

2015 “10 Waters to Watch” – Sun Creek, Oregon



Current Sun Creek pasture, showing swales and historic channel scars.

Future location of confluence between Sun Creek and Wood River.

Sun Creek originates on the southern slopes of Crater Lake National Park (CLNP) and was historically a tributary to the Wood River in the Upper Klamath Basin. Due to agricultural land use there have been extensive channel alterations over the last century and Sun Creek is no longer connected to the Wood River. A population of federally threatened bull trout (*Salvelinus confluentus*) inhabits Sun Creek and with aggressive management from CLNP, increased in abundance ten-fold in the last two decades. This project will reconnect Sun Creek to the Wood River, creating a migratory corridor for the isolated bull trout population and expanding available habitat for redband trout (*Oncorhynchus mykiss*) already present in the Wood River. To accomplish this objective, a new Sun Creek stream corridor will be established, flow in the new channel will be increased by permanently transferring water instream, and diversions will be screened to prevent fish entrainment in irrigation ditches. This project represents a highly successful collaboration between federal, state, tribal, non-profit, and private entities.

Bull trout were once widespread in the Upper Klamath Basin but are now limited to seven small populations in isolated headwater streams. Factors limiting bull trout recovery include competition and hybridization with non-native brook trout (*S. fontinalis*), habitat fragmentation, which reduces genetic exchange, and extensive habitat degradation associated with agricultural land use such as flow reduction, limited instream cover, bank destabilization, and lack of floodplain connectivity. Sun Creek is one of only two streams that contain extant populations of bull trout within the Upper Klamath Lake Core Area, designated in the U.S. Fish and Wildlife Service (USFWS) recovery plan. The other population in the Core Area occurs in Threemile Creek on the west side of the Wood River Valley.

In 1989, biologists found that the Sun Creek bull trout population was restricted to 1.2 miles of habitat with an estimated abundance of 150 individuals. Over the last 20 years, CLNP has led efforts to remove nonnative brook trout

and install exclusion barriers on CLNP and ODF property. The results paint a true success story, as bull trout abundance and distribution have increased approximately tenfold since 1989. Current abundance estimates range from 2,500-3,000 individuals. Twenty-two bull trout were collected in 2012 downstream of the national park barriers, and that number increased to 128 in 2013. CLNP has fish traps at the barriers and continues to pass native fish upstream. Reconnecting Sun Creek to the Wood River will allow the expanding bull trout population to access the Wood River and its other tributaries. Consequently, bull trout will be able to express multiple life history strategies, recolonize other streams, and increase population resilience to large disturbance events in the Upper Klamath Lake Core Area.

Native redband rainbow trout have been extirpated from Sun Creek, primarily due to poor connectivity between Sun Creek and the Wood River, overall habitat degradation, and interactions with non-native salmonids. Similar to other Cascade tributaries in the Upper Klamath Basin, redband trout in Sun Creek were likely widespread and abundant and moved throughout tributary, mainstem river, and lake habitats before extensive habitat alterations limited access to tributary systems. Reconnecting Sun Creek to the Wood River will allow redband trout to recolonize Sun Creek and access high quality spawning and rearing habitat.

Project Goals:

To reestablish interior redband trout and migratory populations of bull trout to Sun Creek through improved connectivity, habitat quality and stream and riparian function.

Project Objectives:

1. Increase Sun Creek bull trout population size and range.
2. Reestablish bull trout to Wood River and tributaries.
3. Reestablish redband trout to Sun Creek.
4. Provide quality year-round connection between Sun Creek and Wood River.
5. Establish year-round flow in Sun Creek.
6. Establish functioning riparian area.
7. Establish geomorphically functional stream.
8. Eliminate entrainment risk.

Project Partners:

- Crater Lake National Park
- Klamath Basin Rangeland Trust
- National Fish and Wildlife Foundation
- Natural Resources Conservation Service, Klamath Falls Service Center
- Oregon Department of Fish and Wildlife
- Oregon Department of Forestry
- Oregon Department of Water Resources
- Oregon Watershed Enhancement Board
- The Klamath Tribes
- U.S. Fish and Wildlife Service
- U.S. Forest Service, Fremont-Winema National Forest
- Western Native Trout Initiative
- two landowners

The lead organization is the Klamath Basin Rangeland Trust (KBRT).