

EG#813 Rim Fire Springs Assessment Project Description

Project Design and Readiness

The Spring Stewardship Institute (SSI) will conduct a Groundwater Dependent Ecosystems (GDE) Level I inventory of springs within the Rim Fire perimeter. The protocol can be found at the following link:

http://www.fs.fed.us/geology/GDE_Level_I_FG_final_March2012_rev1_printing.pdf

The intent of this inventory is to provide background information to the Stanislaus National Forest regarding the condition of up to 80 springs. The actual number of springs that SSI is able to visit depends on a number of factors, some of which are outside the control of SSI.

Specifically, the condition of roads, logging traffic on roads, and travel time to the springs are variables that may impede SSI's ability to visit 80 springs.

Many roads have become blocked by down trees as a result of the burn. Additionally, hazard tree removal and salvage logging activities are intense right now, which has been slowing much work on the forest. Finally, SSI employees typically camp close to the study area when they are doing fieldwork to reduce the amount of travel time to and from accommodations and thus accomplish more work. Presently, the only campground that the Stanislaus National Forest is allowing anybody to use within the burned area is at Cherry Lake. Camping at Cherry Lake will reduce travel time in some cases, but there are many springs that will still require significant travel time to reach. These three factors may reduce the number of springs SSI is able to assess during its fieldwork.

This information would be used by the forest to plan and design restoration of springs.

Timeline for tangible outcomes and results

The SSI would complete the spring inventory during two 14 day trips to the Stanislaus National Forest in 2014. The first trip would be August 18-September 4 and the second trip would be September 15-28. A third trip, if necessary, would be scheduled for October. They would complete the inventory, enter the data into the GDE database, complete a QA/QC, and deliver the finished product to the Tuolumne River Trust (TRT), Stanislaus National Forest (STF), and Sierra Nevada Conservancy (SNC) by October 31, 2014 for review.

After TRT, STF, and SNC have reviewed and commented, SSI will finalize the report. TRT will deliver the final report to the Sierra Nevada Conservancy by November 30, 2014.

The degree to which a forest health project builds on existing partnerships or collaborations which may include SNC's involvement or support

In addition to the proposed spring inventory, there are numerous other activities ongoing in the Rim Fire area that will lead to future restoration of water resources. The Forest Service is funding a 2 person aquatic organism passage (AOP) crew to survey stream culverts and determine if they are passable to fish and other aquatic organisms. This may lead to removal and/or replacement of culverts. The Forest Service is also funding a 4 person stream survey crew to collect information on the current condition of streams. The National Fish and Wildlife Foundation funded a meadow assessment that will result in a document identifying future meadow restoration needs within the Rim Fire area. All of this information, in combination with the results of the spring inventory, can be utilized by the Forest Service to determine restoration needs and proposed actions for implementation projects.

Likelihood of success based on applicant's capacity and experience implementing other projects

The Tuolumne River Trust has managed a number of large-scale assessments and restoration projects. Presently, TRT is completing a three-year meadow monitoring and meadow assessment project (funded by SNC). TRT has also implemented a \$2.5M riparian restoration project along the Tuolumne River. TRT has managed many grants, up to \$2.0M in size.

The Spring Stewardship Institute (SSI) is an initiative of the non-profit Museum of Northern Arizona. They have conducted over 800 spring inventories using the US Forest Service GDE protocol as well as those developed throughout the desert Southwest, Canada, and Mexico.

The degree to which the project leverages other resources

The Stanislaus National Forest (STF) will provide a botanist to the Spring Stewardship Institute for three days to assist in plant identification. The STF will also provide a hydrologist or other resource staff person to coordinate the project with the forest. The STF will provide all necessary GIS data layers and maps to SSI, as well as a Forest Service radio as a safety measure.

Community support

This project has the support of the Yosemite Stanislaus Solutions, a collaborative group formed several years prior to the Rim Fire to assist the Stanislaus National Forest in developing landscape-level restoration plans in an "all lands" approach for the southern half of the Stanislaus National Forest. The YSS collaborative group is a highly diverse coalition of interests who share a common goal. The YSS mission is to restore and maintain healthy forests and watersheds, fire-safe communities, and sustainable local economies using a science-based approach.

A plan for long term management (if applicable)

N/A

A plan for future implementation and necessary resources (if a Cat. II Project)

A spring inventory conducted following the GDE Level I protocol is a tool for the Stanislaus National Forest to use in planning future restoration of springs within the Rim Fire perimeter. In addition to collecting condition data on the springs, the GDE protocol has a management indicator tool which looks at hydrology, geomorphology, soils, biology, disturbance, and administrative (such as water rights) categories. Yes and no questions are asked for each of these categories. Springs with any "no" answers in this section would trigger review by the forest to determine if a management action, such as fencing a site, fixing road drainage that is affecting a spring, etc. is warranted. After review of the spring inventory results, FS staff would develop a proposed action for NEPA to address these springs needing management action. The Forest is planning on either a single restoration NEPA document or multiple NEPA restoration documents (to be determined). Restoration activities could include spring restoration (based on the results of SSI's spring surveys), meadow restoration (based on the results of the NFWF funded meadow surveys), culvert removal/replacement for aquatic organism passage, treatment of noxious weeds, etc. Based on the survey results, the forest will determine the proposed actions for the restoration NEPA document(s).

A PROPOSAL TO CONDUCT LEVEL 1 GROUNDWATER-DEPENDENT ECOSYSTEM INVENTORIES IN THE PERIMETER OF THE RIM FIRE IN STANISLAUS NATIONAL FOREST, CALIFORNIA

**Springs Stewardship Institute
Flagstaff, Arizona**

Introduction – Project Design and Readiness

Springs—ecosystems where groundwater reaches the Earth's surface—are among the most biologically, socio-culturally, and economically important water resources (Stevens and Meretsky 2008). Many endangered species, and numerous rare or endemic plants, invertebrates, amphibians, and fish are found only at springs in the United States. Springs are highly sacred to indigenous cultures that use them for water supplies, ceremonies, and other purposes. Given the interactions between temperature, precipitation, infiltration, and aquifer dynamics, springs also are sensitive indicators of climate change. Yet while much attention and funding has been devoted to rivers and streams, springs ecosystems have been largely overlooked in conservation, research, and management. They are abundant across the United States, but in arid and mesic landscapes alike, springs are poorly understood, incompletely mapped, and inadequately. The lack of information and attention has resulted in the loss of many springs and springs-dependent natural, socio-cultural, and economic resources through poor management practices. Estimates of impairment or loss of springs in some landscapes exceed 90% (GCWC 2002). But until recently there has been no effort to systematically map, inventory, or assess springs ecological integrity within or across administrative boundaries. Existing information is minimal, fragmented, and largely unavailable to land managers, Tribes, conservation organizations, and researchers.

Fire exerts diverse short- and long-term influences on forested landscapes, particularly through the death and removal of dominant trees, oxidation and loss of soils, erosion, nutrient release, reduction in wildlife populations, invasion of non-native plant species, and far-reaching economic and societal impacts. While much has been written about most of the aforementioned fire impacts on upland habitats, less is known about 1) the impacts of fire on springs, and 2) role of springs as regeneration hotspots in burned landscapes. Removal of forest cover is expected to reduce plant and animal diversity, and exacerbate erosion. Debris flows may bury springs, particularly rheocrene (stream channel) and hillslope springs. However, wide-scale removal of dominant vegetation may increase infiltration, and therefore springs discharge may increase following fire. Streams in burned landscapes often discharge large quantities of biologically inert, suspended carbon, transforming them into fish-killing,

blackwater flows for extended periods of time. However, springs are likely to continue to provide clearwater habitat for aquatic organisms after fire. Complex assemblages of upland and wetland/riparian organisms often are tightly packed together in springs ecosystems (e.g., Springer et al. in press). Higher soil moisture at springs may reduce burn intensity or prevent burning altogether, allowing springs flora and fauna to recover from fire more quickly than the surrounding uplands. Isolated wetland populations of springs-dependent organisms may persist through fire, while widespread upland species that occur at springs may re-colonize adjacent lands following fire. Scientific understanding of this topic would benefit from experimental manipulation (e.g., prescribed burns), as well as analysis of scientific controls at before-after and/or burned-non-burned springs study sites. Thus, the roles of springs in the recovery of burned landscapes, and the potential benefits of springs ecosystem mitigation and restoration efforts on forest regeneration and biodiversity are emerging topics in burned landscape management.

The 2013 Rim Fire consumed _____ ac (___ ha). Fire severity varied widely across the burned Stanislaus National Forest landscape, but was generally intense, resulting in the loss of much forest cover. The US Geological Survey's National Hydrological Database reports 82 springs within the Rim Fire perimeter; however, little is known about the unburned condition of those springs ecosystems, and fire impacts on those springs have not been evaluated.

Understanding the role of springs ecosystems in the landscape, and the potential benefits of improved post-fire springs stewardship to overall forest recovery and restoration potential are important topics for consideration by the National Forest Service and its cooperators.

Dr. Larry Stevens, Dr. Abe Springer, and Jeri Ledbetter of the Springs Stewardship Institute (SSI) developed standardized protocols to survey and assess the condition of springs ecosystems. Subsequently, in consultation with SSI staff, the USFS developed protocols to inventory Groundwater Dependent Ecosystems (GDE) (citation). SSI staff pilot tested these protocols by conducting 76 inventories in the Spring Mountains NRA in 2010-2012, and also conducted over 600 surveys in Arizona forests using their own protocols.

Scope of Work – Draft 7/8/2014

Between the Museum of Northern Arizona Springs Stewardship Institute and the Tuolumne River Trust

Springs Stewardship Institute agrees to complete the following tasks:

1) *Planning phase*

- a. Identify spring locations within the Rim Fire perimeter in Stanislaus National Forest (primarily using NHD database).
- b. Scan DRG for additional sites and to confirm locations.
- c. Review the forest plant species list provided by USFS, including wetland, native, sensitive, and invasive status.
- d. Conduct general literature review of springs in and near the study area.
- e. Consult with USFS personnel regarding logistics, resources, schedule, and permitting and disposition of collected plant and invertebrate specimens.
- f. Plan itinerary for two or three survey trips to maximize efficiency – August 18 - September 4 and September 15-28. We will schedule a third trip in October (TBD) if necessary.
- g. Develop USFS GDE Access database using latest version (5.2).
- h. Compile GIS layers required to populate site data prior to field visits, in the GDE database (USGS Quad, county, district, ecosystems, geology, soils, etc).
- i. Import plant list provided by USFS, matched with USDA plants database.
- j. Print field sheets for each site with pre-field data populated in Level I field sheets.

2) *Conduct Level I GDE surveys*

- a. Survey team will include 2-3 experts experienced in Level I GDE protocols.
- b. Survey team will establish a base camp at Cherry Lake, traveling to 3 or more springs per day.
- c. SSI team will complete surveys of known locations following Level I GDE protocols, excluding measurement of dissolved oxygen.
- d. SSI team will provide all field equipment required to conduct the surveys, including a POV and field survey gear.
- e. Team members will record data onto paper field sheets, organized in folders with one site/folder.
- f. Monthly calls to project managers and post-trip reports to describe/discuss progress and challenges

3) *Data management*

- a. SSI staff will enter all data on field sheets, one representational photograph and the sketchmap into the GDE database.
- b. Senior SSI staff will conduct QA/QC using standard methods.
- c. SSI staff will collect specimens of unknown plants, labeling them with an ID number that is also entered on the field sheets. SSI will attempt to identify the specimens in consultation with the USFS botanist. Should the USFS so desires, SSI will deliver identified specimens.

- d. SSI staff will collect unknown invertebrate specimens for later identification. These specimens will be identified to the lowest taxonomic level possible in the field. However, identification of all specimens to the species level will not be feasible within the duration of this contract.

4) Reporting – by November 30, 2014, SSI will deliver to the USFS and the Sierra Nevada Conservancy, on an optical drive:

- a. A draft final report in Word format summarizing the project results
- b. Electronic copy of completed USFS GDE database for Stanislaus NF
- c. Site photographs and sketchmaps organized by site name of all surveyed springs
- d. PDF of all datasheets scanned and organized by site name
- e. PDF of standard Level I report for all sites
- f. Shapefile or geodatabase of all springs in standard format with completed metadata
- g. Online, interactive WMS map depicting sites surveyed
- h. Final accounting of all expenses

USFS will provide:

- 1) The most recent and accurate transportation layer
- 2) Additional GIS layers to populate the GDE database – USGS quads, County, District, Ecosystem, Geology, Soils, Wilderness or study boundaries, etc.
- 3) USFS radios
- 4) A USFS botanist familiar with the study area for 2-3 days during the first surveys in August, and advisement regarding species that the surveyors are unable to identify
- 5) Relevant reports and data on springs and springs-dependent species on the Forest
- 6) Consultation with SSI crew regarding logistics, other resources, schedule, and permitting and disposition of collected plant specimens

Tuolumne River Trust will provide:

- 1) Funding not to exceed \$59,712, to the Museum of Northern Arizona, with 20% paid prior to commencement of work, and additional draws as work is completed. SSI may shift expenses between budget line items as necessary to complete the project.

Contact Information:

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Sierra Nevada Conservancy

Rim Fire Springs Assessment

Budget

August 1st, 2014 to December 1st, 2014

	Proposed Budget
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PERSONNEL EXPENSES	
Executive Director, 20 hours @ 45.16	\$ 903.20
Administrative Assistance, 10 hours @ 23.46	234.60
Finance Director, 10 hours @ \$35.19	351.90
Total Personnel	\$ 1,489.70
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OTHER PROGRAM EXPENSES	
Professional Services, Springs Stewardship Institute	\$ 59,712.05
Travel	200.00
Total Other Program Expense	\$ 59,912.05
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TOTAL PROJECT EXPENSES	\$ 61,401.75
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Overhead Expenses	\$ 1,060.54
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TOTAL GRANT BUDGET	\$ 62,462.29
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Notice of Exemption

Appendix E

To: Office of Planning and Research
PO Box 3044, 1400 Tenth Street, Room 212
Sacramento, CA 95812-3044

From: (Public Agency) Sierra Nevada Conservancy
11521 Blocker Drive, Suite 205
Auburn, CA 95603

Project Title: Rim Fire Springs Assessment (SNC 813)

Project Location – Specific:

The project is located within the perimeter of the Rim Fire burn area in the Stanislaus National Forest. The Rim Fire (2013) encompassed approximately 257,314 acres located approximately 3 miles east of the community of Groveland along State Route (SR) 20, in Tuolumne County, California. Approximate Latitude/Longitude: 37°58'19.1"N / 119°57'21.4"W. The applicant proposes non-invasive data gathering within the perimeter of the burn area at up to 80 existing spring locations.

Project Location – City: Sonora

Project Location – County: Tuolumne

Description of Nature, Purpose and Beneficiaries of Project:

The Museum of Northern Arizona Springs Stewardship Institute (SSI), in cooperation with the Tuolumne River Trust, is requesting \$62,462.29 in funding from the Sierra Nevada Conservancy's Proposition 84 Healthy Forests and Abandoned Mine Lands funding program to develop background information for the Stanislaus National Forest regarding the condition of up to 80 existing springs within the Rim Fire burn area.

The actual number of springs that SSI is able to visit depends on a number of factors including the condition of roads, logging traffic on roads, and travel time to the springs are variables that may impede SSI's ability to visit 80 springs.

It is anticipated that SSI would complete the spring inventory during two (2) 14 day trips to the Stanislaus National Forest during late summer 2014. The first trip would be August 18-September 4 and the second trip would be September 15-28. A third trip, if necessary, would be scheduled for October. Once field activities are complete, staff would finalize the inventory, enter the data into the GDE database, complete a QA/QC, and deliver the finished product to the Tuolumne River Trust (TRT), Stanislaus National Forest (STF), and Sierra Nevada Conservancy (SNC) by October 31, 2014 for review.

The National Fish and Wildlife Foundation funded a meadow assessment that will result in a document identifying future meadow restoration needs within the Rim Fire area. This information, in combination with the results of the spring inventory, can be utilized by the Forest Service to determine restoration needs and proposed actions for implementation projects.

Name of Public Agency Approving Project: Sierra Nevada Conservancy

Name of Person or Agency Carrying Out Project: Museum of Northern Arizona Springs Stewardship Institute (SSI), in cooperation with the Tuolumne River Trust

Exempt Status: *(check one)*

- Ministerial (Sec. 21080(b)(1); 15285);
- Declared Emergency (Sec 21080(b)(3); 15269(2));
- Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- Categorical Exemption. State type and section number: Section 15306, "Information Gathering"
- Statutory Exemptions. State code number: _____

Reasons why project is exempt:

The proposed Rim Fire Springs Assessment Project is categorically exempt from the provisions of CEQA pursuant to CEQA Guidelines Section 15306, Class 6, which permits basic data collection, research, and resource evaluation activities for information gathering purposes or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. The project consists of collecting background information to the Stanislaus National Forest regarding the condition of up to 80 springs. This information would be used by the forest to plan and design restoration of springs. The proposed project would not result in physical impacts to the environment. No significant adverse impacts to cultural or natural resources will occur as a result of the proposed project.

Lead Agency Contact Person: Matthew Daley

Area Code/Telephone/Extension: (530) 823-4698

Signature:  _____ Date: 7/14/2014 Title: Executive Officer
Jim Branham

Date Received for Filing at OPR:

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