RESTORING WOODY PLANTS ON A CONSTRUCTED STREAM CHANNEL AT A HIGH ELEVATION ABANDONED MINE IN IDAHO

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Project Background

- Located near Yellow Pine, Idaho
- Mined from early 1900’s to late 1990’s
- About 3,000 acres
- Meadow Creek Channelized

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Stibnite Mine
Project Scope

- New channel constructed in part of flood plain not impacted by tailings
- Revegetation work completed in September 2005
- Meadow Creek routed into new channel
- Stranded fish rescued and relocated to new channel
- Old channel backfilled and revegetated
Channelized Meadow Creek
New Meadow Creek Channel Construction
Revegetation September 2005

- Grow and install 10,000 willow plants
- Install 2,000 willow cuttings
- Salvage and plant 220 large willow clumps
- Spread woody debris on backfilled old channel
- Spread compost and hydro-seed
Willow Supply

- Willow plants
  - Local cuttings grown in containers 3 by 14 inch
- Willow cuttings
  - 4 feet by $\frac{1}{2}$ inch collected on site
- Willow clumps
  - Salvaged on site
  - Planted on erodible outside stream bends
Willow Plants
Cuttings
Willow Clumps
Container Willow Planting
Willow Cutting Installation
Planting Willow Clumps
Rescuing Stranded Fish From Abandoned Channel
Rescued Fish
Filling Abandoned Channel
New Channel Background
Old Channel Filled and Seeded Foreground
June 2006
Inundation for over a month
August 2006
Summer 2007
Rocky Mountain Browse Control?
A Cozy Den for Raising Wolf Pups!
Results after 2 Seasons

- All plants were very slow growing because of the short season
- Container Plants 90% survival rate
- Cuttings-
  - Survival not well monitored
  - Slower growth than container plants.
Results Continued

- Salvaged willow clumps
  - 70% survival
  - Dormant salvage and trimming would have improved survival
- Wolves in the area preventing browse damage
- Fish and macro invertebrate populations were starting to recover
- Recreational fishing was occurring on the restored reach of Meadow Creek
Summer 2007
Update on Ecosystem Responses to Meadow Creek Restoration

9 March 2011

David Pilliod and Robert Arkle
USGS – Forest & Rangeland Ecosystem Science Center
The Willows are maturing and spreading

An excellent fishery with Bulltrout and West Slope Cutthroat trout has developed

A large landslide in a tributary to Meadow Creek occurred in 2012 resulting in a large flush of sediment and heavy flows. The stream banks handled the heavy flows with minimal impact.
2013
Chinook Salmon Spawning Habitat

- Prior to mining in the area, Meadow Creek was spawning habitat for Chinook Salmon.
- Because of a fish barrier caused by past mining, Salmon are not able to reach the restored Meadow Creek habitat.
Chinook Salmon Return!!

- However, for the last several years, The Nez Perce Tribe has been transplanting Chinook Salmon Spawners in Meadow Creek.
- They are successfully spawning and young of the year Chinook are moving downstream to the South fork of the Salmon River and to the Pacific.