California Department of Fish and Wildlife
Fisheries Restoration Grant Program
Restoration Project Case Study

P1410551 Lindsay Creek Coho Habitat Enhancement Project

Project Objective(s) – The purpose of this project was to install 16 woven log jam structures along a 1.5 mile reach of Lindsay Creek to increase pool depth, add channel complexity, sort spawning gravels, provide high flow refugia, and increase fish cover for Coho Salmon, Chinook Salmon, Cutthroat Trout, and steelhead trout.

Project Location(s) – Lindsay Creek; tributary to Mad River; near the town of Blue Lake, in Humboldt County.

Project Description – Work for this project was implemented from August 22 to September 5, 2016. Due to changes in landownership, permission for construction was secured for only 13 of the 16 original large wood (LW) features proposed. The features were installed using a total of 110 pieces of wood, with 44 logs having intact rootwads and the remaining 66 without root wads. All features were then anchored using rebar and wedged/woven into the existing riparian trees. Some logs were trenched and buried in banks with large boulders placed on top to provide ballast. Structures consisted of six to twelve logs.

Photo Credit: M. Hicks, Watershed Stewards Program

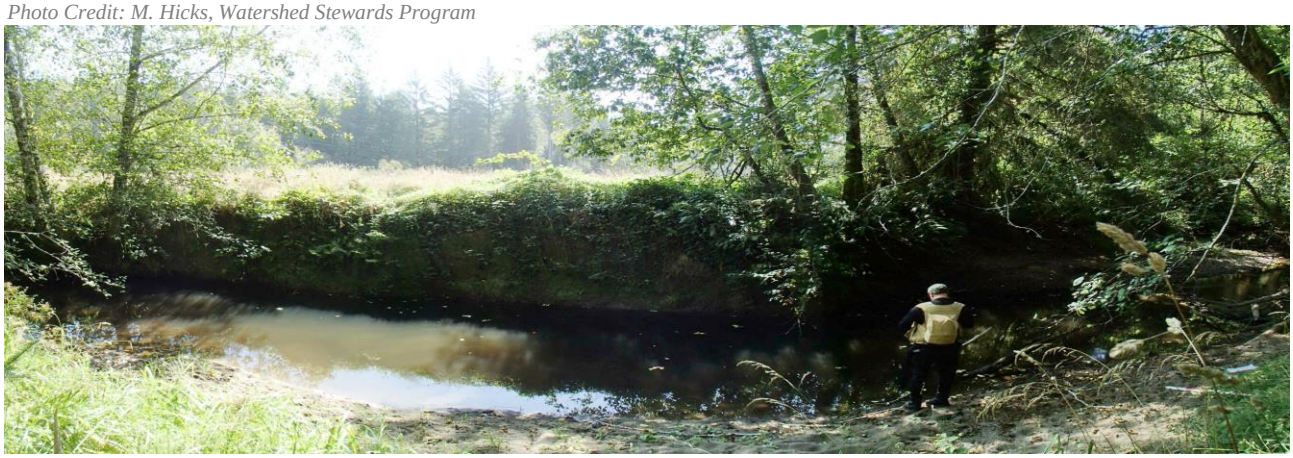

Figure 1. Unprotected, erosive bank at proposed site for LW structure placement (Pre-Treatment Condition, 8/18/2016)

Photo Credit: S. Abidi, Watershed Stewards Program

Figure 2. Trenched logs helped increase cover, provide high flow refugia, and bank stabilization (Post-Treatment Condition, 6/11/2019)

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Project Monitoring

Pre-Treatment	Implementation	Post-Treatment
Date(s): 8/18/2016	Date(s): 11/17/2016	Date(s): 6/11/2019

Photo Credit: M. Hicks, Watershed Stewards Program

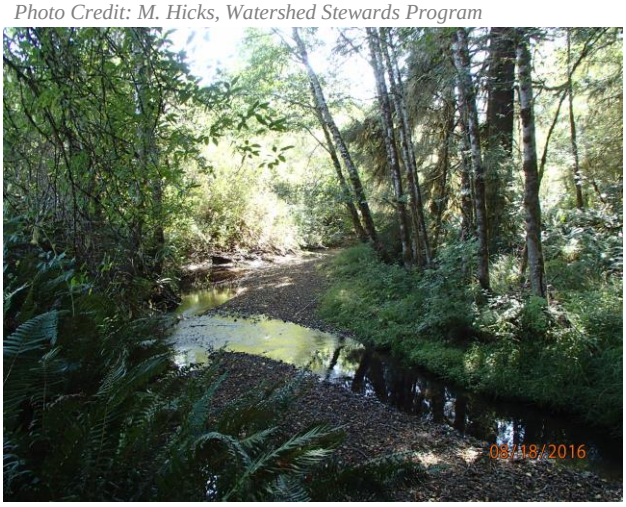

Figure 3. Shallow pool on leftbank and channel devoid of large wood (Pre-Treatment Condition, 8/18/2016)

Photo Credit: S. Abidi, Watershed Stewards Program

Figure 4. Opposing wood woven into existing riparian intercepts small wood and increased depth in existing shallow pool (Post-Treatment Condition, 8/23/2016)

Post-Treatment Project Monitoring Summary

Lindsay Creek was surveyed for post-treatment effectiveness June 11th, 2019. Of the 13 instream features implemented, only 12 were monitored post-treatment due to unapproved access by new property owner. Seven features were slightly modified from what was proposed, by adding or subtracting one or two logs. The majority of installed large wood remained intact, anchored, and/or trenched with minimal or no shifting. Only three treated habitat units showed an increase in maximum residual depth, with the greatest increase measured at 2.3 ft. There was an average decrease of 0.62 ft. for the other nine treated units, and the maximum decrease was measured at 3.3 ft. from pre to post-treatment. The percent shelter for monitored habitat units increased, on average, by approximately 21% and consisted of mostly large wood and small wood accumulation. The installed large wood has helped sort spawning gravels to help create new potential spawning habitat and has increased overall channel habitat complexity and fish cover. Continued adjustment in the channel is expected in the coming years.

No snorkel survey validation was conducted pre or post treatment due to poor visibility (i.e. highly tannic water and suspended algae). Young of year Coho Salmon and 1+ and 2+ age class steelhead trout, were observed from hiking the stream channel throughout the treatment reach.

Project Funding & Cost

- Department of Fish and Wildlife Fisheries Restoration Grant Program…….....$142,646
- **Total Project Cost…….....$142,218**

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