Austin Creek Large Wood Augmentation – Planning & Design *(amended)*

Recipient: Trout Unlimited, Inc.
Project Period: 10/1/2021 – 11/30/2022
Award Amount: $22,459.69
Project Number: #8006.22.073876

Summary of Accomplishments

This project was developed in coordination with the California Department of Parks and Recreation to support ongoing post-fire recovery efforts in the Austin Creek State Recreation Area (AC SRA) in Sonoma County, CA. The overall project goal was to develop a restoration "project concept" that integrates modern restoration techniques that, in turn, improve water quality, stream habitat, and resilience to climate change while enhancing critical habitat for endangered Coho Salmon and Steelhead Trout. During the project site specific plans were developed that will advance hazard tree removal and implement large wood restoration for the benefit of public safety and populations of Coho Salmon and Steelhead Trout. This project included planning activities like developing a GIS Map Book to assist with site selection and conducting field surveys that led towards the identification of two treatments reaches for large wood structures within 0.3 miles of Gilliam Creek, a tributary to Austin Creek, and 1.7 miles of East Austin Creek. Following site selection, structure designs and costs estimates were developed. Additionally, TU and Parks identified a potential source of implementation funds and began work on establishing a formal partnership to facilitate future restoration, which is estimated to occur in 2024.

Project Activities & Outcomes

Activities

- TU staff held meetings with the California Department of Parks and Restoration (Parks), Sonoma-Mendocino Coast District staff to discuss site access and other project logistics. It was determined that the best way to execute project implementation was to establish a "Proud Partner Agreement" between TU and Parks. This formal partnership will help facilitate project implementation and will allow Parks to contribute financially to the implementation costs.
- May 2022 – TU established a subcontract with Blencowe Watershed Management (BWM) to evaluate field conditions to procure large wood from the adjacent forest, stream locations for wood feature placement, and equipment access routes.
- TU staff drafted maps and compiled them into a project Map Book, by relying on GIS

information that was publicly available or that was shared by Parks to aid with site assessment.

- TU coordinated a field day with Parks, BWM, NOAA, and CDFW to ground truth potential treatment reaches that were identified within the Map Book.
- November 2022 – A follow up meeting occurred between TU, Parks, and BWM for to review what was learned in the field and to discuss treatment recommendations and next steps.
- TU did not coordinate with a qualified helicopter operator as originally proposed to NFWF and CDFW/OSPR. Although helicopter wood placement may be considered in the future, it was determined that a large wood stream enhancement project could be implemented within 1-2 years without helicopter assistance. The GIS Map Book identified areas that could serve as landing or staging areas which could be helpful in future phases of restoration.

Outcomes

- Two stream reaches were identified and approximately six structure drawings were developed that can be constructed to increase large wood density, increase pool frequency and depth, improve spawning gravel, increase habitat complexity and shelter, and provide velocity refuge. The long-term benefits of adding large wood instream will improve habitat conditions for all life stages of salmonids.
- It was determined that portions (~2.0 miles) of Gilliam Creek and East Austin Creek could be treated with large wood by relying on rubber tracked equipment and chainsaws. Both sites are considered low risk due to the lack of infrastructure or adjacent roads near the proposed treatment areas.
- Six structure types were developed for both stream treatment areas. Each structure includes 1-3 key pieces of large wood, some including their rootwads. Forty logs were proposed in East Austin Creek, and thirty logs are estimated for placement within Gilliam Creek. The treatments recommended for both streams meet the GOOD criteria within NOAA's large wood density recommendations for CCC Coho Salmon. In some instances, the structures will be pinned to ensure structural stability.
- Estimates of Probable Cost developed for implementation of both treatment areas.
- A "Proud Partner Agreement" was drafted between Trout Unlimited and Parks and is under review.
- TU and Parks determined that the project could be implemented with internal funding provided by Parks after the formal agreement is established. TU will be responsible for securing permits and administering the project. Parks will assist TU will securing permits by conducting resource surveys.
- TU is still interested in learning more about the applicability of relying on helicopters or future direct falling to deliver wood to other portions of the stream network that may not be accessible by rubber-tired equipment. Parks staff would like to implement the project concept developed under this grant and wait to see how much wood naturally recruits before planning or implementing a second phase of instream restoration. Parks staff anticipate many trees that were impacted by the fire will be recruited into the stream network in the next 2-5 years.
- One unexpected outcome of this project was that Parks may be able support the

implementation costs with internal funds. TU expected to use the materials developed under this agreement to secure implementation funds. However, after Parks reviewed the preliminary costs developed by BWM they indicated they would investigate the feasibility of implementing the project in-house, with assistance from TU through the Proud Partner Agreement. If Parks cannot support all or part of the implementation costs, TU will seek funding elsewhere.

Lessons Learned

During this project we learned that we didn't need to rely on the assistance of helicopters to transport logs from burned areas to the creeks to begin restoration efforts in the Austin Creek SRA. Although we were able to develop a project by relying on direct falling of trees and rubber-tired equipment placed wood, there are still many stream reaches within the AC SRA that are difficult to access and where helicopter placed wood could be utilized. We learned that in most cases helicopter placement of wood directly instream could be challenging due to dense riparian canopy, but if helicopters were used in conjunction with future logging, logs could be stockpiled at near stream locations for future placement with grip hoists. It was helpful to review existing information about the site in conjunction with conducting field surveys to plan and develop this project.

Dissemination

Over the course of this project, we reached out to other TU colleagues and restoration partners in the Mattole River watershed to learn more about the details and costs associated with helicopter placed wood. The knowledge we acquired from our colleagues is transferrable to other partners who may be interested in this form of restoration. We also can share the Map Book with partners so they may see what kinds of information can be helpful to review while planning restoration activities.

POSTING OF FINAL REPORT: *This report and attached project documents may be shared by the Foundation and any Funding Source for the Project via their respective websites. In the event that the Recipient intends to claim that its final report or project documents contains material that does not have to be posted on such websites because it is protected from disclosure by statutory or regulatory provisions, the Recipient shall clearly mark all such potentially protected materials as "PROTECTED" and provide an explanation and complete citation to the statutory or regulatory source for such protection.*

Project Photos

Figure 1. East Austin Creek - representative photo of creek devoid of wood. Bedrock expressions indicate moderate incision

Figure 2. East Austin Creek - representative photo of creek devoid of wood

Figure 3. East Austin Creek - representative photo of creek devoid of wood. Channel is connected to floodplain and alluvial deposits and spawning substrate present

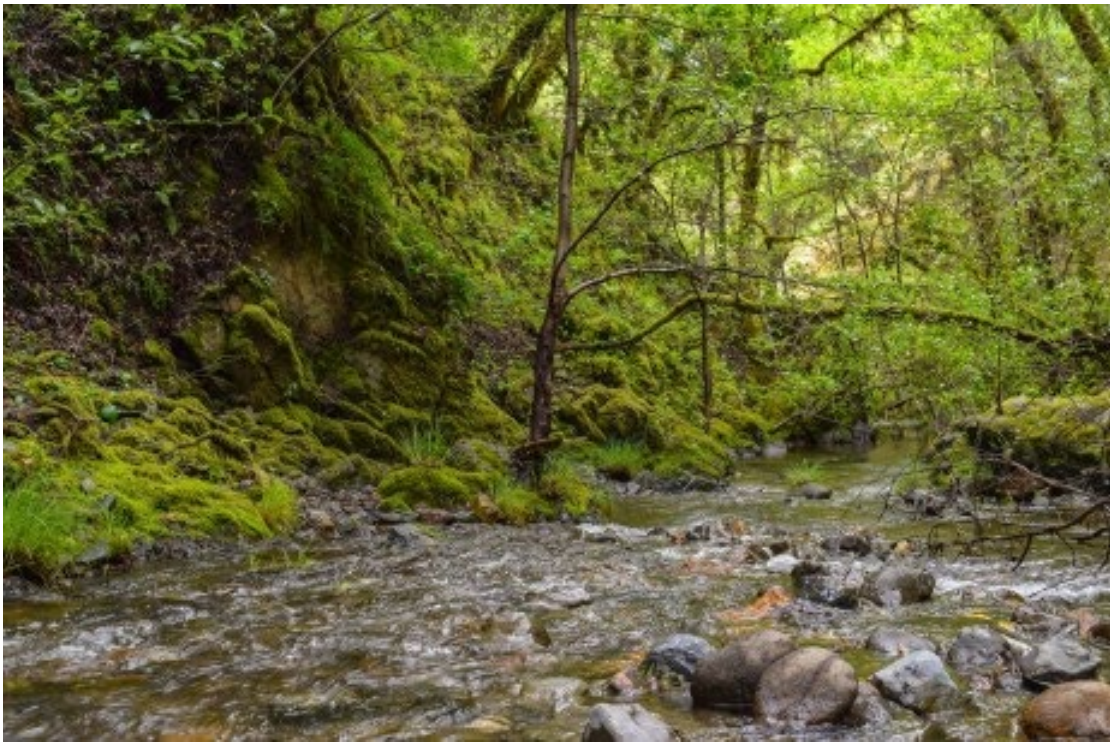

Figure 4. Gillam Creek - representative photo, channel riffle

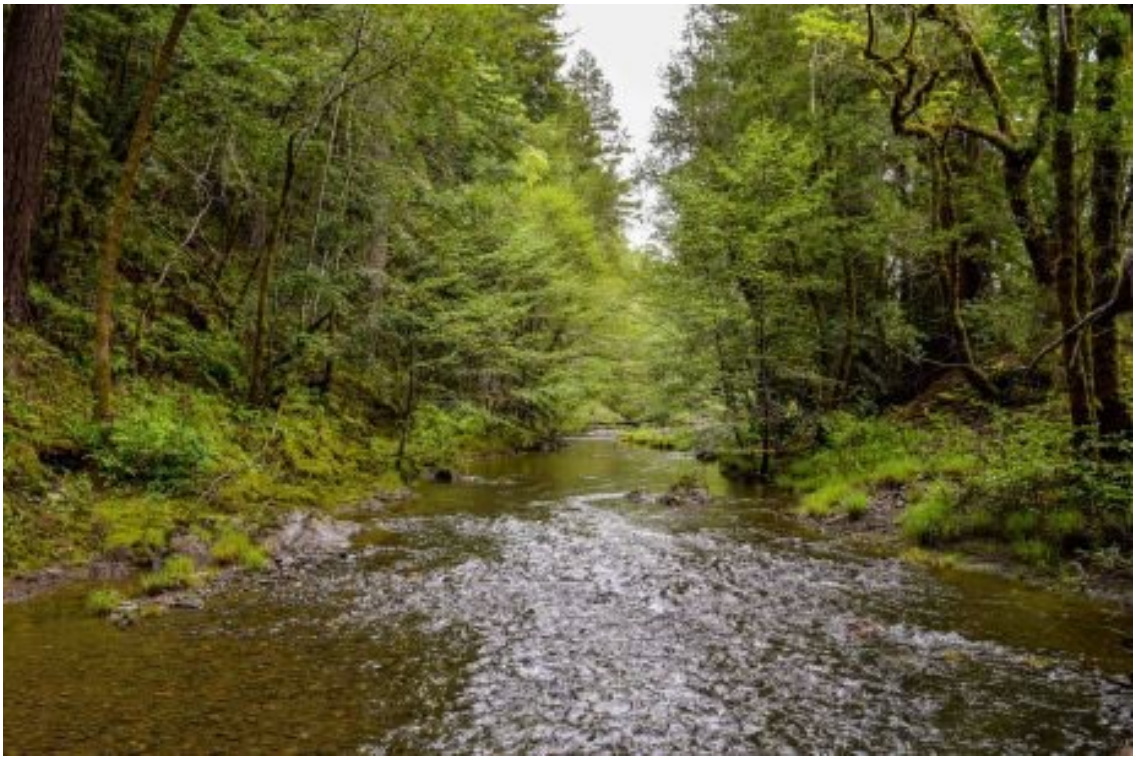

Figure 5. Gilliam Creek - homogenous channel, devoid of large wood

Figure 6. Gilliam Creek - tributary confluence

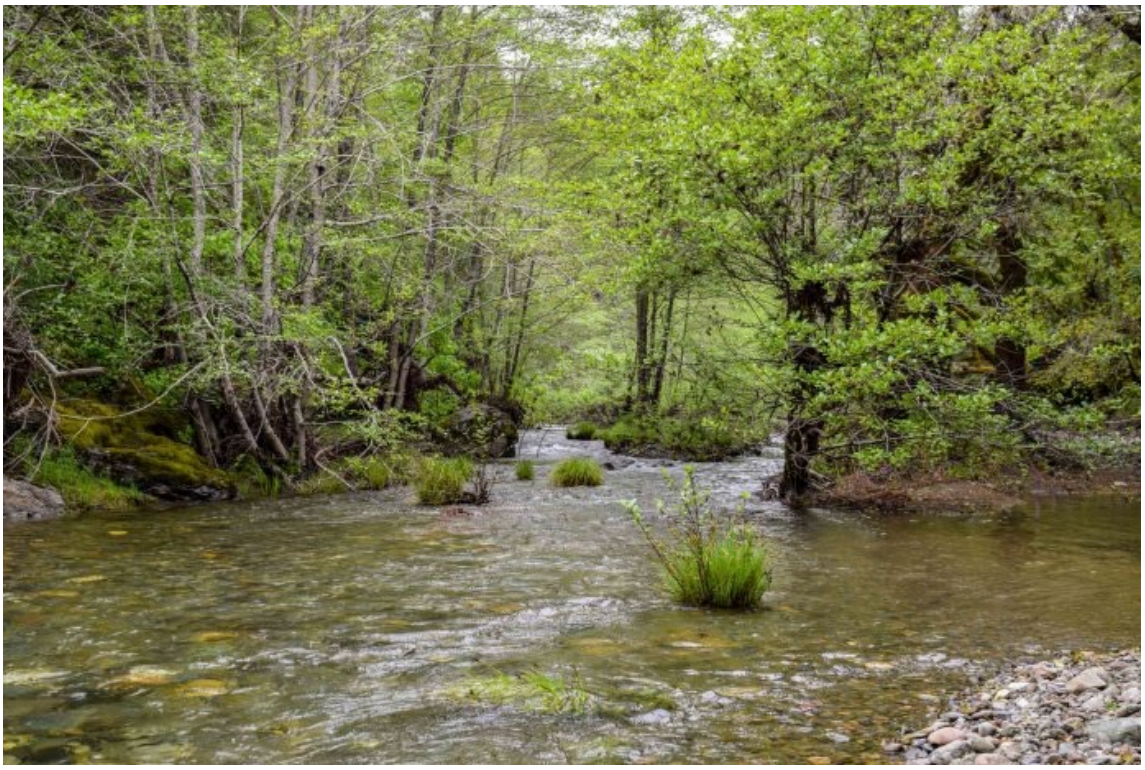

Figure 7. Gilliam Creek - vegetated island, broad channel devoid of large wood

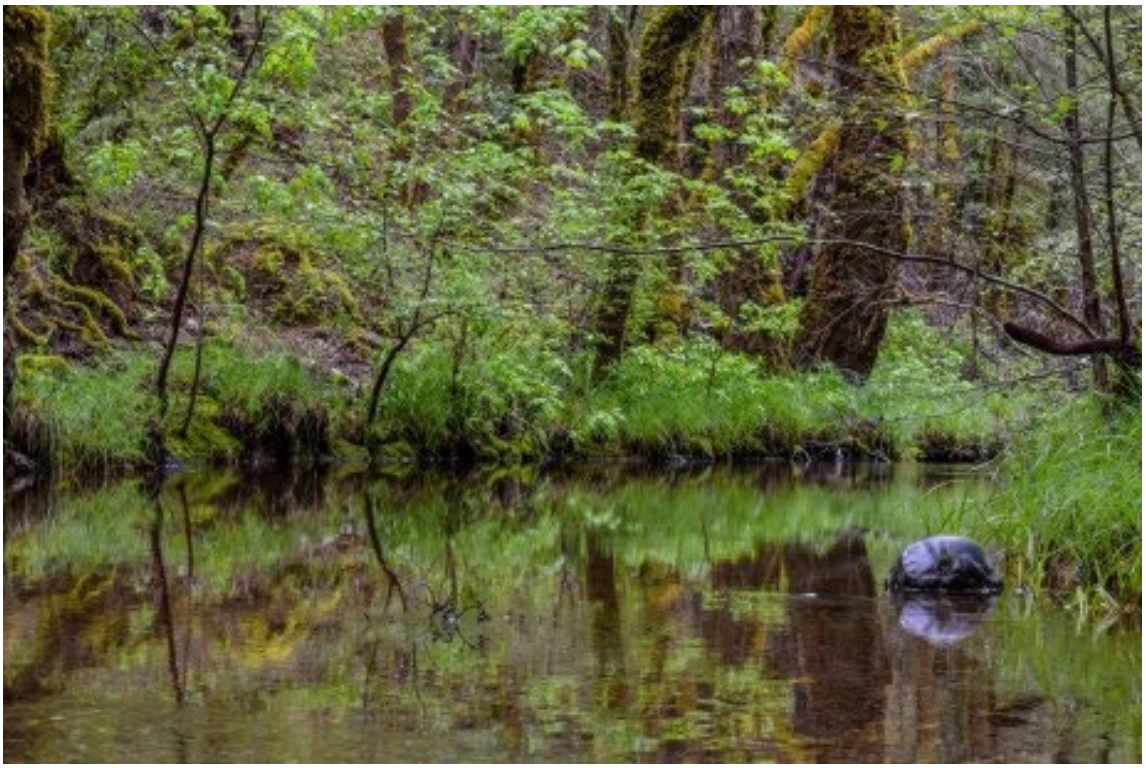

Figure 8. Gilliam Creek, homogenous glide, lacks complexity and shelter