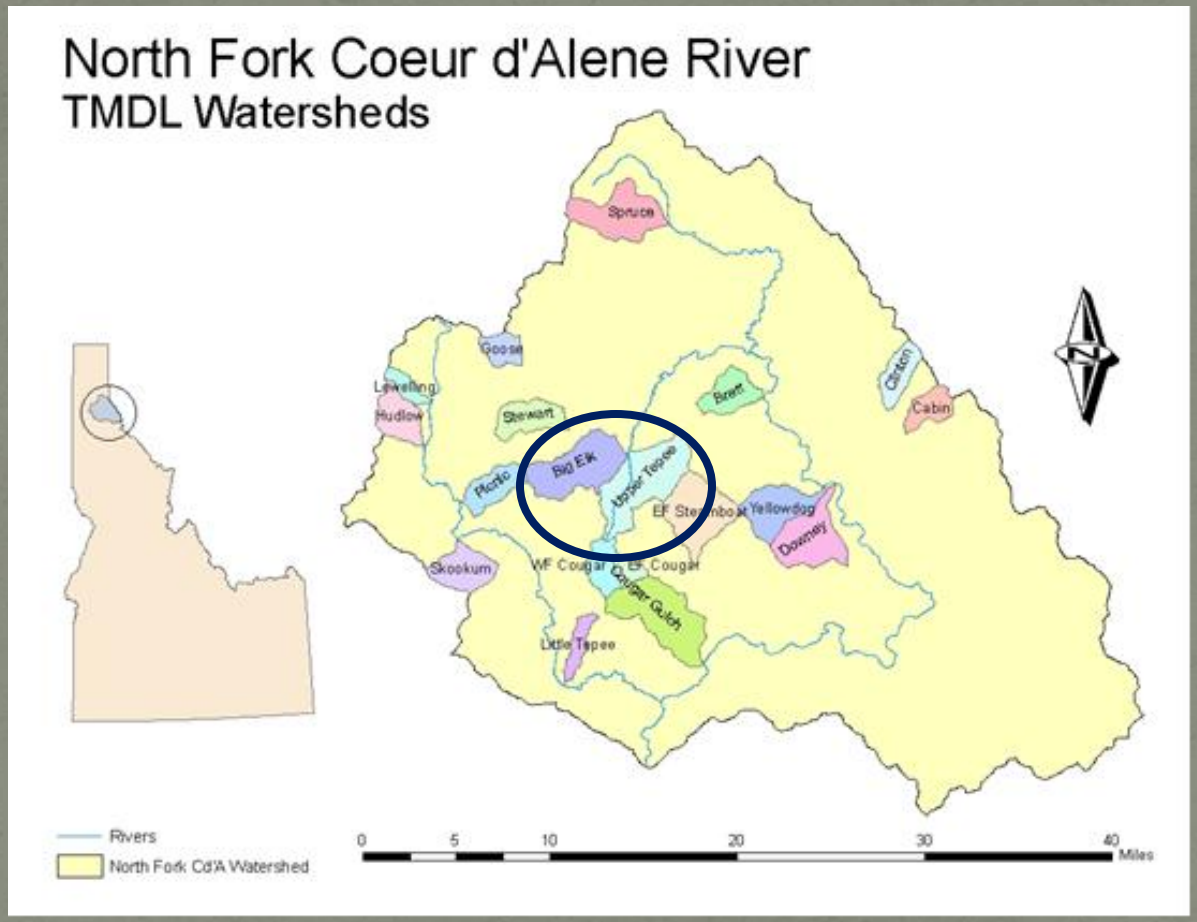
Upper Tepee Creek, Idaho

Water Quality Success Story

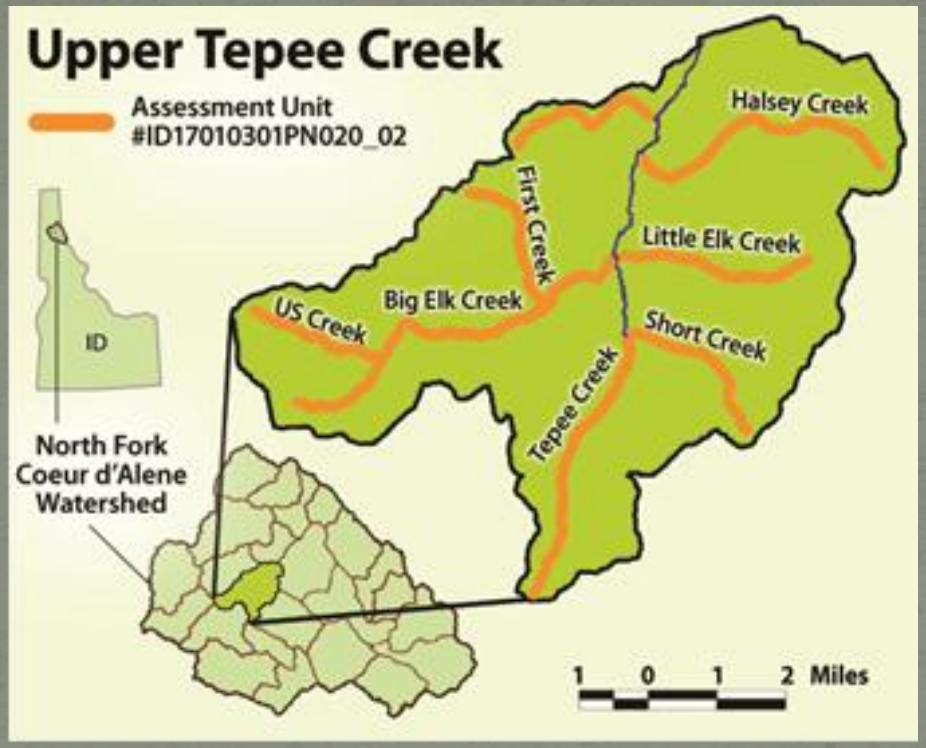
May 24, 2012

Presentation to North Fork CDA WAG

Location


North Fork Coeur d'Alene River
TMDL Watersheds
Spruce
Goose
Lewelling
Hudlow
Stewart
Brett
Clinton
Cabin
Big Elk
Upper Tepee
Placid
Yellowdog
Downey
Skookum
WF Cougar
EF Cougar
Cougar Gulch
Little Tepee
Rivers
North Fork Cd'A Watershed
0
5
10
20
30
40
Miles

Location



- 1st and 2nd order streams
- Nearly 49 stream miles

History

Example Road-Building Practices, 1967.

Upper Tepee Creek, 1996.

Water Quality

- 1990s Tepee Creek identified as impaired
- Low quality habitat and degraded invertebrate populations (cold water aquatic life) due to sediment
- DEQ's 2001 Sediment Total Maximum Daily Load (TMDL), "pollution budget" set sediment load targets
- Required reduction of ~200 tons/year

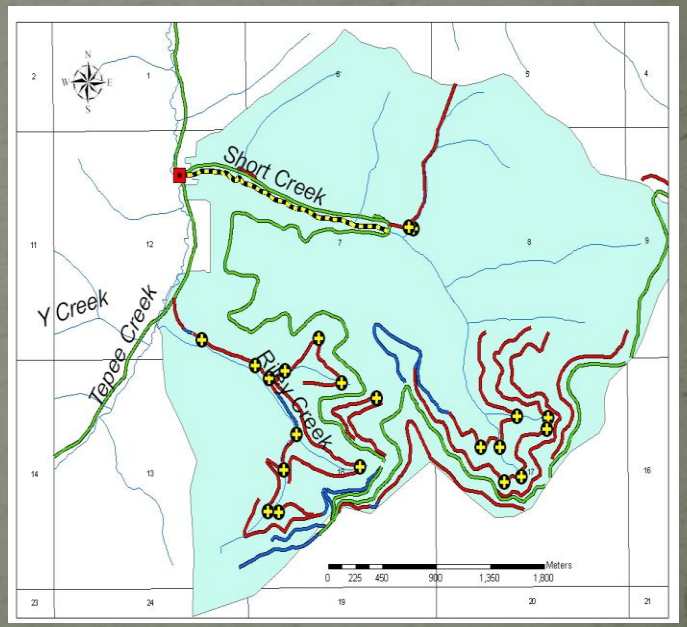
Restoration

- Beginning in the 1990s, the USFS and its partners implemented numerous restoration projects. For example:
- USFS treated 17 stream crossings on 12 miles of road in the Big Elk Creek watershed.
- In 1999 and 2000, the USFS decommissioned an additional 35 miles of road and treated 69 channel crossings.
- The projects included planting trees and placing woody debris at stream crossings and on treated roads.

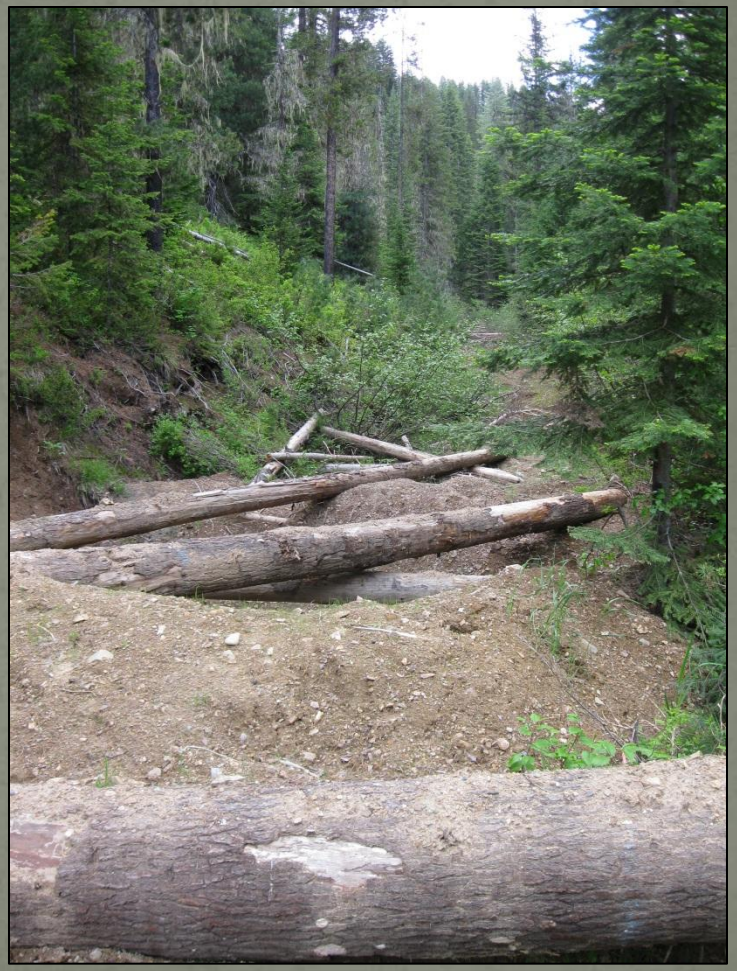
Road treatments, 1993.

Restoration

- Restoration continued into 2010 along tributaries to Upper Tepee Creek (Riley and Short creeks).
- USFS and North Idaho Fly Casters (with support of other partners) led a project to
  - Decommission 14.5 miles of road
  - Recontour 3.5 miles of road
  - Remove 19 culvert crossings
  - Plant riparian areas
  - Improve instream habitat



Restoration



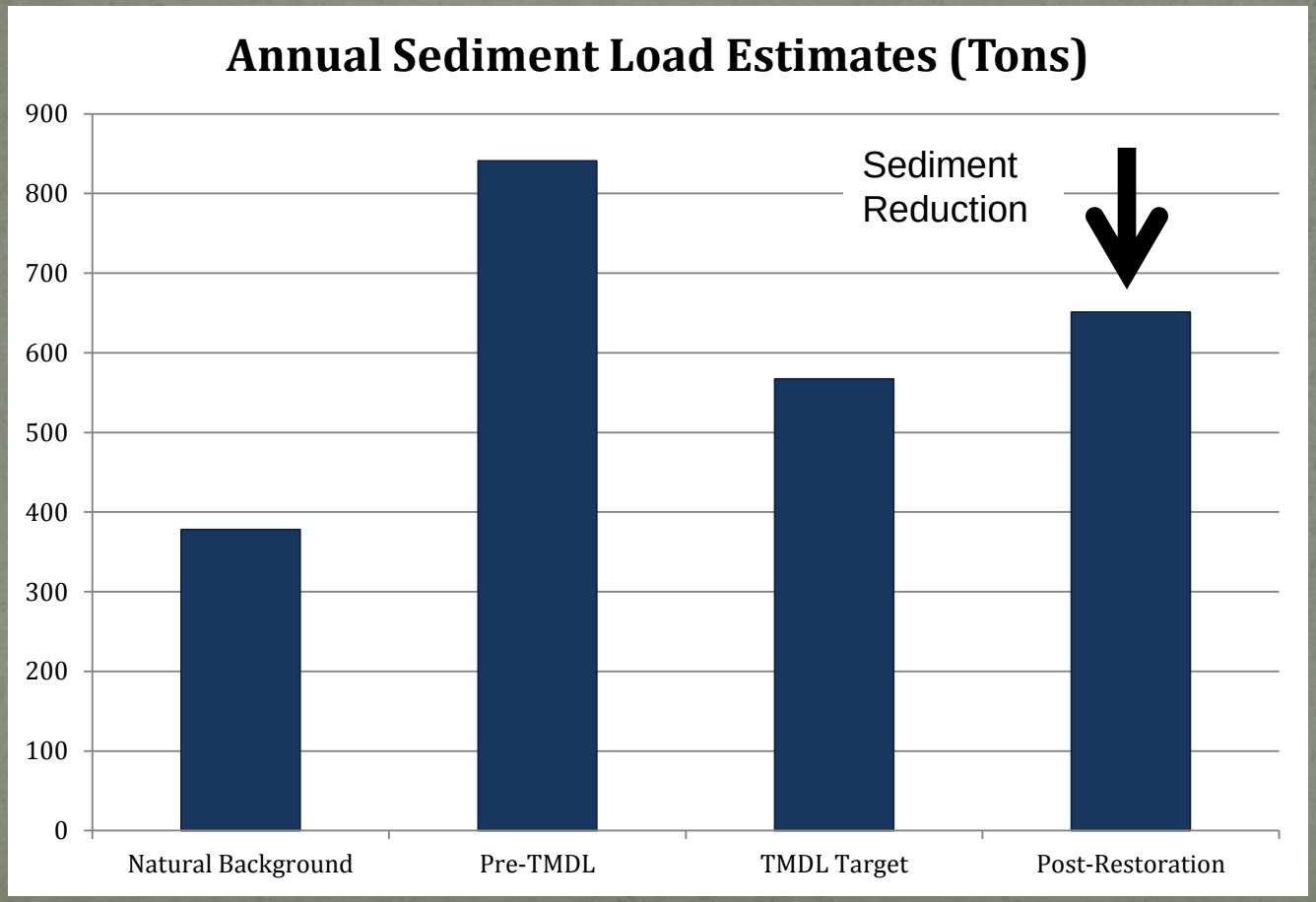
Restoration

BEFORE
Short Creek, 2010

AFTER
Short Creek, 2011

Effectiveness Review: Model

- Approximately 22% reduction in sediment loads



Effectiveness Review: Field Monitoring

- Field monitoring with DEQ and USFS protocols.
- Big Elk Creek one of 8 study streams.

DEQ-USFS interagency crew, 2009.

- Fish
- Macroinvertebrates (Bugs)
- Physical Habitat

GOOD CONDITION

Big Elk Creek, 2009

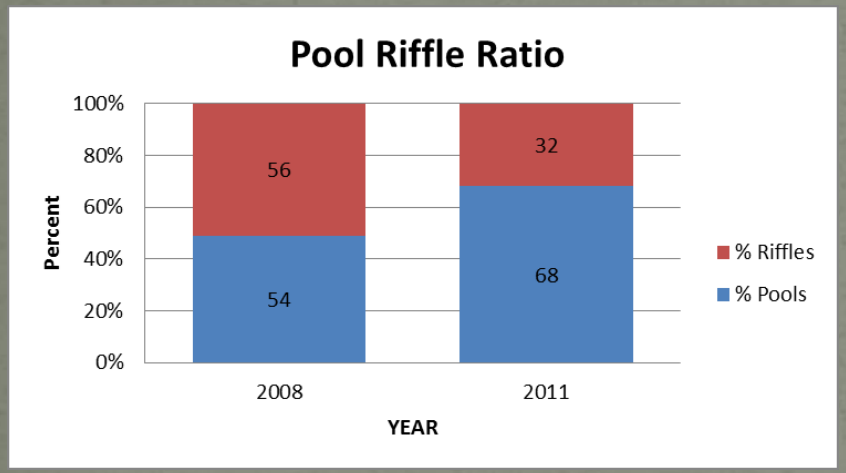
Big Elk Creek, 2009

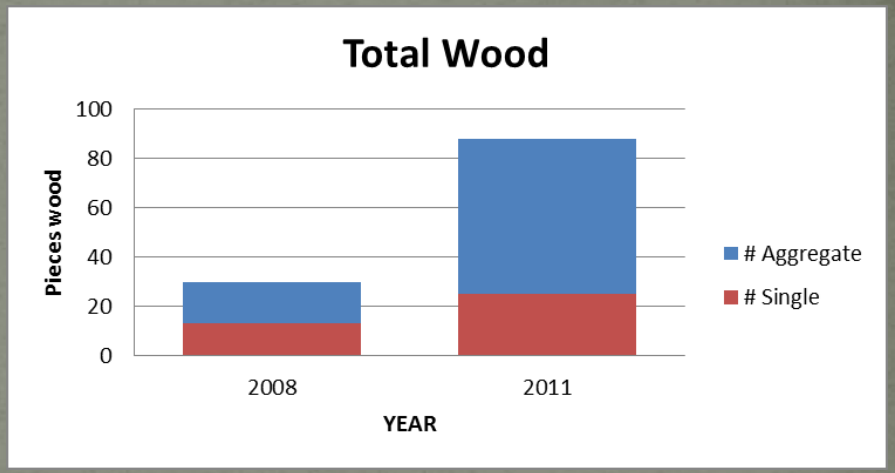
Big Elk Creek, 2009

- Habitat: rated low relative to reference condition.
  - Stream Habitat Index = 1
- Macroinvertebrates: good diversity and species associated with cold, clear mountain streams.
  - Stream Macroinvertebrate Index = 3
- Fish: surveys detected sculpin and westslope cutthroat trout—both native species associated with good water quality.
  - Stream Fisheries Index = 2
- USFS PIBO survey data also indicated good stream conditions.

Short-Riley Monitoring

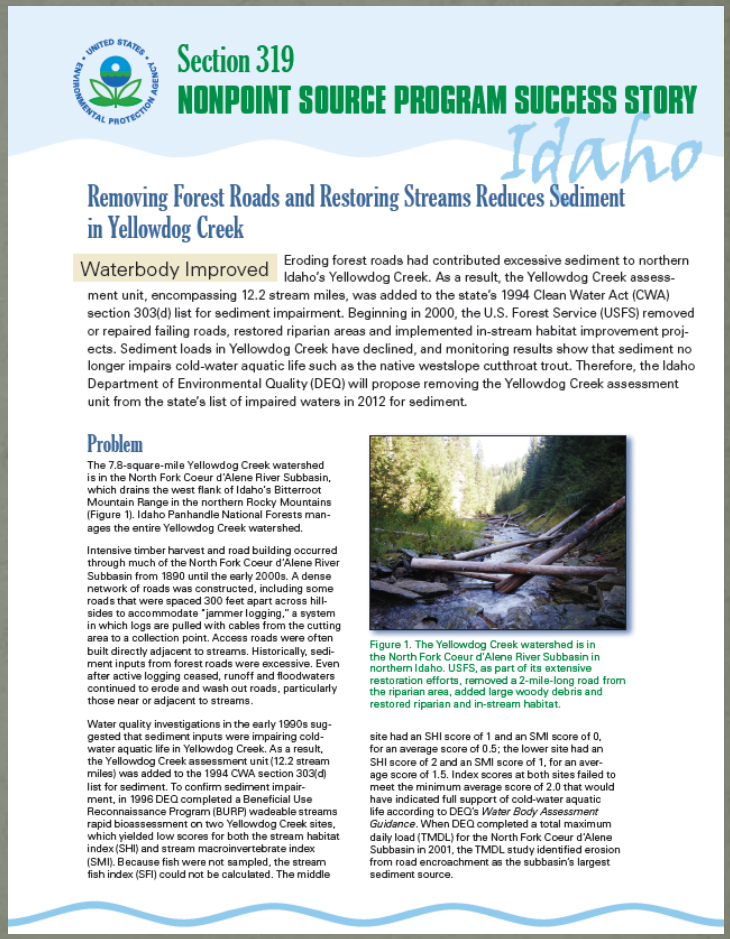
- Post-project monitoring by North Idaho Fly Casters, UI-Extension, USFS, and DEQ.
- Improved habitat and good macroinvertebrates.





Conclusions

- Propose delisting Upper Tepee Creek (AU #20_02) for sediment in 2012
- Drafting report for EPA to publish "Success Story" about Upper Tepee Creek online
- Interagency cooperation for monitoring and assessment efficient and effective



Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY
Idaho

Removing Forest Roads and Restoring Streams Reduces Sediment in Yellowdog Creek

Waterbody Improved

Eroding forest roads had contributed excessive sediment to northern Idaho's Yellowdog Creek. As a result, the Yellowdog Creek assessment unit, encompassing 12.2 stream miles, was added to the state's 1994 Clean Water Act (CWA) section 303(d) list for sediment impairment. Beginning in 2000, the U.S. Forest Service (USFS) removed or repaired failing roads, restored riparian areas and implemented in-stream habitat improvement projects. Sediment loads in Yellowdog Creek have declined, and monitoring results show that sediment no longer impairs cold-water aquatic life such as the native westslope cutthroat trout. Therefore, the Idaho Department of Environmental Quality (DEQ) will propose removing the Yellowdog Creek assessment unit from the state's list of impaired waters in 2012 for sediment.

Problem

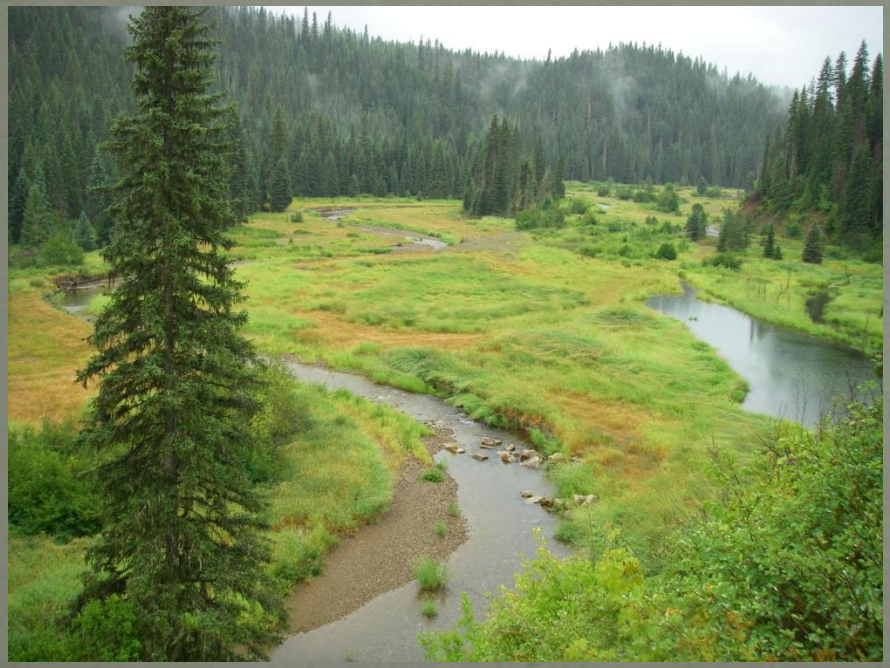
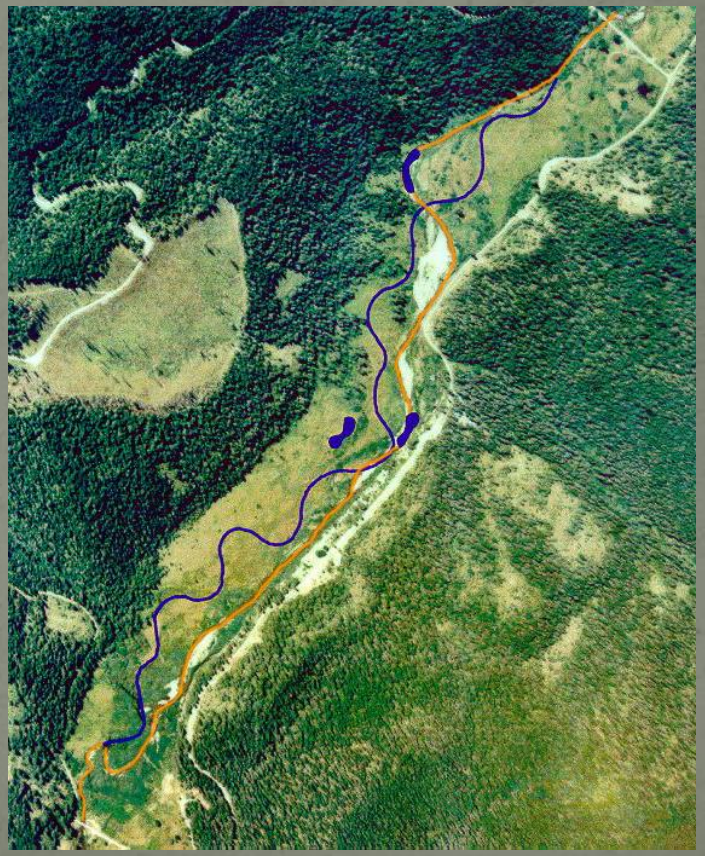
The 7.8-square-mile Yellowdog Creek watershed is in the North Fork Coeur d'Alene River Subbasin, which drains the west flank of Idaho's Bitterroot Mountain Range in the northern Rocky Mountains (Figure 1). Idaho Panhandle National Forests manages the entire Yellowdog Creek watershed.

Intensive timber harvest and road building occurred through much of the North Fork Coeur d'Alene River Subbasin from 1890 until the early 2000s. A dense network of roads was constructed, including some roads that were spaced 300 feet apart across hillsides to accommodate "jammer logging," a system in which logs are pulled with cables from the cutting area to a collection point. Access roads were often built directly adjacent to streams. Historically, sediment inputs from forest roads were excessive. Even after active logging ceased, runoff and floodwaters continued to erode and wash out roads, particularly those near or adjacent to streams.

Water quality investigations in the early 1990s suggested that sediment inputs were impairing cold-water aquatic life in Yellowdog Creek. As a result, the Yellowdog Creek assessment unit (12.2 stream miles) was added to the 1994 CWA section 303(d) list for sediment. To confirm sediment impairment, in 1996 DEQ completed a Beneficial Use Reconnaissance Program (BURP) wadeable streams rapid bicassessment on two Yellowdog Creek sites, which yielded low scores for both the stream habitat index (SHI) and stream macroinvertebrate index (SMI). Because fish were not sampled, the stream fish index (SFI) could not be calculated. The middle site had an SHI score of 1 and an SMI score of 0, for an average score of 0.5; the lower site had an SHI score of 2 and an SMI score of 1, for an average score of 1.5. Index scores at both sites failed to meet the minimum average score of 2.0 that would have indicated full support of cold-water aquatic life according to DEQ's *Water Body Assessment Guidance*. When DEQ completed a total maximum daily load (TMDL) for the North Fork Coeur d'Alene Subbasin in 2001, the TMDL study identified erosion from road encroachment as the subbasin's largest sediment source.

Figure 1. The Yellowdog Creek watershed is in the North Fork Coeur d'Alene River Subbasin in northern Idaho. USFS, as part of its extensive restoration efforts, removed a 2-mile-long road from the riparian area, added large woody debris and restored riparian and in-stream habitat.

Example: Yellowdog Creek "Success Story" online, 2011.

Future

- Middle Tepee Creek delisting proposal
- Summer 2012 tour