

**The Pack River
Watershed
Council
Presents...**

THE RIVER RANGER

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Connectivity

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Contact us at:
(208) 263-5310

www.bonnerrswcd.org

Connectivity

According to Merriam-Webster, the definition of “connectivity” is the quality, state, or capability of being connective or connected; joined or linked together.

We are all connected in some way whether it is through our familial relationships, our community obligations, or through technology. We are also inextricably connected to our environment which provides the materials to build our homes, the plants and animals which provide our food, and the soil and water which nourish all life. Without

this connectivity, we would cease to exist.

Connectivity is equally important in aquatic ecosystems. Fish need continuous connected habitat to access feeding zones, spawning habitat, and juvenile rearing habitat. They need to have the ability to access pockets of cold water, which is rich in oxygen, during the intense hot summer days. And some fish, such as adfluvial Bull Trout, need access from Lake Pend Oreille to the uppermost tributary streams to spawn.



Hellroaring Creek, Idaho, culvert prior to implementation of the restoration project. The drop out of the culvert impeded fish passage into the drainage. (CFSA Appendix A)



A bottomless arch culvert, shown de-watered for construction, was used to improve fish passage on Hellroaring Creek. This fish passage project was cooperatively funded and implemented by the US Fish and Wildlife Service, Natural Resource Conservation Service, Avista, Idaho Department of Fish and Game, Idaho Office of Species Conservation, and Bonner County Conservation District.

Some fish barriers are obvious, such as large power generating dams. Others are not so obvious, like water intake diversion systems, waterfalls, and even culverts.

Culverts can be a challenge to fish for several reasons. There may not be a deep enough pool at the outlet to give the fish the depth they need to jump into the culvert. The depth of the water within the culvert may be too shallow for fish to swim. And sometimes the high water velocities within a culvert can exhaust fish before they can swim through.

In 2002, a significant fish barrier was identified across Hellroaring Creek, a tributary to the Pack River and a historic bull trout spawning and rearing stream. A concrete weir was built by a former landowner in 1973. The weir had a 10 foot drop and completely blocked fish access to 1.5 miles of spawning and rearing habitat.

“When we try to pick out anything by itself, we find it hitched to everything else in the Universe.”

~ John Muir

Connectivity (continued...)

In November 2002, Bonner Soil and Water Conservation District sponsored a Hellroaring Creek Restoration Project. This enhancement project would remove the artificial weir, restore 300 feet of stream habitat, and increase habitat connectivity for adfluvial bull trout and Westslope cutthroat trout.

Partners in the project included the Bonner County Soil and Water Conservation District, Avista, Natural Resource Conservation Service, Idaho Department of Fish and Game (IDFG), US Fish and Wildlife Service, and the State of Idaho Office of Species Conservation.

In 2007, a bottomless arch culvert was installed with a natural rock bottom. Two rock drop structures were installed above the arch culvert, and 8 rock drop structures were installed

below the culvert to improve fish passage in the channel. Approximately 300 feet of stream bank were stabilized using willow and cottonwood bundles as well as planting native shrubs and trees.

In 2012, IDFG identified several bull trout redds upstream of the former barrier indicating that adfluvial bull trout had rediscovered this historical spawning habitat. By 2017, 24 bull redds were noted in Hellroaring Creek.

The removal of the artificial barrier has allowed bull trout to access an additional 1.5 miles of stream habitat and has successfully increased the connectivity of fish habitat between the mainstem of the Pack River and the upper reaches of Hellroaring Creek.

Environmental Quality Incentives Program



Cropland Management, Missouri Dept. of Conservation

What is the Environmental Quality Incentives Program?

The Environmental Quality Incentives Program (EQIP) is a voluntary US Department of Agriculture conservation program that provides federal match to eligible projects that support forestry, wildlife, agriculture and water quality enhancements or protection.

EQIP offers assistance for all types of agriculture, including:

- Conventional and specialty crops
- Forestry and wildlife
- Historically underserved farmers
- Livestock operations

Some of the Eligible Practices include:

- Buffer strips
- Contour strip cropping
- Cover crops

- Critical area plantings
- Erosion control
- Grassed waterways
- Grazing management
- Livestock water systems
- Manure management systems including storage structures and barnyard runoff protection
- Nutrient management
- Pollinator and wildlife habitat
- Stream exclusion

EQIP is offered to private landowners and managers, and can provide 50 percent in cost-share funds for completed projects. NRCS offers many programs, but they are also available as a cost-free resource for consultation and technical assistance.

Contact Greg Becker, NRCS District Conservationist at 208-263-5310 ext. 104 to discuss which programs you may qualify for.

Caribou & Hellroaring Habitat Assessments

Caribou and Hellroaring Creeks are tributaries to the Pack River and support important populations of native Bull Trout and Westslope Cutthroat Trout. However, the steep topography, highly erosive soils and rain-snow events in these tributaries, combined with human-caused factors are contributing to degradation of healthy habitat downstream.

Caribou Creek is listed in Idaho Department of Environmental Quality's (IDEQ) 2012 Integrated Report as not supporting its cold-water aquatic life use due to sediment impairment. Poor road conditions, numerous mass failures, streambank instability and lack of riparian vegetation were blamed for high sediment loading that placed this stream on Idaho's 303(d) list in 1996.

Hellroaring Creek is also on Idaho's 303(d) list as not supporting cold-water aquatic life due to excess sediment, and also due to temperature

impairments. Salmonid spawning is also listed as not supported due to temperature. The stream contributes the highest sediment load to the Pack River.

Last year, Idaho Department of Fish and Game recommended that a Habitat Assessment be conducted in both of these important watersheds. The primary objective would be to identify specific conservation and restoration opportunities to benefit native salmonids and improve watershed function in the Caribou Creek and Hellroaring Creek watersheds as well as positively influence the function of the entire upper Pack River watershed.

The habitat assessment began this summer, with funding from Avista. The evaluation will examine stream and floodplain dynamics and identify priority locations and actions to improve physical processes to benefit aquatic habitat.



Caribou Creek watershed

AIS Boat Station update

Bonner Soil and Water Conservation District managed three aquatic invasive species (AIS) boat inspection stations in Bonner County this year. The stations operated from dawn to dusk and closed on Sept. 16th.

The station at Albeni Falls conducted 10,008 boat inspections, with no fouled boats. The Samuels station inspected 5809 boats and intercepted

one fouled boat. The Clark Fork station inspected 6016 boats and also intercepted one fouled boat.

In the state of Idaho this year, 50 fouled boats were discovered, traveling from places such as Utah, Arizona, Nevada, and Michigan.

For more information about invasive species in Idaho, you can visit invasivespecies.idaho.gov.

Tree Seedlings

Each year the Bonner Soil and Water Conservation District sponsors an annual tree seedling sale. This year the District sold 73,800 seedlings! Seedlings are still available for 2019. Contact Sarah Garcia, BSWCD, at 208-263-5310x100. Order forms are also available at www.bonnerswcd.org.



Calendar

Current topics in Forest Health: Dec. 7th

The Coeur d'Alene Resort
115 S 2nd St Coeur d'Alene, ID 83814-3407

Family Forester's Workshop: Jan. 18th

Mirabeau Park Hotel and Convention Center
1100 N. Sullivan Rd. Spokane Valley, WA

Identifying Idaho's Trees: Feb 4th

6:00pm at Kootenai County Administrative Building 451 N. Government Way, Coeur d'Alene, ID

Idaho Hay and Forage Conference: Feb 21st

Best Western Burley Inn 800 N Overland Avenue Burley, ID 83318

37th Annual Idaho State Forestry Contest: May 9th

7:30am at the Delay Tree Farm, Careywood, Hwy 95, Mile Marker 455. Contact Sarah at 208-263-5310x100.

2018 Pend Oreille Water Festival: May 16 & 17

An educational event for all 5th graders in Bonner County, Riley Creek Campground.

Forestry Shortcourse: June 12th

9:00am at UI Sandpoint Organic Agricultural Center 10811 N. Boyer Rd. Sandpoint, ID 83864.

To register, contact UI Extension Office at 208-263-8511.



Pack River Watershed Council

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1224 Washington Ave., Suite 101
Sandpoint, ID 83864



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*"The mission of the Pack River Watershed Council
is to improve water quality and riparian habitat in
the Pack River watershed for people, fish , and
wildlife through education, collaboration, and
cooperative projects."*

*Thanks to Avista Watershed Council Funding, we are able to print and
distribute this newsletter.*