FFIP PROJECT & LAND USE MONITORING FORM

Project #:	045-04	**Project Title:**	North Fork Horse Creek
Date:	6/22/2017	**Evaluator:**	Kyrsten Wolterstorff
Waterbody Name:	North Fork Horse Creek	**Project Type:**	Water savings

Riparian, channel re , bank stabilization, passage, (Some projects may have multiple types)

Land Use Information (all projects)

	Yes	No	Unk.	NA
Does the project have a signed project agreement?	✓			
Land use type (Livestock, Residential, Public, Recreational, Agriculture, Timber, Other)	Agriculture			
Was a PFC assessment conducted?		✓		
Has the trend in riparian condition improved since last visited or last photo?				✓
Is project in overall compliance with project agreement?	✓			
Comments				

Photo Points

Frame #	Lat	Long	Facing?	Scene description/Previous Photo
1	46.024041	-110.513823	East	Pivot in use
2	46.020598	-110.517663	East	Second Pivot

Riparian (Fencing) Projects ☐

	Yes	No	Unk	NA
Does the project agreement include grazing stipulations? (No, Exclosure, Grazing plan, Unk, NA)				
Was fencing installed to exclude livestock?				
If fenced, is the fencing in functional condition?				
If fenced, has grazing occurred within the fenced area?				
If grazed, is grazing in compliance with submitted mngt plans?				
Level of observed browsing on riparian shrubs. (None, Sparse, Moderate, Heavy, NA)				
Density of riparian shrubs present. (None, Sparse, Common, Abundant, NA)				
Age classes of riparian shrubs present. (None, One, Several, All, NA)				
Channel Stability? (Stable, Unstable, Aggrading, Degrading, Unknown)				
Channel Conditions? (Over-widened&shallow; Narrow&deep; Intermediate; Multi-thread)				

Streambank Stabilization Projects

Current length of stream bank protected. (# Feet or Unknown)	
Type of stabilization used. (Root wads, Soil wrap, Willow plantings, Rip rap, Other-describe)	
Current condition of stream bank. (Stable, Unstable, Eroding, Percent stable/unstable)	
Has stream bank migrated. (No, Into stream, Into bank, Unknown)	
Is any infrastructure (fence, etc.) in danger of being compromised. (No, Yes-describe)	
Predominant bank angle within stabilization. (Under cut, 90˚-45˚, <45˚)	

Channel Restoration Projects

Channel stability? (Stable, Unstable, Aggrading, Degrading, Unknown)	
Channel Conditions? (Over-widened & shallow; Narrow & deep; Intermediate, Multi-thread)	
Condition of habitat enhancement structures. (Stable, Eroding, NA)	
Complexity of stream channel? (Pool-riffle, No pools, Wood forced pools, Lateral scour pools)	
Percent of stream reach in pools. (~total pool length/total stream length)	
Habitat enhancement structures involved? (LWD, Rootwads, Cross vanes, Other)	
Condition of habitat structures? (Stable, Eroded, Unknown)	

Comments:

(Existing land use?;Weeds?; Beneficial to fishery?; Public access?; Needs? What did we learn? ;etc.)

Pivots installed and in use
Fish screen and diversion complete- see 022-04 report

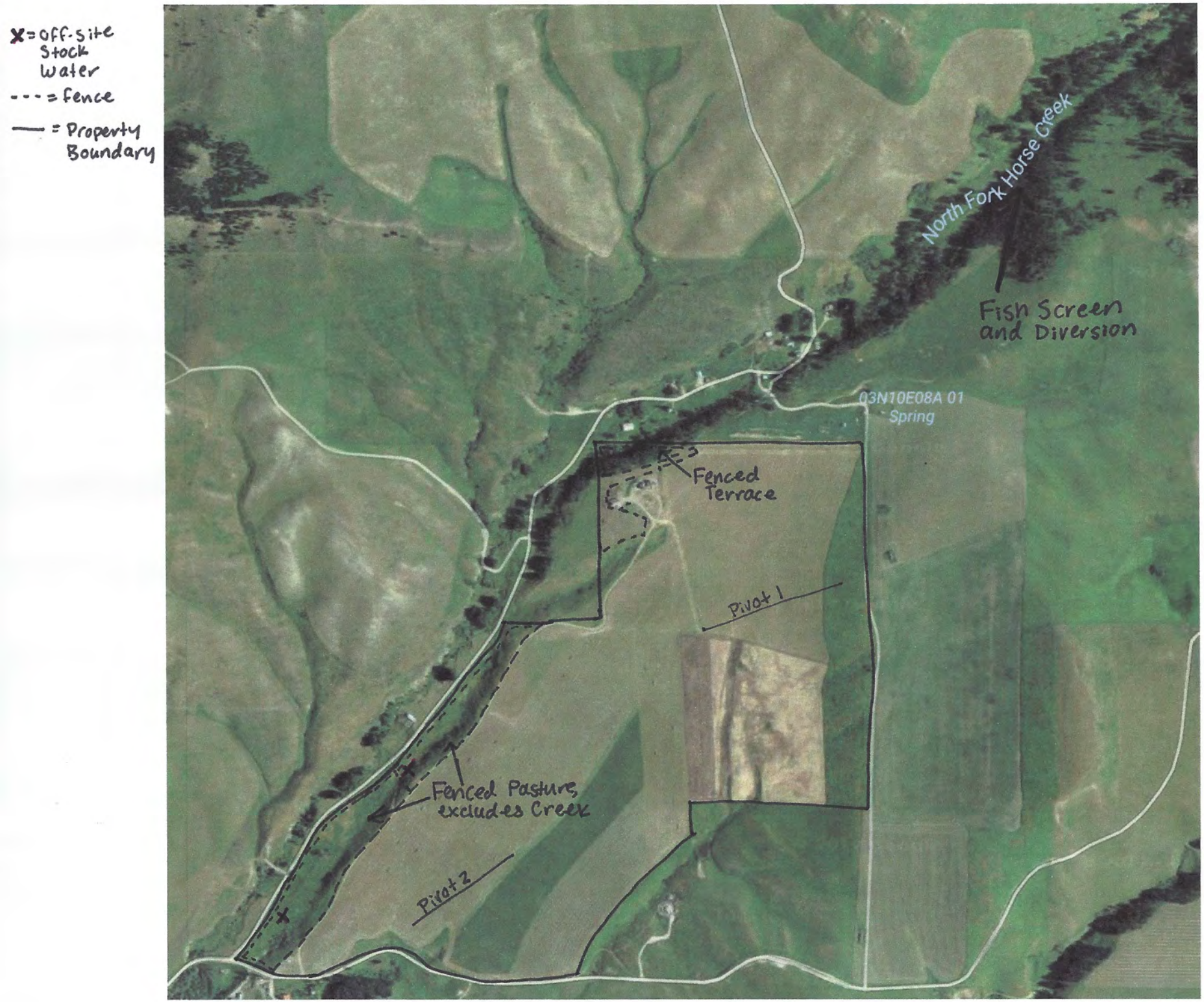
Land Owner Comments: Anson Crutcher (406) 209-3227

Has this project been beneficial to you?	
Has project improved stream/riparian conditions?	
Effects on land use?	
Weeds?	
Noticable change in fishery?	
Thoughts for future work?	

North Fork Horse Creek Center Pivot (045-04)

Figure 1

Figure 2


X = Off-site Stock Water
--- = fence
—— = Property Boundary
North Fork Horse Creek
Fish Screen and Diversion
03N10E08A 01
Spring
Fenced Terrace
Pivot 1
Fenced Pasture, excludes Creek
Pivot 2

FFIP PROJECT & LAND USE MONITORING FORM

Project #:	048-2003	**Project Title:**	North Fork Horse Creek
Date:	6/22/2017	**Evaluator:**	Carol Endicott, Kyrsten Wolterstorff
Waterbody Name:	North Fork Horse Creek	**Project Type:**	Riparian

Riparian, channel re , bank stabilization, passage, (Some projects may have multiple types)

Land Use Information (all projects)

	Yes	No	Unk.	NA
Does the project have a signed project agreement?	✓			
Land use type (Livestock, Residential, Public, Recreational, Agriculture, Timber, Other)	Livestock			
Was a PFC assessment conducted?		✓		
Has the trend in riparian condition improved since last visited or last photo? Yes on terrace			✓	
Is project in overall compliance with project agreement?	✓			
Comments	See attached file for photo points			

Photo Points

Frame #	Lat	Long	Facing?	Scene description/Previous Photo
	SEE ATTACHED			

Riparian (Fencing) Projects

Does the project agreement include grazing stipulations? (No, Exclosure, Grazing plan, Unk, NA)	Exclosure			
	Yes	No	Unk	NA
Was fencing installed to exclude livestock?	✓			
If fenced, is the fencing in functional condition?	✓			
If fenced, has grazing occurred within the fenced area?	✓			
If grazed, is grazing in compliance with submitted mngt plans?	✓			
Level of observed browsing on riparian shrubs. (None, Sparse, Moderate, Heavy, NA)	Sparse/None			
Density of riparian shrubs present. (None, Sparse, Common, Abundant, NA)	Sparse			
Age classes of riparian shrubs present. (None, One, Several, All, NA)	Several			
Channel Stability? (Stable, Unstable, Aggrading, Degrading, Unknown)	Unstable			
Channel Conditions? (Over-widened&shallow; Narrow&deep; Intermediate; Multi-thread)	Intermediate			

Streambank Stabilization Projects

Current length of stream bank protected. (# Feet or Unknown)	
Type of stabilization used. (Root wads, Soil wrap, Willow plantings, Rip rap, Other-describe)	
Current condition of stream bank. (Stable, Unstable, Eroding, Percent stable/unstable)	
Has stream bank migrated. (No, Into stream, Into bank, Unknown)	
Is any infrastructure (fence, etc.) in danger of being compromised. (No, Yes-describe)	
Predominant bank angle within stabilization. (Under cut, 90˚-45˚, <45˚)	

Channel Restoration Projects

Channel stability? (Stable, Unstable, Aggrading, Degrading, Unknown)	
Channel Conditions? (Over-widened & shallow; Narrow & deep; Intermediate, Multi-thread)	
Condition of habitat enhancement structures. (Stable, Eroding, NA)	
Complexity of stream channel? (Pool-riffle, No pools, Wood forced pools, Lateral scour pools)	
Percent of stream reach in pools. (~total pool length/total stream length)	
Habitat enhancement structures involved? (LWD, Rootwads, Cross vanes, Other)	
Condition of habitat structures? (Stable, Eroded, Unknown)	

Comments:

(Existing land use?;Weeds?; Beneficial to fishery?; Public access?; Needs? What did we learn? ;etc.)

All owner repaired and newly installed fence along pasture in good condition
Neighbor across Mather Lane installed fencing to keep livestock out of road, still allows full access to creek.
Crutcher's property and project unaffected by this. Grazing by neighbor's livestock negatively impacts stream health.

Light trampling on left bank of terrace, right bank is a neighboring property (rural residential) with open access to riparian area. Occasionally "trespassing" cows will come in if fence breaks, but no grazing allowed.
Right bank is shrub covered with mixed-aged and mixed-species stands with the exception of the neighbor's yard.
Overstory and understory shrubs.
Crutcher's riparian in excellent health with understory and overstory shrubs and trees.
Substrate cobble and gravel, little silt.
Channel vertically and laterally stable. Stream relatively high gradient with access to ??
Cottonwood and diverse shrubs. Bear sign present.

Land Owner Comments: Anson Crutcher (406) 209-3227

Has this project been beneficial to you?	
Has project improved stream/riparian conditions?	
Effects on land use?	
Weeds?	
Noticable change in fishery?	
Thoughts for future work?	Willows planted by Pat Byorth are doing well, believes that another section of stream could benefit from willow plantings

Photo Locations and Descriptions for North Fork Horse Creek Fencing (048-03)

Frame #	Latitude	Longitude	Facing	Description
1	46.01743	-110.52248	North	Looking up length of pasture (matches old image)
2	46.01778	-110.52186	Southwest	Automatic waterer and pump
3	46.0212	-110.51780	Southwest	Automatic waterer
4	46.02404	-110.51510	South	Eroding banks (neighbor's property)
5	46.02355	-110.51559	West	Cows in creek (neighbor's property)
6	46.02302	-110.51622	West	Cows in creek, poor riparian condition (neighbor's property)
7	46.02142	-110.51815	South	Creek condition (neighbor's property) (matches old image)
8	46.02074	-110.51931	West	Cut bank (neighbor's property)
9	46.01749	-110.52320	North	Looking upstream (neighbor's property) (matches old image)
10	46.02811	-110.50993	Upstream	Looking upstream at eastern terrace boundary
11	46.02811	110.50993	Downstream	Looking downstream at eastern terrace boundary
12	46.02803	-110.51006	West	Dense, mixed riparian area on Left bank
13	46.02791	-110.51018	West	Fence
14	46.02789	-110.51036	West	Looking downstream
15	46.02772	-110.51168	West	Riparian area
16	46.02759	-110.51183	Upstream	Looking upstream at western terrace boundary
17	46.02759	-110.51183	Downstream	Looking downstream at western terrace boundary

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10

Figure 11

Figure 12

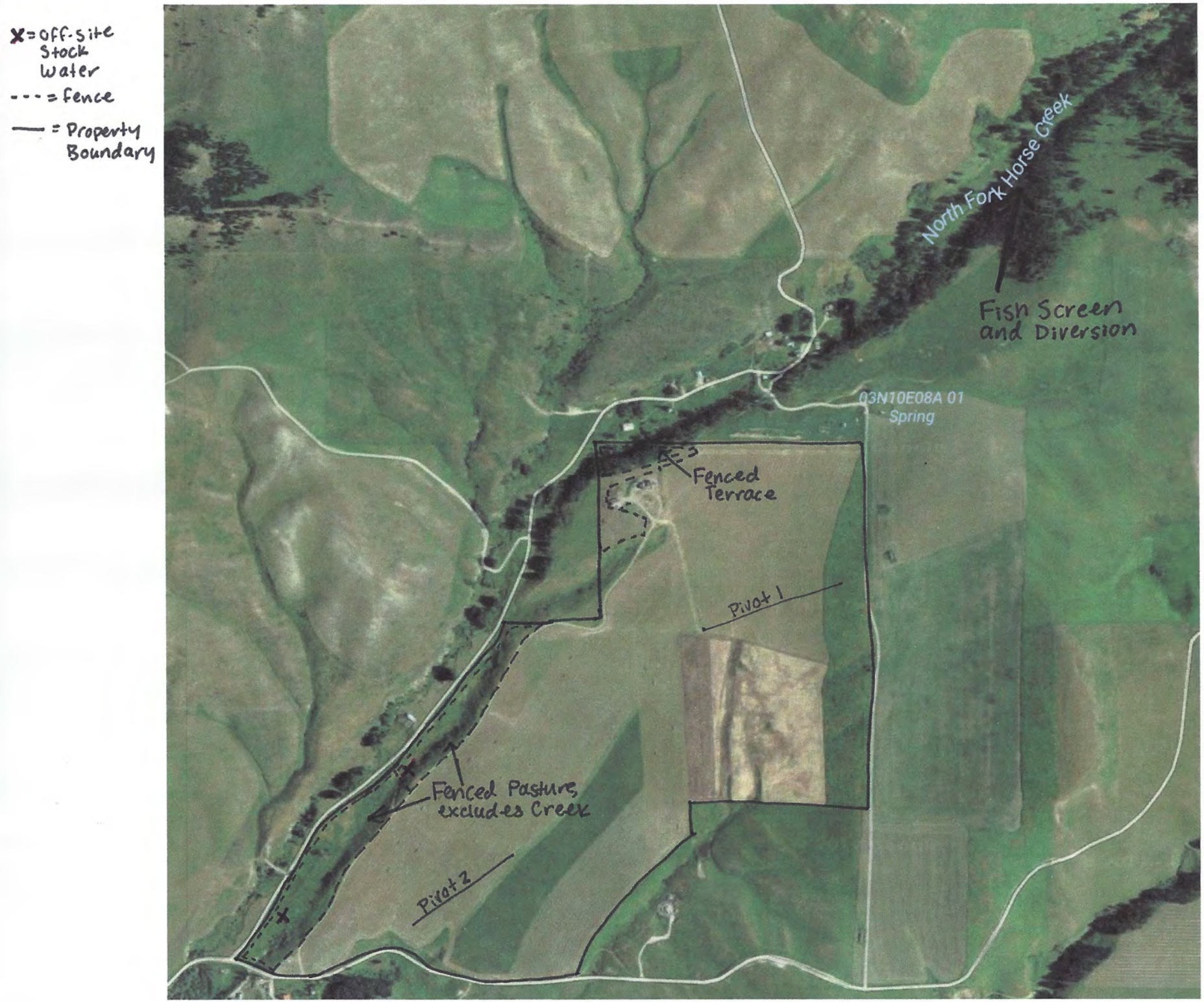
Figure 13

Figure 14

Figure 15

Figure 16

Figure 17


X = Off-site Stock Water
--- = fence
—— = Property Boundary
North Fork Horse Creek
Fish Screen and Diversion
03N10E08A 01
Spring
Fenced Terrace
Pivot 1
Fenced Pasture, excludes Creek
Pivot 2

FFIP PROJECT & LAND USE MONITORING FORM

Project #:	022-04	**Project Title:**	North Fork Horse Creek fish screen
Date:	6/22/2017	**Evaluator:**	Carol Endicott, Kyrsten Wolterstorff
Waterbody Name:	North Fork Horse Creek	**Project Type:**	fish screen

Riparian, channel re , bank stabilization, passage, (Some projects may have multiple types)

Land Use Information (all projects)

	Yes	No	Unk.	NA
Does the project have a signed project agreement?	✓			
Land use type (Livestock, Residential, Public, Recreational, Agriculture, Timber, Other)	Livestock			
Was a PFC assessment conducted?		✓		
Has the trend in riparian condition improved since last visited or last photo? Yes on terrace	✓			
Is project in overall compliance with project agreement?	✓			
Comments	See attached file for photo points			

Photo Points

Frame #	Lat	Long	Facing?	Scene description/Previous Photo
1	46.03412	-110.49886		Fish screen with cover
2	46.03412	-110.49586		Fish screen showing fountain
3	46.03412	-110.49586		Check dam with screw gate
4	46.03412	-110.49586	downstream	downstream of check dam
5	46.03412	-110.49586	upstream	screw gate
6	46.03412	-110.49586	downstream	downstream of bypass pipe
7	46.03412	-110.49586	downstream left bank	bypass

Riparian (Fencing) Projects ☐

Does the project agreement include grazing stipulations? (No, Exclosure, Grazing plan, Unk, NA)	Exclosure			
	Yes	No	Unk	NA
Was fencing installed to exclude livestock?	✓			
If fenced, is the fencing in functional condition?	✓			
If fenced, has grazing occurred within the fenced area?	✓			
If grazed, is grazing in compliance with submitted mngt plans?	✓			
Level of observed browsing on riparian shrubs. (None, Sparse, Moderate, Heavy, NA)	Sparse/None			
Density of riparian shrubs present. (None, Sparse, Common, Abundant, NA)	Sparse			
Age classes of riparian shrubs present. (None, One, Several, All, NA)	Several			
Channel Stability? (Stable, Unstable, Aggrading, Degrading, Unknown)	Unstable			
Channel Conditions? (Over-widened&shallow; Narrow&deep; Intermediate; Multi-thread)	Intermediate			

Streambank Stabilization Projects

Current length of stream bank protected. (# Feet or Unknown)	
Type of stabilization used. (Root wads, Soil wrap, Willow plantings, Rip rap, Other-describe)	
Current condition of stream bank. (Stable, Unstable, Eroding, Percent stable/unstable)	
Has stream bank migrated. (No, Into stream, Into bank, Unknown)	
Is any infrastructure (fence, etc.) in danger of being compromised. (No, Yes-describe)	
Predominant bank angle within stabilization. (Under cut, 90˚-45˚, <45˚)	

Channel Restoration Projects

Channel stability? (Stable, Unstable, Aggrading, Degrading, Unknown)	
Channel Conditions? (Over-widened & shallow; Narrow & deep; Intermediate, Multi-thread)	
Condition of habitat enhancement structures. (Stable, Eroding, NA)	
Complexity of stream channel? (Pool-riffle, No pools, Wood forced pools, Lateral scour pools)	
Percent of stream reach in pools. (~total pool length/total stream length)	
Habitat enhancement structures involved? (LWD, Rootwads, Cross vanes, Other)	
Condition of habitat structures? (Stable, Eroded, Unknown)	

Comments:

(Existing land use?;Weeds?; Beneficial to fishery?; Public access?; Needs? What did we learn? ;etc.)

Fish screen in operation. Flows through fountain pipe caused sufficient turbulence to move detritus and presumably fish off the screen.

Land Owner Comments: Anson Crutcher (406) 209-3227

Has this project been beneficial to you?	
Has project improved stream/riparian conditions?	
Effects on land use?	
Weeds?	
Noticable change in fishery?	
Thoughts for future work?	trap outfall of bypass pipe

Figure 1.

Figure 2

Figure 3

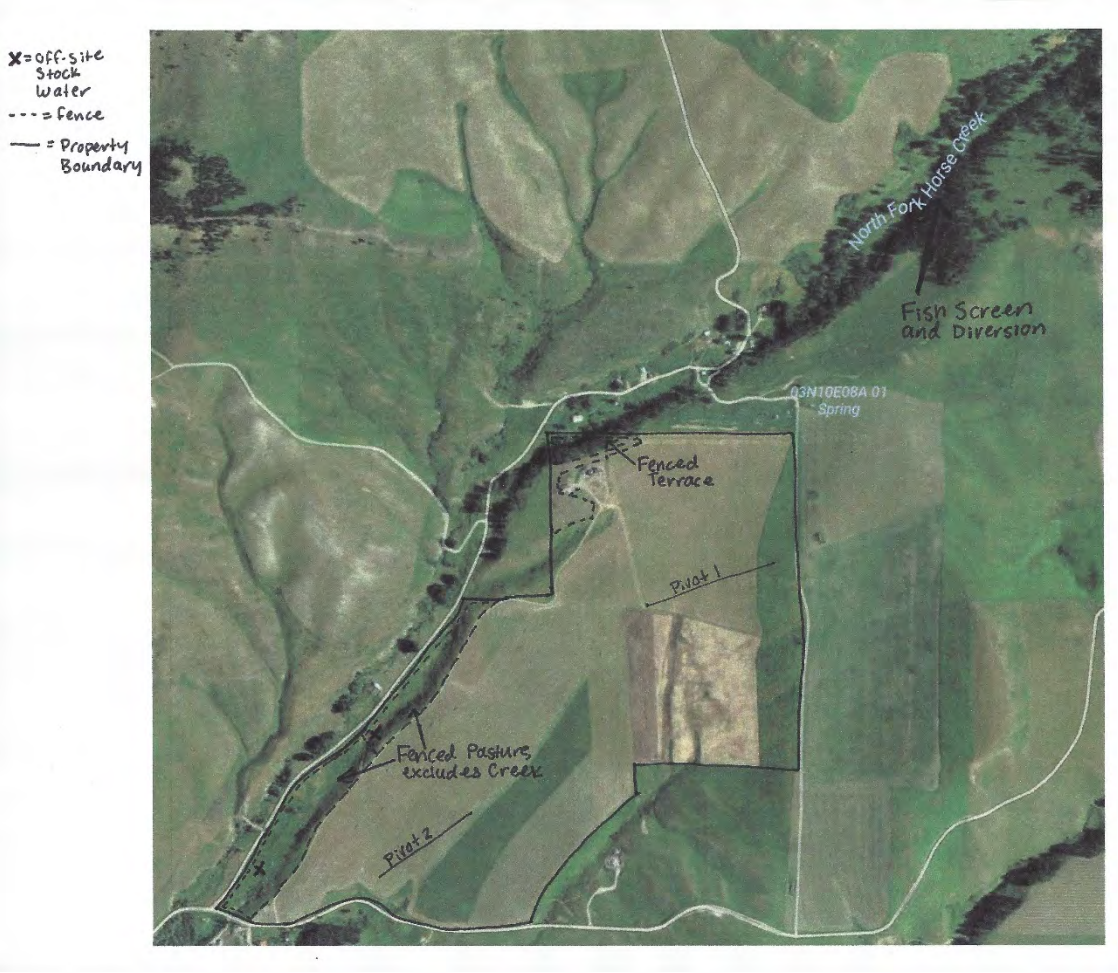
Figure 4

Figure 5

Figure 6

Figure 7

North Fork Horse Fork Fish Screen (022-04)



FFIP PROJECT & LAND USE MONITORING FORM

Project #:	026-07	**Project Title:**	Richardson Creek
Date:	8/3/2017	**Evaluator:**	Kyrsten Wolterstorff
Waterbody Name:	Richardson Creek	**Project Type:**	Riparian

Riparian, channel re , bank stabilization, passage, (Some projects may have multiple types)

Land Use Information (all projects)

	Yes	No	Unk.	NA
Does the project have a signed project agreement?	✓			
Land use type (Livestock, Residential, Public, Recreational, Agriculture, Timber, Other)	Livestock			
Was a PFC assessment conducted?		✓		
Has the trend in riparian condition improved since last visited or last photo?			✓	
Is project in overall compliance with project agreement?			✓	
Comments				

Photo Points

Frame #	Lat	Long	Facing?	Scene description/Previous Photo
1	46.52423	-110.73213	North	View of fence from aspen stand
2	46.52609	-110.72373	South	Creek
3	46.52609	-110.72373	West	Field inside fence
4	46.52627	-110.73318	East	Break in fence for creek crossing
5	46.52689	-110.73310	North	Off-site water
6	46.52650	-110.73354	North	Riparian zone
7	46.527095	-110.733995	East	Creek, matches old photo

Riparian (Fencing) Projects ☐

Does the project agreement include grazing stipulations? (No, Exclosure, Grazing plan, Unk, NA)	Grazing Plan			
	Yes	No	Unk	NA
Was fencing installed to exclude livestock?	✓			
If fenced, is the fencing in functional condition?	✓			
If fenced, has grazing occurred within the fenced area?			✓	
If grazed, is grazing in compliance with submitted mngt plans?			✓	
Level of observed browsing on riparian shrubs. (None, Sparse, Moderate, Heavy, NA)	None			
Density of riparian shrubs present. (None, Sparse, Common, Abundant, NA)	Abundant			
Age classes of riparian shrubs present. (None, One, Several, All, NA)	Several			
Channel Stability? (Stable, Unstable, Aggrading, Degrading, Unknown)	Unknown			
Channel Conditions? (Over-widened&shallow; Narrow&deep; Intermediate; Multi-thread)	Narrow/Deep			

Streambank Stabilization Projects

Current length of stream bank protected. (# Feet or Unknown)	
Type of stabilization used. (Root wads, Soil wrap, Willow plantings, Rip rap, Other-describe)	
Current condition of stream bank. (Stable, Unstable, Eroding, Percent stable/unstable)	
Has stream bank migrated. (No, Into stream, Into bank, Unknown)	
Is any infrastructure (fence, etc.) in danger of being compromised. (No, Yes-describe)	
Predominant bank angle within stabilization. (Under cut, 90˚-45˚, <45˚)	

Channel Restoration Projects

Channel stability? (Stable, Unstable, Aggrading, Degrading, Unknown)	
Channel Conditions? (Over-widened & shallow; Narrow & deep; Intermediate, Multi-thread)	
Condition of habitat enhancement structures. (Stable, Eroding, NA)	
Complexity of stream channel? (Pool-riffle, No pools, Wood forced pools, Lateral scour pools)	
Percent of stream reach in pools. (~total pool length/total stream length)	
Habitat enhancement structures involved? (LWD, Rootwads, Cross vanes, Other)	
Condition of habitat structures? (Stable, Eroded, Unknown)	

Comments:

(Existing land use?;Weeds?; Beneficial to fishery?; Public access?; Needs? What did we learn? ;etc.)

Noticeable difference between creek inside and outside of exclosure.
Grass inside fence appears ungrazed and thick.
Fenced riparian area dense with shrubs, greatly varies in width depending on location.
Unable to locate horse park and stock tank GPS/reference points (I went there, but it there was nothing there)

Fourmile Creek dry at turnoff from main road, unsure where water stops flowing (Richardson feeds into Fourmile)

Land Owner Comments:

Has this project been beneficial to you?	
Has project improved stream/riparian conditions?	
Effects on land use?	
Weeds?	
Noticable change in fishery?	
Thoughts for future work?	

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

Richardson Creek Fencing

Printed from fwp.mt.gov
December 21, 2017

1:18,056

0 0.15 0.3 0.6 mi

0 0.225 0.45 0.9 km

Montana Fish, Wildlife & Parks

This map was generated from the Montana Fish, Wildlife & Parks (FWP) internal FWP Mapper online mapping system. Data layers on this map may depict sensitive species level information. This map is not intended for distribution or use beyond work associated with FWP.

Some layers may not appear in the legend due to page size limitations.

FFIP PROJECT & LAND USE MONITORING FORM

Project #:	053-98	**Project Title:**	Shields River and Elk Creek Fencing- Hoyem
Date:	8/22/2017	**Evaluator:**	Carol Endicott, Kyrsten Wolterstorff
Waterbody Name:	Shields River	**Project Type:**	Riparian Fencing

Riparian, channel re , bank stabilization, passage, (Some projects may have multiple types)

Land Use Information (all projects)

	Yes	No	Unk.	NA
Does the project have a signed project agreement?	✓			
Land use type (Livestock, Residential, Public, Recreational, Agriculture, Timber, Other)	Livestock			
Was a PFC assessment conducted?		✓		
Has the trend in riparian condition improved since last visited or last photo?	✓			
Is project in overall compliance with project agreement?	✓			
Comments				

Photo Points

Frame #	Lat	Long	Facing?	Scene description/Previous Photo
				See attached document

Riparian (Fencing) Projects ☐

	Yes	No	Unk	NA
Does the project agreement include grazing stipulations? (No, Exclosure, Grazing plan, Unk, NA)	Exclosure/Unknown			
Was fencing installed to exclude livestock?	✓			
If fenced, is the fencing in functional condition?	✓			
If fenced, has grazing occurred within the fenced area?		✓		
If grazed, is grazing in compliance with submitted mngt plans?			✓	
Level of observed browsing on riparian shrubs. (None, Sparse, Moderate, Heavy, NA)	None/Sparse*			
Density of riparian shrubs present. (None, Sparse, Common, Abundant, NA)	Sparse**			
Age classes of riparian shrubs present. (None, One, Several, All, NA)	All			
Channel Stability? (Stable, Unstable, Aggrading, Degrading, Unknown)	Stable			
Channel Conditions? (Over-widened&shallow; Narrow&deep; Intermediate; Multi-thread)	Intermediate			

Streambank Stabilization Projects

Current length of stream bank protected. (# Feet or Unknown)	
Type of stabilization used. (Root wads, Soil wrap, Willow plantings, Rip rap, Other-describe)	
Current condition of stream bank. (Stable, Unstable, Eroding, Percent stable/unstable)	
Has stream bank migrated. (No, Into stream, Into bank, Unknown)	
Is any infrastructure (fence, etc.) in danger of being compromised. (No, Yes-describe)	
Predominant bank angle within stabilization. (Under cut, 90˚-45˚, <45˚)	

Channel Restoration Projects

Channel stability? (Stable, Unstable, Aggrading, Degrading, Unknown)	
Channel Conditions? (Over-widened & shallow; Narrow & deep; Intermediate, Multi-thread)	
Condition of habitat enhancement structures. (Stable, Eroding, NA)	
Complexity of stream channel? (Pool-riffle, No pools, Wood forced pools, Lateral scour pools)	
Percent of stream reach in pools. (~total pool length/total stream length)	
Habitat enhancement structures involved? (LWD, Rootwads, Cross vanes, Other)	
Condition of habitat structures? (Stable, Eroded, Unknown)	

Comments:

(Existing land use?;Weeds?; Beneficial to fishery?; Public access?; Needs? What did we learn? ;etc.)

*Slight browsing observed on riparian shrubs, but this is likely due to wildlife rather than livestock
**Shrub density is sparse, but area is largely Cottonwood galleries so this is to be expected

Cattle do have access to the river in some sections as evidenced by slight hoof shear and feces, but their impact on the riparian area is negligible.
Majority of the river has good floodplain access. Willow and cottonwood recruitment on floodplains as well as wild rose.
Large point bars throughout, but river levels are low this time of year and it is a heavily de-watered stream.
Stream heavily embedded with fine sediment, but it does not appear to be locally sourced. Shields River is on 303d list for sediment so this is an ongoing concern.
Some complex woody debris build up along stream. Lots of adult fish and fry seen.
Canada thistle abundant, knapweed and reed canary grass also present
Kingfishers, songbirds, long eared owl, deer, and boreal toads present

Land Owner Comments: Hoyems (406) 578-2134

Has this project been beneficial to you?	
Has project improved stream/riparian conditions?	
Effects on land use?	
Weeds?	
Noticable change in fishery?	
Thoughts for future work?	

Frame #	Lat	Long	Facing	Image description
1	46.04605	-110.63930	North	Cottonwood gallery, looking upstream from southern end
2	46.04607	-110.63924	South	Bridge at southern end with detritus on fence, looking downstream
3	46.04680	-110.63950	North	Large woody debris, tree cabled to fence, looking upstream
4	46.04764	-110.63947	North	Southern end of old riprap, looking upstream
5	46.04835	-110.63977	South	Northern end of old riprap that is still in stream, looking downstream
6	46.04835	-110.63977	North	Northern end of old riprap, stream has now moved channels and riprap is unused here
7	46.04832	-110.64010	Northwest	Floodplain and cut bank
8	46.04919	-110.64088	West	Pump, maybe for off-site stock water
9	46.04951	-110.64096	West	Hoof shear
10	46.04928	-110.64127	West	Heavy sedimentation, Boreal toad found in area
11	46.04929	-110.64158	West	Pool and large woody debris
12	46.05144	-110.64080	North	Riprap
13	46.05180	-110.64200	West	Irrigation diversion, acts as a temporary fish barrier
14	46.05185	-110.64245	North	Looking upstream from diversion, shows cut bank
15	46.05381	-110.64161	North	Northern boundary fence
16	46.04900	-110.63992	South	Off-site stock water, non-functioning. May not be part of project
17	46.04577	-110.63376	North	Looking towards Hoyem property from Shields River Road bridge (matches old photo)

Frame #	Lat	Long	Facing	Image description
1	46.04605	-110.63930	North	Cottonwood gallery, looking upstream from southern end
2	46.04607	-110.63924	South	Bridge at southern end with detritus on fence, looking downstream
3	46.04680	-110.63950	North	Large woody debris, tree cabled to fence, looking upstream
4	46.04764	-110.63947	North	Southern end of old riprap, looking upstream
5	46.04835	-110.63977	South	Northern end of old riprap that is still in stream, looking downstream
6	46.04835	-110.63977	North	Northern end of old riprap, stream has now moved channels and riprap is unused here
7	46.04832	-110.64010	Northwest	Floodplain and cut bank
8	46.04919	-110.64088	West	Pump, maybe for off-site stock water
9	46.04951	-110.64096	West	Hoof shear
10	46.04928	-110.64127	West	Heavy sedimentation, Boreal toad found in area
11	46.04929	-110.64158	West	Pool and large woody debris
12	46.05144	-110.64080	North	Riprap
13	46.05180	-110.64200	West	Irrigation diversion, acts as a temporary fish barrier
14	46.05185	-110.64245	North	Looking upstream from diversion, shows cut bank
15	46.05381	-110.64161	North	Northern boundary fence
16	46.04900	-110.63992	South	Off-site stock water, non-functioning. May not be part of project
17	46.04577	-110.63376	North	Looking towards Hoyem property from Shields River Road bridge (matches old photo)

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10

Figure 11

Figure 12

Figure 13

Figure 14

Figure 15

Figure 16

Figure 17

FFIP PROJECT & LAND USE MONITORING FORM

Project #:	053-98	**Project Title:**	Shields River and Elk Creek Fencing- Ron Arthun
Date:	8/17/2017	**Evaluator:**	Kyrsten Wolterstorff
Waterbody Name:	Shields River	**Project Type:**	Riparian Fencing

Riparian, channel re , bank stabilization, passage, (Some projects may have multiple types)

Land Use Information (all projects)

	Yes	No	Unk.	NA
Does the project have a signed project agreement?	✓			
Land use type (Livestock, Residential, Public, Recreational, Agriculture, Timber, Other)	Livestock			
Was a PFC assessment conducted?		✓		
Has the trend in riparian condition improved since last visited or last photo?	✓			
Is project in overall compliance with project agreement?			✓	
Comments	See attached sheet for photo points			

Photo Points

Frame #	Lat	Long	Facing?	Scene description/Previous Photo
	See attached sheet			

Riparian (Fencing) Projects

Does the project agreement include grazing stipulations? (No, Exclosure, Grazing plan, Unk, NA)	Unknown			
	Yes	No	Unk	NA
Was fencing installed to exclude livestock?	✓			
If fenced, is the fencing in functional condition?	✓			
If fenced, has grazing occurred within the fenced area?	✓			
If grazed, is grazing in compliance with submitted mngt plans?			✓	
Level of observed browsing on riparian shrubs. (None, Sparse, Moderate, Heavy, NA)	Sparse			
Density of riparian shrubs present. (None, Sparse, Common, Abundant, NA)	Sparse*			
Age classes of riparian shrubs present. (None, One, Several, All, NA)	Several			
Channel Stability? (Stable, Unstable, Aggrading, Degrading, Unknown)	Stable			
Channel Conditions? (Over-widened&shallow; Narrow&deep; Intermediate; Multi-thread)	Intermediate			

Streambank Stabilization Projects

Current length of stream bank protected. (# Feet or Unknown)	
Type of stabilization used. (Root wads, Soil wrap, Willow plantings, Rip rap, Other-describe)	
Current condition of stream bank. (Stable, Unstable, Eroding, Percent stable/unstable)	
Has stream bank migrated. (No, Into stream, Into bank, Unknown)	
Is any infrastructure (fence, etc.) in danger of being compromised. (No, Yes-describe)	
Predominant bank angle within stabilization. (Under cut, 90˚-45˚, <45˚)	

Channel Restoration Projects

Channel stability? (Stable, Unstable, Aggrading, Degrading, Unknown)	
Channel Conditions? (Over-widened & shallow; Narrow & deep; Intermediate, Multi-thread)	
Condition of habitat enhancement structures. (Stable, Eroding, NA)	
Complexity of stream channel? (Pool-riffle, No pools, Wood forced pools, Lateral scour pools)	
Percent of stream reach in pools. (~total pool length/total stream length)	
Habitat enhancement structures involved? (LWD, Rootwads, Cross vanes, Other)	
Condition of habitat structures? (Stable, Eroded, Unknown)	

Comments:

(Existing land use?;Weeds?; Beneficial to fishery?; Public access?; Needs? What did we learn? ;etc.)

All fencing appears to be in good condition. Some areas in the riparian zone had fence posts with no wires, but they appeared to be part of the FFIP project. Cattle had access to the river, as evidenced by light trampling, manure, and hoof prints. The west side of the river is not fenced, but appears to be hay fields rather than pasture. Land owner said he had about 20 heifers "down there", which were heard but not seen. Riparian area looks relatively healthy with little grazing, although the hillside above the river does have some heavy grazing and a worn path (Images 12-15). Riparian are could still use slight improvement though.

*Shrub density is sparse, but stream is mostly bounded by cottonwood galleries so this is expected.

Land Owner Comments:
Fencing has worked well. One of the off-site water locations has stopped working and the other two intermittently go out. Two armored stanchion type water access points were put in to allow cattle access to water when the off-site locations do not work. These were installed after Arthun lost 7 calves early in the spring when the water had shut off. Arthun made a comment that one of the other landowners (Niewojna) has opted out of the project due to the cost of running the off-site water pumps (I am unsure if FWP is already aware of this). Arthun says they do get expensive, but did not indicate he had issue with the cost.

Land Owner Comments: Ron Arhtun Home: (406) 578-2340 Cell: (406) 220-0399

Has this project been beneficial to you?	Has worked well for the most part (See comments above)
Has project improved stream/riparian conditions?	
Effects on land use?	
Weeds?	
Noticable change in fishery?	
Thoughts for future work?	

Frame #	Lat	Long	Facing	Image description
1	46.03208	-110.63938	Southwest	Southwest property boundary above cliff
2	46.03208	-110.63938	North	Barbed wire fence and grazing impacts
3	46.03588	-110.63377	Northwest	Off-site water #1
4	46.03590	-110.63999	West	Fence
5	46.03675	-110.64120	South	Fencing without wire in riparian zone
6	46.03675	-110.64162	West	Fencing without wire in riparian zone
7	46.03677	-110.64196	West	River
8	46.03711	-110.64175	North	Livestock water access #1 and looking upstream
9	46.03711	-110.64175	South	Looking downstream
10	46.03711	-110.64175	West	Hoof shear on opposite bank
11	46.03715	-110.64117	West	Water access chute from pasture
12	46.03823	-110.64085	North	At fence
13	46.03823	-110.64085	West	Heavy grazing on riparian side of fence
14	46.03873	-110.64071	Northwest	Riparian zone
15	46.04016	-110.64005	West	Riparian zone
16	46.04098	-110.63826	Northeast	Off-site water #2
17	46.04186	-110.63927	West	Riparian zone
18	46.04322	-110.63899	West	Livestock water access #2
19	46.04310	-110.63751	Northeast	Off-site water #3 (no longer working)
20	46.04564	-110.63911	North	Looking upstream Upper Shields River
21	46.04564	-110.63911	South	Looking downstream Upper Shields River

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10

Figure 11

Figure 12

Figure 13

Figure 14

Figure 15

Figure 16

Figure 17

Figure 18

Figure 19

Figure 20

Shields & Elk River Fencing (053-98) 2nd Property

Figure 21

FFIP PROJECT & LAND USE MONITORING FORM

Project #:	053-98	**Project Title:**	Shields River and Elk Creek Fencing- Patrick Schumacher
Date:	8/25/2017	**Evaluator:**	Kyrsten Wolterstorff
Waterbody Name:	Shields River	**Project Type:**	Riparian fencing

Riparian, channel re , bank stabilization, passage, (Some projects may have multiple types)

Land Use Information (all projects)

	Yes	No	Unk.	NA
Does the project have a signed project agreement?	✓			
Land use type (Livestock, Residential, Public, Recreational, Agriculture, Timber, Other)	Agriculture			
Was a PFC assessment conducted?		✓		
Has the trend in riparian condition improved since last visited or last photo?			✓	
Is project in overall compliance with project agreement?	✓		✓	
Comments	There is no longer any fencing, but no cattle are run on this property anymore so the purpose of the project is fulfilled			

Photo Points

Frame #	Lat	Long	Facing?	Scene description/Previous Photo
	See attached file			

Riparian (Fencing) Projects ☐

Does the project agreement include grazing stipulations? (No, Exclosure, Grazing plan, Unk, NA)	Exclosure			
	Yes	No	Unk	NA
Was fencing installed to exclude livestock?	✓			✓
If fenced, is the fencing in functional condition?		✓		
If fenced, has grazing occurred within the fenced area?		✓		
If grazed, is grazing in compliance with submitted mngt plans?				✓
Level of observed browsing on riparian shrubs. (None, Sparse, Moderate, Heavy, NA)	Sparse*			
Density of riparian shrubs present. (None, Sparse, Common, Abundant, NA)	Common			
Age classes of riparian shrubs present. (None, One, Several, All, NA)	All			
Channel Stability? (Stable, Unstable, Aggrading, Degrading, Unknown)	Stable			
Channel Conditions? (Over-widened&shallow; Narrow&deep; Intermediate; Multi-thread)	Intermediate			

Streambank Stabilization Projects

Current length of stream bank protected. (# Feet or Unknown)	
Type of stabilization used. (Root wads, Soil wrap, Willow plantings, Rip rap, Other-describe)	
Current condition of stream bank. (Stable, Unstable, Eroding, Percent stable/unstable)	
Has stream bank migrated. (No, Into stream, Into bank, Unknown)	
Is any infrastructure (fence, etc.) in danger of being compromised. (No, Yes-describe)	
Predominant bank angle within stabilization. (Under cut, 90˚-45˚, <45˚)	

Channel Restoration Projects

Channel stability? (Stable, Unstable, Aggrading, Degrading, Unknown)	
Channel Conditions? (Over-widened & shallow; Narrow & deep; Intermediate, Multi-thread)	
Condition of habitat enhancement structures. (Stable, Eroding, NA)	
Complexity of stream channel? (Pool-riffle, No pools, Wood forced pools, Lateral scour pools)	
Percent of stream reach in pools. (~total pool length/total stream length)	
Habitat enhancement structures involved? (LWD, Rootwads, Cross vanes, Other)	
Condition of habitat structures? (Stable, Eroded, Unknown)	

Comments:

(Existing land use?;Weeds?; Beneficial to fishery?; Public access?; Needs? What did we learn? ;etc.)

Healthiest looking reach of the three sites visited and with the most wildlife. Highest concentration of riparian shrubs (alder, rose, willow), as well as large cottonwood trees. Reed canary grass abundant, knapweed present. Slight browsing observed.
Stream still suffers from heavy sedimentation, but it is on the 303d list for sedimentation so this is not a new issue. Most of stream is pool-riffle with some very deep pools.
Cow and calf moose, numerous whitetail deer, and turkeys seen. Fresh bear sign present, may have heard bear in area of sign (large branch snap in brushy area full of berries). Long eared owl seen again in same stand of trees at fence line at Hoyem's. Kingfishers and songbirds present.
Fence posts still up, but no barbed wire. Land is under new ownership and it is used for hay and recreation, not cattle. There was no sign that cattle from other properties have any sort of accidental access to this reach.
More eroding and steep banks than the other reaches, but stream does not appear to be moving.

Landowner comments:
Fishing is phenomenal, mostly YCT that are getting huge. Fishery getting better, noticeably more YCT than brown trout. Creek looks super healthy.
To access- Go .5mi past building, come to gate on front w/ archery lawn ornament design at entrance. OR just before buildings go past Hoyem's to house

Land Owner Comments: Patrick Schumacher (972) 443-4404

Has this project been beneficial to you?	
Has project improved stream/riparian conditions?	
Effects on land use?	
Weeds?	
Noticable change in fishery?	
Thoughts for future work?	

Frame #	Lat	Long	Facing	Scene description
1	46.05409	-110.64162	West	Erosion on bank
2	46.05409	-110.64162	North	Floodplain with willows and reed canary grass, looking upstream
3	46.05447	-100.64155	North	Riparian area, looking upstream
4	46.05472	-110.64142	North	Steep banks, looking upstream
5	46.05503	-110.64161	North	Reed canary grass, looking upstream
6	46.05644	-110.64233	West	Diversion
7	46.05724	-110.64236	North	Steep banks, looking upstream
8	46.05819	-110.64229	North	Looking upstream, riparian area
9	46.05819	-110.64229	South	Looking downstream, riparian area
10	46.05853	-110.64140	North	Looking upstream towards cow and calf moose
11	46.06035	-110.64053	North	Cut bank at bottom of image, reach in back with riprap and possibly mechanically straightened
12	46.06097	-110.64017	North	Upstream end of project, looking upstream
13	46.06097	-110.64017	South	Upstream end of project, looking downstream
14	46.06097	-110.64017	East	Fencing with no wire
15	46.06054	-110.64024	North	Fencing with no wire

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10

Figure 11

Figure 12

Figure 13

Figure 14

Shields & Elk Creek Fencing (053-98) 3rd Property

Figure 15