



# 2017 Trout Unlimited Sagebrush Chapter Conservation Grant Program Application

## APPLICANT'S CONTACT INFORMATION & SIGNATURE FORM

**Contact Name & Title:** Karen Senger, CFRE Development Director  
(First & Last Name) (Title)

**Qualification(s)** Certified Fund Raising Executive (CFRE) with 20 years of non-profit experience

**Address:** 190 E. Liberty St. Reno, NV 89501  
(Street, City, State, Zip)

**Phone / Cell Number:** 775-355-1688 **Email Address:** karen@sierranevadajourneys.org

**Applicant's Signature:** *Karen Senger* 10/27/2016  
(Date)

**Sponsor's First & Last Name & Signature\*:** \_\_\_\_\_  
**If Applicant Is Under 18 Years of Age, The Following Section Must Also Be Completed By an Adult Sponsor**  
(\*Adult Sponsor Must Sign & Date Application.) (Date)

**Sponsor's Address:** \_\_\_\_\_  
(Street, City, State, Zip)

**Sponsor's Cell Number:** \_\_\_\_\_ **Email Address:** \_\_\_\_\_

## PROJECT INFORMATION

**Project Title:** Sierra Nevada Journeys' Watershed Education Initiative

**Project Location:** School classrooms and field sites located along northern Nevada watersheds.  
(e.g. stream, river, lake, watershed, city, state, GPS coordinates)

**Requested Amount:** \$5,000  
(from attached budget worksheet)

**Project Start Date:** March 1, 2017 **End Date:** December 1, 2017

**Please circle the conservation strategy below that best fits your project:**

**Protect** (*Public lands policy, land trust partnership, Defense from unwise development etc.*)

**Reconnect** (*Passage barrier removal, In-stream flow enhancement etc.*)

**Restore** (*Watershed and habitat restoration projects etc.*)

**Sustain** (*Conservation education, trout in the classroom etc.*)

**If your organization has previously received Sagebrush Chapter Conservation Grant funding, please complete the section below.** (*List the LAST 3 projects funded*). Note: As stipulated in the funding contract, if previously funded, a project progress report for that award must have already been filed with the TU Sagebrush Chapter).

	Project Title	Year Funded	Amount Funded
1.	Watershed Education Initiative	2016	\$5,000
2.	Watershed Education Initiative	2015	\$4,500
3.	Watershed Education Initiative	2014	\$3,640

**PROPOSAL** (Reference and electronically append to the application any additional information, maps, pictures, diagrams, contracts and letters of intent and support. **Contract or expand each section below as needed.**)

**I. SUMMARY –** (In 350 words or less, provide a brief and concise summary that includes the name and description of the project, purpose of the project, goals, objectives, proposed actions or methods, anticipated scope of impact, partners, project exceptional merits, matching funds, and amount requested.)

Through the Watershed Education Initiative (WEI), Sierra Nevada Journeys (SNJ) delivers high-quality, experiential watershed education programs based on local issues associated with the Truckee River, such as watershed habitat, water quality and invasive species, while empowering youth to protect and enhance the quality of the Truckee River. The program also increases parent and community engagement to further promote protection of our community's primary water source.

SNJ respectfully requests \$5,000 to support SNJ as we instruct elementary-aged students, parents, and community members of their impacts on the local watershed and teach them to become better stewards of the Truckee River. We will accomplish this by achieving the following objectives:

1. 216 elementary-age students will participate in WEI;
2. 24 parents and community volunteers will participate in WEI by helping to deliver and organize the program and will perform a total of 144 hours of volunteer service; and,
3. 180 parents will receive follow-up messages from SNJ about the program with watershed-focused information and resources geared towards supporting parental involvement and engagement in their child's learning.


WEI is composed of six integrated elements that include: three in-class lessons and one field-study lesson, pre- and post-assessments, five lesson extensions, parents and community engagement, and citizen science. Through this program we project that we will impact a total of 420 people, including local children and adults.

Collaborative agencies that make our field experiences possible include The Nature Conservancy, Washoe County Regional Parks and Open Space, the City of Reno, and the Nevada Department of Wildlife. SNJ works in close partnership with the Washoe County School District (WCSD) as an approved educational vendor. We also boast numerous funding partners for WEI including the Nevada Division of Environmental Protection, whose grant for 2016 will provide matching funds for this program.

WEI has a 7-year track record of success, having impacted over 6,000 students and more than 370 educators. This would not be possible without support from caring partners like Trout Unlimited who have supported this program over the past three years – thank you!

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**II. BACKGROUND –** (Describe the issue or opportunity being addressed. If applicable describe the project location, including name of water body and, if appropriate, salmonoid species. State how this issue or opportunity has benefit to northern Nevada. If this project has received funding previously, provide a brief progress update.)

 Sierra Nevada Journeys @sierranvjourney · 7s  
Funding from Trout Unlimited Sagebrush Chapter allowed 218 N Nevada 3rd-5th grade students to participate in our Watershed Edu Initiative.



**Progress Update**

Thanks to support from Trout Unlimited in 2014, 2015, and 2016, SNJ provided 775 children with hands-on programming focused on their local watershed, the water cycle, point and non-point source pollution, water conservation, and stewardship. We also provided 50 educators with professional development which enabled them to incorporate watershed education into their classrooms, deepening the students' learning over time.

Trout Unlimited Sagebrush Chapter's support of WEI makes a significant difference in our community by meeting two significant local needs – STEM (science, technology, engineering, and math) education and water conservation. (The image to the left is from our Twitter feed and is just one way we celebrated the Chapter's gift in 2016.)

**Need**

According to the Science and Engineering Readiness Index, Nevada performs far below average in science education, ranking 44th in the nation, with 75% of 4<sup>th</sup> grade students, and 79% of 8<sup>th</sup> grade students scoring "below basic" or "basic" in science proficiency (Nevada Report Card). According to the Brookings Institute research on the 'hidden STEM economy,' 20% of all US jobs (26 million) require a high level of knowledge in a STEM field. STEM jobs have also grown at three times the pace of non-STEM jobs and are projected to continue growing at this pace (Generation STEM, 2012).

According to the Statewide Inaugural STEM Coalition Summit Final Report, "Nevada cannot produce the workforce and student pipeline to college in the careers.... without ensuring that there is more focus on mathematics and science starting in kindergarten" (Gathering Genius, 2012). SNJ's focus on teaching STEM topics through hands-on, interactive, and engaging methods helps to ensure that students become excited, inspired, and more comfortable with STEM. Furthermore, research shows that outdoor science education programs are an effective way to teach. A 2005 American Institute for Research study revealed a 27% increase in test scores of students who attended outdoor education programs. Additionally, the National Wildlife Foundation's "Back to School Back Outside" report states that 78% of children who spend regular time in the outdoors are better able to concentrate and perform at a high level in the classroom. Sadly, the average American boy or girl spends just four to seven minutes in unstructured outdoor play each day (National Wildlife Federation) and many Nevada teachers don't currently have the resources to provide outdoor educational experiences.

As children's experiences with nature have been radically reduced, so has their understanding of an individual's role and impact in their environment (Charles, 2009). Nevada's youth are not learning, neither at home or at school, about local issues facing the Truckee River and what they can do to prevent further degradation of this river ecosystem, which provides approximately 85% of the water delivered in the Truckee Meadows. It is especially pertinent now to address watershed issues with 2016 being the latest year of several past droughts that have lasted three or more years. WEI connects students with the river; highlights the need to care for it; and introduces them to wetlands, riparian habitats, and restoration. Fostering a sense of environmental stewardship in children at a young age increases their chances of becoming lifelong stewards of our lands and water.

### **III. GOALS AND OBJECTIVES** – *(Describe the project purpose, objectives, goals and benefit to northern Nevada.)*

#### ***WEI Purpose***

WEI connects students with their local watershed, providing a sense of ownership and stewardship for the health of the Truckee River. Conducted over a four-week period, WEI includes three in-class lessons, one field-study experience, pre- and post-assessments, five classroom extension lessons for teachers, family and community engagement, and citizen science. The Initiative works to surround students with meaningful watershed education opportunities and to build critical thinking and problem solving skills through outdoor science education.

Curriculum developed and delivered by SNJ’s team of credentialed teachers aligns to state and national standards and the North American Association for Environmental Education’s Guidelines for Excellence. WEI meets these cutting-edge education standards as students observe, describe, make inferences, test hypothesis, and cite evidence for conclusions. The skills taught and reinforced through WEI are important components for critical thinking and foster watershed stewardship and local leadership.

#### ***WEI Goal and Objectives***

Goal: To instruct elementary-aged students, parents, and community members of their impacts on the local watershed and teach them to become better stewards of the Truckee River. We will accomplish this goal by achieving the following objectives:

1. 216 elementary-age students will participate in WEI and,
    - 100% will gain first-hand experience with their local watershed as they participate in a field-study on the Truckee River or one of its tributaries;
    - 80% will be able to define what happens to rain water, and associated non-point source pollutants, after they enter a storm drain;
    - 70% will be able to use knowledge of storm drains to describe how individuals and communities can protect watersheds;
    - 80% will be able to correctly identify, label, and diagram the Truckee River Watershed; and,
    - 95% of students participating in “Hands in the River” curriculum will complete a Truckee River issue case study on native and non-native macroinvertebrate species in the watershed.
  
  2. 24 parents and community volunteers will participate in WEI by helping to deliver and organize the program and will perform a total of 144 hours of volunteer service.
  
  3. 180 parents will receive follow-up messages from SNJ about the program; parents will receive watershed-focused information and resources geared towards supporting parental involvement and engagement in their child’s learning.
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**IV. WORK PLAN** – (Describe in detail the activities and/or technical or scientific methods used to complete the project. Provide a project schedule detailing project activities and milestones - include timeframes for planning, obtaining permits, permission for land access, etc. Describe the role and qualifications of volunteers, consultants and contractors. Describe the role and matching efforts of partners and stakeholders. Include a methodology and indicators to objectively measure project outcomes. Provide a plan to disseminate the benefits of the project to the general public).

### Activities

The **school-based** component includes three in-class lessons for a total of 4.5 hours of engaging instruction. The “guest-teacher” dynamic that SNJ educators bring to the classroom, through fun, hands-on lessons and experiments, has proven to be an effective outreach strategy. This particular program fosters each student’s interest in science by connecting them with their local watersheds, wild lands, and natural resources. Students participate in hands-on lessons that incorporate the Truckee River watershed, the water cycle, point and non-point source pollution, invasive species, sources and impacts of erosion, water conservation and stewardship. Our curriculum also integrates a case study model which covers high-priority issues facing the watershed along with ways the students can help address the issue. Our case study currently focuses on the discovery and spread of the New Zealand mud snail in the Truckee River.

The **field-based** component includes a daylong outdoor science education experience. Experiential learning captivates students and lends real-life applicability to in-class lessons. Students hike around the Truckee or one of its tributaries, and get their hands in the water to seek clues related to the health of the watershed. This may include determining water quality by collecting and identifying macro-invertebrates (aquatic insects) or conducting chemical tests such as pH, dissolved oxygen, or turbidity. Students search for evidence of the New Zealand Mud Snail to learn about water quality issues facing the Truckee River. SNJ instructors encourage students to participate in stewardship projects with their friends and families such as the Truckee River Cleanup Day. Additionally, SNJ will support the Truckee River Snapshot Day, an annual student-based water quality-monitoring event that SNJ staff members help to facilitate.

SNJ provides five ready-to-use **classroom extension lessons for teachers** that extend and reinforce each SNJ-directed lesson as well as pre and post-unit lessons that help students prepare for and review learning objectives. By explicitly modeling modern teaching methods and reinforcing with SNJ’s classroom lessons we strive to support educators and multiply the effects of our student programming. These innovative extensions, funded by the Nevada Division of Forestry and Project Learning Tree, help teachers teach the Arts, Math, English Language Arts (ELA), and Social Studies through a watershed-focused lens. With a focus on student achievement, we provide teachers with meaningful and easy-to-use interdisciplinary bridges to build on and reinforce WEI’s science-based lessons.

To encourage **family engagement** SNJ provides parents with an email summary and pictures of their child’s experience after each SNJ unit along with information for family-based discussion of the curriculum. This increases parent engagement which allows individuals within families to reinforce the attitudes, motivations, skills, and behaviors learned and to foster parent–student communication about watershed-related topics. The National Parent Teacher Association identifies many benefits of family engagement, including increased student achievement, regardless of socioeconomic status, ethnic/racial background, or the parent’s educational level.

The **volunteer component** of the program builds our capacity to involve the local community and broadens accessibility to our programming for low-income schools by helping to keep costs low. Volunteers are primarily comprised of retired educators and naturalists. Additionally, SNJ relies on the support of parent chaperon volunteers, further increasing family involvement. Field educator volunteers and parent volunteers will provide 144 hours of volunteer work in support of WEI. Volunteers consistently report learning tremendous amounts in their participation in the WEI.

### Project Schedule

Key Dates	Task/ Milestone	Description/Notes
Jan. – Aug. (Continuous)	Marketing/Outreach	SNJ marketing/outreach efforts are continuous to reach as many local schools as possible. Outreach is now underway for Quarter 1 & 2, 2017. SNJ targets schools that participated in watershed programming in the past and new schools that have not received WEI.

March – Oct.	Student Program Delivery	SNJ instructors will deliver engaging watershed education lessons to 216 students through school-based and field-based programs.
March – Oct.	Program Assessment Compilation	SNJ staff will compile student assessment data. These results will be utilized to update the watershed curriculum/programs to ensure effective programming in the future.
Nov.	Final Report	Submit the final report to Trout Unlimited. This report will include a summary of the work completed, student assessment data, and a budget update.

***Role and Qualifications of Staff and Volunteers***

Sean Hill, SNJ’s Education Director, will manage and implement the project. Since 2009, Sean has led our school and field based outdoor science educational program, including: hiring, leading and evaluating staff; relationship development with teachers, principals, and community members; program development; evaluation including student assessment; and, managing grant deliverables. Sean is a former teacher with Teach for America and holds a Bachelor of Science degree and a Master of Science degree from Colorado State University.

In addition to his team of credentialed educators, Sean works to recruit and properly vet community volunteers, typically retired teachers or other local professionals, who are qualified and willing to dedicate a significant amount of time to becoming a Field Educator. These volunteers receive extensive training and assist SNJ staff in facilitating field-study lessons.

***Match***

Match amount to be provided: \$6,457.28

- Cash - \$3,135.20
- In-kind - \$3,322.08 (144 volunteer hours @ \$23.07/hour)

Cash match provided by support from the Nevada Department of Environmental Protection. In-kind match provided by field educator and parent volunteer hours (6 hours per field-study x 3 volunteers per class x 8 classes).

***Methodology and Indicators to Objectively Measure Project Outcomes***

We administer pre and post-program assessments to all students. The design of the assessments was informed by a consultant from the Nevada Department of Education’s assessment office. Results are internally and externally evaluated.

Surveys will be completed by participating teachers and will include questions to help determine program success and to inform any changes or revisions to the curriculum and/or its delivery.

SNJ will also document and keep track of volunteers and their hours. Parents provide SNJ with email addresses to receive SNJ updates on their child’s field-trip experiences. SNJ keeps track of all emails sent to parents.

***Plan to disseminate the benefits of the project to the general public***

SNJ recognizes the importance of promoting our dedicated supporters. If awarded, Sierra Nevada Journeys will:

- Celebrate Trout Unlimited Sagebrush Chapter through social media channels, including Facebook and Twitter;
- Acknowledge Trout Unlimited Sagebrush Chapter’s contribution in our annual report;
- Deliver a detailed grant report to Trout Unlimited Sagebrush Chapter summarizing the use of funds, student assessment data, photos, and student/teacher testimonials;
- Invite Trout Unlimited Sagebrush Chapter to attend field-experiences with schools benefitting from this funding to provide a clear first-hand view of WEI and its impact; and
- Recognize Trout Unlimited Sagebrush Chapter’s support of WEI via email newsletters.

**V. BUDGET-** (Using the Sections below, be as specific as possible when describing your project expenses. Include the project total amount and the amount that is being requested from the Sagebrush Chapter Conservation Grant Program. Projects requesting grant funding for more than \$1000 must be matched with in-kind funding or effort. These include, cash gifts, personnel costs and costs of materials and services. Identify all other contributors and indicate type and amount of matched funding. Please expand or contract each section as needed.)

Description & Use In Project	Rate	Total	Cash Matched	In-Kind Matched	Grant Amount Requested
<b>Section 1 Material &amp; Equipment</b> (Identify and provide justification for specific materials and/or equipment necessary to complete the project. Costs are estimated according to average market value of the equipment. If cost effective, rentals should be considered.)					
Printing student journal (\$1/student for 216 students)	\$1.00	\$216.00			\$216.00
In-school / field supplies (\$0.50 / student)	\$0.50	\$108.00	\$108.00		
<b>Section 2 Volunteer and Professional Labor</b> (Provide a description and role in the project of all sources of volunteer and professional services. The hourly rate for volunteers is \$23.07, the professional hourly rate can be donated at market rates.)					
Volunteers (24 volunteers x 6 hours/volunteer)	\$23.07	\$3,322.08		\$3,322.08	
<b>Section 3 Personnel / Consultant Fees</b> (Provide a detailed description of the work to be performed by personnel/consultants, basis for their fees, time spent on the project and total fees. Salary expenses for non-profit organization staff may be eligible for funding under certain circumstances – see footnote below*).					
Program Coordinator/Instructor (\$22.10/hour x 200 hours). Description: In-class instruction (5 hours/class), field study (5 hours/class), Program prep and wrap up (10 hours/class), travel time (5 hours/class) = 25 hours x 8 classes (approx. 27 students per class)	\$22.10	\$4,420.00	\$1,500.00		\$2,920.00
Education Director (\$30 x 104 hours). Description: Coordination (2 hours/class), Parent volunteer/chaperon communication and scheduling (1 hour/class), Field-study instruction (4.5 hours/class), Extension lessons (1 hour/class), Observations and management (3 hours/class) = 13 hours x 8 classes	\$30.00	\$3,120.00	\$1,256.00		\$1,864.00
<b>Section 4 Contracts</b> (Provide a detailed description of all work to be completed by contract, include selection criteria, type of contract, deliverables, time frame and costs.)					
N/A					
<b>Section 5 Other Expenses</b> (Provide a detailed description and costs of all other expenses associated with the project.)					
SNJ staff transportation to and from school and field sites: Avg. 15 miles roundtrip * 4 (3 class, 1 field) = 60 miles * \$0.54 per mile (SNJ rate of reimbursement) * 8 total classes	\$0.54	\$259.20	\$259.20		
<b>Section 6 Funding</b> (Include totals for total category amounts, cash matched, In-Kind Matched, and Grant Amount Requested)					
<b>Totals</b>		\$11,445.28	\$3,123.20	\$3,322.08	\$5,000.00
<b>Total Project Costs =</b>				\$11,445.28	
<b>Amount Qualified for 1 to 1 Matched Funding =</b>				\$6,445.28	
<b>Funding Requested =</b>				\$5,000.00	

\*A portion of a salary and/or wages for nonprofit employees may be considered for funding by the grant committee under certain circumstances. Applicants should provide a brief description explaining how payment of any portion of a salary and/or wages is essential to the project and if salary and/or wages are already allocated to the project, to what extent other funding sources exist. The Conservation Grant Committee maintains full discretion when determining if a proposed project qualifies for payment of any portion of a salary and/or wages for nonprofit employees. Proposed projects with a funding request equal to or greater than \$1,000 are still required to provide 1:1 matching funds under this exception.

## The Sierra Nevada Journeys Watershed Education Initiative

*2016 Final Report to the Trout Unlimited, Sagebrush Chapter*

In 2016, the Trout Unlimited, Sagebrush Chapter, provided funding in support of Sierra Nevada Journeys (SNJ) in order to educate and promote critical thinking through watershed concepts of Nevada’s 3<sup>rd</sup> -5<sup>th</sup> grade students through our Watershed Education Initiative (WEI). Your gift of \$5,000 ensured **218 students** (exceeded projected goal of 216) had access to our programming in 2016. Eighty percent of schools served through your funding had a high population of students who qualified for Free and Reduced Lunch (FRL, an indicator of low-income status).



Specifically, your funding supported the following schools:

Elementary Schools/ Grades	# of classes	# of students	Date Start	Date End	FRL*
Caughlin Ranch – 4 <sup>th</sup> grade	2	57	4/26/16	5/4/16	8.44%
Mamie Towles – 3 <sup>rd</sup> grade	3	49	5/10/16	5/18/16	44.48%
Elmcrest – 3 <sup>rd</sup> grade	1	19	5/16/16	5/26/16	68.35%
Donner Springs – 5 <sup>th</sup> grade	2	43	9/6/16	9/14/16	58.25%
Maxwell – 3 <sup>rd</sup> grade	2	50	9/14/16	9/21/16	98.77%
<b>5 different schools, 3 grades</b>	<b>10 classes</b>	<b>218 students</b>	--	--	<b>Avg. 55.6% FRL</b>

### Results

SNJ’s goal through this grant was to instruct elementary-aged students, parents, and community members of their impacts on the local watershed and teach them to become better stewards of the Truckee River. The following chart details the objectives SNJ achieved to reach this goal:

Objectives	Outcomes
216 elementary-age students will participate in WEI.	Connected 218 students to their local watershed.
24 parents and community volunteers will participate in WEI, helping to deliver the program and will perform a total of 144 hours of volunteer service.	30 parents and community volunteers participated in WEI and performed a total of 180 hours of volunteer service.



180 parents will receive follow-up messages from SNJ about the program; parents will receive watershed-focused information and resources geared towards supporting parental involvement and engagement in their child's learning.	218 parents received follow-up emails from SNJ about what their children learned (sample email attached).
100% of students will gain first-hand experience with their local watershed as they participate in a field-study on the Truckee River or one of its tributaries;	100% gained first-hand experience with their local watershed as they participate in a field-study on the Truckee River or one of its tributaries
80% of students will be able to define what happens to rain water, and associated non-point source pollutants, after they enter a storm drain.	78% of students were able to define what happens to rain water, and associated non-point source pollutants, after they enter a storm drain.
70% of students will be able to use knowledge of storm drains to describe how individuals and communities can protect watersheds.	80% were able to use knowledge of storm drains to describe how individuals and communities can protect watersheds.
80% will be able to correctly identify, label, and diagram the Truckee River Watershed.	96% were able to correctly identify, label, and diagram the Truckee River Watershed
95% of students participating in "Hands in the River" curriculum will complete a Truckee River issue case study on native and non-native macroinvertebrate species in the watershed.	95% of students who participated in "Hands in the River" curriculum completed a Truckee River issue case study on native and non-native macroinvertebrate species in the watershed.

## Testimonies

We received the following quotes from the instructors that participated with their classes in our experiential watershed program:

- What a great and engaging program! My students learned a tremendous amount and I am amazed at the words they now use in their everyday vocabulary such as resources, population and ecosystems.
- We participated in this same program two years ago. While I felt the previous learning (two years ago) was good, the changes made to the lessons only deepened and improved them. The pacing was right and the activities engaged thinking and debriefing. Our sessions went quickly (three weeks) and I will be using some of the extension activities to follow up student learning.
- I took notes myself!! I have just attended a growth mind set seminar and they did everything that this seminar suggested for learning and engagement. It was wonderful to see this modeled.



- The pre/post-test is a great assessment tool, the games and activities are well timed and appropriate for student learning.
- The lessons were a little different this year, and I mean this in a good way. SNJ obviously meets the needs of their students by looking at their program and adjusting it to the needs of WCSD students and the NGSS [Next Generation Science Standards] standards, and making it even more engaging than last year's lessons.
- Great opportunity to spend time outside and using the environment to access learning.
- Students had to really think about their answers because many questions were asked with critical thinking involved. Students had to tell why or give an example to their answers.



On behalf of Sierra Nevada Journeys and the students and educators we've served,  
**THANK YOU!**

## The Sierra Nevada Journeys Watershed Education Initiative

### *2015 Final Report to the Trout Unlimited, Sagebrush Chapter*

In 2015, the Trout Unlimited, Sagebrush Chapter, provided funding in support of Sierra Nevada Journeys (SNJ) in order to educate and promote critical thinking through watershed concepts of Nevada’s 3<sup>rd</sup>-5<sup>th</sup> grade students. Your gift of \$4,500 ensured 306 students had access to our programming in 2015. The majority of the students served through your funding had a high population of students who qualified for Free and Reduced Lunch (an indicator of low-income housing).

Specifically, your funding supported the following schools:

School	FRL*
Diedrichsen Elementary School	44%
Lenz Elementary School	6%
Palmer Elementary School	76%
Vaughn Middle School	76%
Caughlin Ranch Elementary School	9%

*\* FRL = Free and Reduced Lunch*

### 2015 Objectives

Our 2015 application requested funding to:

- Deliver watershed-based outdoor science education to 300 students in the Truckee River Watershed;
- Provide 10 educators with classroom extension activities to sustain student educational experiences; and,
- Engage 10 volunteers with SNJ’s Initiative and broaden accessibility to our programming.

Of the 300 students, our educational goals included the following:

- 80% of students will be able to correctly identify, label, and diagram a watershed;
- 80% of students will be able to define what happens to rain water, and associated non-point source pollutants, after they enter a storm drain; and,
- 70% of students will be able to use knowledge of storm drains to describe how individuals and communities can protect watersheds.



## Results

The following chart details the outcomes in achieving our objectives for 2015:

Objectives	Outcomes
Provide watershed-based outdoor science education to 300 students in the Truckee River Watershed.	Connected 306 students to their local watershed. Students participated in our “Hands in The River” program, which included three in-class lessons and a field study at The Nature Conservancy’s McCarran Ranch on the Truckee River.
Provide 10 educators with classroom extension activities to sustain student educational experiences.	Furnished 10 classroom teachers with a pre-lesson, extensions between each SNJ visit, and a post-lesson to extend watershed education experiences.
Engage 10 volunteers with SNJ’s Watershed Education Initiative and broaden accessibility to our programming.	Included 22 volunteers within watershed education curriculum and field experiences.
80% of students will be able to correctly identify, label, and diagram the Truckee River watershed.	87% of the participating students were able to correctly identify, label, and diagram the Truckee River Watershed.
80% of students will be able to define what happens to rain water, and associated non-point source pollutants, after they enter a storm drain.	75% of participating students were able to define the effects of rain water, and non-point source pollutants, after entering a storm drain.*  <i>Notes: In the pre-assessment process, only 24% of students could answer this assessment question correctly; after our programming, we saw a 51% average Gain score in student mastery of this topic. The pre-post results show a significant impact on student learning in this subject.</i>
70% of students will be able to use knowledge of storm drains to describe how individuals and communities can protect watersheds.	63% of students could describe how individuals and communities can protect watersheds.*  <i>Notes: In the pre-assessment process, only 19% of students could answer this assessment question correctly; after our programming, we saw a 44% average Gain score in student mastery of this topic.</i>

\* In our goals of helping of students demonstrate or define storm drains and stewardship practices, we found that students had no problem with this aspiration – verbally. Putting their thoughts down coherently in writing seemed to be the struggle students faced, thereby impacting the outcome results. In future Watershed Education programs, we intend to offer students more practice in writing their responses in their science notebooks prior to the post-assessment itself.

## Testimonies

We received the following quotes from the instructors that participated with their classes in our Watershed experiential program:

- *My class was very eager to learn with SNJ. They were engaged and continued to talk about their experiences after the unit was over.*
- *The hands-on experience both with the building of classroom models and the river visit were well planned and very enjoyable.*
- *The curriculum was closely aligned to the science standards and met the variety of needs of my students.*
- *We loved the connected field trip and real world science.*
- *Water cycle, watershed, human interactions with storm drains – nice scaffolding for the students.*
- *Very impressed with the high level of questioning and the hands on experience.*
- *So great to see the children so engaged and learning.*



We received hand-written thank-you cards from participating students and loved their responses. Some of our favorites included:

- *We did so many fun things like sketch the river, catch creatures that live in the river, and evaluate the health of our watershed.*
- *I really liked when we got to play the fun version of ‘musical chairs’ to help us learn about invasive species, but my personal favorite part of your lesson was when we made the models of a watershed.*
- *Thank you for coming to our class. I learned about how much pollution can get into our watershed and how it can affect the animals that use the Truckee River for their resources.*
- *I liked learning about what macro-invertebrates are and why scientists need to find them.*

One of the instructors who used our extensions provided this feedback:

*I love this program! I have thoroughly enjoyed teaching the pre-lesson, extensions, and post-lessons. They are a great resource that allow the students more experience with the curriculum and allow me to teach with more depth!*



On behalf of Sierra Nevada Journeys and the students and educators we've served,  
**THANK YOU!**

## Trout Unlimited and SNJ: “Walking our Watershed”

In 2014, the Trout Unlimited, Sagebrush Chapter, provided funding in support of Sierra Nevada Journeys in order to educate and promote critical thinking through watershed concepts of Nevada’s 3<sup>rd</sup> -6<sup>th</sup> grade students.

### Objectives

Our 2014 application requested funding to:

- Provide watershed education to 250 low-income 3<sup>rd</sup>-6<sup>th</sup> grade students in the Truckee River Watershed
- Provide watershed education professional development workshops to 30 teachers

### Results

The following chart details the outcomes and details in achieving our goals for 2014:

Goals	Outcomes	Details
Provide watershed-based outdoor science education to 250 3 <sup>rd</sup> -6 <sup>th</sup> grade students in the Truckee River Watershed.	251 3 <sup>rd</sup> -6 <sup>th</sup> grade students connected to their local watershed by participating in SNJ watershed education programs.	121 students (3 <sup>rd</sup> grade) participated in our “Habits and Habitats” program, including hands-on activities across 3 in-class lessons and a field study at the Oxbow Nature Area on the Truckee River. 69 students (5 <sup>th</sup> grade) participated in our “Hands in The River” program, which included three in-class lessons and a field study at The Nature Conservancy’s McCarran Ranch on the Truckee River. 61 students (6 <sup>th</sup> grade) participated in our “Outdoor Overnight Learning” program, which included five days and four nights at our Grizzly Creek Ranch campus.
Provide watershed-based education professional development workshops to 30 teachers.	30 educators participated in learning experiences highlighting the study of the Truckee River Watershed in their classrooms.	The Sierra Nevada Journeys’ staff delivered three learning experiences to a total of 30 educators during the spring of 2014. Participating educators represented schools in Washoe County and Carson City, including the Lemelson STEM Academy, Kate Smith Elementary School, and Bordewich-Bray Elementary School.  Learning experiences included the teachers’ active participation in multidisciplinary lessons exploring water science and components of a healthy watershed ecosystem. In addition, the groups explored place-based strategies to include local watershed topics into





*Our Mission is to deliver innovative outdoor, science-based education programs for youth to develop critical thinking skills and to inspire natural resource stewardship.*

		their curriculum, including the introduction of local clean-up days, such as those sponsored by Keep Truckee Meadows Beautiful and the Nevada Division of Environmental Protection Snapshot Days as potential service learning projects.
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### Press

On October 29<sup>th</sup>, 2014, we issued a press release regarding the successful completion of our Watershed Education Initiative partnered program (copy of press release attached).

### Testimonies

We received the following quotes from the instructors that participated with their classes in our Watershed experiential program:

- *The Truckee unit was very thorough and gave lots of opportunities for “hands-on” science – from collecting data, to building models, to actually getting macroinvertebrates from the river! Lots of science language and writing activities! I would love to have other students benefit from this fabulous educational experience. (5<sup>th</sup> grade)*
- *I can’t wait to do it again! (5<sup>th</sup> grade)*
- *All of my students loved this experience; they seem to really understand the water cycle / watershed now! (3<sup>rd</sup> grade)*
- *The students really loved getting outside and experiencing something so new to them. The Truckee really opened their eyes and gave them a new perspective. (3<sup>rd</sup> grade)*
- *The hands-on field trip to the Truckee River was a wonderful opportunity for my students to apply what they learned in the classroom! (3<sup>rd</sup> grade)*
- *This fit in nicely with what we were already doing in class. I loved the hands-on science learning; the students really enjoyed the lessons – especially the field trip to the Truckee River! (5<sup>th</sup> grade)*
- *Being able to be outdoors was amazing for my students. Many of them had never seen fish in the “wild” before. (5<sup>th</sup> grade)*

As for the provided professional development courses, our attendee surveys included the following quotes:

- *I went to several grade level trainings, and they were all amazing! Thank you so much for the watershed maps. We will definitely make good use of them at all grade levels.*
- *Most helpful lesson I will teach: “The Truckee River ecosystem.”*







On behalf of Sierra Nevada Journeys and the students and educators we've served,  
**THANK YOU!**





**FOR IMMEDIATE RELEASE**

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## **SIERRA NEVADA JOURNEYS WRAPS UP WATERSHED EDUCATION THROUGH TROUT UNLIMITED GRANT**

**RENO, Nev. (October 29<sup>th</sup>, 2014)** – In the spring of 2014, Sierra Nevada Journeys received a grant from Trout Unlimited’s Sagebrush Chapter to provide education for low-income Nevada students on the Truckee River watershed. Wrapping up at the end of this month, a total of 250 students and 30 teachers have participated in in-depth classroom and field-based lessons and professional development achieving high-impact science learning while empowering them to protect and enhance the quality of the Truckee River.

“The idea of this project is to provide thoughtful classroom and field-based lessons and professional development to reinforce and deepen local students’ understanding of the Truckee River watershed, promote their critical thinking skills and foster watershed stewardship,” Eaton Dunkelberger, CEO of Sierra Nevada Journeys. “Thanks to the grant from Trout Unlimited, we were able to accomplish this and have exposed 250 local students to outdoor science lessons directly relatable to the natural resources in their own backyard.”

Students from third and fifth grades participated in three in-class lessons with a field study experience on the Truckee River exploring environmental science in the watershed and aquatic invasive species including the New Zealand Mud Snail and more. Post-assessment findings concluded that more than 80 percent of participating students were able to correctly identify, label and diagram the Truckee River watershed while nearly 70 percent could also list and describe at least one way to positively impact the watershed. Additionally, more than 90 percent of the students demonstrated improved comprehension of related Next Generation Science Standards.

In an effort to expand on the students’ learning experience and further improve their science literacy, the professional development program provided teachers with the tools to incorporate watershed education into their classroom curriculum. Participating educators represented schools in Washoe County. Learning experiences included the teachers’ active participation in multidisciplinary lessons exploring water science and components of a healthy watershed ecosystem.

The groups of teachers also explored place-based strategies to include local watershed topics into their curriculum, including the introduction of local clean-up days, such as those sponsored by Keep Truckee Meadows Beautiful and the Nevada Division of Environmental Protection Snapshot Days as potential service learning projects.

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