Polyrock Ranch Fish Passage & Riparian Enhancement on Jordan and Coyote creeks

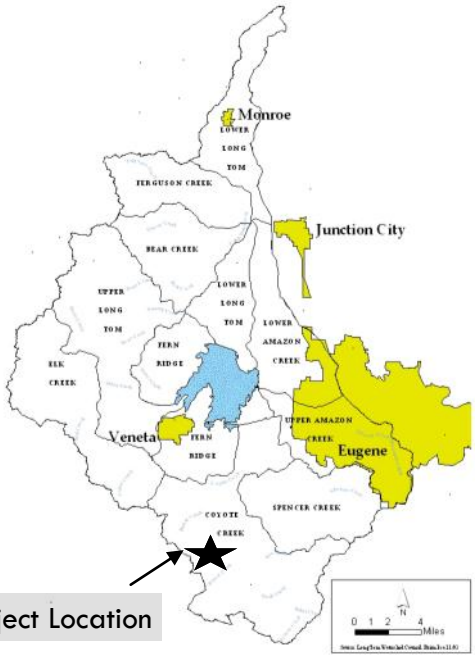
Project Background

The Council has worked with the Mattson family at Polyrock Ranch on several projects to restore fish passage, enhance trout habitat, and improve grazing conditions on their 440 acre ranch. In the first phase, we restored fish passage on Coyote Creek. The culvert that channeled the creek under their entrance road was undersized, creating extreme velocities at high flows. At lower flows, there was a 2-foot drop at the culvert's outlet that prevented trout from passing upstream to 46 miles of mainstem and high quality tributary habitat.

Jordan Creek also runs through Polyrock Ranch. Around 1940, the lower portion of the stream was relocated and channelized, and a small stop log dam was installed to create an instream pond for irrigation withdrawal. This dam created a fish passage barrier and also significantly increased water temperature. Several culverts on the creek also blocked fish passage. In 2011, we removed the dam and restored the channel upstream of it. We also restored passage at the four undersized culvert sites. Two of them we replaced with fish friendly culverts. A third culvert was removed and the crossing abandoned because it was not needed. The fourth culvert was replaced with a rocked crossing.

Before & After: The top photo shows the two foot drop at the culvert's outlet in the summer. Now the crossing is passable to fish year round .

An excavator removes the undersized culvert that blocked fish passage to 46 miles of upstream habitat.

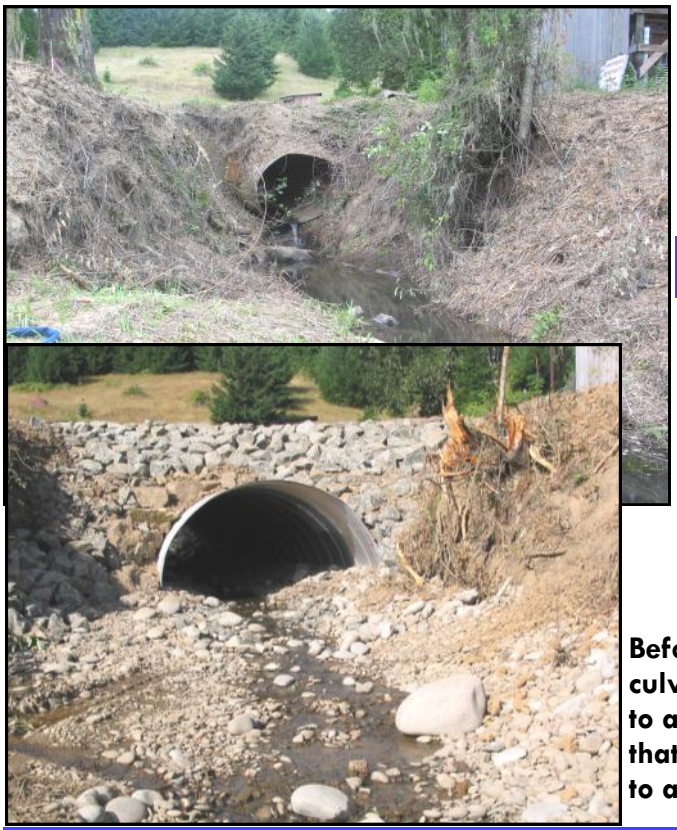


Project Location

In the riparian area, grazing had eroded sections of the stream bank, suppressed native shrubs and trees, and led to a riparian area dominated by blackberry. These conditions, combined with high *E. coli* levels in Coyote Creek and a desire to manage their cattle more efficiently, led the Mattson's to decide to restore native streamside vegetation and put up fencing to move their livestock back from Jordan and Coyote creeks.

Environmental & Economic Benefits

- Cutthroat trout and other native fish can now access cooler water refuges and quality spawning habitat upstream in Jordan Creek. They also now have access to 46 miles of habitat on Coyote Creek.
- Riparian plantings will provide shade for the stream and reduce water temperatures. The native species used in the project will also help stabilize the bank and create forage and cover for native birds, mammals, and amphibians.
- During high flows, the willows and dogwood will dissipate energy and provide areas of slower velocity in the floodplain for juvenile cutthroat trout.
- In the long run, trees from the upper bank will fall into Jordan Creek and provide additional cover and structure for fish.
- Moving livestock away from the riparian area will protect the new plantings, improve bank stability, and decrease *E. coli* levels in the stream.



Restoration Techniques

The culvert on Coyote Creek was replaced with a bridge, which was the most cost-effective solution in this case—reducing project cost by $14,000. A total of 5 barriers were removed on Jordan Creek in 2011. Two were replaced with stream simulation pipe arch culverts which are designed to accommodate the bank-full width of the stream during winter flows. A rocked crossing replaced the northernmost culvert, and the southernmost culvert was not replaced with a crossing because access was not needed.

The landowners installed woven wire fencing along 3,500' of stream and established several off-stream watering facilities to move livestock away from the creek while still maintaining their ranching operations. Fencing benefited the ranching operation by keeping cows and calves out of the creek during the winter and facilitating rotational grazing.

Blackberry in the riparian area was cut and spot sprayed. Volunteers and a professional crew planted over 9,000 native trees and shrubs along Jordan Creek. Willow and dogwood were planted close to the stream and drought tolerant species were planted higher up on the bank.

The dam was removed and the channel above it was restored. Channel restoration included fill removal and construction of riffles and pools. The riparian area was planted with native trees and shrubs to shade the new stream channel and stabilize its banks.

Project Funding & Support (multi-phased)

Project Cost:	**$232,124**
OWEB Grant:	$168,199
In-kind & Cash Match:	$63,925

Partners:

Oregon Watershed Enhancement Board
NRCS (Environmental Quality Incentive Program)
The Mattson Family, *Landowners*
Many individual volunteers

Before & After Photos: The top photo shows an undersized culvert perched too high above the surface of Jordan Creek to allow fish passage. It was replaced with a larger culvert that allows cutthroat trout and other native aquatic species to access cooler water and good spawning habitat.

The Long Tom Watershed Council serves to improve water quality and watershed condition in the Long Tom River basin through education, coordination, consultation, and cooperation among all interests, using the collective wisdom and voluntary action of our community members.

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