Friday, November 8, 2019

# California Fish Passage Forum

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| **Project Name** | Iron Horse Vineyards Dam Removal Project |
| **Contact Name** | Noelle Johnson |
| **Lead Organization** | Gold Ridge Resource Conservation District |
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| **Phone Number** | (707) 823-5244 |
| **Date** | Friday, November 8, 2019 |

## PROJECT INFORMATION

**1. Location of Project** 38.462605 -122.89656

**2. Attach a map of your project**

pdf Iron Horse Dam Removal_WatershedMap.pdf

**3. Describe your project and include the deliverables and outcomes you seek to achieve. Please clearly describe which portion of the project Forum funding would be applied to, and the specific deliverables and outcomes expected to result from this funding.**

Located in western Sonoma County, Green Valley Creek is considered a vitally important anadromous salmonid stream in the Lower Russian River basin. The watershed has been identified by the California Department of Fish and Wildlife (CDFW) and National Marine Fisheries Service (NMFS) as core priority recovery habitat for both threatened steelhead trout (Oncorhynchus mykiss) and endangered coho salmon (Oncorhynchus kisutch). The NOAA Coastal Multispecies Plan's Central California Coast Steelhead volume draft (October 2015) prioritizes the Green Valley Creek steelhead population as one of 28 essential independent populations targeted for attaining a low extinction risk, while the watershed is a focus of both CDFW's coho recovery program and the Russian River Coho Salmon Captive Broodstock Program.

In 2013, the Gold Ridge RCD and its partners, through funding from the State Coastal Conservancy and California Department of Fish & Wildlife, finalized a management plan for the Green Valley Creek Watershed, focused on its potential to support salmonid populations through the restoration of watershed function. Fish passage for both adult and juveniles has been identified as a major hindrance to salmonid recovery. The access to quality spawning grounds for adults and the ability of juveniles to seek deep, cool water during summer low-flow conditions are key to the survival of the species. The removal of instream barriers in lower Green Valley Creek has been a priority to facilitate adult and juvenile salmonid passage through this critical migration corridor.

This project seeks to completely remove an obsolete flashboard dam at the Iron Horse Vineyards on

lower Green Valley Creek, allowing for free passage of both adult and juvenile coho and steelhead through the site, while performing additional assessment work in lower Green Valley to identify and characterize both physical and biotic barriers to fish passage.

The Iron Horse dam has been identified in several historical DFW (DFG) stream surveys, and most recently championed for removal by local DFW fisheries biologists. Streamline Engineering completed a detailed topographic survey, hydrology and hydraulics for the site in December, 2015. The engineer, Eric Austensen, P.E., concluded that the dam was limiting passage of both adult and juvenile salmonids during low flow conditions. Mr. Austensen completed an engineering plan to remove the concrete dam and install large wood habitat enhancement structures, including anchored redwood logs and rootwads. Implementation of this plan will completely remove the barrier, and enhance the passage of fish in Green Valley Creek.

While the dam removal has received funding from DFW's FRGP program, the Gold Ridge RCD is requesting cost share funding from the Fish Passage Forum for several activities:

1. Post-implementation monitoring of the site through 2020 beyond the DFW grant term to ensure functionality of the erosion control measures and large wood structures;

2. Landowner outreach and assessment work through lower Green Valley Creek to identify additional barriers, and corresponding updates to the PAD;

3. Investigation of water quality conditions at and below Green Valley Creek's confluence with Atascadero Creek (the upper end of the lower Green Valley reach) where a wetland complex significantly expanded through recent sedimentation has been identified as a significant biotic barrier to outmigrating salmonids.

The low-gradient lower Atascadero is a wetland complex, which fisheries biologists believe serves as critical habitat for salmonids, providing both plentiful food sources and low-velocity off-channel high-flow refugia for salmonids migrating through Green Valley Creek. However, relatively recent sediment deposition in lower Atascadero Creek above its confluence with Green Valley has significantly altered conditions in these wetlands, converting them from seasonal riparian/wetland complex to a stagnant perennial instream pond, which suffers from fatally low dissolved oxygen levels and hydrogen sulfide concentrations from organic matter decay.

The Forum funding, in focusing on lower Green Valley's primary role as a migration corridor, would be use to investigate the winter-spring water quality conditions through this reach. The water quality monitoring would include deploying sondes to measure depth, temperature, dissolved oxygen, pH and conductivity at 15 minute intervals in the marsh section of this wetland complex to characterize the water quality and fish passage conditions during adult in-migration and smolt out-migration in the winter and spring. This data would be compared against the existing PIT-tag antennas and out-migrant fish trap in lower Green Valley Creek. We would deploy one sonde in Atascadero wetlands and another below the sediment accumulation area to characterize water quality conditions on both sides of the potential migration barrier. Additionally, we would do storm series sampling of chemical oxygen demand (COD), biological oxygen demand, and hydrogen sulfide. Finally, we would continue to collect and evaluate sonde and water quality data from several locations in lower Green Valley Creek to better characterize the wetland's effects on downstream water quality.

## 4. List all partner organizations.

Department of Fish and Wildlife
CA Sea Grant Russian River Salmon and Steelhead Monitoring Program

**5. Does the barrier(s) being addressed through this project have a Passage Assessment Database (PAD) database identification number(s)?**

YES

**If you answered "yes" to question 5, please provide the PAD ID number(s).**

712804

**6. Describe the barrier(s) under "average" conditions, if it is a complete, temporal, or partial barrier, how often passage is provided for both adult and juvenile anadromous fish, and if the information is available (e.g., meets fish passage criteria for adults 45% of the time and 0% of the time for juveniles). Please specify which species you are referring to when describing barrier status.**

Please note the location shown in the PAD is thought to be incorrect, the actual dam location is downstream of the PAD location. However, the requested funding will be used to verify and update the status of any barriers shown in the PAD in lower Green Valley. The engineer's report states that the dam serves as a passage barrier for all life stages until water levels reach at least two feet above the downstream riffle crest, making the dam a low flow barrier. When flow is 6" deep at the riffle crest, fish must jump 4" into shallow water to get onto the concrete apron at the upstream end of the dam. The jump onto the concrete apron is challenged by increased velocity and turbulence from water spilling into the narrow passageway adjacent to the dam. The dam is especially problematic for juvenile fish at low flow. At very low flow, the dam is a complete barrier.

**7. Indicate how you determined that this barrier is a high priority project. (Please check all that apply.)**

Endorsed by an agency

Local knowledge/conversation with local representatives

**8. Include the name(s) of the recovery plans and the specific task that name this barrier(s) as a high priority, the agency that endorsed this project, or the local representative that names this project as a priority.**

The dam was identified by DFW Environmental Scientist Derek Acomb (Derek.Acomb@wildlife.ca.gov), who requested the Gold Ridge RCD submit a proposal for its removal. With the removal of #735261 downstream in August 2018, this is thought to be the lowest remaining physical fish passage barrier in the Green Valley watershed, although additional surveys are needed to verify this.

**9. The California Fish Passage Forum (Forum) has seven (7) overall objectives. Please check each objective your project will help to address. (check all that apply)**

1. Remediate barriers to effective fish migration.

2. Facilitate coordination and communication among agencies, agency staff, and other entities that may propose, review, or promulgate fish passage criterial within California.

5. Facilitate plans to monitor and evaluate fish passage restoration effectiveness to ensure accountability.

7. Implement education and outreach activities, targeting both the general public and fish passage practitioners.

**10. Provide a brief explanation of how your project addresses all of the checked boxes in question 9.**

The project seeks to fully remove a partial fish passage barrier, and install five anchored large wood structures to enhance pool depths, provide refugia at different flow levels, and improve habitat complexity. Additionally, the additional funds being requested from the Forum will aid staff in surveying the lower Green Valley reach surrounding the dam removal site to verify and update information on multiple fish passage barriers shown in PAD. Finally, the project will coordinate with DFW and CA Sea Grant partners to further asses and characterize the suspected chemical/biotic/water quality barriers at Green Valley Creek's confluence with Atascadero Creek, to better inform the Russian River coho broodstock program's current efforts to support Green Valley's coho population and to re-populate the Atascadero subwatershed.

**11. Identify the anadromous fish species that will benefit from your project (select multiple if applicable).**

Coho salmon | Steelhead/rainbow trout | Threespine stickleback

**12. How many miles of stream will be opened and/or acres of habitat restored as a result of implementing your project?**

30

**13. Provide the location and distance in stream miles to downstream river structures, and whether each structure represents an insignificant, partial, or total barrier to fish passage.**

Another low flow barrier downstream (#735261) approximate 2.5 miles downstream is being removed by the Gold Ridge RCD through an FRGP grant at the writing of this proposal. None of the other downstream barriers described in PAD are known to exist, although we are requesting funding here to verify and update those records.

**14. Provide the location and distance in stream miles to upstream river structures, and whether each structure represents an insignificant, partial, or total barrier to fish passage.**

The two road crossings identified as partial barriers in PAD directly above the proposed dam removal site (PAD IDs 735268 and 716531) are both in design stage for remediation. However, as described above, the most signficant passage barrier may be the anoxic water quality conditions at the Atascadero confluence approximately 1.2 miles upstream of the Iron Horse dam, which is thought to be a signficiant barrier to outmigrating smolts, and may also have significant effects on inmigrating adults both accessing upper Green Valley or trying to return to the Atascadero subwatershed..

**15. Select each of the Forum's priority habitats that will have improved access available as a result of your project.**

Spawning habitat | Rearing habitat

**16. Has the owner and/or responsible organization/agency of the barrier(s) proposed for removal and/or remediation been identified, notified, and given permission for this project to proceed as proposed?**

YES

**If YES, please provide the name of the entity that owns/is responsible, and describe how**

**consent to proceed was obtained/documented, and their role (if any) in any monitoring.**

The Iron Horse Vineyards have provided a signed landowner access agreement, as well as Sanchietti Vineyards adjacent to the wetland complex. Additional access approval will be acquired from landowners for the assessment work.

**17. Attach a copy of your monitoring plan**, (if available) and indicate the person and/or organization that will be responsible for implementing.**

pdf Iron Horse Dam Removal_monitoring plan_Re...

***The Forum recommends, as a bare minimum, applicants use the NOAA Restoration Center's Fish Passage Barrier Removal Performance Measures and Monitoring Worksheet, and one year minimum pre- and post-project monitoring.*

**18. Will your project be implemented within 12-18 months?**

YES

**19. Attach a document that provides a description of the project's timeline (including permits), as well as implementation and monitoring dates. Please describe any issues that exist, if any, that could delay project implementation.**

pdf Project timeline_Revised 11.08.2019.pdf

**20. Attach any designs of your project as well as any photos.**

pdf Iron Horse Dam Removal Design_project su...

**21. If you have already submitted an application to the Fisheries Restoration Grant Program (FRGP) for this project, please copy and paste information from the "Project Objective" Form of that FRGP application below.**

1. List Task Information:
RR-HU-05: Treat barriers to coho salmon passage.

Describe How Project Accomplishes List Task:
This project accomplishes DFG Task RR-HU-05 by completely removing the dam at the Iron Horse Vineyards on lower Green Valley Creek, allowing for free passage of both adult and juvenile salmonids through the site.

2. Need for the Project:
The project site has been identified in several historical DFW (DFG) stream surveys, and most recently championed for removal by DFW/FRGP Watershed Planner, Derek Acomb. Eric Austensen, P.E., of Streamline Engineering completed a detailed topographic survey, hydrology and hydraulics for the site in December, 2015. Mr. Austensen concluded that the site currently limits passage of both adults and juveniles salmonids during low flow conditions. Mr. Austensen completed an engineering plan to remove the concrete dam and install large wood habitat enhancement structures, including anchored redwood logs and rootwads. Implementation of this plan will completely remove the barrier, and enhance the passage of fish in Green Valley Creek.

4. Limiting Factor Remediation: Fish Passage
The Project addresses the limiting factor of Fish Passage by removing the channel spanning concrete

dam at the Iron Horse Vineyard property. Removal of this structure will restore natural flow conditions through the channel reach and allow for the unimpeded passage of adult and juvenile salmonids through the project reach.

# PROJECT BUDGET

**22. All projects seeking Forum funding are required to submit a budget that includes the following:**

- Total cost of project
- Total funding request from the Forum, how those funds will be spent, what will be accomplished, and what deliverables are expected.
- Any seed or other funding that exists to support project implementation.
- Other funding committed or pending, and what those funds will support.
- Amounts and names of partners contributing matching support (dollars and in-kind)
- Monitoring costs
- Indicated whether or not project will be fully funded if funding being requested from the Forum is recieved.

If you do not have a detailed budget for your project, you can find a template and other resources on the Funding page of the Forum's website.

**Attach a project budget, including a narrative that describes the overall project budget and a detailed budget breakdown. (Word, .pdf, or .xls)**

pdf Budget_Revised 11.08.2019.pdf

**23. Total dollar amount being requested from the Forum.**

20039

**24. Total cost of project.**

191904

# PROJECT TEAM CAPABILITIES

**25. Describe the experience and capabilities of up to three of the project leaders relative to their ability to implement this project. Please also include any other Forum-supported projects project leaders have been involved with.**

Jason Hoorn, CPESC # 6786
Project Manager, Gold Ridge Resource Conservation District
Mr. Hoorn, as GRRCD project lead, has over 20 years of natural resource management experience participating in a wide variety of watershed management projects relating to wildland hydrology, with an emphasis on applied geomorphic studies. Much of this work has and continues to focus on improving habitat for endangered salmonids in coastal California watersheds. He managed the Forum-funded barrier removal project in upper Green Valley in 2017 through PSMFC #18-25G.

Sierra Cantor, Ecologist Gold Ridge Resource Conservation District
Sierra Cantor, Gold Ridge RCD Ecologist, has been participating in resource conservation planning and conducting biological and ecological surveys of Sonoma County flora and fauna for over 18 years. Ms. Cantor has extensive experience working with public agencies, local organizations and private landowners, to collaborate on projects that assess and address natural resource impacts. Ms. Cantor possesses a Baccalaureate degree in Biology and Environmental Studies from University of California, Santa Cruz. She will be performing biological surveys and leading dewatering efforts for the project, and leading the habitat and barrier survey of the surrounding reach to verify and update PAD entries.

Eric Austensen, P.E. License #: C52052
Eric Austensen of Streamline Engineering is a California Registered Civil Engineer specializing in stream restoration and salmonid habitat enhancement. As a consultant to Gold Ridge RCD, he has engineered and overseen construction on many successful creek restoration projects in western Sonoma County. As the licensed engineer who designed the project, Eric will assist in construction oversight, and will be developing the as-builts and long profile for the project, and assisting in the additional barrier verification survey as proposed.

# OUTREACH

**26. Does your project have a public and/or community outreach component? If so, please describe (e.g., social media, website, press release, newsletter, volunteers, schools, etc.)**

Targeted outreach will be conducted to riparian landowners throughout the lower Green Valley Creek reach to gain access for the assessment work, which will involve mailings, community forum posting, public meetings, or other methods.

All Gold Ridge RCD projects are currently being uploaded to the newly developed RCD Project Tracker (www.rcdprojects.org), an outreach tool designed to showcase RCD work throughout the state. The project will also be featured on the Gold Ridge RCD's website (www.goldridgercd.org) and in our annual newsletter.
Additionally, results from the additional biological and habitat surveys will be used to update the potential barrier information in the PAD, and incorporated into an update of the Green Valley Creek Watershed Management Plan being prepared through DFW funding.

# ALIGNMENT WITH NATIONAL PRIORITIES

**27. Which National Fish Habitat Partnership (NFHP) National Conservation Strategies will be addressed by your project? (select all that apply)**

- 2. Restore hydrologic conditions for fish.
- 3. Reconnect fragmented fish habitats.
- 4. Restore water quality.

Review the *NFHP National Conservation Strategies*.

**28. What U.S. Fish & Wildlife Service (USFWS) Climate Change Strategies will be addressed by your project? (select all that apply)**

- 3.1 Take conservation action for climate-vulnerable species.
- 3.2 Promote habitat connectivity and integrity.
- 3.3 Reduce non-climate change ecosystem stressors.

Review the *USFWS: Rising to the Urgent Challenge – Strategic Plan for Responding to Accelerating Climate Change*.

**29. Provide specific information about how your project addresses the climate change strategy you checked in question 28.**

The project helps to promote over-summer survival for salmonids in lower Green Valley, where recents surveys performed in conjunction with dewatering at a downstream dam removal site have identified juvenile coho and steelhead oversumming in pools there. Removing the dam allows them to move more freely to find cooler, more oxygen-rich waters as pools shrink during increasingly unpredictable weather patterns wilth longer dry seasons. It also facilitates passage through the reach to upper watershed spawning and rearing grounds as even winter base flows become more erratic. Additionally,

the water quality exploration work in the wetland reach will work towards design development to alleviate the anoxic stressors believed to be fatally toxic to outmigrating salmonids.

**30. Would an existing commercial, recreational, or subsistence fishery be enhanced as a result of the project? If yes, please describe. If not, is there a future fishery that would potentially be restored through increased habitat as a result of this project? If so, describe.**

The project is part of a larger, multi-partner program to restore ecologically and economically viable coho and steelhead populations to the Russian River, once part of a regionally significant fisheries industry.

***Thank you for your interest in the Forum, and for taking the time to submit this proposal. You will be contacted by the Forum to discuss the outcome of this funding process.***