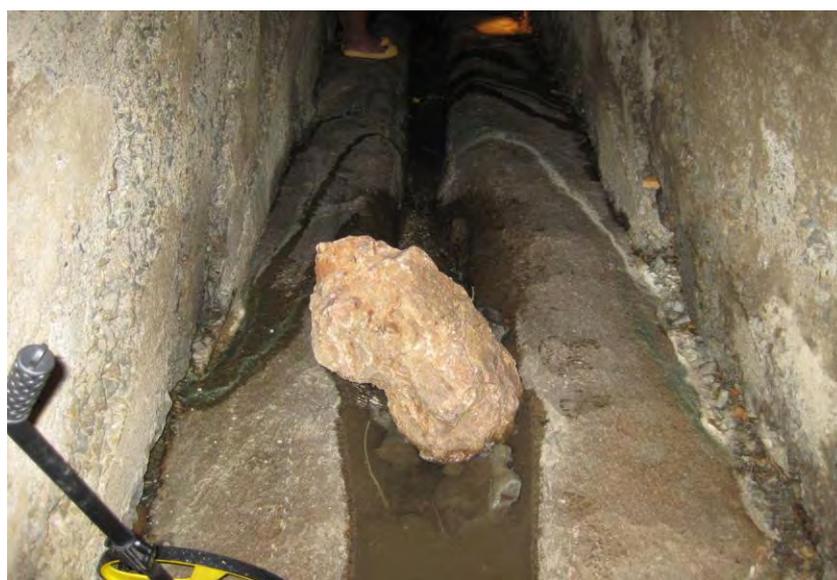


Butte-Silver Bow Storm Water Management Riparian Habitat Restoration Proposal

Presented to:
State of Montana Natural Resource Damage Program

Submitted by:
Butte-Silver Bow City-County Government

Storm Water System Infrastructure



Project Purpose

- Continue to improve the storm water management infrastructure
- Better manage sanitary sewer collection and treatment.



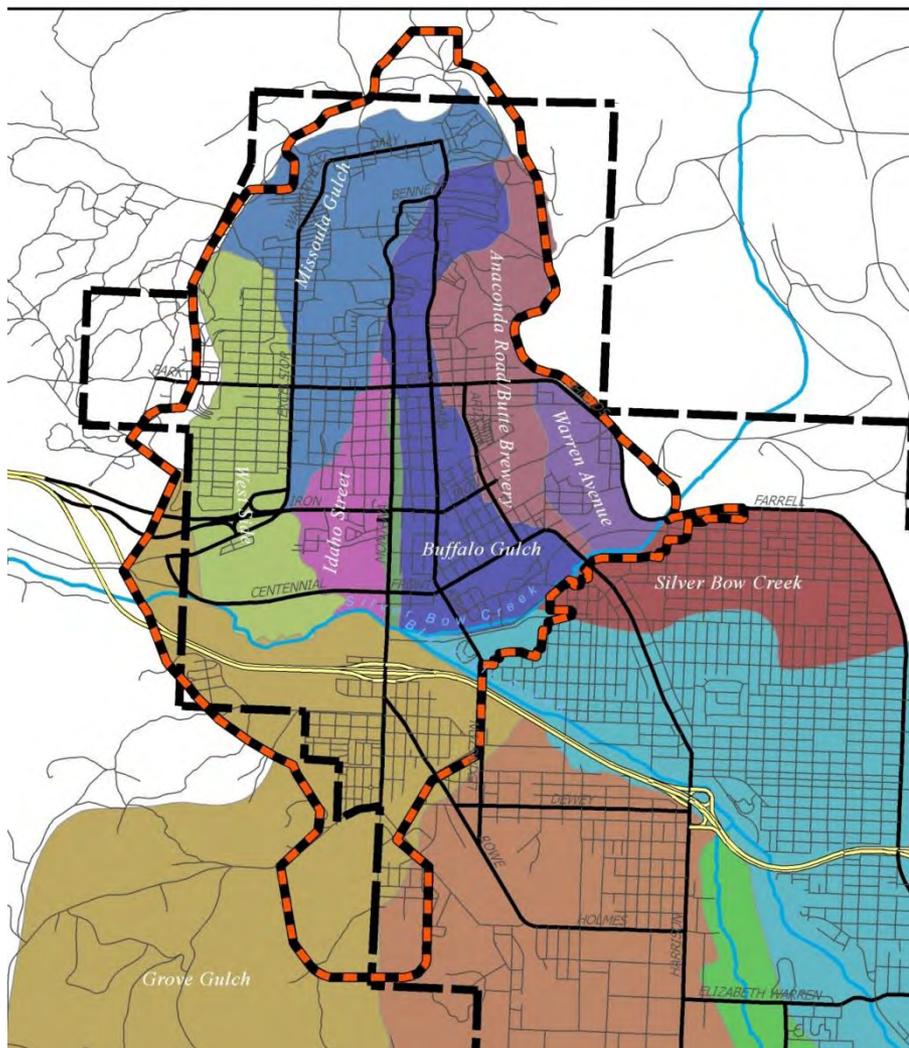
- Project Goals

- Restore and protect aquatic resources of Silver Bow Creek
- Integrate remedial action and storm water management
- Protect remediation investments and restoration projects in Silver Bow Creek and its watershed.

- Project Objectives

- Implement Best Management Practices for managing storm water containing heavy metals and constituents of concern (COCs)
- Limit discharge of contaminants from reaching Silver Bow Creek

Anticipated Outcomes



- Four Outcomes
 - Reduction of heavy metals and arsenic reaching Silver Bow Creek
 - Improved flows
 - Survival and passage of native aquatic life forms
 - Maintenance of improved riparian condition

Project Details



- 20-year implementation includes:
 - Slip-lining of main storm water lines
 - Replacement of catch basins and lateral storm water lines
 - Treatment of sanitary discharge effluent to remove heavy metals and nutrients
 - Replace sanitary sewer collection lines
 - Facilitate beneficial re-use of treated water

Cost Information

- Up to \$30,000,000; total NRD funds needed is directly dependent upon improvements completed under remedy and Butte-Silver Bow municipal investments.
- Placeholder for Contingency Funds?



**AQUATIC IMPROVEMENTS TO THE SILVER
LAKE WATERSHED**

**THE UPPER CLARK FORK RIVER BASIN
REMEDICATION AND RESTORATION
ADVISORY COUNCIL**

CITY AND COUNTY OF BUTTE-SILVER BOW

AUGUST 1ST, 2012

STORM LAKE DAM



STORM LAKE CREEK UPPER DIVERSION



STORM LAKE CREEK LOWER DIVERSION



TWIN LAKES CREEK DIVERSION



TWIN LAKES DIVERSION CHANNEL



MEYERS DIVERSION



SILVER LAKE EAST AND WEST DAMS



SILVER LAKE PUMP STATION



Timber Butte Open Space Area

Terrestrial Habitat Replacement Proposal



Presented to:
State of Montana Natural Resource Damage Program

Submitted by:
Butte-Silver Bow City-County Government

Project Purpose

- Acquire, protect, and maintain a native terrestrial landscape
- Acquisition of 225 acres of land on Timber Butte will replace lost or damaged terrestrial resources

- Four Goals

- Prevent urban encroachment
- Improve species diversity
- Promote ecological health and function of the Upper Clark Fork River Basin
- Provide public access to recreation to uninjured native habitat

- Two Objectives

- Secure public ownership through land acquisition.
- Protect uninjured resources from further development and preserve a native terrestrial habitat.

Timber Butte Ecology



Photo: coopext.colostate.edu

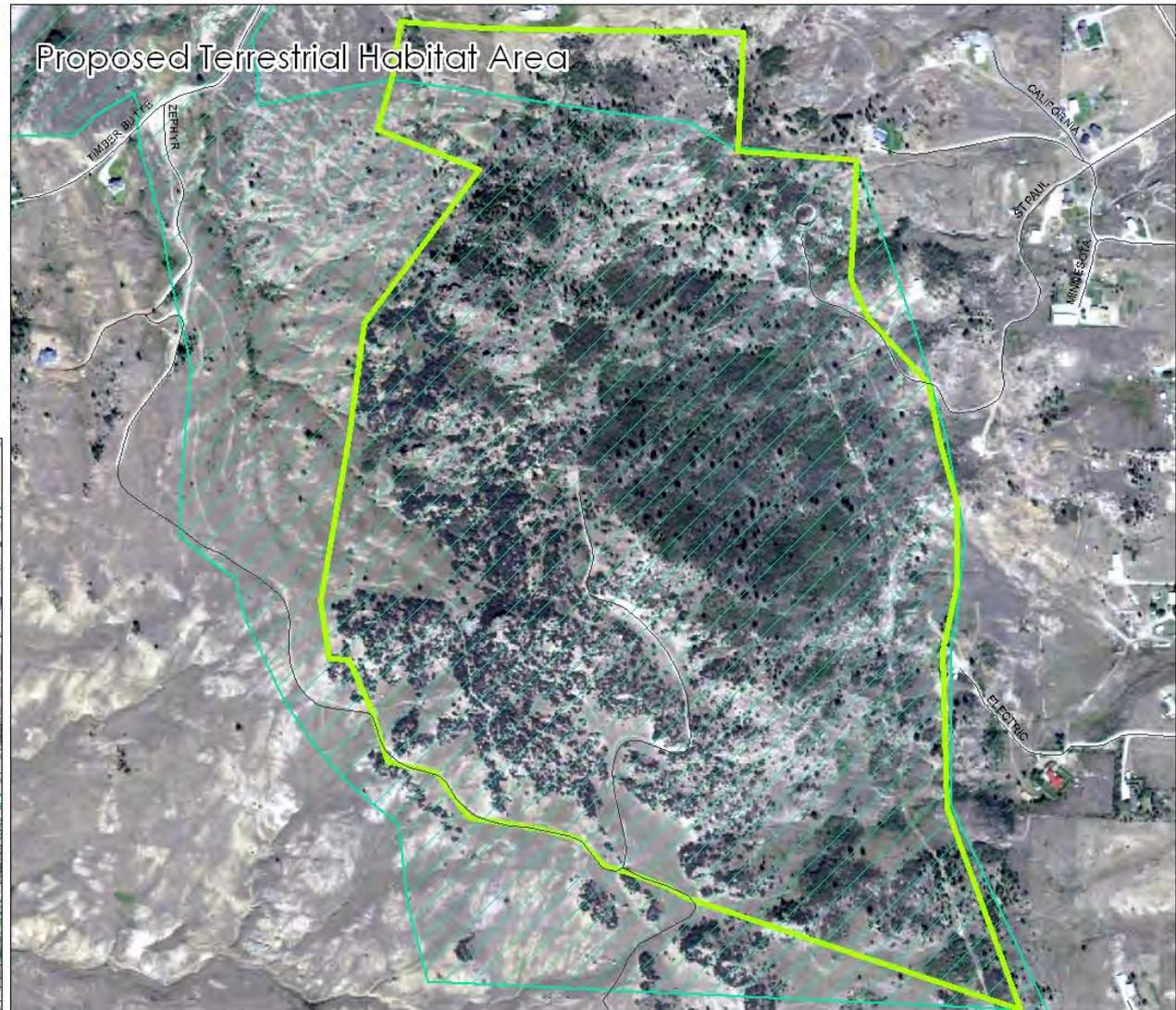
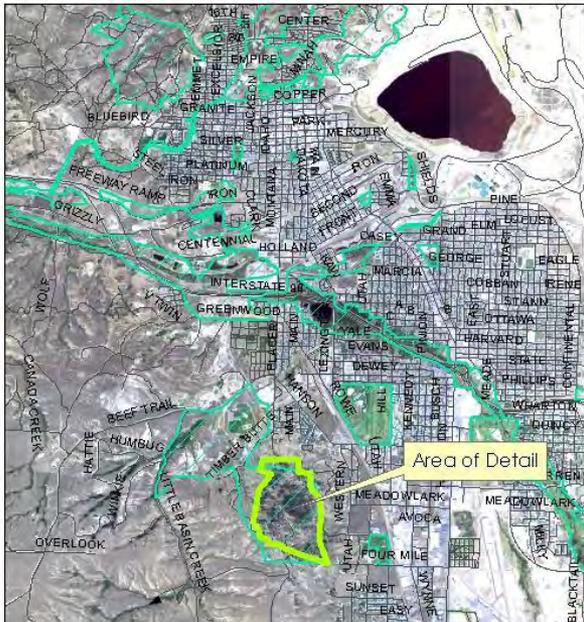
- Timber Butte has one of the few, significant curl-leaf mountain mahogany ecosystems in Silver Bow County and southwest Montana.
- There were over 90 species of plants identified on the Timber Butte, the majority of these species native.

Project Location

Figure 1. Timber Butte Terrestrial Habitat Restoration

- Streets
- Terrestrial Restoration Area
- Public \ Open Space

0 0.5 1 2 Miles



Project Details

- **Secure public ownership** of 225 acres of land
 - Initial conversations with land owners indicate project viability
- Develop a sustainable open space **recreation area to highlight restoration**
- Implement **long-term Operations & Maintenance**

Anticipated Outcomes

- Timber Butte is one of the few examples of uninjured forest and habitat in the area.
- Preservation:
 - Extends benefits of restoration to the entire Clark Fork River Basin
 - Protects viable habitat
 - Promotes connectivity among the parks, trails and open spaces in Butte's urban area

Project Schedule

Timber Butte Implementation Schedule

Objective	2012	2013	2014
Stakeholder outreach	█		
Land Acquisitions		█	
Recreation System Planning		█	█
Public Participation		█	
Trail Development		█	█
Project Completion			█

* Draft Timber Butte Implementation Schedule

Cost Information

- \$300,000 for land acquisition at 2012 current market value
- \$100,000 for administrative costs including title insurance, surveys, real estate fees, etc.
- \$100,000 for project management, project design, construction and professional services (in-kind)

City of Deer Lodge

Montana Natural Resource Damage Program

Grant Proposal Abstract Presentation



Presenters

Mary Ann Fraley, Mayor

Darryl Barton, Mt. Powell Environmental

Jason Mercer, Morrison-Maierle

Nancy Cormier, Morrison-Maierle

Montana Natural Resource Damage Program

Deer Lodge Wastewater Project Abstract #38



Proposed Restoration Project

Improvements to Deer Lodge Wastewater System

1. Slip-lining sewer pipe from town to the Wastewater Treatment Facility (WWTF)
2. Replacement of Ultraviolet (UV) Disinfection System



Project: Slip-lining sewer pipe from town to the Wastewater Treatment Facility (WWTF)

- Top priority for improvements is reducing infiltration into the system
- Deer Lodge completed lining of sewer lines in town in 2009
- Next step is to line sewer pipe from town to WWTF
- An estimated 2 – 3 MGD will be reduced from the system
- This will have a huge impact on pollutants entering Clark Fork River

Project: Slip-lining sewer pipe from town to the Wastewater Treatment Facility (WWTF)

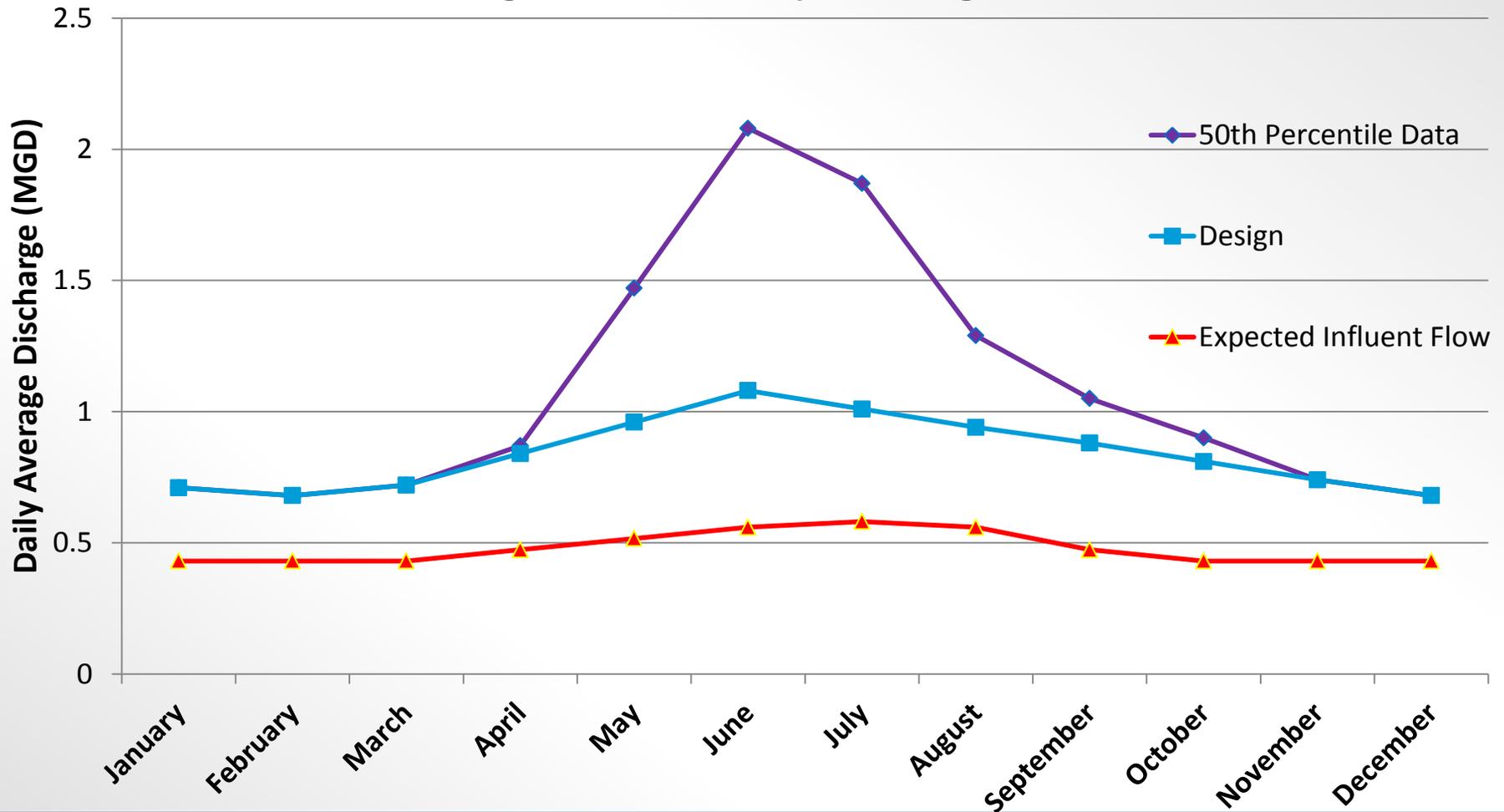


Infiltration into system is a problem

- Wastewater flows from a town the size of Deer Lodge should be about half a million gallons per day (MGD).
- In winter months we see flows below 1 MGD.
- When Kohrs-Manning irrigation ditch fills with water flows rise and continue to be high until the ditch is dry.
- Flows are consistently above 3 MGD and sometimes over 4 MGD.

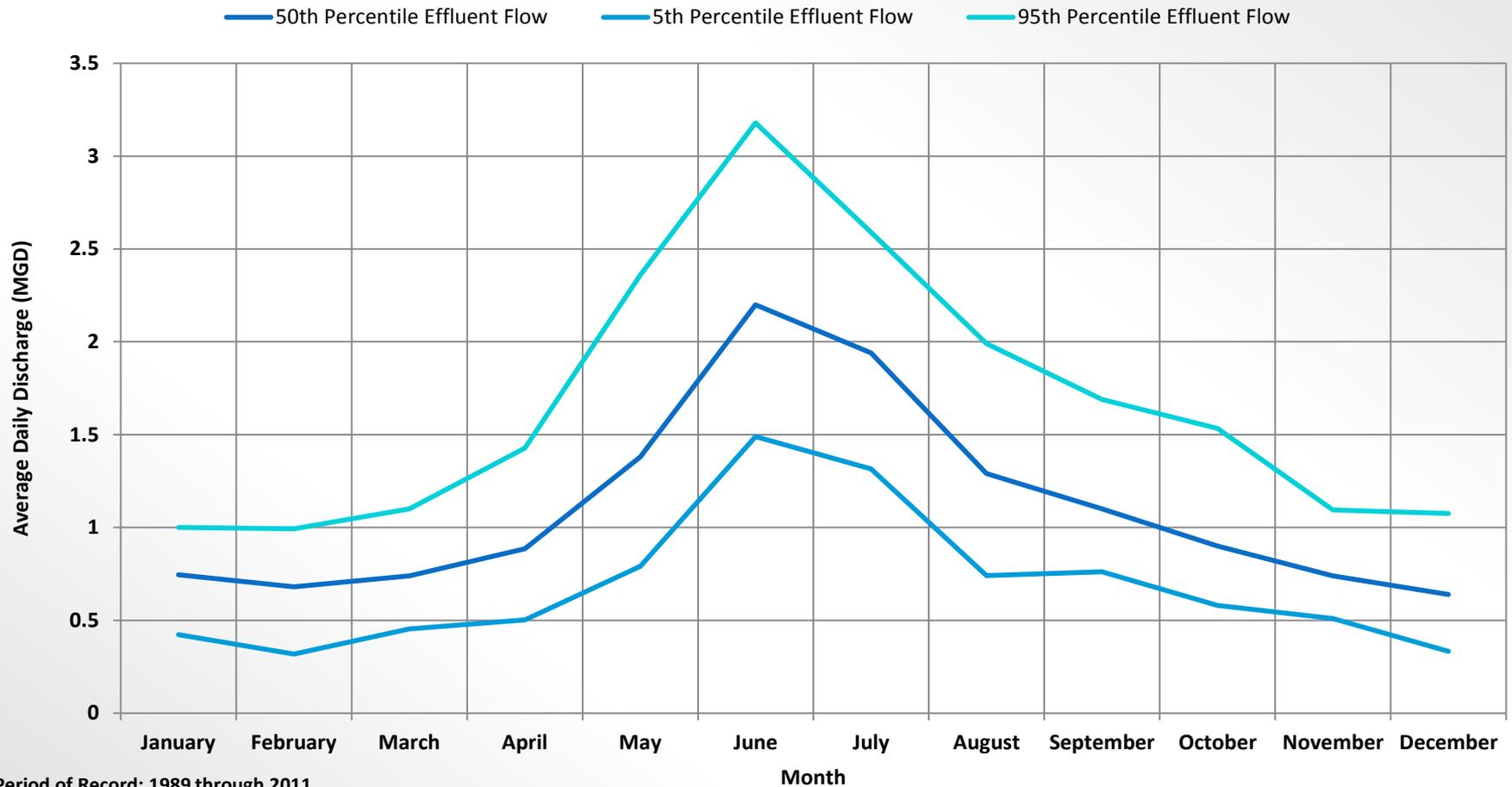
Infiltration into system is a problem

Deer Lodge WWTF Daily Average Influent



Infiltration into system is a problem

Deer Lodge WWTF Effluent Flow



Period of Record: 1989 through 2011

Deer Lodge system goes above and beyond typical wastewater systems

- Voluntary Nutrient Reduction Program (VNRP)
- Deer Lodge's innovative and progressive approach
 - Grant – Kohrs Ranch partnership
 - Zero discharge
- Deer Lodge effluent system is going above and beyond normal wastewater systems in MT

General Costs

Categories:	Estimated Costs
Salaries/Benefits	\$15,000
Supplies and Materials	\$2,500
Travel and Communication	\$1,500
Equipment	N/A
Contracted Services	
Engineering Design	\$176,000
Construction Engineering Services	\$264,000
Permitting	\$30,000
Construction of slip-lining	\$1,578,300
Construction of UV disinfection	\$425,000
Contingency (~10%)	\$200,000
Total Costs	\$2,692,300

Proposed Project Funding and Target Rate

Total Project Cost	\$2,692,300
Total Match (25%) from Deer Lodge Sewer Reserve Fund and RD Grant	\$677,200
Remaining Project Cost	\$2,015,100
Deer Lodge Combined Target Rate	\$57.23
Without NRDP funding - Projected Combined Rate after 2014 WWTP improvements	\$78.87 (138% of target)
With NRDP funding - Projected Combined Rate after 2014 WWTP improvements	\$73.51 (128% of target)

Project Schedule

Improvement	Timeline
1. Secure funding through NRDP Process	Spring 2013
2. Design Slip-lining & UV Improvements	Spring- Summer 2013
3. Slip-lining project construction	Fall 2013
4. Construct UV disinfection system	Summer 2014

Deer Lodge Wastewater Project Abstract #38

Questions?



Montana Natural Resource Damage Program

Cottonwood Creek Abstracts #45 & #46



Project Purpose, Benefits, and Location



Holistic, Proactive Approach



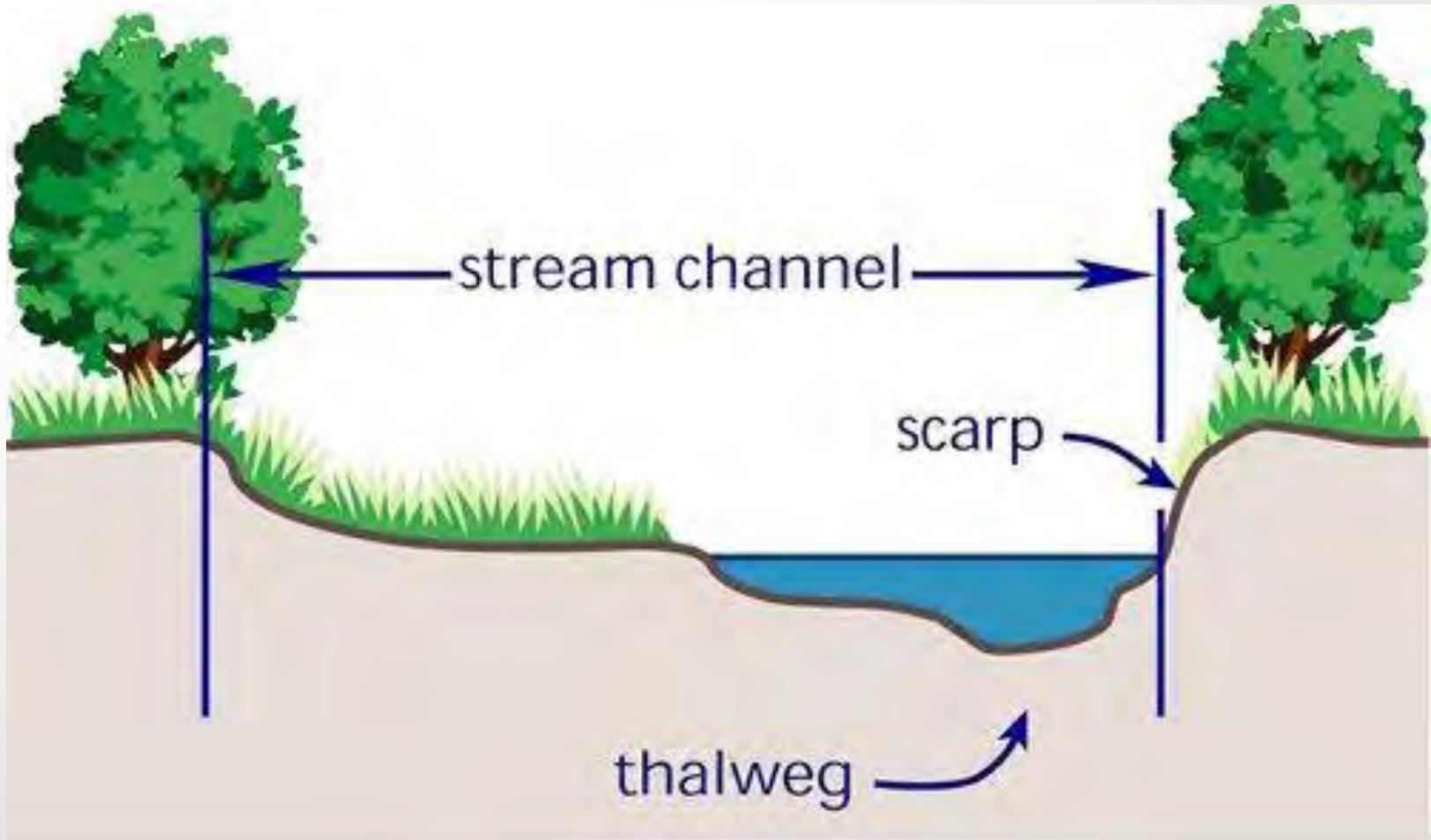
Benefits of Master Plan

- Develop urban channel improvement plan
 - Improve aquatic and terrestrial habitat (shading, lower temperature)
 - Improve stream bank stabilization
 - Improve low and high flows through channel
- Plan for how the channel can become an amenity to community (zoning)

Major Challenge to Cottonwood Creek - Urban Channel

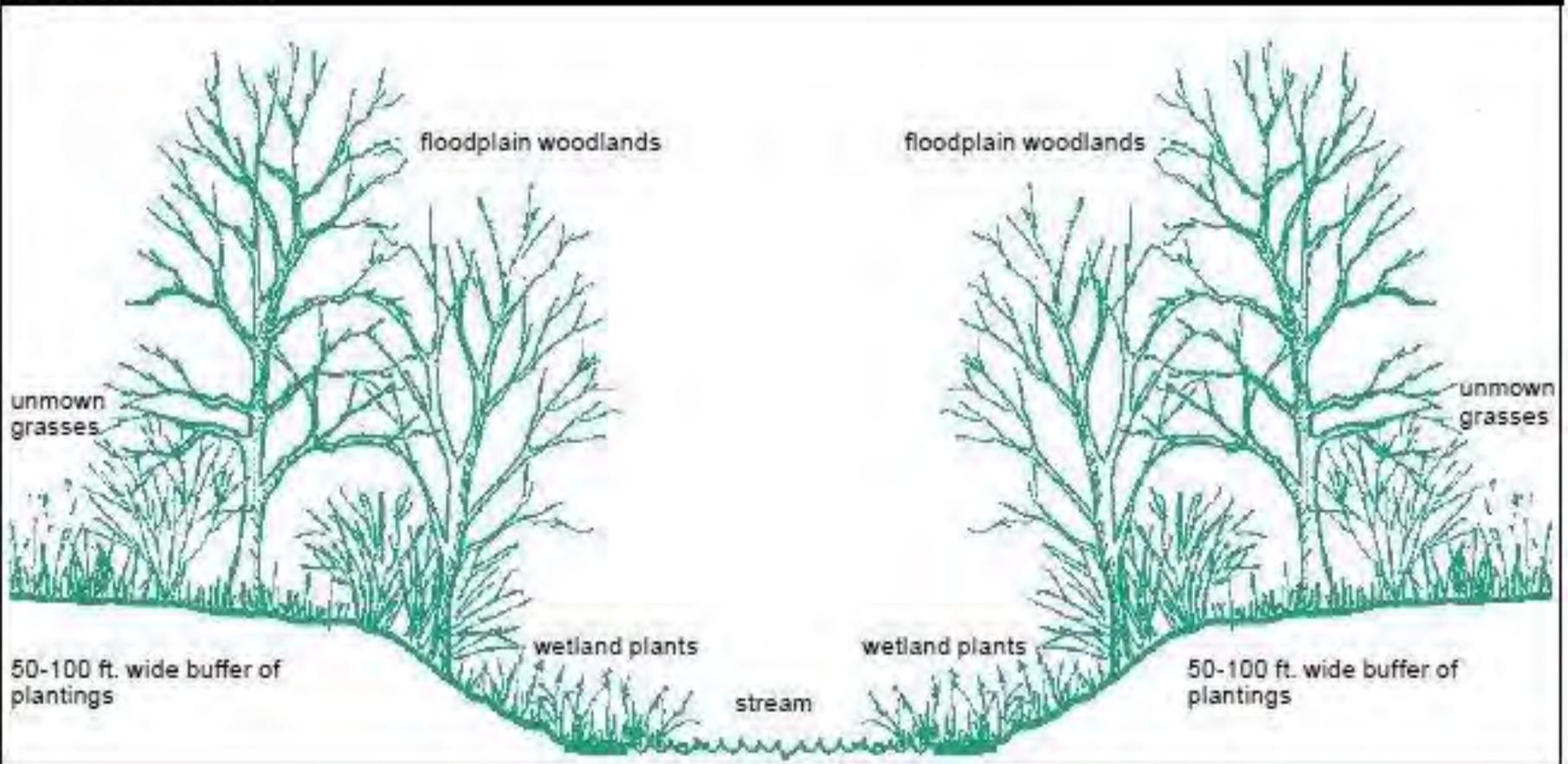


Potential Improvements



Potential Improvements

Riparian Buffer



Goal of Improvements



Potential Properties for Channel Improvements





Existing Properties on Cottonwood Creek



Existing Properties on Cottonwood Creek



Existing Properties on Cottonwood Creek

Project success will depend on close communication with project partners

Major Partners
Powell County
Watershed Restoration Coalition
Upper Clark Fork Coalition
Montana Fish Wildlife and Park
Montana Disaster and Emergency Services
United States Army Corp of Engineers
And Others

A number of project partners are meeting regularly as part of Cottonwood Creek Advisory Committee

Estimated Project Schedule

#46: Cottonwood Creek Master Plan - Urban Channel

Activity	Timeline
Secure Funding	Spring 2013
Complete Draft Master Plan	Spring – Fall 2013
Public Meetings	Fall 2013
Finalize Master Plan	Winter 2013/2014
Prepare and Submit CLOMR/LOMR	Spring 2014 - Fall 2014
Amend Growth Policy	Spring 2014

Estimated Project Costs

#46: Cottonwood Creek Master Plan - Urban Channel

Categories	Estimated Costs
Salaries/Benefits	\$5,000
Supplies and Materials	\$1,000
Travel and Communication	\$1,000
Equipment	N/A
Contracted Services	
Master Plan	\$100,000
Preparation of CLOMR/LOMR	\$50,000
Amending the Growth Policy	\$18,000
Contingency (~10%)	\$18,000
Total Costs	\$200,000

Estimated Project Schedule

#45: Cottonwood Creek - Stream Bank Enhancement Project

Activity	Timeline
Secure Funding	Spring 2013
Complete Master Plan	Spring 2013 – Spring 2014
Complete Design	Spring – Fall 2014
Complete Permitting	Winter 2015
Procure Contractor	Winter 2015
Complete Construction	Spring 2015-Fall 2015

Estimated Project Costs

#45: Cottonwood Creek - Stream Bank Enhancement Project

Categories	Estimated Costs
Salaries/Benefits	\$10,000
Supplies and Materials	\$1,000
Travel and Communication	\$1,000
Equipment	N/A
Contracted Services	
Engineering/Landscape Design	\$90,000
Construction Engineering Services	\$45,000
Permitting	\$30,000
Construction	\$750,000
Contingency (~10%)	\$92,000
Total Costs	\$1,019,000

Deer Lodge Cottonwood Creek Abstracts #45 & #46

Questions?





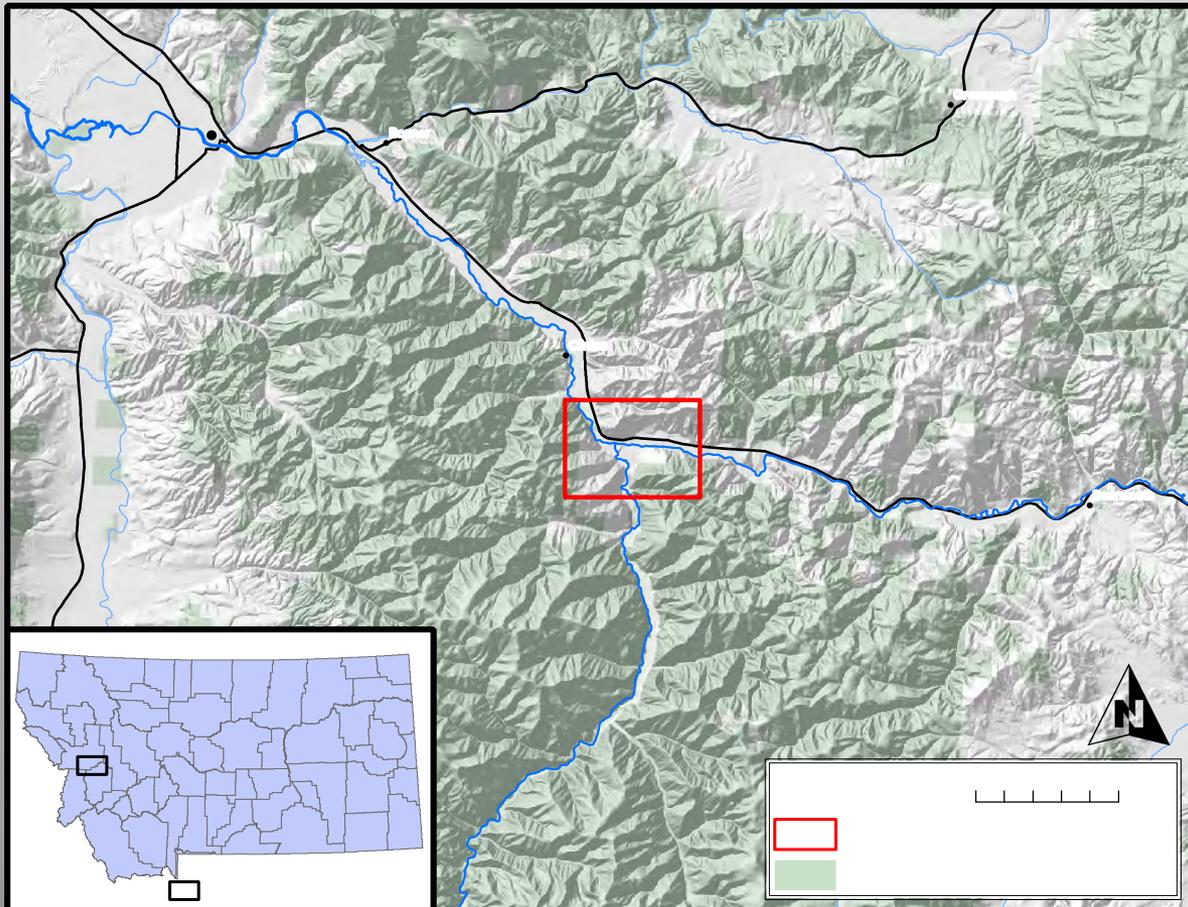
Five Valleys Land Trust NRDP Abstract Submissions

*UCFRB Remediation and Restoration
Advisory Council Meeting
August 1st, 2012*



#48 The Confluence Project

201-acre Land Acquisition at Rock Creek





#48 The Confluence Project

201-acre Land Acquisition at Rock Creek





#48 The Confluence Project

201-acre Land Acquisition at Rock Creek

- 25 acres of riparian habitat along CFR
- 1.5 miles of CFR corridor + 175 acres of habitat that buffer and enhance corridor
- Return ~10cfs to CFR in-stream flow at Rock Creek
- Provide fishing/floating access to CFR
- Facilitate removal of constructed “fish pond”
- Provide habitat connectivity to nearby protected lands



#48 The Confluence Project

201-acre Land Acquisition at Rock Creek

<i>Funding Source</i>	<i>Amount</i>	<i>% Total</i>
Natural Resource Damage Program	\$400,000	15.80%
MT Fish & Wildlife Conservation Trust	\$100,000	5.30%
Missoula County Open Lands	\$300,000	15.80%
Five Valleys Land Trust Rock Creek Trust	\$300,000	15.80%
Five Valleys Land Trust (General fundraising/5-year loan)	\$895,000	47.40%
Total Project Funds	\$1,995,000	100.00%



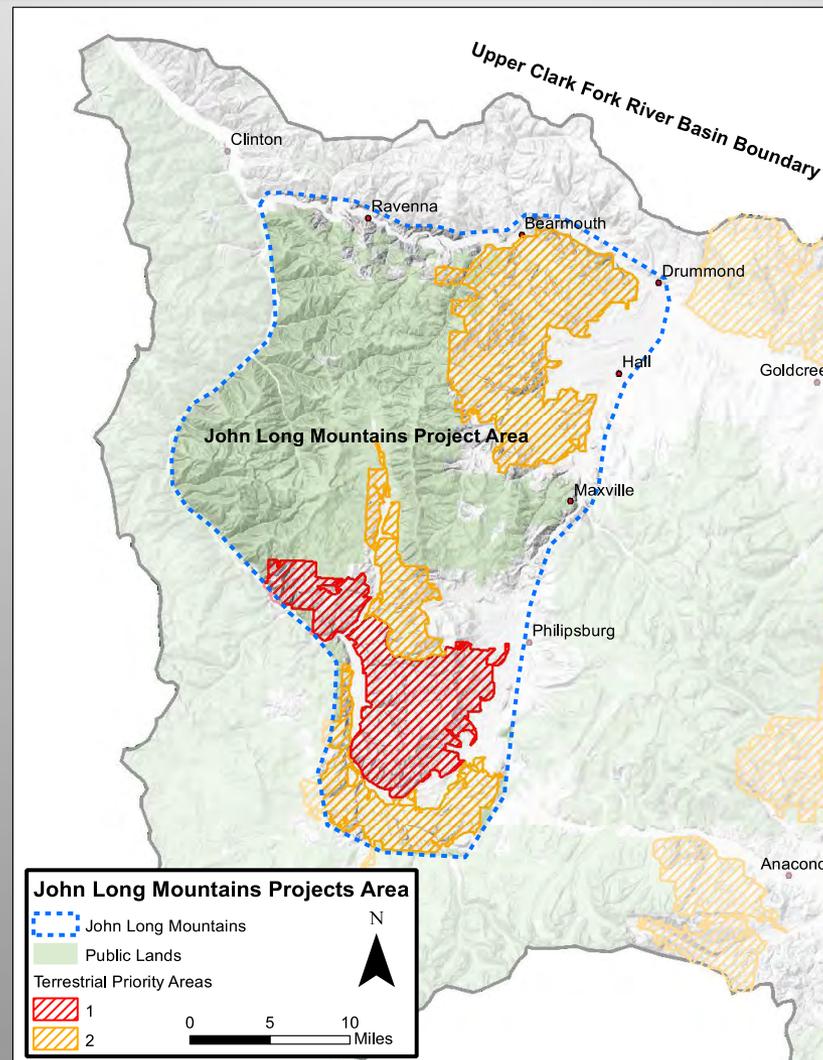
#49 John Long Mountains

Various Terrestrial Habitat Conservation Projects



#49 John Long Mountains

Various Terrestrial Habitat Conservation Projects





#49 John Long Mountains

Various Terrestrial Habitat Conservation Projects

- Support development of large-acre conservation easement projects in Terrestrial Priority 1 & 2 areas
- Low cost-per-acre vs. fee acquisition
- Potential for large landscape footprint
- Protection of high-quality, targeted terrestrial habitats
- Protect important wildlife corridors between blocks of existing public lands



#49 John Long Mountains

Various Terrestrial Habitat Conservation Projects

Table 1. Project Timeline	
<i>Action</i>	<i>Scheduled Completion Date</i>
Assess interest; landowner outreach	Year 1
Develop funding strategies for highest priority / highest feasibility conservation projects	Year 1
Secure funding from NRDP and matching partners	Year 2
Project finalization / due diligence	Year 2
Completion of conservation project	Year 2
Project monitoring	Year 3 -->



#49 John Long Mountains

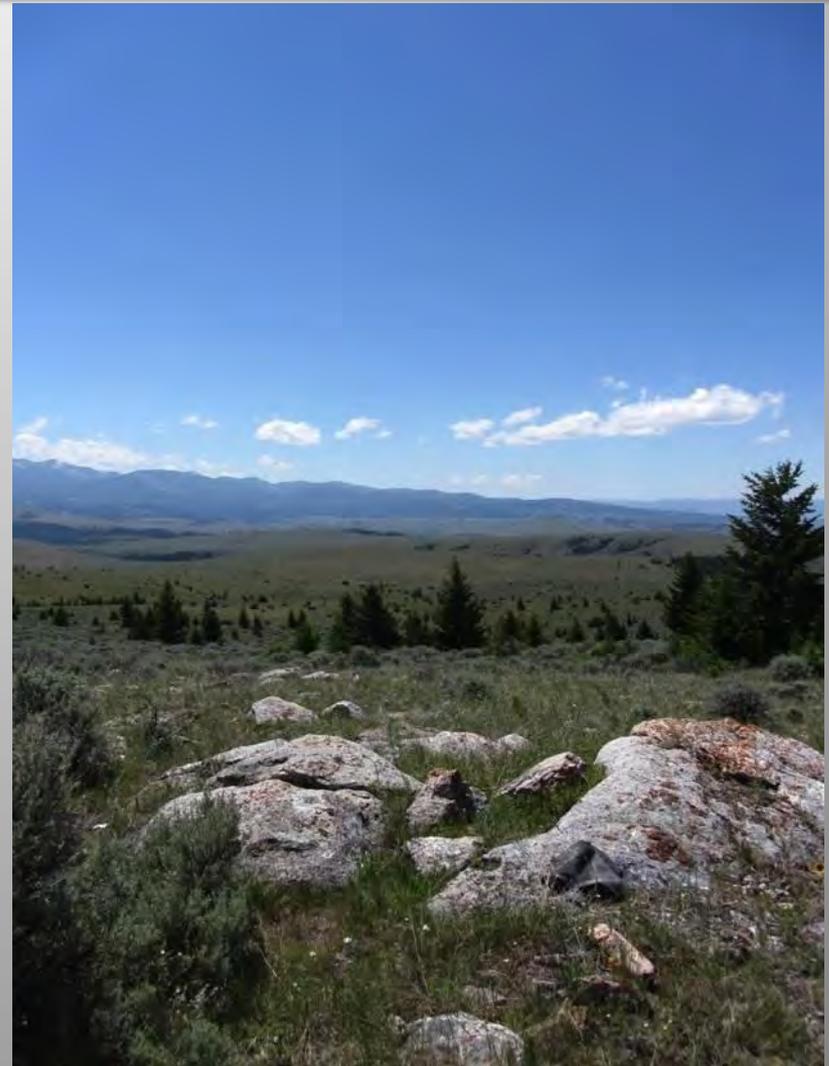
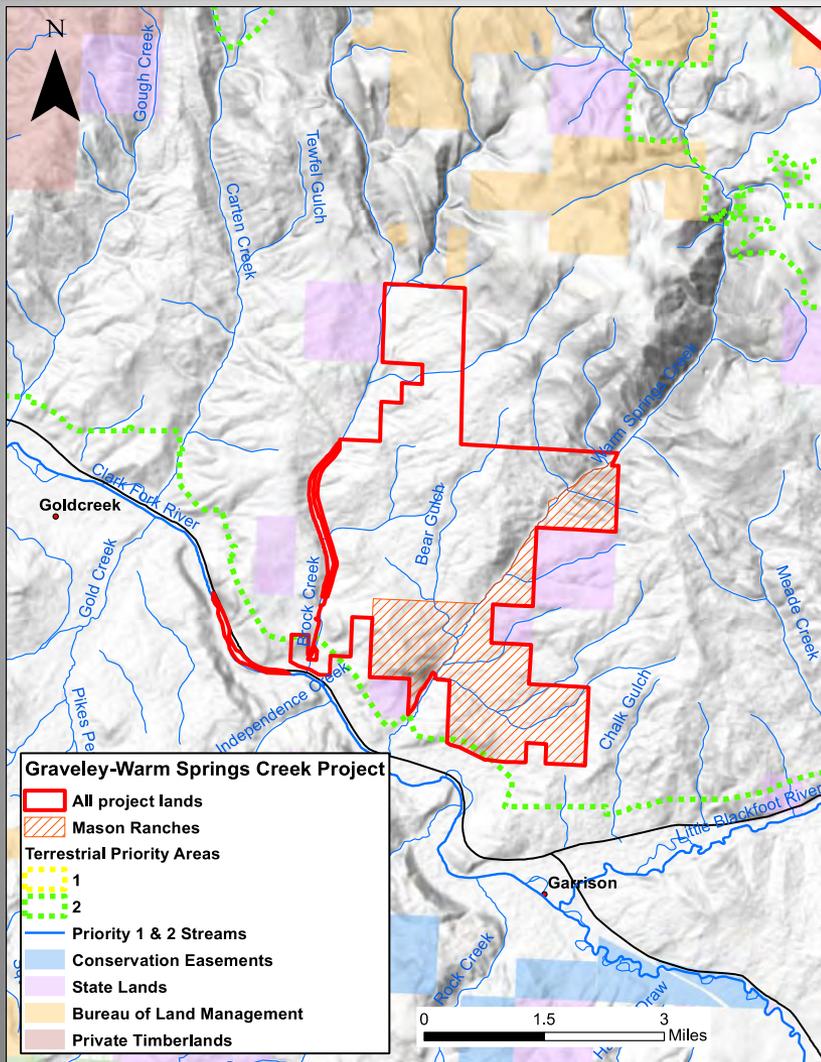
Various Terrestrial Habitat Conservation Projects

Table 2: Project Costs	
<i>Cost</i>	<i>Estimate</i>
Purchased Conservation Easement (20,000 acres)	\$6,000,000
Easement Appraisals	\$100,000
Project Staff & Overhead	\$80,000
Legal fees	\$15,000
Ecological assessments	\$15,000
Title Insurance	\$10,000
Closing, Escrow, Recording fees	\$5,000
Long-term monitoring and enforcement costs	\$100,000
Total Costs	\$6,325,000
Estimated match funding (20%)	\$1,265,000
Estimated required NRDP funding	\$5,060,000



#50 Graveley-East Garnets

8,200-acre Conservation Easement Acquisition





#50 Graveley-East Garnets

8,200-acre Conservation Easement Acquisition

- Protect 8,200+ acres of NRDP Terrestrial Priority 2 wildlife habitat in the East Garnet mountains and 45 acres of Priority 1 riparian habitat along CFR
- Habitat protection from development on all NRDP-targeted terrestrial habitat types
- Protect wildlife connectivity with 1,720 acres of interspersed public lands
- Provide for FWP-managed hunting access
- Provide opportunity for fishing access site @ Gold Creek
- Improved grazing management and opportunities for restoration on 3 miles of Warm Springs Creek (Priority 4)



#50 Graveley-East Garnets

8,200-acre Conservation Easement Acquisition

Table 2: Acquisition Phase Project Costs

<i>Expense</i>	<i>Amount</i>	<i>% Total</i>
Purchased conservation easement	\$2,400,000	88.9%
Clark Fork River property	\$200,000	7.4%
Property & Easement Appraisals	\$20,000	0.7%
Project Staff & Overhead (2 years)	\$30,000	1.1%
Legal fees	\$15,000	0.6%
Ecological baseline assessment	\$5,000	0.2%
Title Insurance	\$8,000	0.3%
Closing, Escrow, Recording fees	\$2,000	0.1%
Long-term stewardship endowment	\$20,000	0.7%
Total Expenses	\$2,700,000	100.0%



#50 Graveley-East Garnets

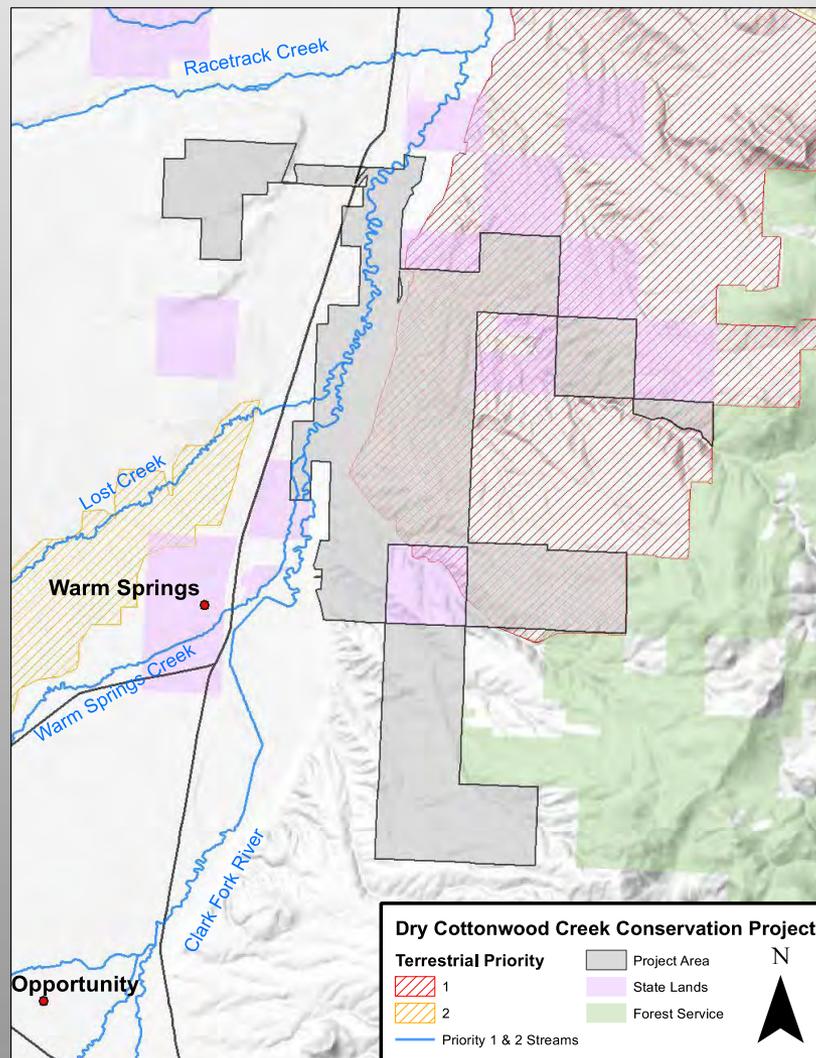
8,200-acre Conservation Easement Acquisition

<i>Funding Source</i>	<i>Amount</i>	<i>% Total</i>
Natural Resource Damage Program	\$2,000,000	74.07%
NRCS Farm and Ranchland Protection Program	\$500,000	18.52%
Landowner Contribution	\$200,000	7.41%
Total Project Funds	\$2,700,000	100.00%



#52 Dry Cottonwood Neighbors

Four acquired conservation easements near Warm Springs





#52 Dry Cottonwood Neighbors

Four acquired conservation easements near Warm Springs

- Protection of up to 1,400 acres of riparian habitat within the Upper Clark Fork Terrestrial Injured Resource Area
- Protection for up to 5,300 acres of Terrestrial Priority 1 habitat in the west Boulder Mountains
- Riparian habitat protection (grazing limitations, restricted development) for up to 7.8 miles of the Clark Fork River above Deer Lodge and 0.7 miles of lower Warm Springs Creek (NRDP Priority 1 streams), and up to 0.9 miles of Lost Creek (NRDP Priority 2 stream)
- Low cost-per-area protected vs. fee acquisition, large landscape footprint
- Protect habitat continuity with adjacent state trust and USFS land



#52 Dry Cottonwood Neighbors

Four acquired conservation easements near Warm Springs

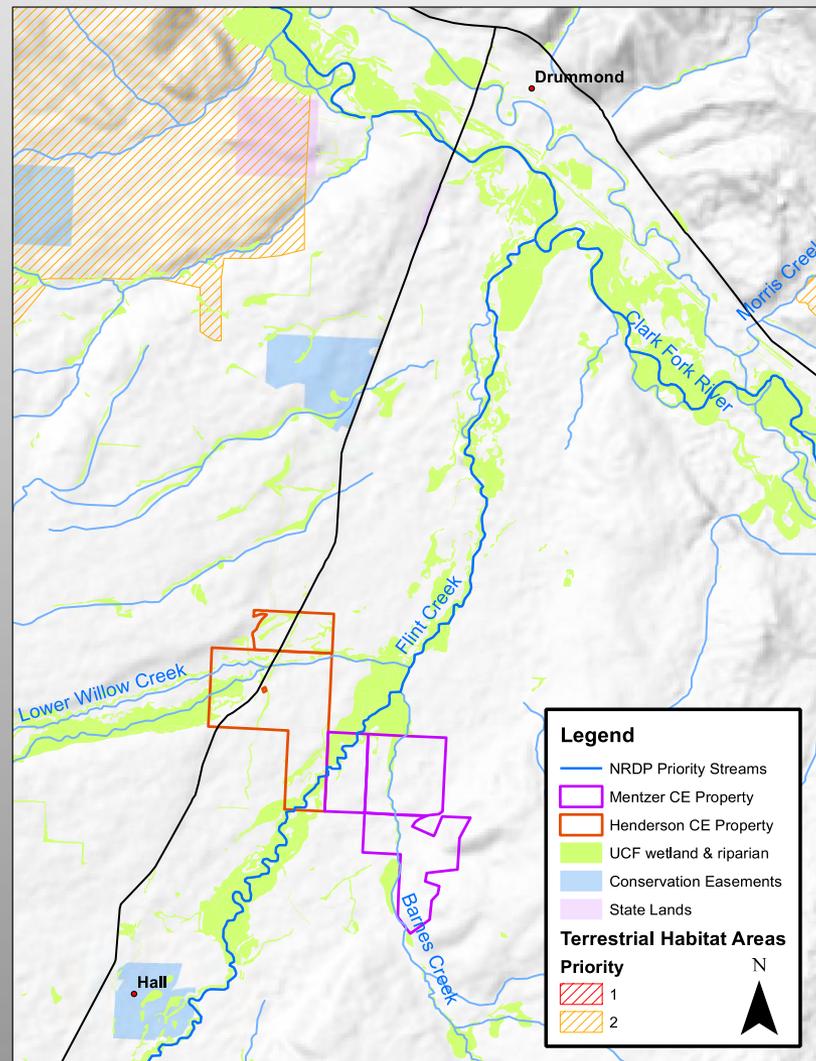
- Estimated required NRDP funds: \$3.0 - \$3.8 million

<i>Cost</i>	<i>Lower Estimate</i>	<i>Upper Estimate</i>
Purchased Conservation Easement (~11,800 acres)	\$2,832,000	\$3,540,000
Property & Easement Appraisals	\$50,000	\$70,000
Project Staff & Overhead	\$40,000	\$80,000
Legal fees	\$5,000	\$15,000
Ecological baseline assessment	\$8,000	\$12,000
Title Insurance	\$5,000	\$10,000
Closing, Escrow, Recording fees	\$2,000	\$4,000
Long-term monitoring and enforcement costs	\$40,000	\$60,000
Total Project Costs	\$2,982,000	\$3,791,000



#51 & 53 Mentzer / Henderson

Acquired conservation easements on Lower Flint Creek





#51 & 53 Mentzer / Henderson

Acquired conservation easements on Lower Flint Creek





#51 & 53 Mentzer / Henderson

Acquired conservation easements on Lower Flint Creek

- Protect over 1 mile of Flint Creek with fencing, grazing management, restricted development (NRDP Priority 2 stream)
- Protect 110 acres of NRDP Priority 1 wetland and riparian habitat along Flint Creek, Barnes Creek, and Lower Willow Creek
- Provide walk-in fishing access to Flint Creek
- Develop restoration plans for planned Flint Creek and wetland restoration (project partners)



#51 & 53 Mentzer / Henderson

Acquired conservation easements on Lower Flint Creek

Table 2. Project Costs		
<i>Expense</i>	<i>Amount</i>	<i>% Total</i>
Mentzer & Henderson Ranch CEs	\$960,000	92%
Staff time	\$40,000	3%
Legal fees	\$10,000	<1%
Environmental Assessment	\$4,000	<1%
Recording fees	\$2,000	<1%
Riparian & Wetland Restoration Plans	\$40,000	<1%
Total Expenses	\$1,056,000	100.00%



#51 & 53 Mentzer / Henderson

Acquired conservation easements on Lower Flint Creek

Table 3. Project Funding

<i>Funding Source</i>	<i>Amount</i>	<i>% Total</i>
Natural Resource Damage Program	\$240,000	23%
Natural Resource Conservation Service (Farm Bill)	\$480,000	45%
Landowner Donation	\$256,000	24%
FVLT Donation	\$40,000	4%
Farm Service Agency	\$40,000	4%
Total Project Funds	\$1,056,000	100%

Thank you!



Upper Clark Fork NRDP Concept Proposals

August 1, 2012

TU CONCEPT PROPOSALS

Harvey Creek **55**

Flint and Boulder Creeks **56**

Little Blackfoot River **43, 44, 61**

Cottonwood and Baggs Creeks **60**

Warm Springs Creek **62, 63**

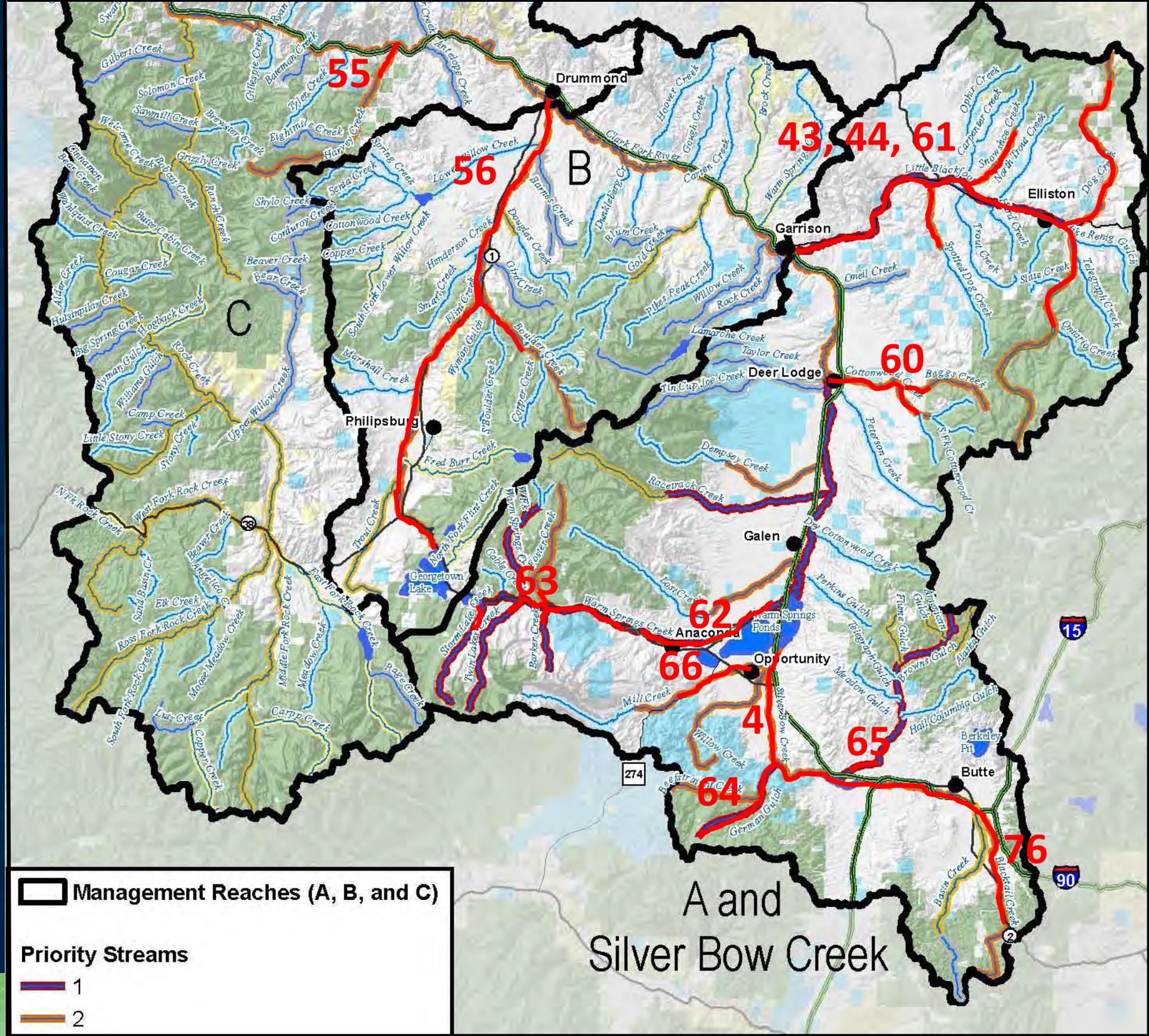
Mill Creek **66**

Silver Bow Creek **4**

German Gulch **64**

Browns Gulch **65**

Blacktail Creek **76**



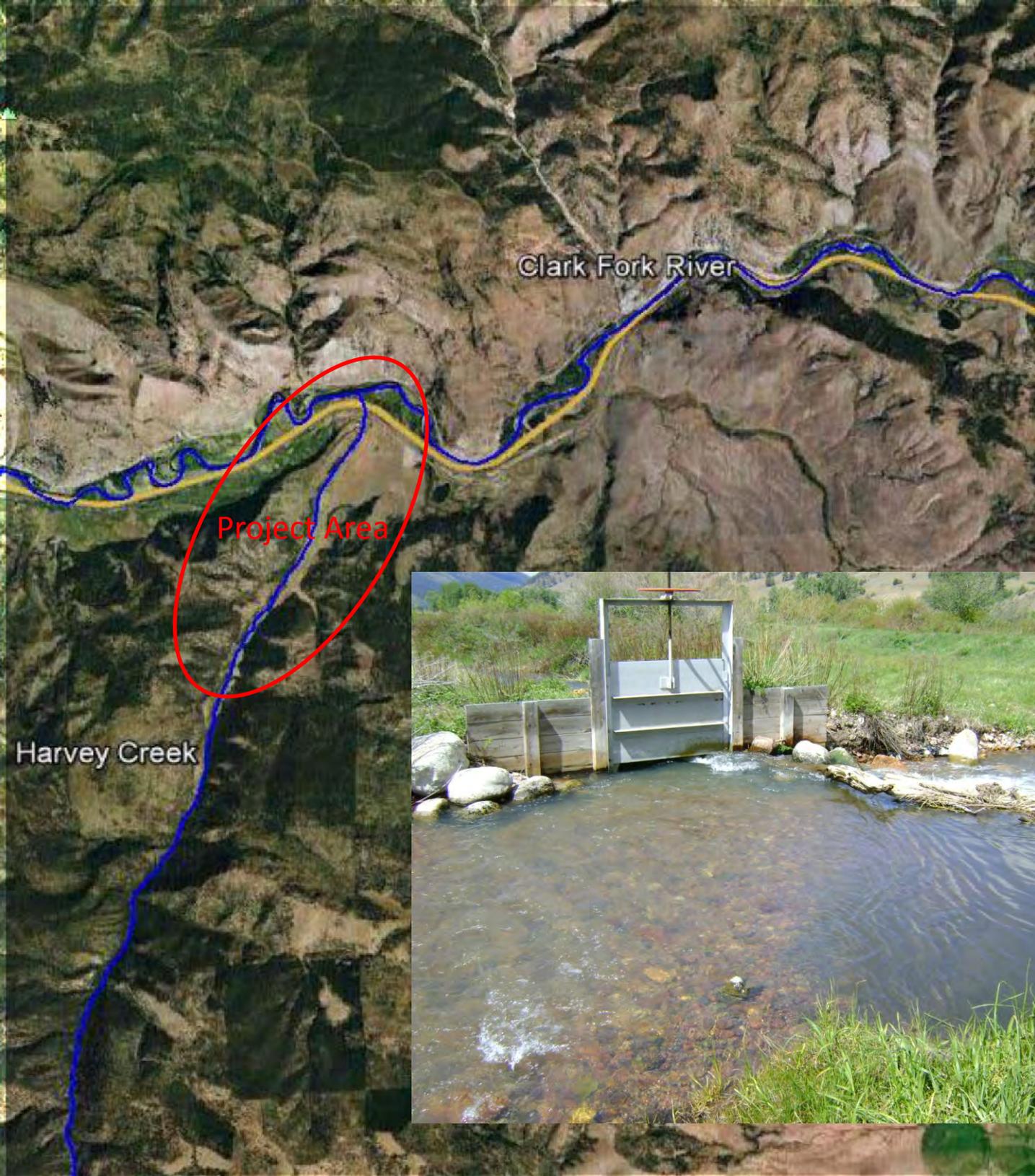
Management Reaches (A, B, and C)

Priority Streams

- 1
- 2

Harvey Creek Integrated Restoration (55)

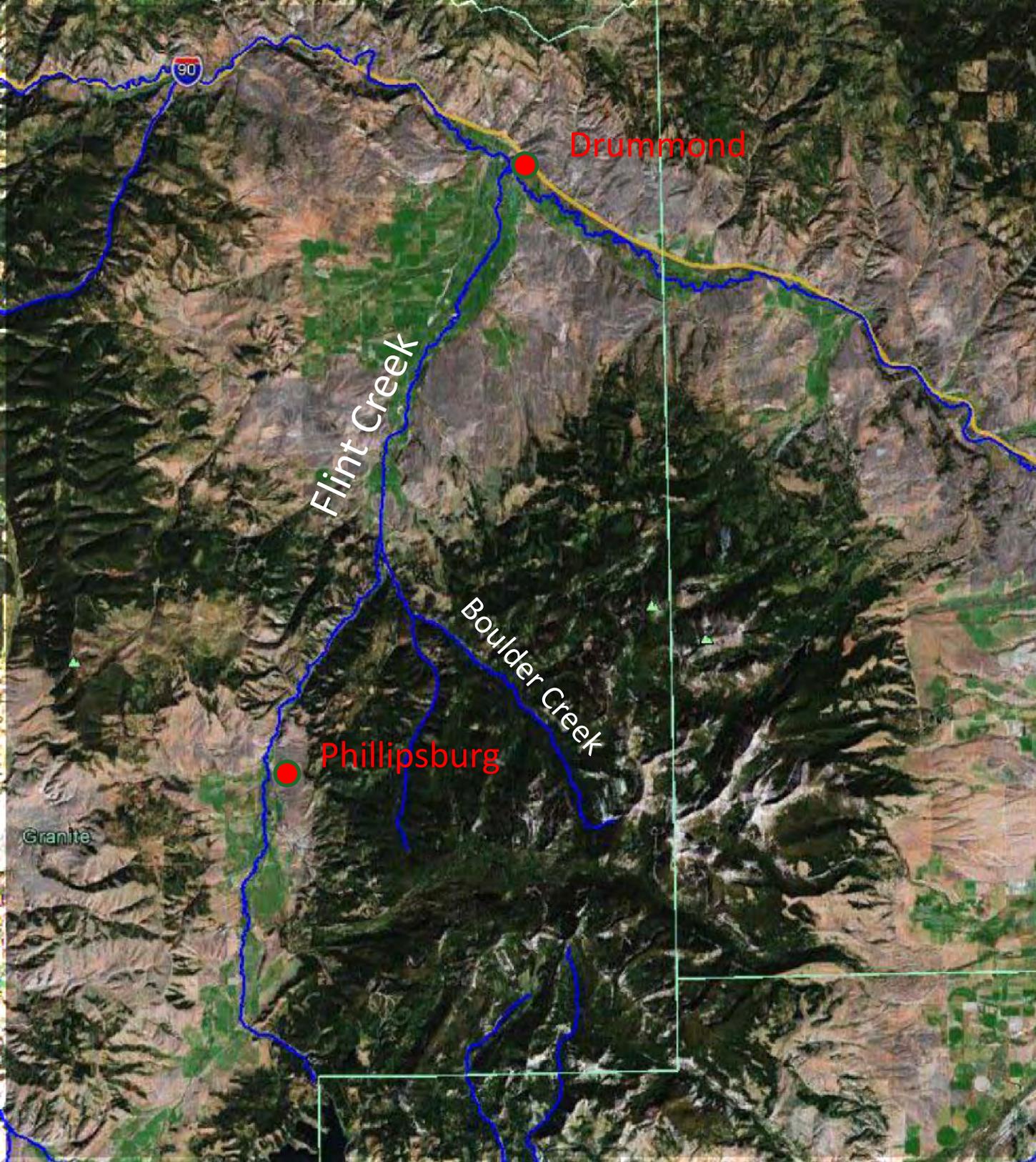
- Culvert Replacement
- Screening
- Diversion Replacement
- Siphon
- Instream Flow
- Riparian Fencing





Flint Creek Fish Passage (56)

- Diversion Inventory
- Diversion Replacement
- Screening



Little Blackfoot River

Fish Passage (61)

- Diversion Inventory
- Diversion Replacement
- Screening



Little Blackfoot River

Riparian Habitat Protection and Enhancement (43)

Pat Barnes – Missouri River Chapter TU

- Riparian Fencing/Bank Stabilization
- Conservation Easement Program



Little Blackfoot River Streamflow Restoration (44)

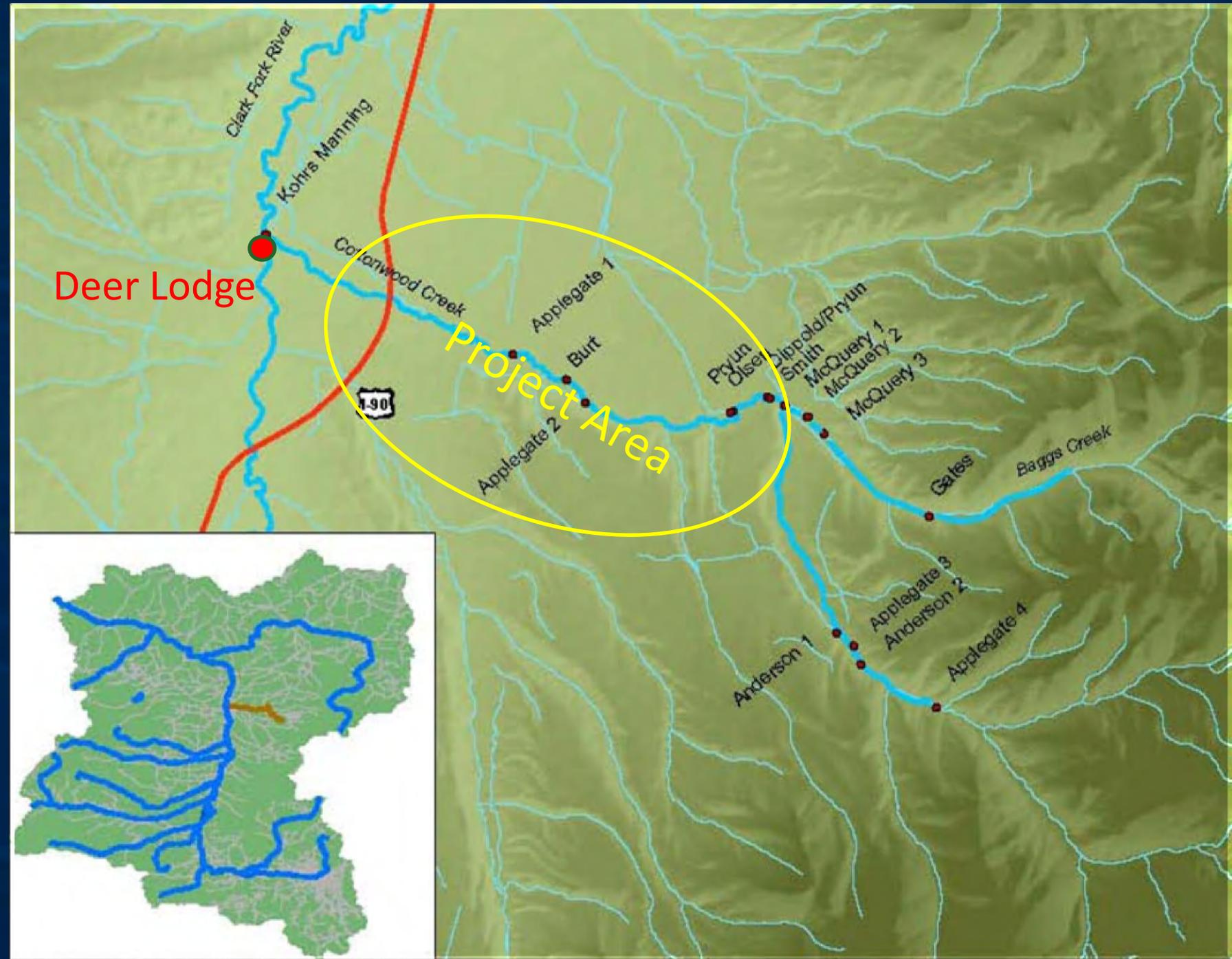
- Flow Targets
- Water Rights Survey
- Transactions
- Monitoring



Cottonwood Creek

Fish Passage and Monitoring (60)

- Diversion Replacement
- Screening
- Monitoring



Cottonwood Creek

Demonstration Project



before



after

Cottonwood Creek

Demonstration Project



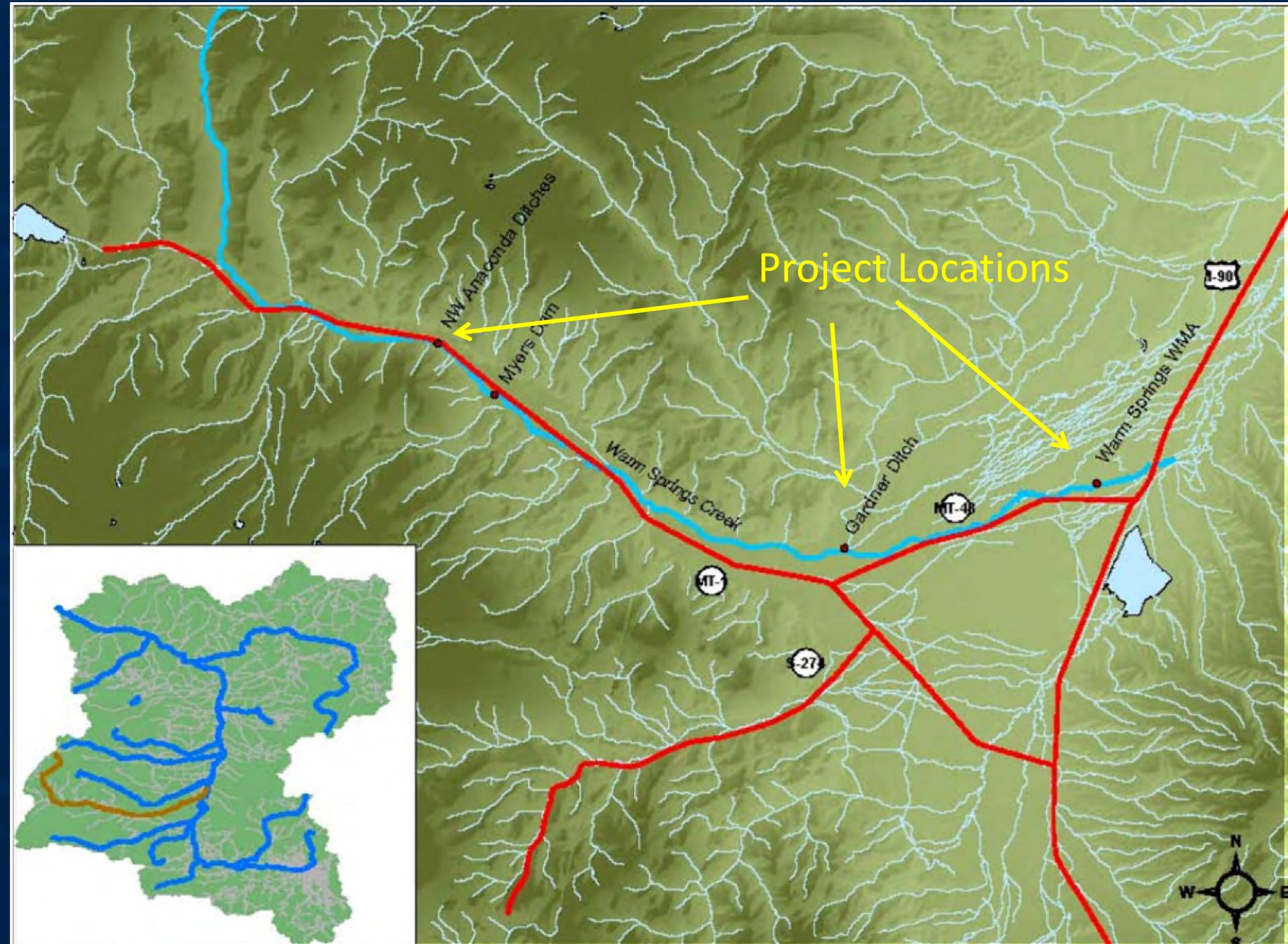
before



after

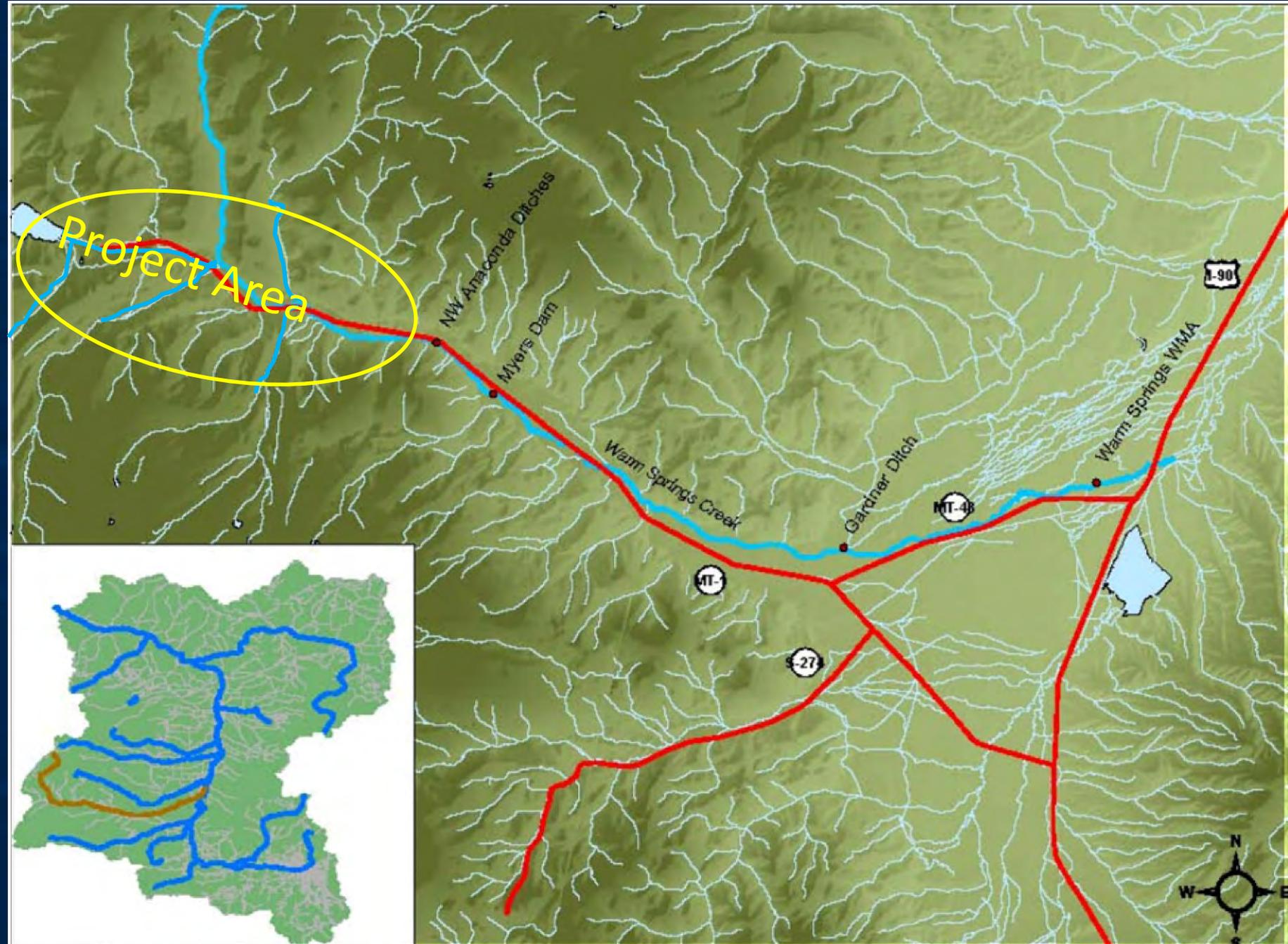
Warm Springs Creek Fish Passage (62)

- Diversion Upgrades
- Screening
- Monitoring



Upper Warm Springs Creek Habitat (63)

- Diversion Upgrades
- Screening
- Monitoring



Mill Creek Fish Passage and Flow Restoration (66)

- Diversion Upgrades
- Screening
- Instream Flow



German Gulch Habitat Restoration (64)



German Gulch

- Riparian Fencing
- Off Stream Water
- Tailings Removal

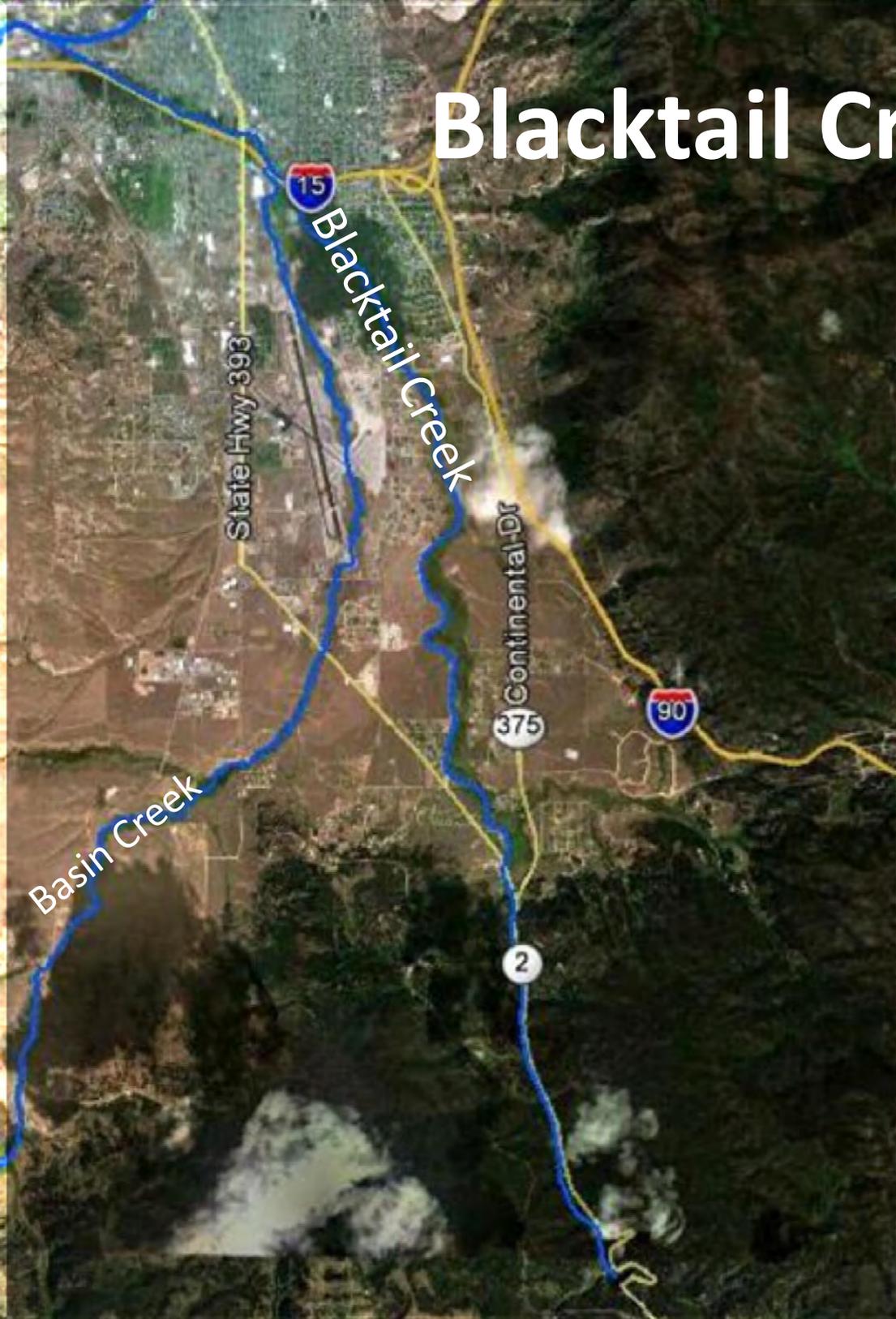


Browns Gulch Fish Passage (65)

- Fish Ladders
- Monitoring



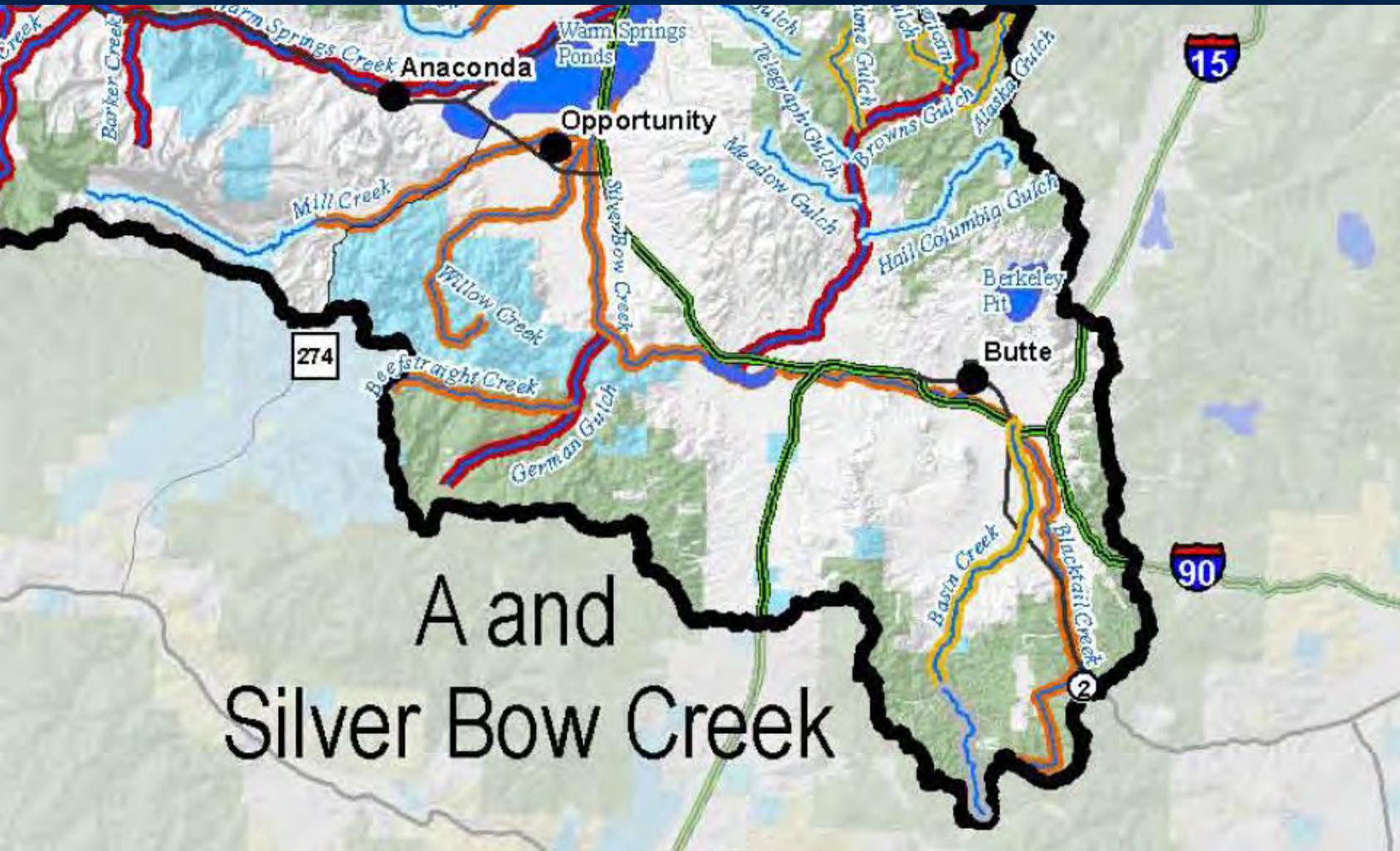
Blacktail Creek Fish Passage and Habitat (76)



- **Diversion and Culvert Inventory**
- **Diversion and Culvert Replacement**
- **Riparian Habitat Improvement**



Silver Bow Creek Headwaters Streamflow Augmentation Project (4)



Project Area

- Water budget and flow targets
- Survey existing water rights
- Identify and prioritize projects
- Build partnerships and funding portfolio
- Implement water leases, acquisitions or infrastructure improvements
- Monitoring

Guidance From Process Plan: Fish and Flow

- *Fish: Trout populations are absent from Silver Bow Creek. The Creek should contain about 190 trout/mile according to the 1994 survey...(A-35)*
- In general, the encouraged activities and methods to accomplish them are:
- *Flow augmentation: water right purchase, lease, or irrigation system efficiency Improvements (Page 45);*

Goal

Create an abundant, self-sustaining fish community of cutthroat and wild trout and a recreational fishery by identifying and implementing flow enhancement projects with a broad coalition of irrigators, municipal water users, and conservationists.

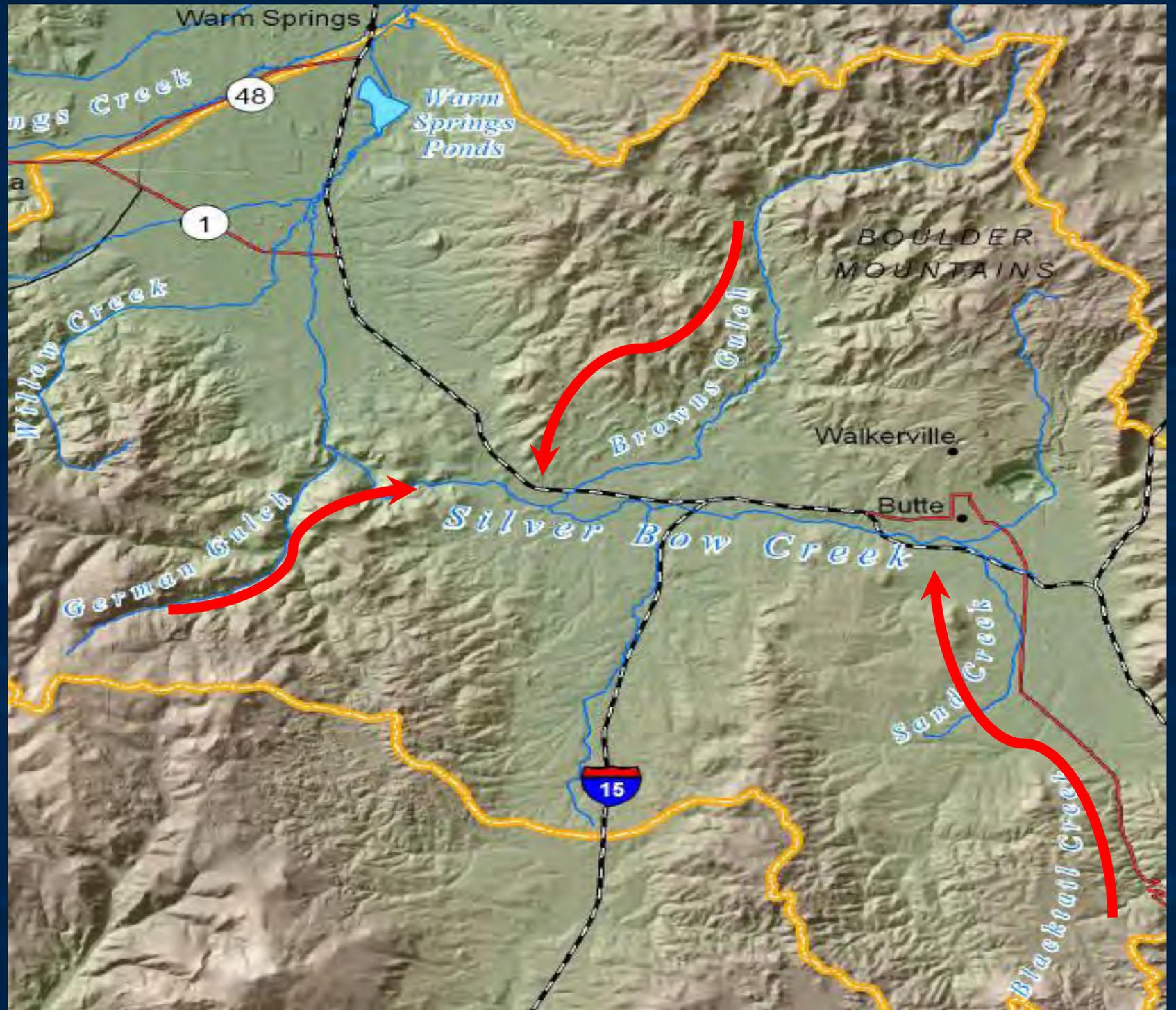
Sources of Fish

Westslope cutthroat trout

- German Gulch
- Brown's Gulch
- Basin Creek
- Blacktail Creek

Brook Trout

- Brown's Gulch
- Basin Creek
- Blacktail Creek



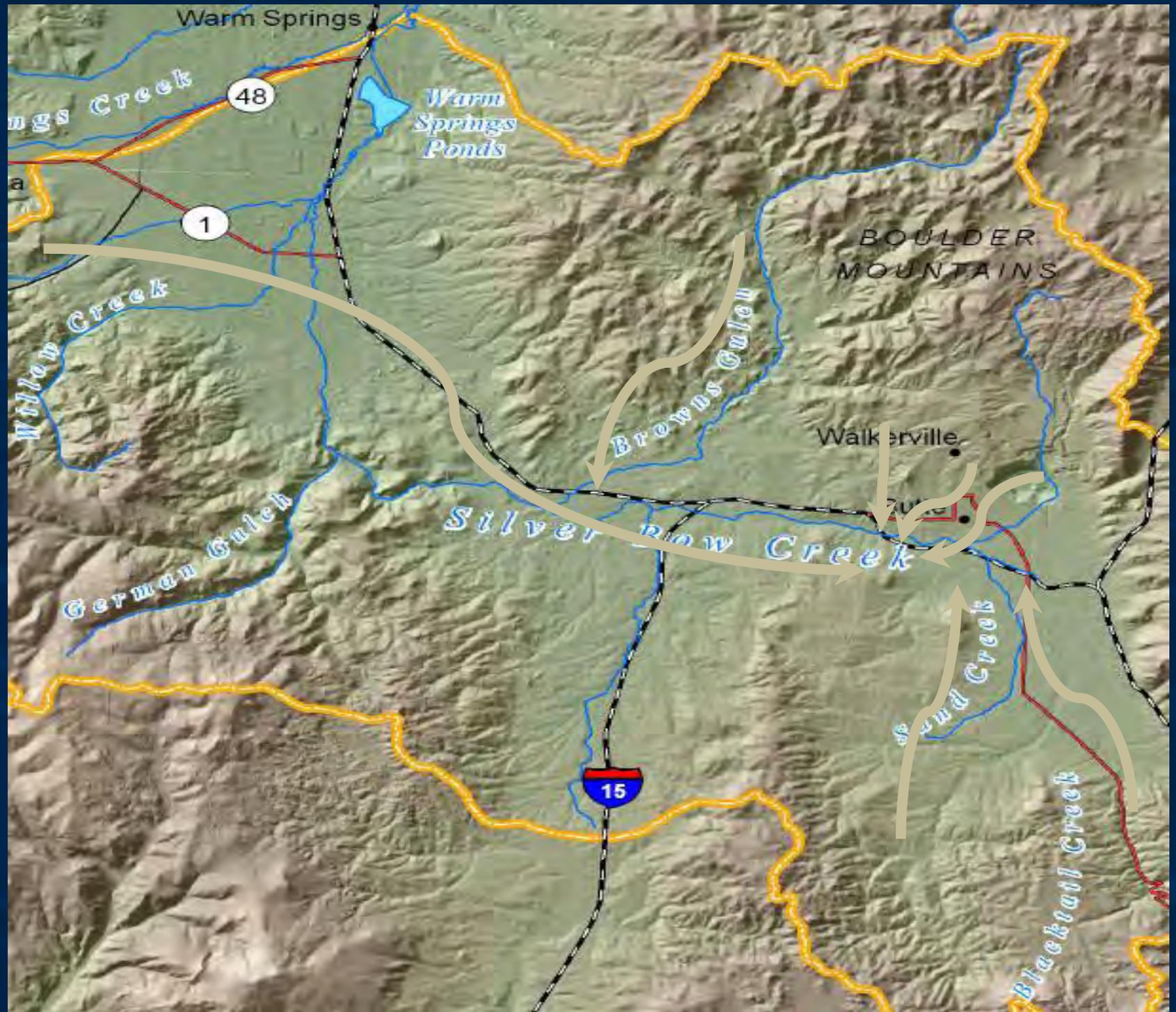
Water Sources

Tributaries

Brown's Gulch
Basin Creek
Blacktail Creek
Yankee Doodle

Municipal, Industrial

Stormwater
Wastewater
Basin Creek Res.
Silver Lake
Mt. Resources



Partnerships

- City and County of Butte-Silver Bow
- Montana Fish, Wildlife and Parks
- Montana Resources
- Individual Irrigators and Land Owners
- Columbia Basin Water Transfer Program
- Clark Fork Coalition
- Watershed Restoration Coalition

Why Trout Unlimited?

- **Montana Water Project**
 - Instream Flow Project Implementation
 - DNRC Water Right Change Processes
- **Watersheds Program**
 - Fish passage and reconnect
 - Riparian and habitat enhancement
- **Montana Council – Chapters**
 - Riparian and habitat enhancement



<http://www.rivertrips.com/westlope-cutthroat-trout-salmon-river.html>

Watershed Restoration Coalition for the Upper Clark Fork:

Abstracts submitted to
Natural Resource Damage Program, June, 2012



WRC's process for developing projects:

- Assessment of streams
- Project Identification
- Landowner outreach
- Design and funding
- Construction
- Monitoring

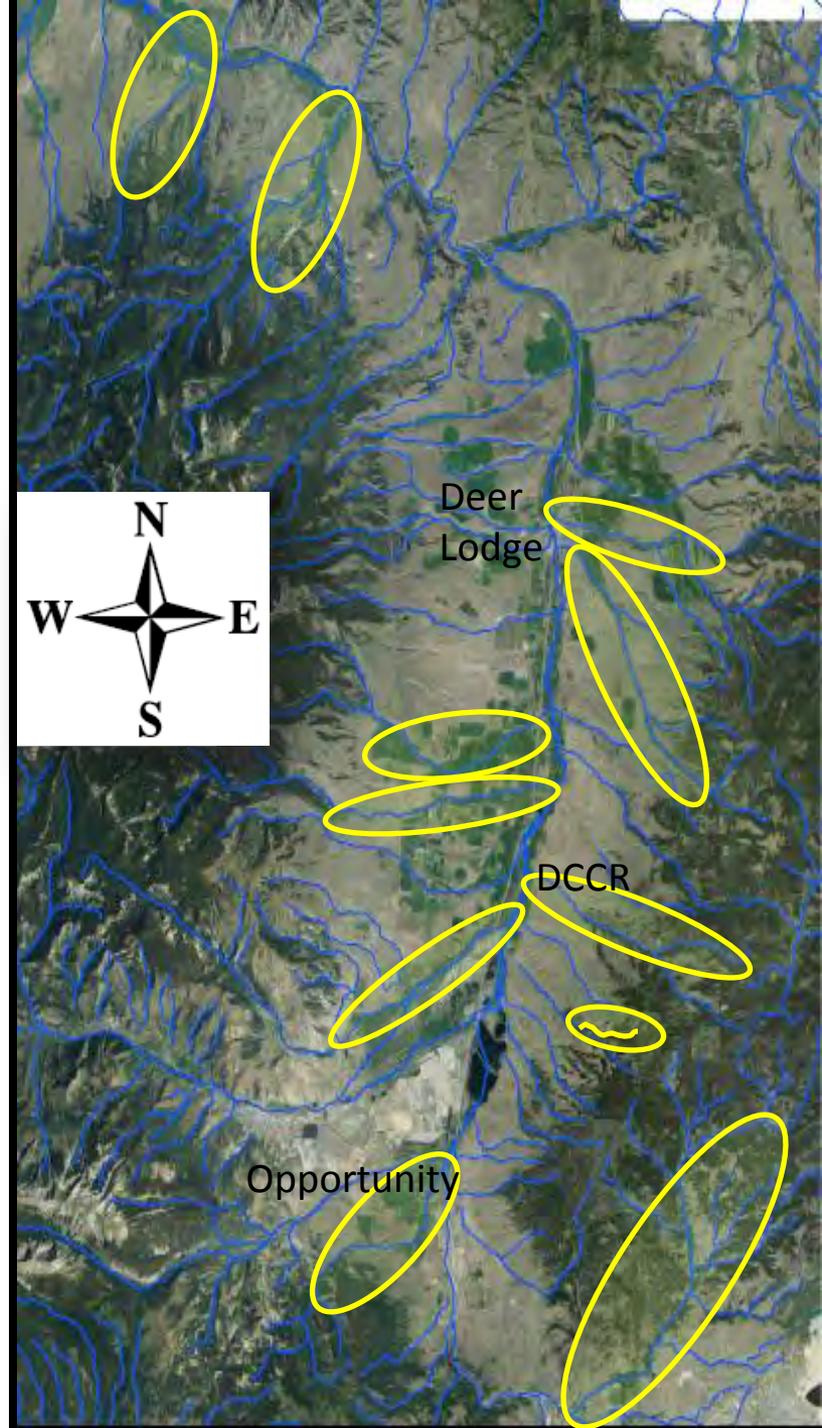
Field assessment of tributaries:

- DEQ Funding, 2010-2012
- Goals:
 - Identify/characterize impaired streams
 - Determine sources of impairments
 - Potential Projects
 - Monitoring



Tributary Locations

- Dunkleberg Creek
- Gold Creek
- Cottonwood Creek
- Peterson Creek
- Dempsey Creek
- Racetrack Creek
- Dry Cottonwood Creek
- Lost Creek
- Perkins Gulch
- Willow Creek
- Browns Gulch



Methods

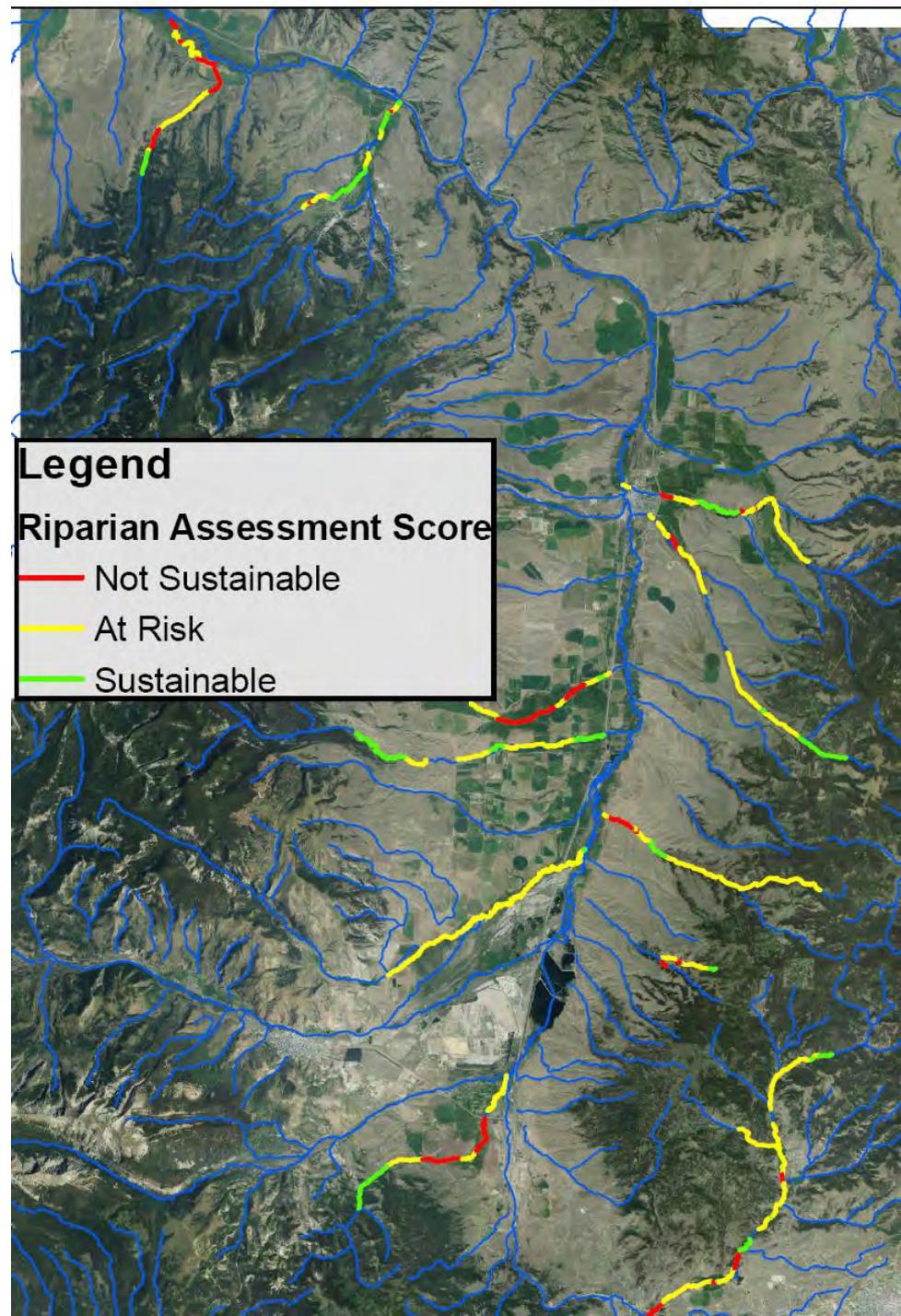


- Qualitative
 - NRCS Riparian Assessments
- Quantitative
 - Stream Stability
 - Riparian Vegetation
 - Fish Habitat
 - Flow

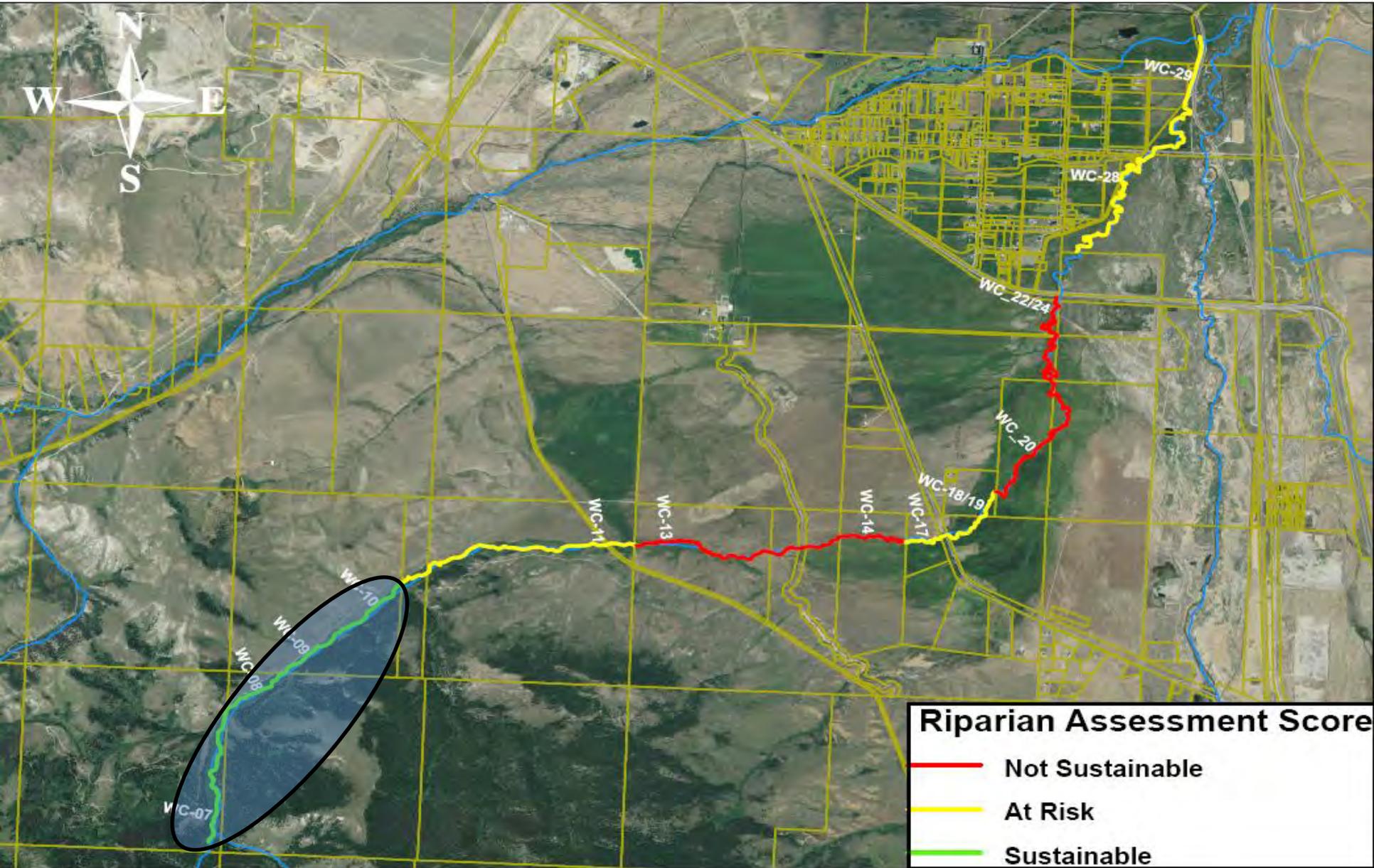


NRCS Assessments

- “First cut” evaluation
- Components
 - Stream stability
 - Riparian health
 - Functionality
- Assessment Scores
- Reports
 - Stream trend
 - Potential projects



Willow Creek_2011 _NRCS Riparian Assessment WRC_CFC



1.25 2.5 5 Miles

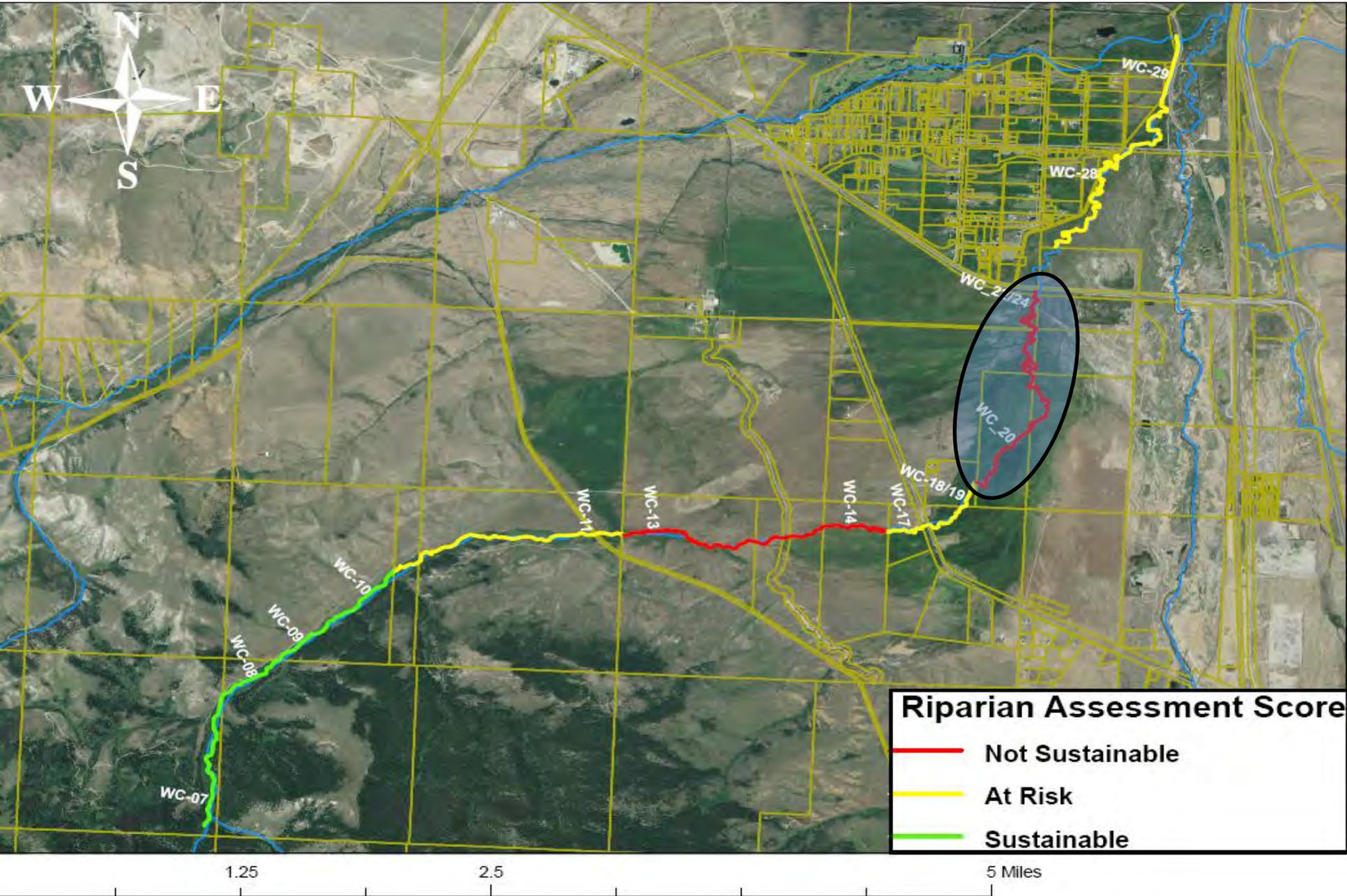
NRCS Assessments

– Willow Creek

- Sustainable Reaches



Willow Creek_2011 _NRCS Riparian Assessment WRC_CFC



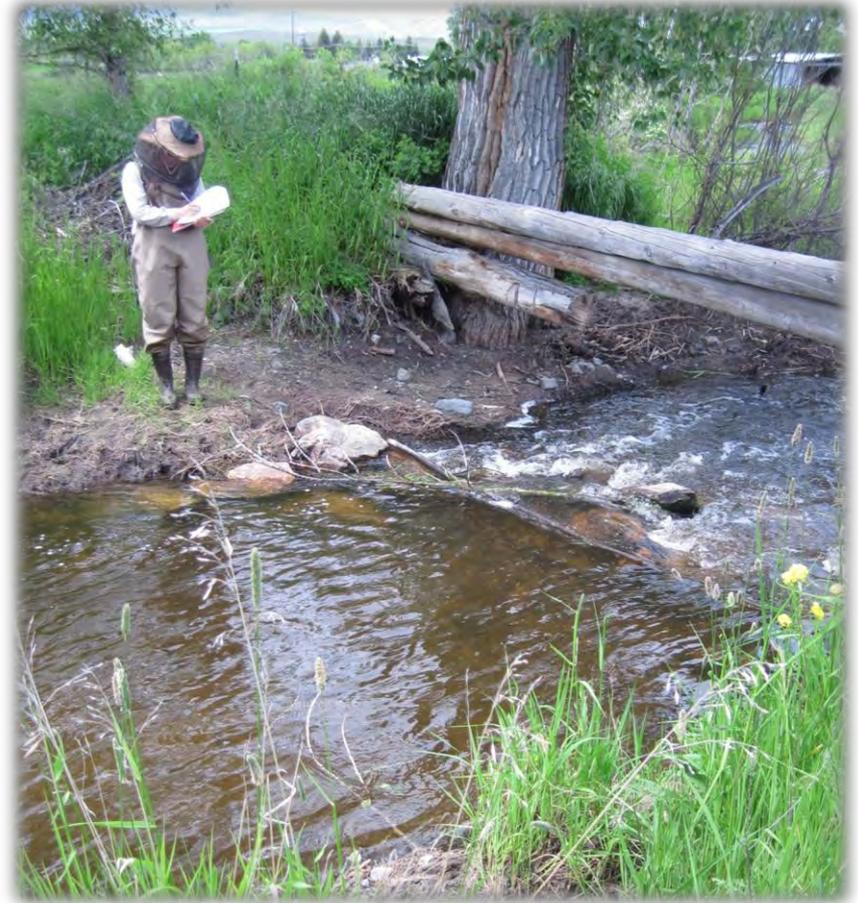
NRCS Assessments

- Willow Creek
 - Non-Sustainable Reaches



Quantitative Assessments

- **Fish Passage (TU contract)**
- **Geomorphic & Habitat:**
 - Reference (healthy) Reach
 - Non-reference (unhealthy) Reach
- **Measurements**
 - Long Profile
 - Cross-section
 - Pebble count
 - Vegetation survey
 - Fish habitat



Example Vegetation Survey: Gold Creek



- Reference Reach:
 - 5 taxa riparian shrubs
 - 241 plants



- Non-Reference Reach:
 - 1 taxa riparian shrubs
 - 92 plants

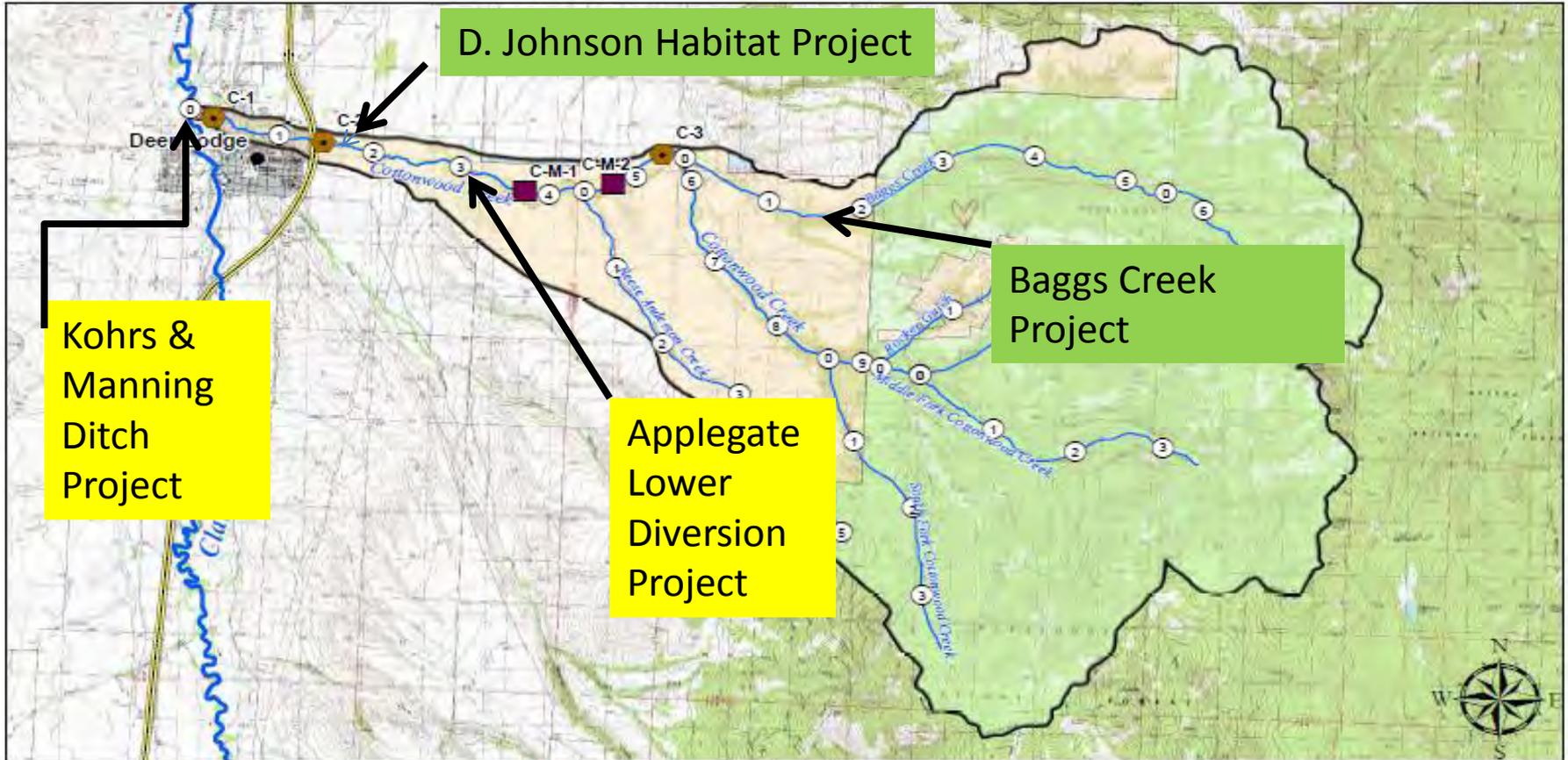
Stream reaches assessed & scored

Cottonwood Creek_NRCS Assessment_2010
CFC_WRC

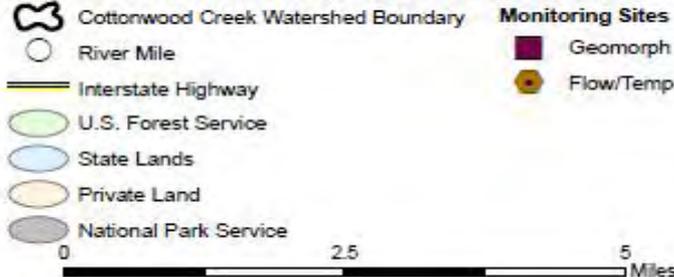


0 0.5 1 2 Miles

Project Identification:



Cottonwood Creek Watershed



WRC STRATEGY FOR AQUATIC RESTORATION PROJECTS:

- *look at the whole watershed
- *find the limiting factors
- *build complementary restoration activities
.....not isolated projects
- *partner with other organizations/funders

MIDDLE RACETRACK PROJECT AREA: what does this creek need?

Lower Browns Gulch:
Project engineers on site for
design



A= Project engineering/funding underway B= Project landowners/concept developing C= Project opportunity identified

TRIBUTARY:	RANK :	PROJECT DESCRIP:	STATUS:	LEAD:	Partner:	NRDP request:	Match:	TOTAL:
Cottonwood	2	Applegate diversion/scr	A.	WRC		\$83,200	\$800	\$84,000
Browns Gulch	1	Upstream habitat/channel	A.	WRC	Mi Hi CD	\$311,900	54,000	365,900
Browns Gulch	1	Ueland habitat/channel	A.	WRC	MiHi CD	\$356,100	76,000	422,100
Cottonwood-DJ	2	D Johnson-Habitat/Riparian	A.	WRC	FutFish FWP	\$71,000	87,500	156,700
Cottonwood/C F River	2	Kohrs & Manning crossing + river diversion	A.	WRC	TU	\$534,190	\$107,435	\$641,625
Racetrack-below I90	1	Habitat-off-stream water/passage	A.	CFC	FutFish FWP	\$65,850	26,300	92,150
Little Blackfoot mainstem	1	Habitat-ranch planning	B.	WRC		\$1,035,000	204,500	1,240,000
L. Spotted Dog Cr.	2	Irrigation eff., grazing	B.	WRC	NRCS	\$170,750	2,000	172,750
Dempsey Cr.-lower	2	Habitat/planning/passage	B.	WRC	TU	\$521,500	\$94,000	\$615,500
Blacktail Cr.	1	Habitat	B.	WRC	Mi Hi CD	\$580,500	94,000	674,500
Habitat/passag e maintenance		Manage/ help maintain projects	B.	WRC	TU	\$486,000	30,000	510,000
Dog Creek	2	Sediment/habitat/passag e	C.	WRC	DNRC	\$279,600	35,000	314,600
Cottonwood-Baggs	2	Habitat/passage	C.	WRC	TU/ DNRC	\$262,550	15,500	278,050
Willow Creek	2	Habitat and passage	C.	WRC	TU	\$263,000	9,000	272,000

Trestle Park Proposal

Natural Resource Damage Program Restoration Concept Abstract

Submitted By: Powell County / Great West Engineering



August 1, 2012



TRESTLE PARK

LOCATION MAP



Park Location

- ❖ Former Milwaukee Rail Road Roundhouse
- ❖ Bordered by the Clark Fork River & Tin Cup Joe Creek
- ❖ Trestle Over the River



Project History

- ❖ Milwaukee Roundhouse
 - ❖ Clark Fork River
-

- ❖ Powell County
- ❖ DEQ
- ❖ EPA
- ❖ DNRC
- ❖ NRDP



Project Purpose & Benefits

- ❖ Create a Park on 14-acres of County-Owned Land
- ❖ Provide Public Access to the Clark Fork River
- ❖ Continue the Site's Remediation & Restoration
- ❖ Promote Educational Opportunities
- ❖ Add Recreational & Sport Facilities

Park Land Use Plan



Project Phases

- ❖ Phase 1: Focus on the area to the north of the existing fence and along the Clark Fork River
- ❖ Phase 2: Pedestrian Bridge, Boat Ramp, Repairs to Trail
- ❖ Phase 3: Cleanup of Roundhouse Site (DNRC assisted project)
- ❖ Phase 4: Sportsfield complex following cleanup efforts

Project Costs

OPINION OF PROBABLE COST					
Trestle Park Phase 1 & Phase 2					
Item No.	Description	Unit	Quantity	Price	Amount
Phase 1 - Trestle Park Area					
1	Mobilization (10%)	LS	1	\$78,600	\$78,600
2	Install Gravel and Asphalt - Parking Lot	LS	1	\$135,000	\$135,000
3	Road Improvements to W. College Ave.	LS	1	\$120,000	\$120,000
4	Solar Powered Lighting	LS	1	\$165,000	\$165,000
5	Site Grading	LS	1	\$30,000	\$30,000
6	6" Topsoil	LS	1	\$55,000	\$55,000
7	Irrigation Installation & Vegetation	LS	1	\$40,000	\$40,000
8	Paved Trails by Kiosk	LS	1	\$64,000	\$64,000
9	Main Kiosk Building	LS	1	\$35,000	\$35,000
10	Vault Toilet	LS	1	\$30,000	\$30,000
11	Vehicular Gate	LS	1	\$3,000	\$3,000
12	Interpretive Signage	LS	1	\$7,500	\$7,500
13	Water (Well & Treated, also used for irrigation)	LS	1	\$15,000	\$15,000
14	Historic/Ecologic Consultant & Sign Design	LS	1	\$7,500	\$7,500
PHASE 1 CONSTRUCTION COST					\$785,600
Engineering/Construction Management (22%)					\$172,832
Administration (3%)*					\$23,568
PHASE 1 TOTAL					\$982,000
Phase 2 - Pedestrian Bridge, Boat Ramp & Trestle Bridge Repairs					
1	Mobilization (10%)	LS	1	\$33,800	\$33,800
2	Clark Fork River Boat Ramp w/Approach	LS	1	\$20,000	\$20,000
3	Clark Fork River - Pedestrian Bridge	LS	1	\$220,000	\$220,000
4	Pedestrian Bridge Approach Work	LS	1	\$5,000	\$5,000
5	Trestle Bridge Repairs	LS	1	\$45,000	\$45,000
6	Off Site Trails (Decomposed Granite)	LS	1	\$4,000	\$4,000
7	Permit Acquisition Services	LS	1	\$1,500	\$1,500
8	Geotechnical Investigation	LS	1	\$8,000	\$8,000
PHASE 2 CONSTRUCTION COST					\$337,300
Engineering/Construction Management (25%)					\$84,325
Administration (3%)*					\$10,119
PHASE 2 TOTAL					\$431,744
PHASE 1 & 2 TOTAL COST					\$1,413,744

Project Schedule

❖ Phases 1&2:

❖ Design 2013

❖ Construction Summer 2014

❖ Phase 3:

❖ 2012-2013 on-going cleanup with EPA/DEQ

❖ Winter 2012-2013 Complete EA on Roundhouse Site

❖ Fall/Winter 2013 Complete VCP

❖ 2014-2015 Cleanup

❖ Phase 4:

❖ Design 2015

❖ Construction 2016

Questions?
