

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

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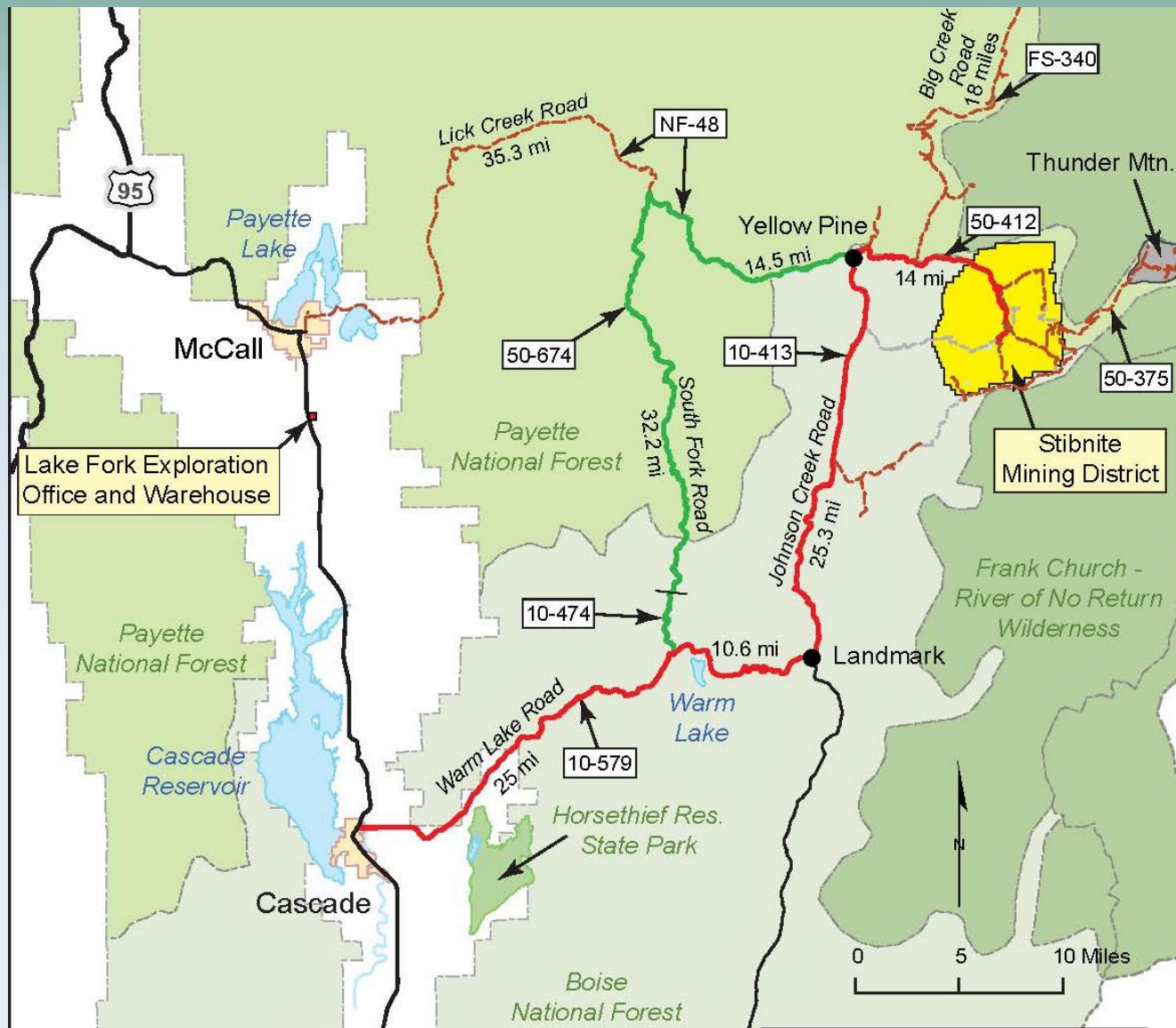
American Society of Mining and Reclamation  
National Meeting, Oklahoma City, June 2014

# Project Background

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

*Acknowledgements: Much material and many photos provided by: Tom Crawford (USFS), Robert Arkle (USGS), John Gebhart (Nez Perce Tribe) and Jim Shannon (Hart Crowser)*



To Boise



# 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

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- Willow plants
  - Local cuttings grown in containers 3 by 14 inch
- Willow cuttings
  - 4 feet by ½ 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

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- 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

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- 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





SAGE RPL+ 360 GRAPHITE III  
#3 LINE 80' 2 1/4 OZ.

# Update on Ecosystem Responses to Meadow Creek Restoration

9 March 2011

**David Pilliod and Robert Arkle**

**USGS – Forest & Rangeland Ecosystem Science Center**





# Ecosystem Responses



# 2007-2013 Monitoring- USFS

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- 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

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- 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!!

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- 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.

