

Trout Creek Habitat Restoration



Our commitment to the Deschutes Basin

PGE and the Confederated Tribes of Warm Springs – co-managers of the Pelton Round Butte Project – are reconnecting the Deschutes River and restoring healthy, sustainable runs of migratory salmon and steelhead to the Upper Deschutes Basin. We work closely with partners across Central Oregon, including tribal, local, state and federal organizations. Protecting fish, wildlife and their habitats (both in water and on land) is critical to achieving our shared goals.

Overview

From its headwaters in the Ochoco Mountains to its confluence with the Deschutes River, Trout Creek flows for 200 miles through varied terrain. The creek is home to one of the few remaining runs of wild summer steelhead, a species listed as threatened under the Endangered Species Act. Native American tribes have inhabited the area for more than 5,000 years. In the last half of the 19th century, European-American settlers brought livestock to graze near the creek, harvested timber from its upper reaches and engaged in mining activity. Today, most of the watershed is privately owned and used for ranching. Livestock continue to graze the uplands, and the valley bottom areas are heavily irrigated.



The Trout Creek watershed covers approximately 700 square miles.

The need for restoration

Over time, the watershed's vegetation and flow patterns changed dramatically. Much of the area previously covered by lush bunchgrass is now dominated by fast-spreading western junipers and cheatgrass. During summer thunderstorms and winter rain-on-snow events, runoff rapidly increases flow in the stream channel, causing flooding and streambank erosion.

Record flooding in 1964 led to the channelization of Trout Creek, along with many other northwestern streams. The Army Corps of Engineers also built levees to prevent structural and streambank damage. The water in these altered stretches of Trout Creek is shallow and warm, providing limited habitat for steelhead.

Our solution: improve spawning conditions

In 1999, PGE purchased a 3,000-acre ranch on the lower reaches of Trout Creek. The property includes over three miles of stream and 200 acres of formerly-irrigated pasture. In 2008, PGE and the Tribes implemented a habitat enhancement project, reshaping the stream channel to restore stability and habitat for summer steelhead. Today, Trout Creek Ranch is managed with fish, wildlife and public recreation in mind.

Recovering un-channelized stream

PGE hired Inter-Fluve, a consulting firm specializing in aquatic restoration, to survey the stream channel, develop a restoration plan and oversee project construction. Portions of the stream not channelized following the 1964 flood were identified as prime locations for restoration. By preventing further degradation, we can help these natural reaches recover over time. Eventually, overhanging shade will grow, sediments clogging spawning gravel will be scoured away by water flow, beavers will construct dams that raise the water table and fish will find refuge in the river during summer droughts.

A new channel and floodplain

About 1.2 miles of Trout Creek within the ranch were channelized, leveed and straightened after the 1964 flood. During high flows, the levees constrained rushing waters, causing scouring that prevented streamside vegetation from becoming established. During low flows, the wide, shallow channel provided limited cover for fish and became too warm for steelhead to survive. For these areas, Inter-Fluve designed a new channel and floodplain, which was constructed in 2008.

Gravel and cobble from the levees was removed and used to shape a new meandering stream channel, with alternating pools and riffles. Root wads and boulders were placed to stabilize the new streambanks. Excess material was excavated and reshaped to create a gently sloping floodplain. After construction was complete, we planted 25,000 native trees, shrubs and sedges along the banks, and seeded the floodplain with native grasses and forbs.

Results

There have been several high flow events since project construction, during which water overflowed the channel and spread across the floodplain, depositing fine sediment that supports the growth of vegetative cover. Today, vegetation is growing around and into the channel, and the stream is becoming narrower. Steelhead now regularly spawn in the project area. However, during summer droughts, low flows are still a problem, resulting in standing water too warm for juvenile fish. Steelhead fry that hatch in the springtime move downstream to the Deschutes River to grow for one to two years before migrating to sea. After a few years of ocean growth, the steelhead mature and return to spawn in Trout Creek.



Before restoration (left): the Trout Creek channel banks were incised and easily eroded. After restoration (center and right): the project restored a meandering channel with wide floodplains and opportunities for riparian growth.

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