate upstream, creating deeply incised gullies, which will introduce excessive amounts of sediment into the stream (compromising water quality) and, eventually, dewater the meadows, severely degrading forage availability for livestock. Stabilization of the headcuts will be accomplished by the construction of bioengineered log-fabric step falls and re-vegetation of denuded channel banks will be accomplished by use of native sod, rushes, sedges, and live-stave willow plantings.

The bioengineered log-fabric step falls will mimic natural channel morphology and will act to dissipate the energy of the water currently eroding the headcuts and channel banks. Where appropriate, additional in-stream structures (e.g., cross-vanes or J-hooks) will be placed to reduce near bank shear stress near unstable sections of channel bank and/or where grade control is needed. The effect of this stabilization would be to maintain stable or upward trends in soil moisture content and improve ecological conditions represented by adequate vegetative cover and species composition that reflect a high relative percentage of late seral species (>40%), improved plant vigor, and increased forage production for livestock.

This will be a collaborative effort between the Yosemite-Sequoia Resource Conservation & Development Council (YSRCDC) and the U.S. Forest Service. The YSRCDC will act as fiscal agent and organize outreach and volunteer work with stakeholders interested in working the projects. U.S. Forest Service will use its organizational capacity and scientific expertise to implement and monitor the projects, and conduct maintenance and replanting activities as needed.

**Project Summary**

This site improvement project would restore 49 acres of key-use meadow rangeland and forage for livestock on the Sierra National Forest in nine meadows within the Soquel, Central Camp and Mugler range allotments. The outcome of the meadow restoration work would be hydrologically stable and healthy meadow systems, which ensure long term viability of forage availability for three family ranches that run a combined total of 495 cow/calf pair currently permitted for these allotments. Restoration activities would also improve water quality by eliminating erosion problems, increasing water quantity and availability for forage (by removing 7.1 acres of encroaching conifers in the project meadows), and improve 1.29 miles of stream habitat (Table 1).

Table 1. Meadows Proposed for Restoration

| Meadow Number/Name | Miles of improved/stabilized stream channel | Acres of Livestock Forage Increased | Total Acres Meadow Restoration | Total Acres of Livestock Forage Improvement and Preservation |
|---|---|---|---|---|
| 504M132/Meserv Meadow | 0.0 | 0.5 | 0.0 | 0.3 |
| 504M198/Railroad Meadow | 0.0 | 2.4 | 0.0 | 7.5 |
| 504M208 | 0.0 | 0.1 | 0.3 | 0.3 |
| 504M209/Poison Meadow | 0.22 | 0.86 | 7.5 | 7.5 |
| 504M211 | 0.0 | 0.0 | 3.3 | 3.3 |
| 504M220/Chipmunk Meadow | 0.0 | 0.0 | 3.6 | 3.6 |
| 504M292/504M293 | 0.37 | 1.25 | 5.3 | 5.3 |
| 506M180/181 (Long Meadow – near Globe Rock) | 0.5 | 0.0 | 3.0 | 5.9 |
| 506M374 (Klette Meadow) | 0.1 | 2.0 | 15.6 | 15.6 |
| **Totals** | **1.29** | **7.1** | **38.6** | **49.4** |

**Environmental Setting**

The meadow restoration project areas occur within the upper Chiquito and NF Willow Creek watersheds, located in the north-central part of the Sierra National Forest, just south of Yosemite National Park. Current land uses include varied recreational activities, fuels management projects, commercial hazard tree removal, livestock grazing, and watershed restoration projects. These watersheds are home to several Forest Service sensitive and threatened and endangered species including mountain

yellow legged frog, Yosemite toad, goshawks, spotted owls, Great Gray owls and the Pacific Fisher. Restoration projects concentrate on meadow and fen environments and will address a variety of systems components that will restore or enhance the ground water availability and storage capacity in meadow systems. Improved water storage capacity and availability will promote more robust and vigorous riparian-wetland vegetation development, which will make these systems both more physically resilient to floods and increase carbon sequestration. Climate change will likely bring about increased flood stressors as a result of more precipitation falling as rain and an increased frequency of rain-on-snow flooding. Restoration and physical repair and/or stabilization of meadows and stream channels will be essential to allow these systems to withstand and adapt to changes in the hydrologic regimes as a result of climate change.

**Workplan and Schedule**

Work completed will include stabilization, preservation, and/or restoration of nine montane meadow systems in the upper Chiquito and NF Willow Creek watersheds (Table 1). All meadows are key-use rangeland for forage production and have been identified as high priority sites for restoration and/or conifer removal. Work will include:

- Stabilization and repair of 17 headcuts throughout the nine meadows by the construction of bioengineered log-fabric step falls (USFS).
- Re-vegetation of restoration sites and denuded channel banks by native sod, sedges, rushes, and/or live-stave willow (USFS).
- Cumulative stabilization of 1.29 miles of creek associated with each meadow complex. This includes Chilkoot Creek, tributaries to NF Willow Creek, and Chiquito Creek. Bank stabilization will include bioengineered willow revetments and/or willow mattresses coupled with the installation of in-stream cross-vane and/or J-hook structures to reduce shear stress next to unstable channel banks. Where appropriate, installation of grade control structures will occur to maintain channel grade and prevent any future down-cutting (USFS).
- Cumulative removal of 7.1 acres encroaching conifers within project meadows (USFS).
- Project updates and progress will be posted on the YSRCDC website.

**Work plan and schedule -** Table 3. Schedule of Deliverables

| Task | Schedule | Deliverables | Resources Needed | Organization |
|---|---|---|---|---|
| SNC Authorization | June 2013 | Grant awarded | Admin | Y/S RC&D |
| Scheduling of Forest Service crews and volunteer crews | June, 2014 | | | USFS/YSRCDC |

| | | | | |
|---|---|---|---|---|
| Timber Stand Improvement Crew to remove conifers in all project meadows identified as being encroached, which include Meserve and Railroad Meadows. | June-September, 2014 | Cumulative removal of 7.1 acres encroaching conifers within project meadows | | USFS |
| Begin meadow restoration: Poison and Chipmunk Meadows, 504M211, 504M208 | July – October, 2014 | 14.7 acres of meadow restoration/stabilization | | USFS |
| Harvest and planting of native live-stave willow at restoration sites. | September-October, 2014 | (Included in the 14.7 acres of meadow restoration) | | USFS |
| SNC 6 Month Report | Dec 2014 | Submit Report | Admin | Y/S RC&D |
| Scheduling of Forest Service crews and volunteer crews | June, 2015 | | | USFS |
| SNC 12 Month Report | June, 2015 | Submit Report | Admin | Y/S RC&D |
| Procure and deliver restoration materials | July-August, 2015 | | | USFS |
| Complete meadow restoration: Long and Klette Meadows and 504M292/293 | July-October, 2015 | 23.9 acres of meadow restoration/stabilization | | USFS |
| Continued harvest and planting of native live-stave willow at all restoration sites. | September-October, 2015 | (Included in the 23.9 acres of meadow restoration) | | USFS |
| Final Report to SNC | December 2015 | Submit final progress report | Admin | Y/S RC&D |

**Restrictions/Agreements**
No property restrictions apply. All project activity will occur on National Forest System Lands and be implemented by the U.S. Forest Service.

**Regulatory Requirements and Permits**
Project activity will be implemented and managed by the U.S. Forest Service on National Forest System Lands. The projects qualify for Categorical Exclusion under the National Environmental Policy Act (NEPA) and have a water quality waiver with the State of California, Regional Water Quality Control Board. These will be bioengineered restoration structures (i.e., no dredge/fill or rip rap), and as such, further permitting by other State and Federal agencies is not required.

**California Environmental Quality Act (CEQA)**
All NEPA for the project meadows has been completed by the U.S. Forest Service under Categorical Exclusion (FSH 1909.15 Chapter 30, 36 CFR 220.6 (e) (7)) and Environmental Impact Statement, which are on file at the Bass Lake Ranger District (relevant biological reports are included with this application). This project qualifies for a CEQA NOE under Title 14 (15333), *Small Habitat Restoration Projects* because: (1) all restoration structures will be bioengineered (i.e., no rip rap will be used); (2) the total disturbance footprint for all restoration activity will be less than five acres; (3) There would be no significant adverse impact on endangered, rare or threatened species or their habitat pursuant to section 15065; (4) there are no hazardous materials at or around the project site that will be disturbed or removed; (4) no heavy equipment will be used in the project meadows, and (5) the project will not result in impacts that are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. . Giving the conditions we are requesting the Sierra Nevada Conservancy to be the lead agency under CEQA. If any additional information is needed we would be more than happy to provide.

**National Environmental Policy Act (NEPA)**
All NEPA for the project meadows has been completed by the U.S. Forest Service under Categorical Exclusion (FSH 1909.15 Chapter 30, 36 CFR 220.6 (e) (7)) and Environmental Impact Statement, which is on file at the Bass Lake Ranger District.

**Organizational Capacity**
This project will be a collaborative effort between the Yosemite-Sequoia Resource Conservation & Development Council (YSRCDC) and the U.S. Forest Service, Sierra National Forest. The YSRCDC has extensive experience managing and administering grants and watershed programs and will act as fiscal agent while coordinate public outreach as needed. The U.S. Forest Service has the organizational and scientific expertise to implement and monitor the restoration activities. Project implementation will be managed by a journey level hydrologist with Rosgen Certification. The rest of the

Forest Service team will be made up of experienced hydrologic technicians, journey level resource scientists, and professional equipment operators. Since the mid 1990's, the Sierra National Forest hydrology crew has restored or stabilized hundreds of acres of meadow and miles of stream channel.

**Cooperation and Community Support**

For over ten years the Yosemite/Sequoia Resource Conservation and Development Council has always worked collaboratively with a variety of stakeholder groups. The Council consists of approximately 35 groups as well as a variety of other like-partners that have established Memorandum of Understandings. Partners include but are not limited to, Board of Supervisors, Tribal Governments, Fire Safe Councils, Resource Conservation Districts, Community Development Councils, Economic Development Councils, educational institutions and other environmental and community organizations throughout the counties of Madera, Mariposa, Fresno and Tulare. It is on behalf of the Council (and therefore those organizations listed above) that we are preparing this application.

The letters of support attached express the excitement about the project itself outlining specific benefits to the forest and ranchers alike but they also indicate support for the partnership between the USFS – Bass Lake Ranger District (BLRD) and the Yosemite/Sequoia RC&D Council (Y/S RC&DC). This partnership will help assure that the work can be completed in a timely manner utilizing ideal specialist while keeping costs down and increasing effectiveness of the overall project. The Y/S RC&DC has worked with the BLRD on a variety of projects throughout the last decade. If awarded, a new Memorandum of Agreement will be developed between the BLRD and the Y/S RC&DC specifying responsibilities and commitments related directly to this project. The core relationship for this project is between the BLRD and the Y/S RC&DC however, other partners and supporters will also serve as resources as needed.

Additionally it should be noted that the Y/S RC&D Council is a strong supporter of the Sierra Nevada Initiative and the Sierra Nevada Forest and Community Initiative. We believe that this project coincides with the goal and mission of these documents while also enhancing ranches and agricultural lands. The Y/S RC&D Council is an active member of the Sustainable Forest and Community Collaborative, the Dinkey Creek Collaborative and the Willow Creek Planning Collaborative. As supporters and participants of these collaborative groups we develop our projects, including the Meadow Restoration and Forage Improvement project, in such a way to support these collaborative groups' key principals and goals.

It should be noted that all watershed users will benefit from this project. Watersheds work much like a 'snow-ball' effect. Therefore, a 'positive downstream effect' will start at the top with meadow restoration, and more downwards directly and indirectly affecting ranchers and agricultural lands and the communities that surround it. Healthy meadows and streams benefit long-time ranchers in the Sierra while also promoting more

recreational opportunities for visitors which increases the enjoyment that the public receives from our National Forests. It's a win win!

At this point in time, the Meadow Restoration and Forage Improvement Project, has been highly supported and there is no known opposition to be noted. There are two meadow projects currently underway n the Sierra National Forest that will fully compliment this project while leveraging opportunities to track successful mythology. It should be noted that the two projects indicated above are different in area and deliverables.

**Letters of Support Attached**
North Fork Rancheria of Mono Indians
Foundation for Resource Conservation
Sierra Vista National Scenic Byway Association
Natural Resources Conservation Services
North Fork Community Development Council
Picayune Rancheria of the Chuckchansi Indians
Sierra Resource Conservation District
Central Sierra Watershed Committee
Coarsegold Resource Conservation District
Chowchilla Red Top Resource Conservation District
San Joaquin Valley Leadership Forum
United States Forest Service, Bass Lake Ranger District
Gary Pamplin, Rancher and Sierra National Forest Permittee
Bart Topping, Topping Ranch, Sierra National Forest Permittee
Michael and Sherrine Knapp, Lazy K Ranch, Sierra National Forest Permittee

**Long Term Management and Sustainability**
All restoration work in the project meadows will be protected from livestock or human impacts by a fenced exclosure for a minimum of two to five years to allow for full vegetative recovery. The exclosures will only be placed around the immediate restoration site(s) and will not hinder access by livestock to other parts of the meadow for browse and forage. The restoration sites will be inspected by a U.S Forest Service journey level hydrologist biannually to ensure proper function of the restoration structures. If modifications or repairs to structures are needed, a prescription will be developed by June of that inspection year and maintenance carried out in August or September. The health and vigor of the native sod and willow used to stabilize the restoration sites will also be evaluated. If additional plantings are required, they will be conducted each year at the appropriate time until complete and stable re-vegetation has occurred.

**Performance Measures**
Linear Stream Bank Protected and Restored

- 1,161 linear feet of an un-named tributary to NF Willow Creek will be protected upstream from continued erosion by the headcuts in Poison Meadow.

- 1,954 linear feet of an un-named tributary to NF Willow Creek will be protected upstream from continued erosion by the headcuts in meadows 504M292/293.
- 2,640 linear feet of an un-named tributary to Mugler Creek will be protected upstream from continued erosion by the headcuts in Long Meadow (near Globe Rock).
- 528 linear feet of an un-named tributary to Chiquito Creek will be protected upstream from continued erosion by the headcuts in Klette Meadow.

Acres of Land Improved and Restored (total meadow preserved)

- Chipmunk Meadow – preservation of 3.6 acres of meadow
- Poison Meadow – preservation of 7.5 acres of meadow
- Long Meadow (near Globe Rock) - preservation of 5.9 acres of meadow
- Meadow 504M211 - preservation of 3.3 acres of meadow
- Meadow 504M208 - preservation of 0.3 acres of meadow
- Meadow 504M292/293 - preservation of 5.3 acres of meadow
- Meadow 506M180/181 - preservation of 5.9 acres of meadow
- Klette Meadow - preservation of 15.6 acres of meadow

Mass Pollutant Reduced per year (BEHI/NBS)

- Use of the Rosgen *Bank Assessment for Non-point Source Consequence of Sediment* or “BANCS” model to quantify bank erosion in the gullied and denuded parts of the project meadows. This methodology has been approved by the Environmental Protection Agency for the quantification of non-point source sediment volume input/year and utilizes two bank erosion tools: the Bank Erosion Hazard Index (BEHI) and Near Bank Shear Stress (NBS). The BEHI/NBS model allows for a quantitative analysis of cubic yards/year and tons/year from selected study banks. Each restoration site will have a baseline BEHI/NBS survey before stabilization and re-vegetation and will be surveyed each year for a five year period to quantify the reduction of sediment input into the watershed.

**Budget Narrative**

The implementation of the restoration activities will be cost-effective because the Forest Service has not only the organization capacity, but extensive corporate knowledge of the forest and restoration sites. This will avoid logistical inefficiencies that might otherwise occur if this work were to be done by consultants unfamiliar with the Sierra National Forest. This project is also possible because of the extensive planning and NEPA analysis that has already been completed, which accounts for an in-kind match of approximately $38,000 dollars. In addition we have another $3,000 of in-kind match, which combined, is over 50% of the total monies requested.