

Wolf Lodge Creek Watershed Assessment and Restoration Prioritization Plan



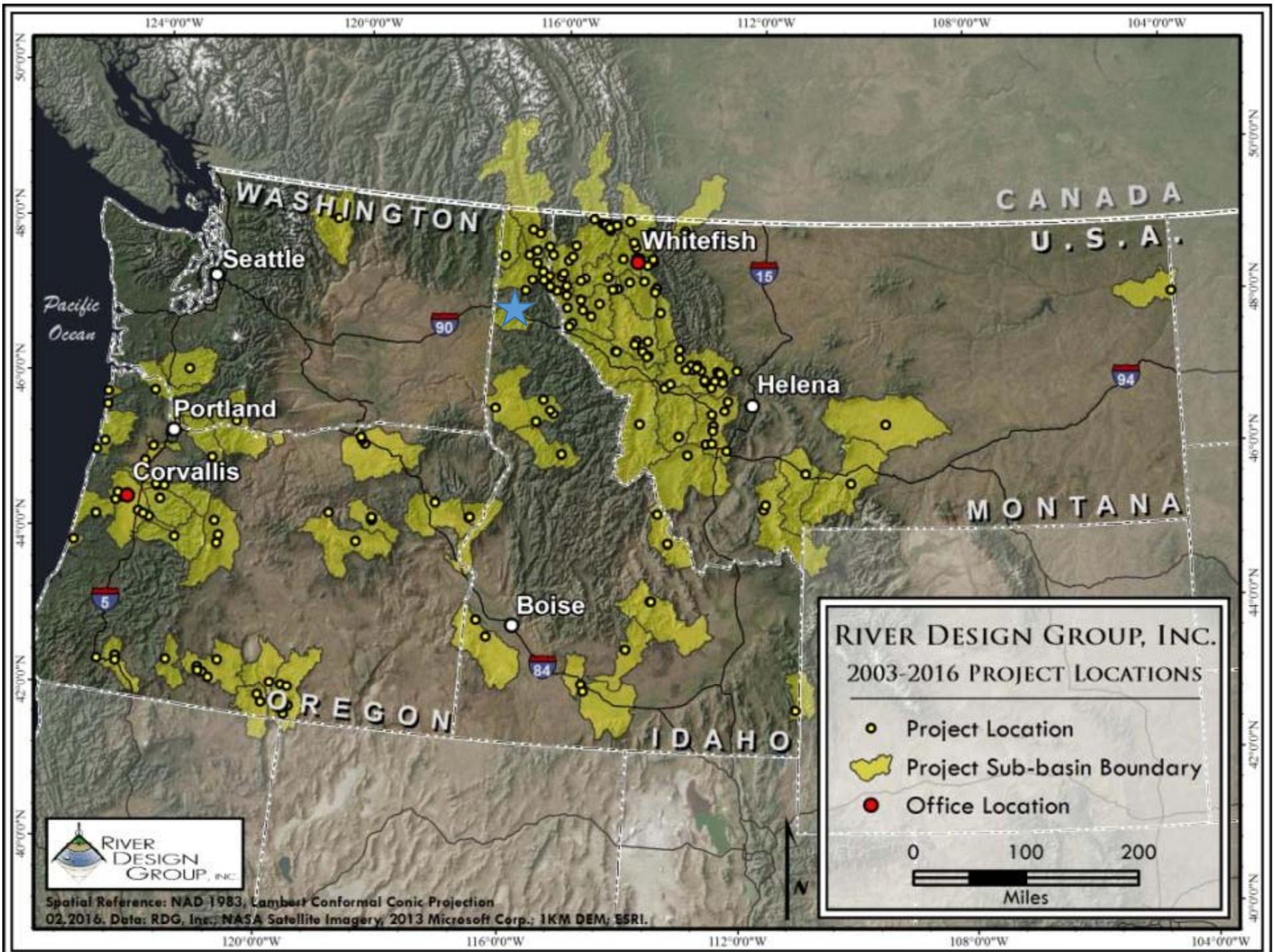
**Wolf Lodge Creek
Watershed Advisory Group Meeting
April 12, 2016**

**John Muhlfeld, Hydrologist
Matt Daniels, Professional Engineer**
riverdesigngroup.com

About River Design Group

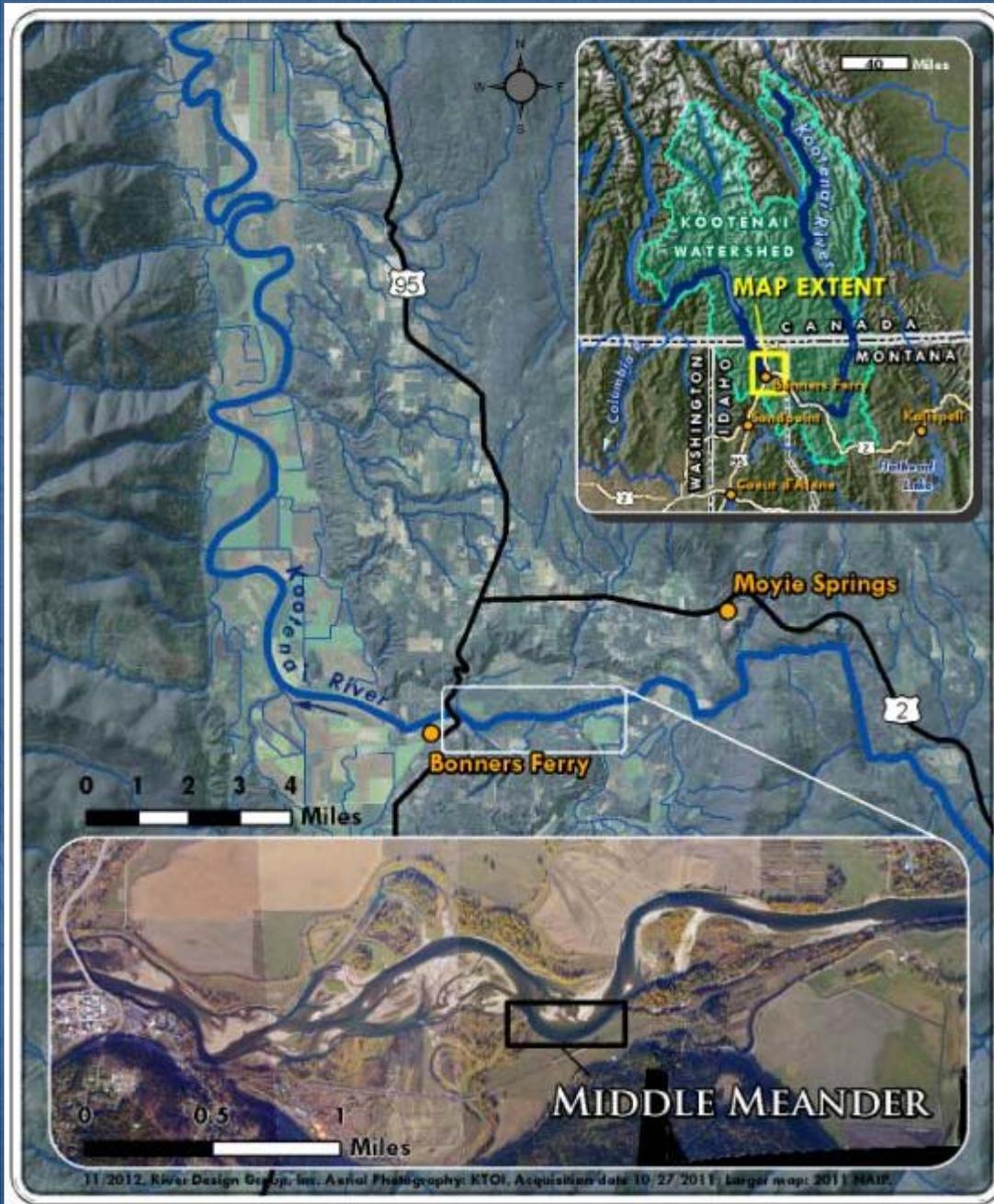
- Founded in 2003
- Offices in Corvallis, OR and Whitefish, MT
- Multi-disciplinary staff of 20 employees
- We work exclusively on restoration projects





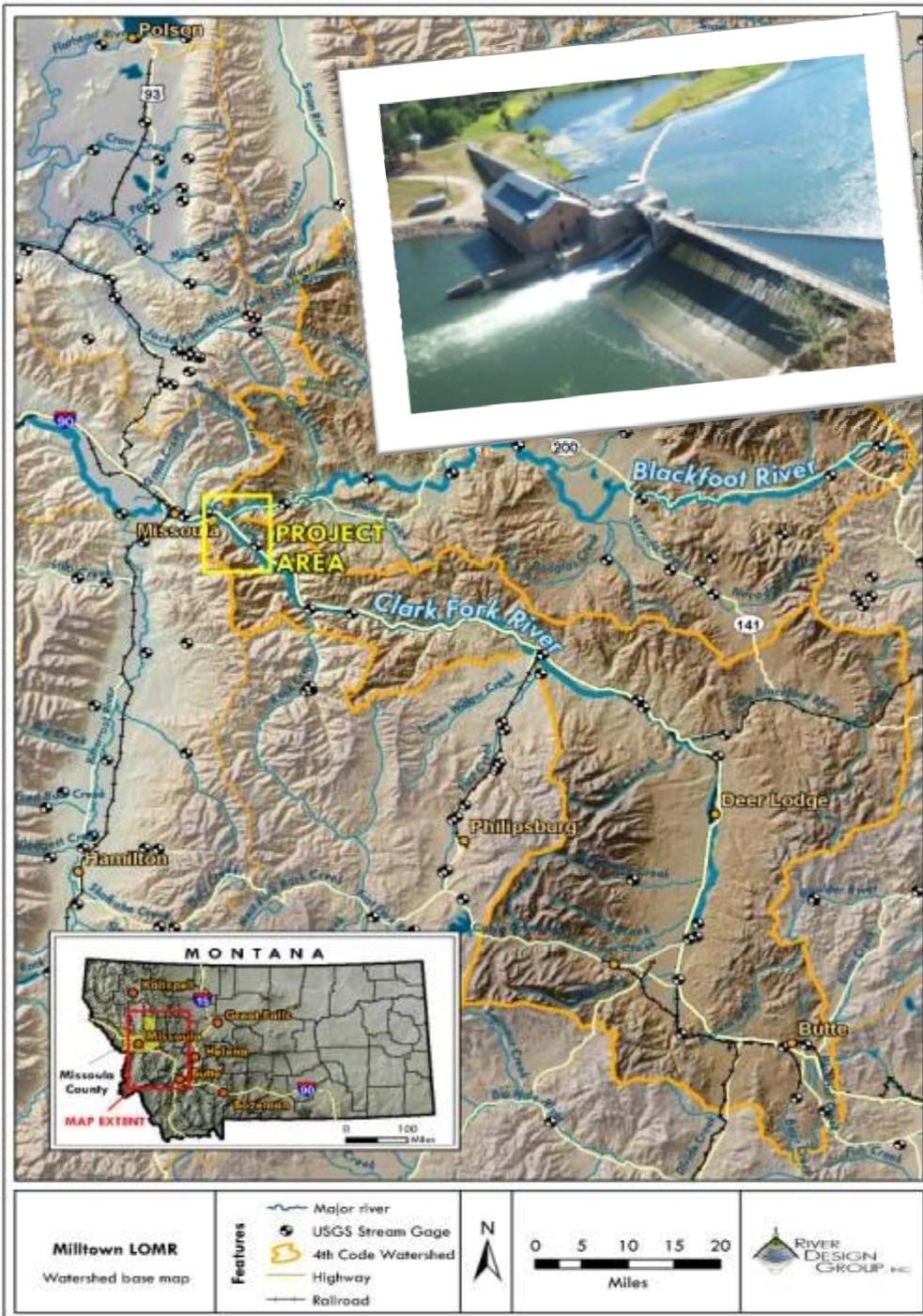
Kootenai River Habitat Restoration Program

Bonnars Ferry, ID

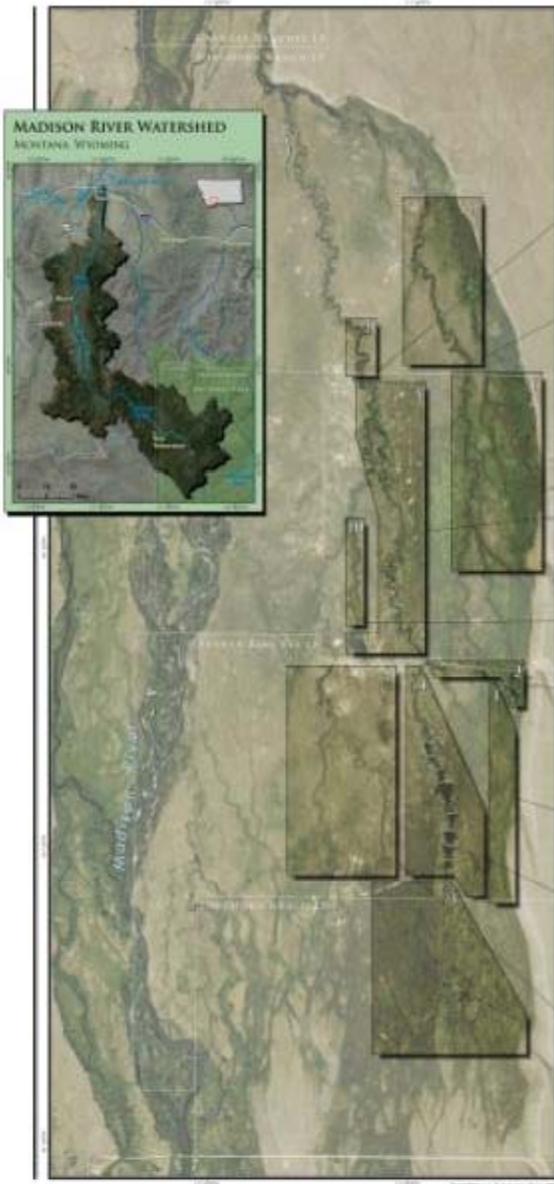


Milltown Dam Clark Fork River

Missoula, MT



O'DELL CREEK STREAM AND WETLAND RESTORATION



Accomplishments, Phases 1-10

Channel Restoration	10 miles
Emergent Wetland Restoration	422 acres
Open Water Wetland Restoration	33 acres

PHASE 8

Restoration:
Channel restoration
Wetland restoration
Open water wetland restoration

PHASE 9

Restoration:
Channel restoration
Wetland restoration
Open water wetland restoration

PHASE 5

Restoration:
Channel restoration
Wetland restoration
Open water wetland restoration

PHASE 6

Restoration:
Channel restoration
Wetland restoration
Open water wetland restoration

PHASE 10

Restoration:
Channel restoration
Wetland restoration
Open water wetland restoration

PHASE 2

Restoration:
Channel restoration
Wetland restoration
Open water wetland restoration

PHASE 4

Restoration:
Channel restoration
Wetland restoration
Open water wetland restoration

PHASE 1

Restoration:
Channel restoration
Wetland restoration
Open water wetland restoration

PHASE 7

Restoration:
Channel restoration
Wetland restoration
Open water wetland restoration

PHASE 3

Restoration:
Channel restoration
Wetland restoration
Open water wetland restoration



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O'Dell Creek

Ennis, MT



Example Restoration Techniques



Floodplain Treatments

- Varied grading
- Off channel wetlands and side channels
- Wood placement and planting

Example Restoration Techniques

Channel Construction

- Varied grading
- Off channel wetlands and side channels
- Wood placement and planting



Example Restoration Techniques

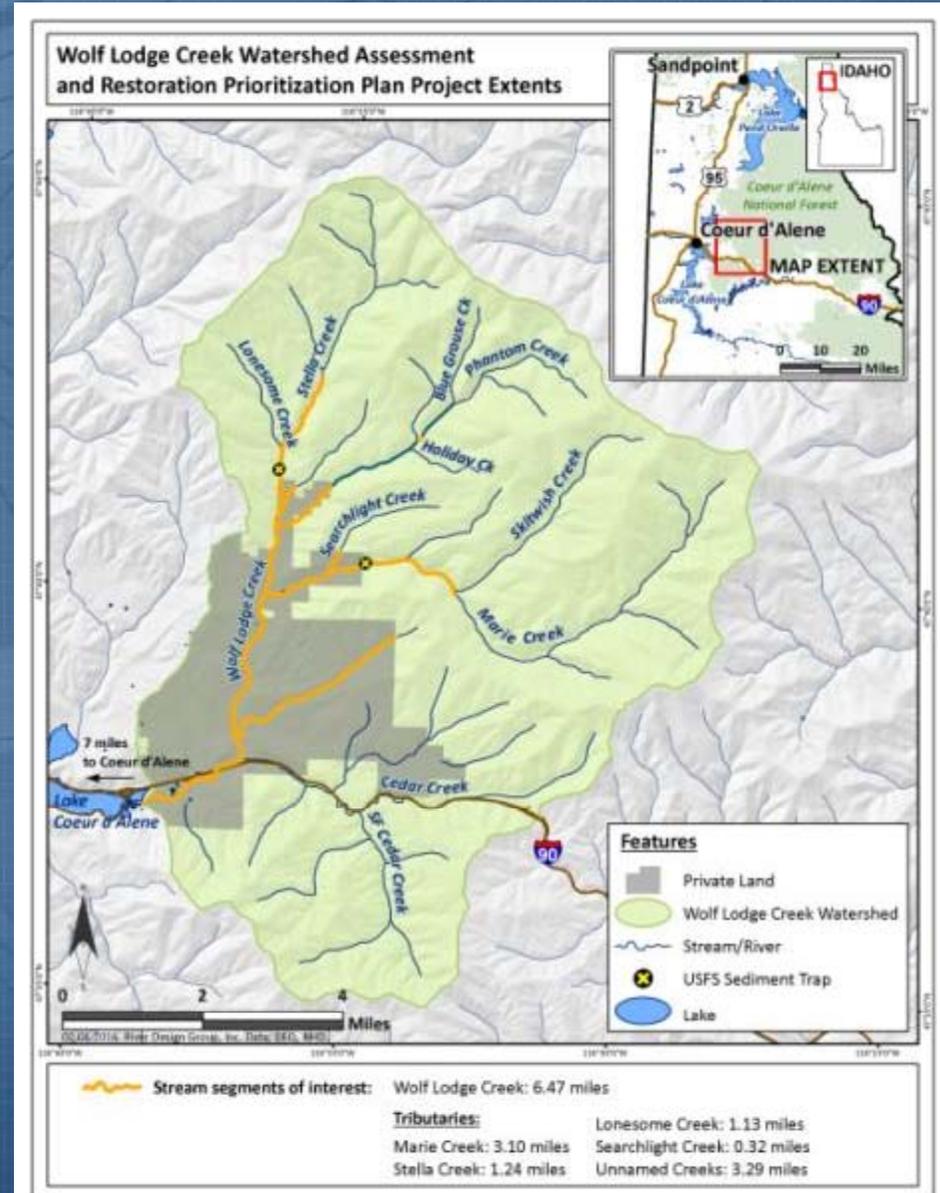
Streambank Restoration

- Bioengineering
- Wood structures
- Planting



Scope of Work for Wolf Lodge Creek

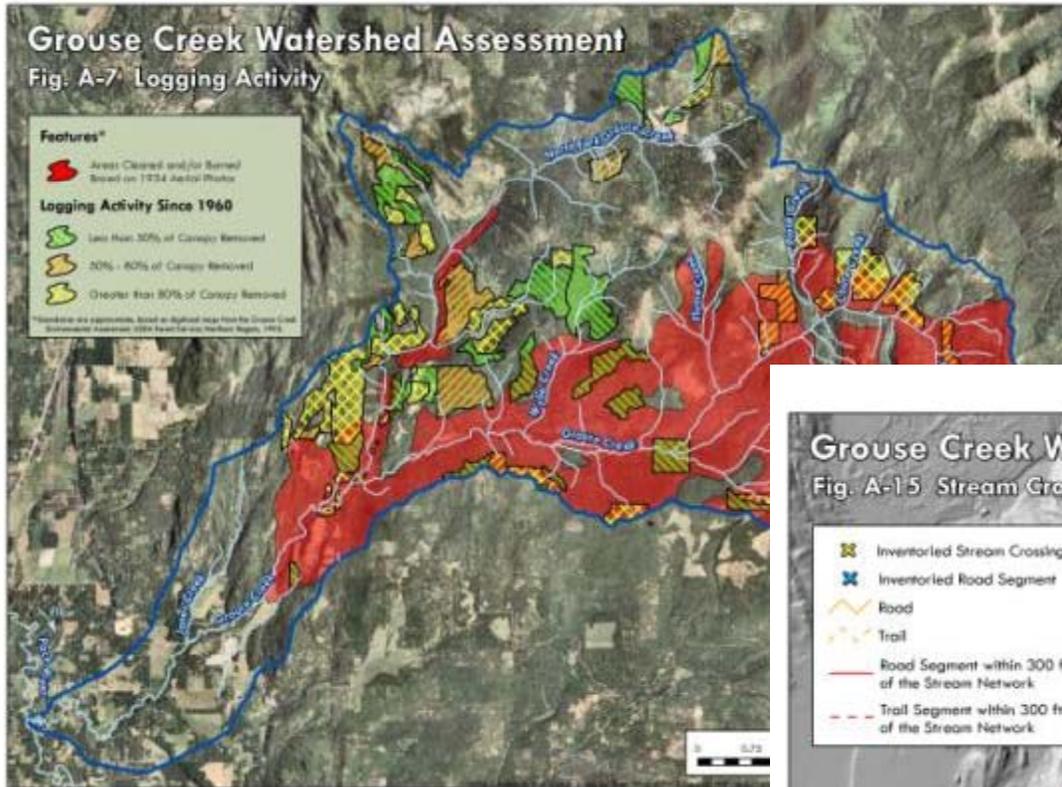
- ✓ Watershed assessment and field data collection
- ✓ Conceptual plan development
- ✓ 4 meetings



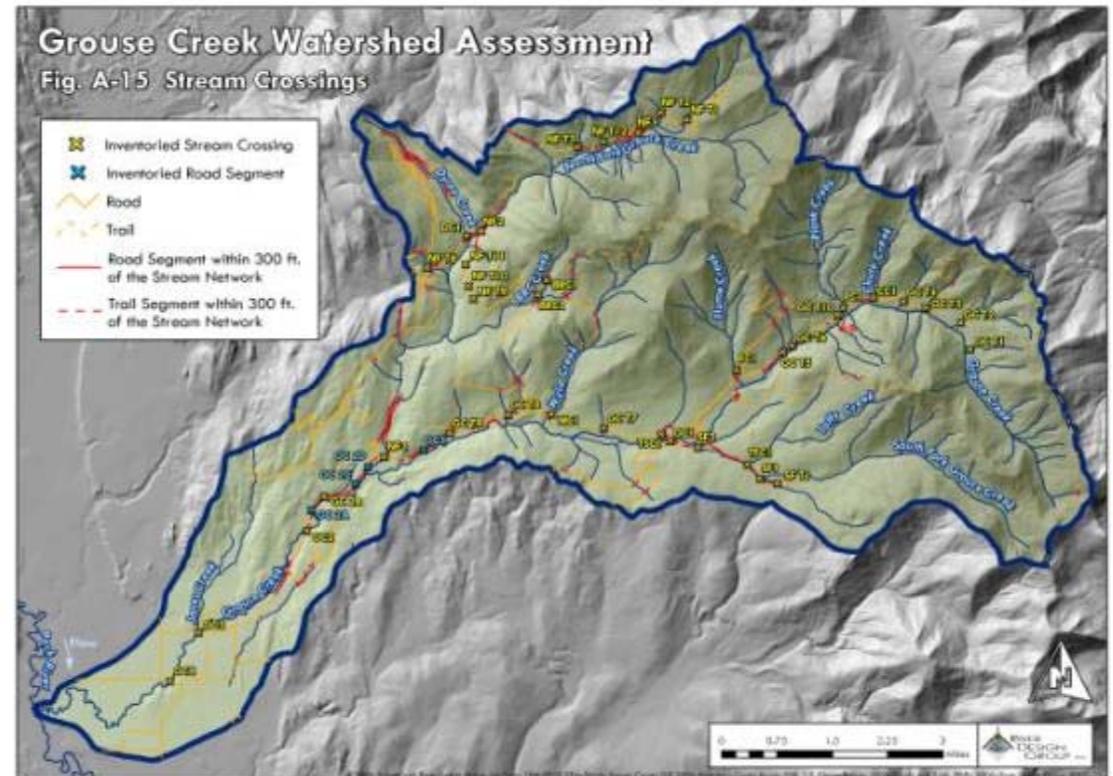
Wolf Lodge Creek Project Goals

- Improve stream and floodplain function by implementing restoration actions that promote channel stability, reduce flood risk and establish sustainable native riparian plant communities;
- Improve aquatic habitat conditions by implementing restoration actions that address sediment sources and elevated water temperatures;
- Collaborate with landowners and federal, state and local agencies on similar efforts to improve ecosystem functions on Wolf Lodge Creek; and
- Provide information necessary to complete the 5-year review of the sediment and temperature TMDLs on Wolf Lodge Creek.

Wolf Lodge Creek Project Approach

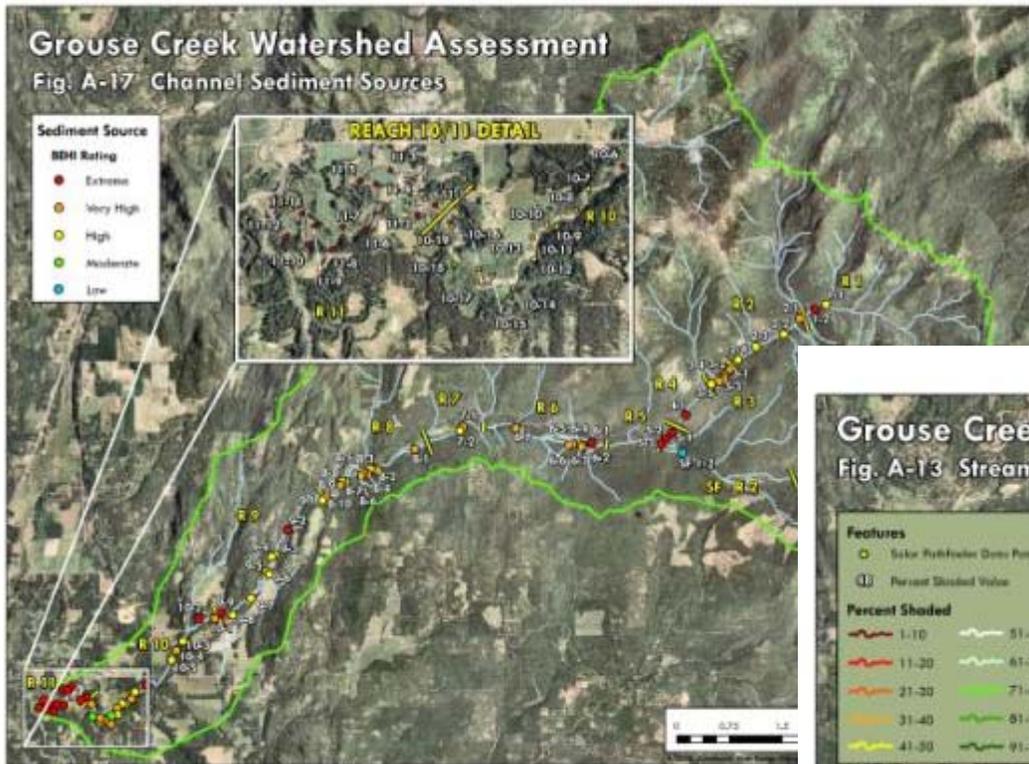


← Land Use History

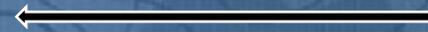


Stream Crossing Evaluations →

Wolf Lodge Creek Project Approach



Sediment Source
Inventory



Stream Shade
Analysis



Example Design Drawing

