



## **NORTH COAST RESOURCE PARTNERSHIP 2018/19 IRWM Project Application**

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The North Coast Resource Partnership (NCRP) 2018/19 Project Application Instructions and additional information can be found at the NCRP 2018/19 Project Solicitation webpage (<https://northcoastresourcepartnership.org/proposition-1-irwm-round-1-implementation-funding-solicitation/>). Please fill out grey text boxes and select all the check boxes that apply to the project. Application responses should be clear, brief and succinct.

**Project Applications will be accepted until 5:00 pm, ~~March 8, 2019~~ March 15, 2019.** It is important to save the application file with a distinct file name that references the project name. When the application is complete, please email to [kgledhill@westcoastwatershed.com](mailto:kgledhill@westcoastwatershed.com)

**If you have questions, need additional information or proposal development assistance please contact:**

- Katherine Gledhill at [kgledhill@westcoastwatershed.com](mailto:kgledhill@westcoastwatershed.com) or 707.795.1235
- Tribal Projects: Sherri Norris, NCRP Tribal Coordinator at [sherri@cieaweb.org](mailto:sherri@cieaweb.org) or 510.848.2043

**Project Name:** Cuneo Creek Riparian Restoration Project

### **A. ORGANIZATION INFORMATION**

**1. Organization Name: Eel River Watershed Improvement Group**

**2. Contact Name/Title**

Name: Isaac Mikus

Title: Executive Director

Email: isaac@erwig.org

Phone Number (include area code): 707-845-8119

**3. Organization Address (City, County, State, Zip Code):**

1500 Alamar Way

Fortuna, Humboldt, California, 95540

**4. Organization Type**

- Public agency
- Non-profit organization
- Public utility
- Federally recognized Indian Tribe
- California State Indian Tribe listed on the Native American Heritage Commission's California Tribal Consultation List
- Mutual water company
- Other:

**5. Authorized Representative (if different from the contact name)**

Name:  
Title:  
Email:  
Phone Number (include area code):

**6. Has the organization implemented similar projects in the past?**  yes  no

Briefly describe these previous projects.

Anderson Creek Habitat Enhancement Project for Coho Recovery - Phase III: As part of an instream restoration project, 621 trees were planted along the banks of Anderson Creek where there was heavy equipment disturbance.

Hollow Tree Trib Complex Habitat Enhancement Project: As part of an instream restoration project, 2600 conifers were planted along the banks of tributaries to Hollow Tree Creek.

**7. List all projects the organization is submitting to the North Coast Resource Partnership for the 2018/19 Project Solicitation in order of priority.**

Kenny Creek Instream Habitat Enhancement Project  
Cuneo Creek Riparian Restoration Project

**8. Organization Information Notes:**

n/a

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**B. ELIGIBILITY**

**1. North Coast Resource Partnership and North Coast IRWM Objectives**

GOAL 1: INTRAREGIONAL COOPERATION & ADAPTIVE MANAGEMENT

- Objective 1 - Respect local autonomy and local knowledge in Plan and project development and implementation
- Objective 2 - Provide an ongoing framework for inclusive, efficient intraregional cooperation and effective, accountable NCIRWMP project implementation
- Objective 3 - Integrate Traditional Ecological Knowledge in collaboration with Tribes to incorporate these practices into North Coast Projects and Plans

GOAL 2: ECONOMIC VITALITY

Objective 4 - Ensure that economically disadvantaged communities are supported and that project implementation enhances the economic vitality of disadvantaged communities by improving built and natural infrastructure systems and promoting adequate housing

Objective 5 - Conserve and improve the economic benefits of North Coast Region working landscapes and natural areas

**GOAL 3: ECOSYSTEM CONSERVATION AND ENHANCEMENT**

Objective 6 – Conserve, enhance, and restore watersheds and aquatic ecosystems, including functions, habitats, and elements that support biological diversity

Objective 7 - Enhance salmonid populations by conserving, enhancing, and restoring required habitats and watershed processes

**GOAL 4: BENEFICIAL USES OF WATER**

Objective 8 - Ensure water supply reliability and quality for municipal, domestic, agricultural, Tribal, and recreational uses while minimizing impacts to sensitive resources

Objective 9 - Improve drinking water quality and water related infrastructure to protect public health, with a focus on economically disadvantaged communities

Objective 10 - Protect groundwater resources from over-drafting and contamination

**GOAL 5: CLIMATE ADAPTATION & ENERGY INDEPENDENCE**

Objective 11 - Address climate change effects, impacts, vulnerabilities, and strategies for local and regional sectors to improve air and water quality and promote public health

Objective 12 - Promote local energy independence, water/ energy use efficiency, GHG emission reduction, and jobs creation

**GOAL 6: PUBLIC SAFETY**

Objective 13 - Improve flood protection and reduce flood risk in support of public safety

**2. Does the project have a minimum 15-year useful life?**

yes  no

If no, explain how it is consistent with Government Code 16727.

**3. Other Eligibility Requirements and Documentation**

**CALIFORNIA GROUNDWATER MANAGEMENT SUSTAINABILITY COMPLIANCE**

a) Does the project that directly affect groundwater levels or quality?

yes  no

b) If Yes, will the organization be able to provide compliance documentation outlined in the instructions, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?

yes  no

**CASGEM COMPLIANCE**

a) Does the project overlie a medium or high groundwater basin as prioritized by DWR?

yes  no

b) If Yes, list the groundwater basin and CASGEM priority:

c) If Yes, please specify the name of the organization that is the designated monitoring entity:

- d) If there is no monitoring entity, please indicate whether the project is wholly located in an economically disadvantaged community.  
 yes     no

#### URBAN WATER MANAGEMENT PLAN

- a) Is the organization required to file an Urban Water Management Plan (UWMP)?  
 yes     no
- b) If Yes, list the date the UWMP was approved by DWR:
- c) Is the UWMP in compliance with AB 1420 requirements?  
 yes     no
- d) Does the urban water supplier meet the water meter requirements of CWC 525?  
 yes     no
- c) If Yes, will the organization be able to provide compliance documentation outlined in the instructions, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?  
 yes     no

#### AGRICULTURAL WATER MANAGEMENT PLAN

- a) Is the organization – or any organization that will receive funding from the project – required to file an Agricultural Water Management Plan (AWMP)?  
 yes     no
- b) If Yes, list date the AWMP was approved by DWR:
- c) Does the agricultural water supplier(s) meet the requirements in CWC Part 2.55 Division 6?  
 yes     no

#### SURFACE WATER DIVERSION REPORTS

- a) Is the organization required to file surface water diversion reports per the requirements in CWC Part 5.1 Division 2?  
 yes     no
- d) If Yes, will the organization be able to provide SWRCB verification documentation outlined in the instructions, to include in the NCRP Regional Project Application should the project be selected as a Priority Project?  
 yes     no

#### STORM WATER MANAGEMENT PLAN

- a) Is the project a stormwater and/or dry weather runoff capture project?  
 yes     no
- b) If yes, does the project benefit a Disadvantaged Community with a population of 20,000 or less?  
 yes     no
- e) If No, will the organization be able to provide documentation that the project is included in a Stormwater Resource Plan that has been incorporated into the North Coast IRWM Plan, should the project be selected as a Priority Project?  
 yes     no

## C. GENERAL PROJECT INFORMATION

### 1. Project Name: Cuneo Creek Riparian Restoration Project

### 2. Eligible Project Type under 2018/19 IRWM Grant Solicitation

- Water reuse and recycling for non-potable reuse and direct and indirect potable reuse
- Water-use efficiency and water conservation
- Local and regional surface and underground water storage, including groundwater aquifer cleanup or recharge projects
- Regional water conveyance facilities that improve integration of separate water systems
- Watershed protection, restoration, and management projects, including projects that reduce the risk of wildfire or improve water supply reliability
- Stormwater resource management projects to reduce, manage, treat, or capture rainwater or stormwater
- Stormwater resource management projects that provide multiple benefits such as water quality, water supply, flood control, or open space
- Decision support tools that evaluate the benefits and costs of multi-benefit stormwater projects
- Stormwater resource management projects to implement a stormwater resource plan
- Conjunctive use of surface and groundwater storage facilities
- Decision support tools to model regional water management strategies to account for climate change and other changes in regional demand and supply projections
- Improvement of water quality, including drinking water treatment and distribution, groundwater and aquifer remediation, matching water quality to water use, wastewater treatment, water pollution prevention, and management of urban and agricultural runoff
- Regional projects or programs as defined by the IRWM Planning Act (Water Code §10537)
- Other:

### 3. Project Abstract

This project will be the planting and subsequent watering of 170 redwood saplings, 330 Douglas fir saplings, and 20 white oak saplings in the riparian zone of Cuneo Creek. These trees will enhance the riparian corridor and increase shading, thereby reducing water temperatures and sequestering carbon from the atmosphere.

### 4. Project Description

Cuneo Creek has an ongoing problem of watercourse instability, with reoccurring cycles of aggradation and degradation. The watershed experienced extensive clearing for agriculture and timber in the middle part of the 20th century. It was heavily impacted by the 1955, 1964, and 1997 floods, each of which caused heavy aggradation, widening of the stream, raising of the stream bed, and braiding of the channel. These were followed by episodes of degradation in the interim, and the channel remains unstable. The riparian zone was decimated by these events, and while there has been some natural recolonization by coyote brush and willow, additional revegetation would help produce a healthy riparian zone.

As atmospheric temperatures continue to rise, water temperatures are expected to rise as well. Cuneo Creek is the largest tributary to Bull Creek. Its water temperatures are critically important for the steelhead that spawn in Cuneo Creek and the coho and Chinook salmon that spawn downstream in Bull Creek. A lack of riparian vegetation can lead to summer temperatures outside the range of ideal salmonid habitat conditions. Developing a riparian forest along Cuneo Creek will, over time, lower water temperatures in

both Cuneo and Bull Creek. It will also help reduce impacts associated with climate change by lowering water temperatures and through carbon sequestration.

This project will plant 170 redwood saplings, 330 Douglas fir saplings, and 20 white oak saplings within a 4.6 acre area along Cuneo Creek. They will be planted between the creek and the Cuneo Creek Horse Campground, avoiding the powerlines, with the goal of producing a healthy, mature riparian zone. Augers will be used to dig holes in areas of hard soil. The plantings will be supplemented with soil and mulch. The most exposed trees will have shade cards built to protect them. To ensure maximum survival, the trees will be watered twice per week during the warm months for two seasons following planting. Water will be transported from the Albee Creek Campground with a water trailer to the planting site, where it will be used to water the trees. Trees will be monitored for survival for three seasons following initial planting, according to the attached monitoring protocol.

Several invasive non-native species of plants have been identified in the planting area, including french broom and milk thistle. In addition to the revegetation, the planting crew will remove these invasives from the project area.

## **5. Specific Project Goals/Objectives**

Goal 1: Ecosystem Conservation and Enhancement

Goal 1 Objective: Plant 520 trees, which will provide shade, keeping water temperatures low for aquatic species.

Goal 1 Objective:

Goal 1 Objective:

Goal 1 Objective:

Goal 2: Climate Adaptation and Energy Independence

Goal 2 Objective: The trees will sequester approximately 11.6 tons of atmospheric carbon per year, helping offset the effects of climate change, as well as providing shade for the creek, lowering water temperatures.

Goal 2 Objective:

Goal 2 Objective:

Goal 2 Objective:

Goal 3: Economic Vitality

Goal 3 Objective: The trees will provide recreational opportunities along Cuneo Creek, as well as maintaining the health of the salmon fishing industry.

Goal 3 Objective:

Goal 3 Objective:

Additional Goals & Objectives (List)

## **6. Describe how the project addresses the North Coast Resource Partnership and North Coast IRWM Plan Goals and Objectives selected.**

Goal 2, Objective 5: The forest that will grow in the planting area will develop into a day trip destination for tourists in Humboldt Redwoods State Park. The shade provided by the trees will also keep water temperatures in the creek more appropriate for salmonid species. This will help provide long term stability for the trout and salmon fishery.

Goal 3, Objective 6: The trees planted during this project will eventually develop into a mature mixed conifer forest, providing natural habitat to native birds and wildlife in the area. The trees will also

provide shade, keeping temperatures low in Cuneo Creek and which will help with the long term stability of salmon and trout populations.

Goal 5, Objective 11: The trees from this project will sequester an average of 11.6 tons of atmospheric carbon per year for 50 years, directly slowing the onset of climate change. The shade provided will also lower creek temperatures, even as atmospheric temperatures continue to rise.

**7. Describe the need for the project.**

Cuneo Creek has an ongoing problem of watercourse instability, with reoccurring cycles of aggradation and degradation. The watershed experienced extensive clearing for agriculture and timber in the middle part of the 20th century. Thus, it was heavily impacted by the 1955, 1964, and 1997 floods, each of which caused heavy aggradation. These were followed by episodes of degradation in the interim, and the channel remains very unstable. While there has been some natural recolonization by coyote bush and willow, additional revegetation would help produce a healthy riparian zone.

A lack of riparian vegetation can lead to summer temperatures well outside the range of ideal salmonid habitat conditions. Developing a riparian forest along Cuneo Creek will, over time, lower water temperatures in both Cuneo and Bull Creek, help reduce impacts associated with climate change by reducing temperatures and through carbon sequestration, and will improve recreational opportunities along Cuneo Creek..

**8. List the impaired water bodies (303d listing) that the project benefits:**

South Fork Eel River

**9. Will this project mitigate an existing or potential Cease and Desist Order or other regulatory compliance enforcement action?**       yes  no

If so, please describe?

**10. Describe the population served by this project.**

The population surrounding this project consist of rural, low-income towns and unincorporated communities. Agriculture, timber, and tourism are the main economic drivers in the area. This project will enhance recreation opportunities in the park, providing a boost to tourism in the area.

**11. Does the project provide direct water-related benefits to a project area comprised of Disadvantaged Communities or Economically Distressed Communities?**

- Entirely
- Partially
- No

**List the Disadvantaged Community(s) (DAC)**

Holmes, Shively, and surrounding communities.

**12. Does the project provide direct water-related benefits to a project area comprised of Severely Disadvantaged Communities (SDAC)?**

- Entirely
- Partially
- No

**List the Severely Disadvantaged Community(s)**

Weott, Redcrest, and the surrounding communities.

**13. Does the project provide direct water-related benefits to a Tribe or Tribes?**

- Entirely
- Partially
- No

**List the Tribal Community(s)**

If yes, please provide evidence of support from each Tribe listed as receiving these benefits.

**14. If the project provides benefits to a DAC, EDA or Tribe, explain the water-related need of the DAC, EDA or Tribe and how the project will address the described need.**

Cuneo Creek, as a tributary to Bull Creek, is part of a very significant watershed for salmonids. The communities of Weott, Redcrest, and other surrounding areas used to depend on the salmon and trout fisheries, both as a food source and as a livelihood. Reducing water temperatures by increasing the shade along the banks of Cuneo Creek will improve conditions for salmonids in Cuneo Creek and the downstream waterways.

Planting native trees along Cuneo Creek will also provide improved recreational opportunities for the local communities. These trees, once matured, will create a pleasant forest for locals to explore while also enjoying the waters of the creek during the hot summer months.

Lastly, these trees will be sequestering carbon from the atmosphere as they grow. Continuing to revegetate areas that have historically been cleared for grazing or timber will help offset the effects of climate change in the long run.

**15. Does the project address and/or adapt to the effects of climate change? Does the project address the climate change vulnerabilities in the North Coast region?**       yes    no

If yes, please explain.

The project site was chosen due to its vulnerability to climate change. Planting trees in this area will increase the area's resilience to climate change by sequestering atmospheric carbon and by providing shade, thereby cooling the water of Cuneo Creek. One of the biggest concerns of climate change is increasing water temperatures affecting salmonid populations, and providing shade will mitigate that concern.

**16. Describe how the project contributes to regional water self-reliance.**

Many of the small communities in the area depend on water diversions for their drinking water. This project will reduce the temperature of Cuneo Creek in the long run, reducing the chance of algal blooms and improving the quality of water coming from Cuneo Creek.

**17. Describe how the project benefits salmonids, other endangered/threatened species and sensitive habitats.**

A healthy riparian forest will provide a myriad of benefits to fish and wildlife species of the region. The terrestrial species will benefit from a mature redwood and fir forest canopy and understory, much of which has been cleared in the past from ranching and logging interests in the area. Stream species will benefit from the increased canopy, which will reduce water temperatures, a critical aspect of Northern California streams.

**18. Describe local and/or political support for this project.**

n/a



**19. List all collaborating partners and agencies and nature of collaboration.**

California State Parks - CSP is the sole landowner of the project site. They will be growing the trees and providing labor and expertise.

California Conservation Corps - The CCC will provide labor and expertise for the planting and watering.

**20. Is this project part or a phase of a larger project?**  yes  no

**Are there similar efforts being made by other groups?**  yes  no

**If so, please describe?**

The second phase of the larger project would add willow "pods" to the raised areas of the Cuneo Creek channel with the goal of accelerating the revegetation of the creek. The within bankfull vegetation would increase the roughness elements of the channel, allowing sediment to settle out behind these willow "pods" and reducing deposition in Bull Creek.

**21. Describe the kind of notification, outreach and collaboration that has been done with the County(ies) and/or Tribes within the proposed project impact area, including the source and receiving watersheds, if applicable.**

n/a

**22. Describe how the project provides a benefit that meets at least one of the Statewide Priorities as defined in the 2018 IRWM Grant Program Guidelines and Tribal priorities as defined by the NCRP?**

Protect and Restore Important Ecosystems - The redwood forest is a unique ecosystem that is greatly reduced compared to its historical area. Old growth redwoods provide critical services to fish and wildlife, including canopy ecosystems, habitat for birds and wildlife, and contributions to instream shelter for salmonids. This project aims to protect and restore the redwood forest ecosystem by planting a previously cleared bank of Cuneo Creek with coast redwoods, Douglas firs, and white oaks. Currently, Cuneo Creek has a long stretch of stream bank that is dominated by brush and some ground cover. This is providing minimal habitat for birds and wildlife, and is causing high water temperatures for salmonids in the creek. A mature redwood forest would shade the creek, reducing water temperatures even as global air temperatures increase, maintaining a safe habitat for native salmonids.

**23. Project Information Notes:**

n/a

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**D. PROJECT LOCATION**

**1. Describe the location of the project**

Geographical Information

**The project will be on Cuneo Creek, a tributary to Bull Creek, in Humboldt Redwoods State Park. The project reach starts approximately 0.39 miles upstream of the confluence of Cuneo Creek and Bull Creek and extends upstream from there approximately 0.21 miles. The locations of the project boundaries are approximately 40.33505° north latitude, 124.03213° west longitude at the downstream end; and 40.33682° north latitude, 124.03519° west longitude at the upstream end.**

**2. Site Address (if relevant):**

n/a

**3. Does the applicant have legal access rights, easements, or other access capabilities to the property to implement the project?**

- Yes If yes, please describe
- No If No, please provide a clear and concise narrative with a schedule, to obtain necessary access.
- NA If NA, please describe why physical access to a property is not needed.

**4. Project Location Notes:**

n/a

**E. PROJECT TASKS, BUDGET AND SCHEDULE**

**1. Projected Project Start Date: 3/1/20**

**Anticipated Project End Date: 11/30/25**

**2. Will CEQA be completed within 6 months of Final Award?**

- Yes State Clearinghouse Number:
- NA, Project is exempt from CEQA
- NA, Not a Project under CEQA
- NA, Project benefits entirely to DAC, EDA or Tribe, or is a Tribal local sponsor. [Projects providing a water-related benefit entirely to DACs, EDAs, or Tribes, or projects implemented by Tribes are exempt from this requirement].
- No

**3. Please complete the CEQA Information Table below**

Indicate which CEQA steps are currently complete and for those that are not complete, provide the estimated date for completion.

CEQA STEP	COMPLETE? (y/n)	ESTIMATED DATE TO COMPLETE
Initial Study	N	6/1/20
Notice & invitation to consult sent to Tribes per AB52	N	
Notice of Preparation	N	
Draft EIR/MND/ND	N	7/1/20
Public Review	N	8/1/20
Final EIR/MND/ND	N	9/1/20
Adoption of Final EIR/MND/ND	N	9/15/20
Notice of Determination	N	10/1/20
N/A - not a CEQA Project		

If additional explanation or justification of the timeline is needed or why the project does not require CEQA, please describe.

**4. Will all permits necessary to begin construction be acquired within 6 months of Final Award?**

- Yes
- NA, Project benefits entirely to DAC, EDA, Tribe, or is a Tribal local sponsor
- No

**5. PERMIT ACQUISITION PLAN**

Type of Permit	Permitting Agency	Date Acquired or Anticipated

**For permits not acquired: describe actions taken to date and issues that may delay acquisition of permit.**

No permits will be necessary for this project.

**6. Describe the financial need for the project.**

California State Parks does not have sufficient budget allotted for this nature of work and has pursued a partnership with the Eel River Watershed Improvement Group, who does restoration work via grant funding.

**7. Is the project budget scalable?**  yes  no

**Describe how a scaled budget would impact the overall project.**

The density of trees planted would scale according to the level of funding received. Full funding would put 520 trees in the project area, while lower funding would thin out the number of trees. The personnel budget would also scale with the number of trees planted, the amount of watering may be reduced with a scaled budget.

**8. Describe the basis for the costs used to derive the project budget according to each budget category.**

The basis of all costs were developed through subcontractor estimates and by the costs incurred by similar projects over the last couple of years. Direct Project Admin costs were developed using costs incurred by past projects of similar scope. Planning/Design/Engineering Costs were developed through contractor estimates and costs incurred by past projects of similar scope. Construction and implementation costs were developed through contractor estimates and costs incurred by past projects.

**9. Provide a narrative on cost considerations including alternative project costs.**

The budget was developed using the lowest estimates from qualified contractors and compared to the costs of similar projects. Other designs were considered to lower costs, with the result being the best designs for the goals of this project, at the lowest cost feasible. Lower priced trees were not an option due to CSP's policy regarding the genetic integrity of its trees. Seeds must be collected and grown within Humboldt Redwoods State Park.

**10. List the sources of non-state matching funds, amounts and indicate their status.**

There are no non-state matching funds.

**11. List the sources and amount of state matching funds.**

The CCC will provide labor at a discount of \$7.47 per hour per corpsmember for a total of \$20,916.00. This cost share is secured.

**12. Cost Share Waiver Requested (DAC or EDA)?**  yes  no

Cost Share Waiver Justification: Describe what percentage of the proposed project area encompasses a DAC/EDA, how the community meets the definition of a DAC/EDA, and the water-related need of the DAC/EDA that the project addresses. In order to receive a cost share waiver, the applicant must demonstrate that the project will provide benefits that address a water-related need of a DAC/EDA. The project takes place in and entirely serves a DAC. The project will improve water quality for salmonids by providing shade and reducing temperature. Native salmonids are important for the project area's community both for recreation and sustenance. This project will also increase recreational opportunities by providing a desirable tourism destination along Cuneo Creek. These factors have the potential to boost the local economy as a result of a successful project.

**13. Major Tasks, Schedule and Budget for NCRP 2018 IRWM Project Solicitation**

Please complete MS Excel table available at <https://northcoastresourcepartnership.org/proposition-1-irwm-round-1-implementation-funding-solicitation/>; see instructions for submitting the required excel document with the application materials.

**14. Project Tasks, Budget and Schedule Notes:**

n/a

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**F. PROJECT BENEFITS & JUSTIFICATION**

**1. Does the proposed project provide physical benefits to multiple IRWM regions or funding area(s)?**

yes  no

If Yes, provide a description of the impacts to the various regions.

**2. Provide a narrative for project justification. Include any other information that supports the justification for this project, including how the project can achieve the claimed level of benefits. List any studies, plans, designs or engineering reports completed for the project. *Please see the instructions for more information about submitting these documents with the final application.***

The Bull Creek Watershed is an important salmonid watershed in the SF Eel Basin. Cuneo Creek is one of the largest streams in the Bull Creek watershed and has a high potential for improvement. It currently supports a steelhead population, but its waters influence the coho and Chinook salmon of Bull Creek. Currently, there is very little canopy or riparian vegetation in the lower reaches of Cuneo Creek. This project will promote a healthy riparian zone which, in the long-run, will increase shading and stabilize the stream channel.

Climate change is expected to continue to affect salmonids through increasing air and water temperatures. This can influence steelhead at several stages of their life history (NMFS, 2011). As temperatures increase, spring run adults may find a thermal barrier to their desired stream, forcing

them to spawn in less desirable conditions. Juveniles will be affected even more, as warm temperatures in the rearing habitat can prevent outmigration and even cause mortality.

Vegetative cover is a significant factor affecting water temperatures. The shade from riparian vegetation provides a buffer from solar radiation, minimizing the impact of climate change on water temperatures. In addition, planted trees will sequester atmospheric carbon as they grow, directly offsetting one of the drivers of climate change. Planting 520 trees on the banks of Cuneo Creek will sequester an average of 11.6 tons of carbon each year for 50 years (USDOE, 1998).

This new source of shade will also provide a recreational benefit to the area. Humboldt Redwoods State Park draws many visitors each year, and Cuneo Creek is an easily accessible creek. However, the current conditions of the bank are not very desirable for those hoping to find a pleasant spot to have lunch or go swimming in the summer heat. A redwood and Douglas fir forest would provide a shaded area to picnic and hike, and will keep Cuneo Creek pleasantly cool in the summer.

This project will plant 170 redwood saplings, 330 Douglas fir saplings, and 20 white oak saplings within a 4.6 acrea area along Cuneo Creek. They will be planted according to methods outlined in the California Stream Habitat Restoration Manual (CDFG, 2010). During the planting, the invasive non-native plant species in the area will also be removed, including French broom and milk thistle. Once finished, this project will decrease the water temperature of Cuneo Creek, improve the conditions for steelhead in the creek, restore forest habitat, remove invasive non-native plants, increase recreation quality in Humboldt Redwoods State Park, and sequester a significant amount of carbon each year.

Plans included: Riparian restoration plan, planting area schematic, monitoring protocol

3. Does the project address a contaminant listed in AB 1249 (nitrate, arsenic, perchlorate, or hexavalent chromium)?  yes  no

If yes, provide a description of how the project helps address the contamination.

4. Does the project provide safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes consistent with AB 685?  yes  no

If Yes, please describe.

5. Does the project employ new or innovative technologies or practices, including decision support tools that support the integration of multiple jurisdictions, including, but not limited to, water supply, flood control, land use, and sanitation?  yes  no

If Yes, please describe.

6. For each of the Potential Benefits that the project claims complete the following table to describe an estimate of the benefits expected to result from the proposed project. [See the NCRP Project Application Instructions, Potential Project Benefits Worksheet and background information to help complete the table. The NCRP Project Application, Attachment B includes additional guidance, source materials and examples from North Coast projects.]

**PROJECT BENEFITS TABLE**

Potential Benefits Description	Physical Amt of Benefit	Physical Units	Est. Economic Value per year	Economic Units
<b>Water Supply</b>				
<b>Water Quality</b>				
<b>Other Ecosystem Service Benefits</b>				
Habitat restoration	4.6	Acres of forest	\$552	\$120 per acre
<b>Other Benefits</b>				
Carbon sequestration	170	Redwoods planted	\$83.30	0.49 per conifer
Carbon sequestration	330	Douglas firs planted	\$161.70	0.49 per conifer
Carbon sequestration	20	White oaks planted	\$12.80	0.64 per hardwood

**7. Project Justification & Technical Basis Notes:**

Work Cited: National Marine Fisheries Service. 2016. Coastal Multispecies Recovery Plan. NMFS, West Coast Region, Santa Rosa, California.

California Department of Fish and Game. 2010. California Salmonid Stream Habitat Restoration Manual. CDFW, Fortuna, California.

U.S. Department of Energy. 1998. Method for Calculating Carbon Sequestration by Trees in Urban and Suburban Settings. Energy Information Administration, Washington, DC.

**Major Tasks, Schedule and Budget for North Coast Resource Partnership 2018/19 IRWM Project Solicitation**

**Project Name:** Cuneo Creek Riparian Restoration Project  
**Organization Name:** Eel River Watershed Improvement Group

Task #	Major Tasks	Task Description	Major Deliverables	Current Stage of Completion	IRWM Task Budget	Non-State Match	Total Task Budget	Start Date	Completion Date
<b>A Category (a): Direct Project Administration</b>									
1	Administration	In cooperation with the County of Humboldt sign a sub-grantee agreement for work to be completed on this project. Develop invoices with support documentation. Provide audited financial statements and other deliverables as required	Invoices, audited financial statements and other deliverables as required	0%	\$3,000.00	\$0.00	\$3,000.00		
2	Reporting	Develop monthly reports describing work completed, challenges, and strategies for reaching remaining project objectives. Develop Final Report	Quarterly and Final Reports	0%	\$4,200.00	\$0.00	\$4,200.00		
<b>B Category (b): Land Purchase/Easement</b>									
1				0%	\$0.00	\$0.00	\$0.00		
<b>C Category (c): Planning/Design/Engineering/Environmental Documentation</b>									
1	Final Design /Plans	Create final design plans based on existing conditions in year of construction.	Finalized design plans.	30%	\$752.00	\$0.00	\$752.00		
2	Environmental Documentation: CEQA *	Prepare DWR Environmental Information Form. Prepare Initial Study and all relevant CEQA documents as per CEQA guidelines. Conduct cultural resources survey. File notice of determination.	Environmental Information Form; Notice of Determination; Letter from lead agency stating there were no legal challenges during public review; Approved and adopted CEQA documentation	0%	\$11,060.00	\$0.00	\$11,060.00		
3	Monitoring Plan	Develop Monitoring Plan to include goals and measurable objectives	Final Monitoring Plan	100%	\$0.00	\$0.00	\$0.00		
4				0%	\$0.00	\$0.00	\$0.00		
5				0%	\$0.00	\$0.00	\$0.00		
6				0%	\$0.00	\$0.00	\$0.00		
<b>D Category (d): Construction/Implementation</b>									
1	Construction/Implementation Contracting	Develop contracts.	Signed contracts with contractors.	0%	\$180.00	\$0.00	\$180.00		
2	Mobilization and Site Preparation	Prepare Site and mobilize project:1. Initiate project site preparation; 2. Assure project permits are in place; 3. Conduct pre-project site photo-monitoring	Summary of site preparation activities in monthly/quarterly reports; pre-project site photos	0%	\$1,620.00	\$0.00	\$1,620.00		
3	Tool and Material Purchasing	Purchase materials for project, including, but not limited to: augurs, fertilizer, soil, shade card materials, seedling protection tubes. See supplemental budget.	Summary of purchasing in monthly/quarterly reports.	0%	\$6,523.00	\$0.00	\$6,523.00		
4	Project Construction/Implementation: Invasive removal	Hand removal of invasive non-native plant species from project area.	Summary of actions in invasive removal report.	0%	\$14,580.00	\$0.00	\$14,580.00		
5	Tree purchasing	Purchase seedlings from California State Parks.	Copy of invoice.	0%	\$12,500.00	\$0.00	\$12,500.00		
6	Project Construction/Implementation: Tree planting	Planting of 520 trees.	Summary of planting activities in monthly progress report, photo documentation, tree planting completed.	0%	\$15,186.00	\$0.00	\$15,186.00		
7	Project Signage	Design and purchase signage	Appropriately designed signed posted at project site	0%	\$1,420.00	\$0.00	\$1,420.00		
8	Tree watering	Twice weekly watering of seedlings during the warm summer months.	Summary of watering activities in monthly progress reports. Photo documentation. Watering completed.	0%	\$49,920.00	\$0.00	\$49,920.00		
9	Project Performance Monitoring	The performance of the project will be monitored in accordance to the Monitoring Plan using the following measurement tools and methods: trees will be monitored for survival. If survival drops below 80% in the first year, replanting will occur	Monitoring report.	0%	\$9,184.00	\$0.00	\$9,184.00		

Project Name: Cuneo Creek Riparian Restoration Project  
 Organization Name: Eel River Watershed Improvement Group

Task #	Major Tasks	Task Description	Major Deliverables	Current Stage of Completion	IRWM Task Budget	Non-State Match	Total Task Budget	Start Date	Completion Date
10	Project Close Out, Inspection & Demobilization	Inspect project components and establish that work is complete. Verify that all project components have been installed and are functioning as specified will be conducted as part of construction inspection and project closeout. Conduct project completion photo monitoring. Prepare as-built drawings.	As-Built Drawings; Project completion site photos	0%	\$2,488.00	\$0.00	\$2,488.00		
11	Construction Administration	Complete tasks necessary to administer construction contract. Keep daily records of construction activities, inspection, and progress. Conduct project construction photo-monitoring.	Construction Management Logs; Completed construction administration tasks documented in monthly progress reports	0%	\$3,060.00	\$0.00	\$3,060.00		
<b>Total North Coast Resource Partnership 2018/19 IRWM Grant Request</b>					<b>\$135,673.00</b>	<b>\$0.00</b>	<b>\$135,673.00</b>		
Is Requested Budget scalable by 25%? If yes, indicate scaled totals; if no delete budget amount provided.					\$101,754.75	\$0.00	\$101,754.75		
Is Requested Budget scalable by 50%? If yes, indicate scaled totals; if no delete budget amount provided.					\$67,836.50	\$0.00	\$67,836.50		



## Detail Budget for North Coast Resource Partnership 2018/19 IRWM Project Solicitation

**Project Name:** Cuneo Creek Riparian Restoration Project  
**Organization Name:** Eel River Watershed Improvement Group

### Budget Detail

Row (a) Direct Project Administration Costs					
Project Management Type	Personnel by Discipline	Number of Hours	Hourly Wage	% of Cost (if applicable) *	Total Admin Cost
Administration	Executive Director	60	\$50		\$3,000
Reporting	Project Manager	140	\$30		\$4,200
<b>Total</b>					<b>\$7,200</b>
* What is the percentage based on (including total amounts)?		n/a			
* How was the percentage of cost determined?		n/a			

Row (b) Land Purchase/Easement

Row (c) Planning/Design/Engineering & Environmental Documentation					
Personnel (Discipline)	Major Task Name	Number of Hours	Hourly Wage	Total Cost	
CSP Forestry aid	Final Design /Plans	16	47	\$752	
CSP Project Manager	Environmental Documentation: CEQA *	30	102	\$3,060	
Cultural Resources Surveyor	Environmental Documentation: CEQA *			\$8,000	flat rate
<b>Total</b>				<b>\$11,812</b>	

Row (d) Construction/Implementation				
Personnel (Discipline)	Work Task and Sub-Task (from Work Task Table)	Number of Hours	Hourly Wage	Total Cost
ERWIG Project Manager	Construction/Implementation contracting	6	30	\$180
CSP Forester I	Mobilization and site preparation	8	\$85	\$680
CSP Forestry aid	Mobilization and site preparation	20	\$47	\$940
CSP Environmental Scientist	Project construction/implementation: invasives removal	40	\$93	\$3,720
CCC Corpsmembers	Project construction/implementation: invasives removal	240	24	\$5,760
CSP Environmental Services Intern	Project construction/implementation: invasives removal	150	\$34	\$5,100
CCC Corpsmembers	Project construction/implementation: Tree planting	480	24	\$11,520
CSP Forestry aid	Project construction/implementation: Tree planting	78	47	\$3,666

## Detail Budget for North Coast Resource Partnership 2018/19 IRWM Project Solicitation

**Project Name:** Cuneo Creek Riparian Restoration Project  
**Organization Name:** Eel River Watershed Improvement Group

CSP Forester I	Project signage	12	85	\$1,020
CCC Corpsmembers	Tree watering	2080	24	\$49,920
CSP Forestry aid	Project performance monitoring	152	47	\$7,144
CSP Forester I	Project performance monitoring	24	85	\$2,040
CSP Forestry aid	Project close out, inspection, and demobilization	24	47	\$1,128
CSP Forester I	Project close out, inspection, and demobilization	16	85	\$1,360
CSP Project Manager	Construction administration	30	102	\$3,060

Materials and Equipment	Work Task and Sub-Task (from Work Task Table)	Number of Units	Unit Cost	
Tools and materials: See supplemental budget	Tool and material purchasing			\$6,075
Conifer and oak seedlings	Tree purchasing	500	25	\$12,500
Sign making materials	Project signage			\$400
CSP Fuel	Tool and material purchasing	800	0.56	\$448
<b>Total</b>				<b>\$116,661</b>

See supplemental budget

flat rate

Grand Total

**\$135,673**

Cuneo Creek Riparian Restoration Project - Tools and Materials Budget

<b>Material</b>	<b>Cost/unit</b>	<b># Units</b>	<b>Cost</b>
TUB 636 - 6" x 36" Rigid Seedling Protection Tubes	\$0.94	540	\$507.60
E43 1-Man Earth Auger with 8 Inch Auger Bit	\$359.98	4	\$1,439.92
3' x 8-10mm Bamboo Stakes	\$0.10	1000	\$100.00
4' x 12-14mm Bamboo Stakes	\$0.21	500	\$105.00
Soil Bags	\$8.00	150	\$1,200.00
Burlap Bags - 12x20" Bundle of 100	\$58.00	3	\$174.00
3/4 inch metal hose 2 way shut off valve	\$12.00	2	\$24.00
3/4 inch diameter contractor garden hose 100 feet	\$60.00	6	\$360.00
3/4 inch gated wye valve	\$10.99	2	\$21.98
Fertilizer Packets	\$0.99	750	\$742.50
Water pump and parts	\$1,400.00	1	\$1,400.00
<b>Total tools and materials cost</b>			<b>\$6,075.00</b>

# Conifer Planting Schematic Cuneo Creek Riparian Restoration Project



— Cuneo Creek Project Reach

■ Powerline Zone

■ Planting Area

0 105 210 420 Feet

Eel River Watershed Improvement Group  
March 2019



## Cuneo Creek Riparian Restoration Project

### Riparian Restoration Plan

#### **General Location:**

Cuneo Creek is located in Humboldt Redwoods State Park. The entire watershed is within California State Parks (CSP) land. To reach the project site From US 101 South, take exit 663 toward Honeydew, then follow Mattole Road for approximately 8 miles to the Cuneo Creek Horse Camp. The upstream extent of the project reach is at 40.33682°, -124.03519°. The downstream extent is at 40.33505°, -124.03213°. For additional location information, please see the Project Location Map and the USGS Quad Map in the supplemental documents.

#### **Site Suitability Evaluation**

Soils - The soils of the tree planting site are Fluvents occurring in point bars next to the creek channel. In a typical soil profile, the surface soil texture (0-13 inches) is a gravelly fine sandy loam and the subsurface soil texture (13-59 inches) is an extremely gravelly sandy loam. The parent material of the Fluvent soils occurring at the planting site is alluvium derived from mixed sedimentary sources. These soils support riparian and wetland vegetation (NRCS Web Soil Survey 3.3, 2017).

Based on an assessment of stumps and historical photographs, CSP (2018, Draft Humboldt Redwoods State Park Vegetation Management Plan) has determined that the project reach supported a black cottonwood/willow riparian forest interspersed with coast redwood and Douglas-fir in the adjacent uplands.

Scour Risk – There is a very low risk of scour for the redwoods and Douglas firs on the shelf on either bank of the creek as they are above the wetted channel.

Mass wasting events in the Cuneo Creek watershed have caused series of aggradation and degradation in the stream. These events increased the sediment yield of Cuneo Creek significantly. In recent years, restoration efforts have helped stabilize the sediment sources upstream of the project reach, so riparian restoration efforts are likely to succeed. The area within the project zone is starting to revegetate naturally. This project aims to accelerate that process.

## Native Riparian Species Present:

- Douglas-fir, *Pseudotsuga menziesii*
- coast redwood, *Sequoia sempervirens*
- multiple willow species, *Salix spp*
- red alder, *Alnus rubra*
- coyote brush, *Baccharis pilularis*
- Pacific madrone, *Arbutus menziesii*
- tanoak, *Lithocarpus densiflorus*
- Oregon white oak, *Quercus garryana*

## Site Prep and Installation Methods

1. The CSP forestry aids will finalize site specific designs based on availability of quality soil and shade.
2. Pre-project photos and metrics will be collected.
3. Tree planting will occur between December and March. The trees will be 2-year-old seedlings in 1 gallon (4"x14") planting containers, and they will be placed at 20 foot intervals. Holes will be dug with power augurs with 8" blades. The conifers will be treated with additional soil and fertilizer in the planting holes. The trees will be mulched with native mulch after planting to prevent loss of moisture. Shade cards will be constructed as needed to protect exposed trees. Specific planting sites will be determined with the guidance of the CSP forester and forestry aids. Trees will be fitted with rigid protective tubes to prevent herbivory. All trees will be planted in accordance with chapter VII of the CDFG California Salmonid Stream Habitat Restoration Manual (CDFG, 2010).
4. The CCC Corpsmembers will water the conifers up to 2 times a week for the warm months between May and October to ensure establishment. This will involve filling up a CCC water truck at the Albee Creek campground, running hoses from the truck, splitting into two hoses with a gated wye, and individually watering each plant until the soil is adequately saturated.

## Materials

1. Native trees: 170 Coast redwood (*Sequoia sempervirens*), 330 Douglas fir (*Pseudotsuga menziesii*), and white oak (*Quercus garryana*) will be used as riparian cover to increase riparian function, increase shading, and reduce erosion. Conifers will be in 4 X14 inch pots. Oaks will be bare root transplants. Planting materials will be

procured and gathered in compliance with the CSP North Coast Redwood District Genetic Integrity Protocols

2. Chipped mulch: chipped onsite using materials piled near the project site.
3. Tools & Materials (power augers, planting shovels, auger fuel, contractor hose, hose fittings, and misc. gear.): These materials are required to complete the project.
4. Wooden stakes and burlap: Will be used to create shade structures for the most exposed conifers.
5. Rigid seedling protective tubes: will be used to prevent herbivory.
6. Tree bags: For transport of seedlings to the planting sites.

The species selected are not expected to be threatened by disease. However, to ensure waterborne diseases will not be transported to or from the site, the project will follow the ERWIG Aquatic Invasive Species Decontamination Protocol, which is in line with both the CDFW Aquatic Invasive Species Decontamination Protocol and the CSP North Coast Redwoods District Protocol.

### **Schematics**

See attached map.

### **Plant Maintenance**

CCC corpsmembers will water the trees up to 2 times a week as outlined in step 4 above. The most exposed conifers will be shaded with burlap supported by wooden stakes. Herbivory protection will be installed under the guidance of the CSP forestry aid.

### **Monitoring Methods**

See attached protocol.

### **Success Criteria**

Success will be determined by a plant survival rate at or above 80% after the two watering seasons. Plant mortality will be addressed by replanting as needed to ensure overall project goals are met.

## **Adaptive Management**

If in subsequent years additional planting is necessary to fill mortality gaps and augment vegetative stability, the CCC, ERWIG, and CSP will provide the labor and proficiency to augment plantings to maintain project goals.



## Mill Creek Riparian Planting Monitoring Plot Protocol

### Transect Layout

1. Select a start point for the monitoring plot that represents planting area
  - a. Mark the beginning with an orange-painted wooded stake.
  - b. Put a nail in the stake to hang the measurement tape from
  - c. Hang a red/white checkered flag and write START OF TRANSECT and write PLOT ID if available
2. Select a Witness Tree to assist in locating the beginning of the transect.
  - a. Put a tree tag on tree, get dbh (in cm), species and azimuth to start of transect from witness tree and write on Plot Card
3. Extend the measurement tape to capture about 30 meters
  - a. At end of transect, hang a red/white checkered flag and write END OF TRANSECT
  - b. Record length and azimuth of transect from start point
4. If possible use markers to identify individual trees
  - a. For example, orange-painted bamboo stakes were used for the first gulch monitoring plots, whether they had a shelter (VEXAR) or not.
5. GPS the START and END of the monitoring plot and name it using a 2 digit month, 2 digit year, initials of the person GPS'ing and the 2 digit sequential number for the plot that month
  - a. i.e. for the 3<sup>rd</sup> plot in the month of April 2013, PLOT ID= 0413WM03
    - i. this unique identifier will help sorting and analysis in years to come

### Monitoring Transect

This requires 2 people, the center line person (CLP) and the seedling person (SP)

1. The CLP marks the distance along (in meters) while the SP goes around and observes each seedling. When the SP finds a seedling he says the species, height (cm), vigor, planted or natural, and what protective measures were used
  - a. Species codes generated from #####
  - b. Vigor is ALIVE, DEAD, MISSING, or ALIVE RELEASED
  - c. Protective measures include fertilizer, shade card and/or shelters used
2. A range finder or D-tape is used to determine the distance from the center line, i.e. the measurement tape and where the seedling was planted.
  - a. When looking from the beginning to end of transect, negative numbers represent all seedlings on the left side of center and positive numbers represent right side. All these numbers are taken in centimeters
  - b. Seedlings within 10 meters of the transect line are incorporated into the plot

Established (6) 30 meter transects to monitor seedling survivability and the effect of Vexar on elk browse for Coast redwood and Port Orford Cedar seedlings. The start and end of transect have red/white checkered flagging and have the plot ID with START or END written in Sharpie on the flagging. A wooden stake is also pounded into the ground at the start of the transect. All trees within 10 meters on either side of the transect are included in the monitoring plot. All trees in the monitoring plots are equipped with an orange painted bamboo stake, orange or red/white checkered flagging and vexar tubing, if applicable.