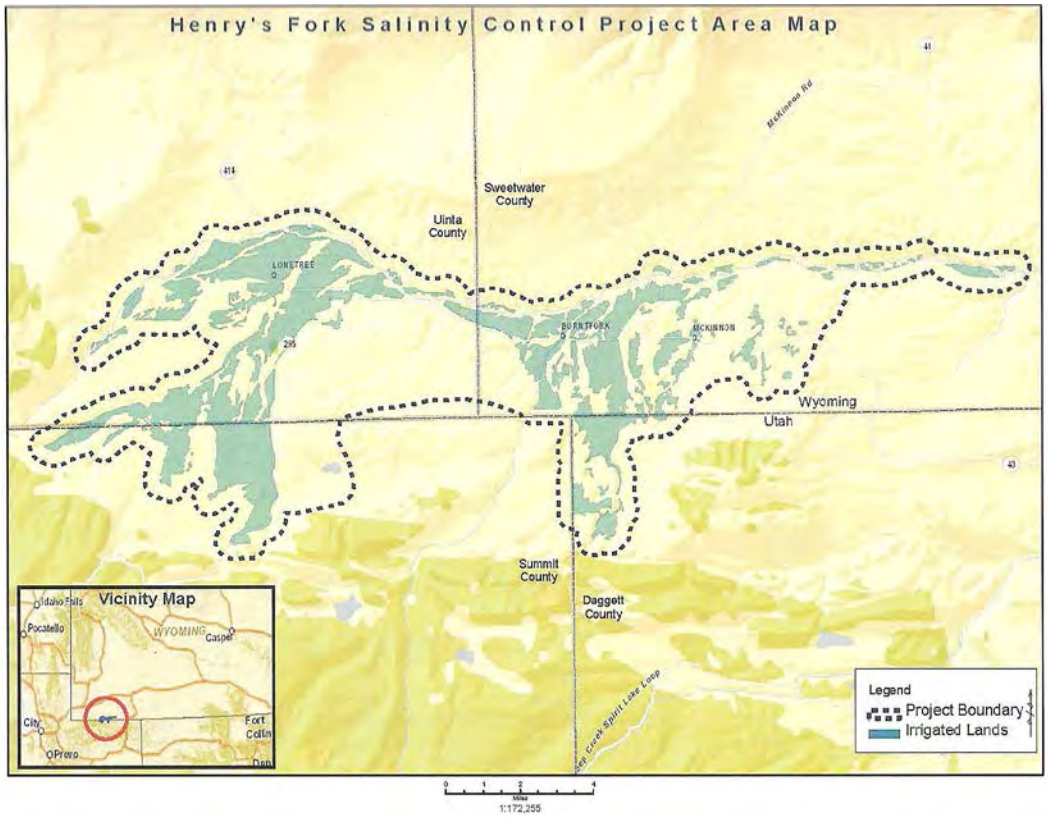
Henry's Fork Salinity Control Area

Monitoring and Evaluation Report

2022



Wildlife/Wetland Value Assessments and Habitat Replacement Projects

Summary

No new wetland assessments were completed in 2021. Follow-up assessments were completed for practices that have been in place for at least one year. The 2021 year saw drier than normal conditions in late June and July in the Henry's Fork area and many of the projects reflected that during the site visits. However, no significant changes to vegetation appeared to occur. Photos were taken at each site and compared to pre-project conditions, which can be found in the "Follow-Up Wetland Assessments of Irrigation Projects" section of this report. No habitat replacement projects were completed in 2021. However, project planning for a drainage-wide diversion improvement project has resulted in full funding and that project will begin implementation this fall. For further information, please see the "Habitat Replacement Projects" section. Since 2013, 503.2 irrigated acres have been assessed and are operating under conservation practices. Of those total assessed acres, 190.6 acres were found to contain 619.22 wetland habitat values. At this time, no habitat values have been lost since the start of the project. A summary of current habitat replacement values can be found in Table 1 and 2 below.

Table 1: Summary of Replacement Values in the Henry's Fork Salinity Control Area.

Project Area	Project Starting Year	FY21 Replacement Habitat Values Applied and Maintained	FY21 Replacement Wildlife Habitat Values Current Surplus or Deficit	Replacement Habitat Values in Active Contracts	Potential Habitat Value Deficit	Current Habitat Value Deficit
Henry's Fork	2013	240.45	+240.45	0	-619.22	0

Table 2: Habitat values present for all Salinity Control Program projects in the Henry's Fork area, based on the Montana Wetland Assessment Method.

Name	Year Installed	Irrigated acres Assessed	Wetland Acres Assessed	Total Habitat Values Present Before Treatment	Habitat Values Lost Since Treatment
Pallesen Pod-line	2014	2	0	0	0
Thomas Pod-line	2015	27.6	1.3	3.77	0
Crowther Pivot	2015	40	2.95	7.67	0
S. Slagowski Pivot	2015	25.1	1.02	1.84	0
B. Slagowski Pivot	2015	48.4	5.0	15.00	0
M. Beck Pivot	2016	100	83.5	292.25	0
Anderson Pivot & Gated Pipe	2017	59.3	26.1	70.47	0
DR Livestock Pivot 1	2018	31.9	3.4	8.5	0
Petersen Pod-line & Gated Pipe	2019	12.5	9.8	32.34	0
D. Beck Ranch	2019	80	31	105.4	0
DR Livestock Pivots 2 &3	2019	42	2.6	7.8	0
S. Slagowski Pod-Lines	2019	11.3	0.83	2.48	0
Taylor Ranches Pivot	2021	23.1	23.1	71.7	0
Totals		**503.2**	**190.6**	**619.22**	**0**

Follow-up Wetland Assessments of Irrigation Projects

Follow-up wetland assessments occur when a conservation practice has been in place for at least a year and wetland characteristics of the assessment area appear to have changed from pre-practice conditions. If no significant changes have occurred, photos are taken but a wetland assessment will be planned for the following year, so that the impacts are fully realized. Follow-up assessments will also be postponed if normal conditions are not present.

- R. Slagowski Pivot was installed in November 2015. A site visit was completed the end of June 2021. There appeared to be wetland characteristics still present on the 5 acres previously assessed, though it had been recently grazed. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 1: Southern end of field in June 2015 (left) and June 2021 (right) with wetland characteristics still present.

- D. Slagowski pivot was installed in September 2016. A site visit was completed in June 2021. There appeared to be wetland characteristics still present on the 1.02 wetland acres previously assessed. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 2: Eastern toe-slope of field facing south June 2015 (left) and June 2021 (right) with wetland vegetation still present.

- Crowther pivot was installed in September 2016. A site visit was completed in June 2021. There appeared to be wetland characteristics still present, though not as saturated with water, on the 2.95 wetland acres previously assessed. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 3: Eastern toe-slope of field facing south July 2015 (left) and June 2021 (right).

- M. Beck center pivots were installed in September 2016. A site visit was completed in June 2021. There appeared to be wetland characteristics still present on the 83.5 wetland acres previously assessed. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 4: Center of western pivot field facing south June 2016 (left) and June 2021 (right).

Photo 5: Pond located at north end of field June 2016 (left) and June 2021 (right).

- Thomas pod-lines were installed in March 2017. A site visit was completed in July 2021. There appeared to be wetland characteristics still present on the 1.3 wetland acres previously assessed at the northeastern toe of the slope. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 6: The northeastern toe of the pasture July 2015 (left) and July 2021 (right).

- Anderson pivot and gated pipe were installed November 2017. A site visit was completed in June 2021. Both fields still contained wetland vegetation along the irrigation ditches. Thistle, yellow sweet clover and white-top present. Noticeable changes were found on approximately 15 acres of the 26.1 wetland acres assessed due to new plantings and recent haying in 2020, but those changes were less noticeable in 2021. The field now contains hay grasses, alfalfa and some wetland vegetation. Photos were taken and a follow-up assessment will occur next year to fully capture those changes.

Photo 7: Anderson pivot field overview facing north July 2017 (left) and June 2021 (right).

Photo 8: Anderson gated pipe field facing north July 2017 (left) and June 2021 (right).

- DR Livestock North Pivot was installed in November 2017. A site visit was completed in July 2021. Wetland characteristics still present in the 3.4 acres assessed on the north and south sides of the field. Rushes, sedges and hay grasses were found in most of the field, with patches of sagebrush. It was grazed recently. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 9: West end of DR Livestock north pivot July 2018 (left) and July 2021 (right).

- Petersen Ranch Pod-lines and Gated Pipe were installed fall of 2019. A site visit was completed June 2021. The north field where gated pipe was installed still contains rushes, sedges, hay grasses and saturated soils throughout the area. The south field where pod-lines had been installed had recently been hayed, so vegetation identification was difficult. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 10: South end of north gated pipe field July 2019 (left) and June 2021 (right).

Photo 11: Souwestern section of the south pod-line field July 2019 (left) and June 2021 (right).

- D. Beck Ranch Pivots were installed fall 2019. A site visit was completed in June 2021. Wetland characteristics were still present in the 31 acres assessed in the eastern pivot field. Hay/meadow grasses, sedges, rushes, arrowgrass and saturated soils were still present. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 12: Southern end of the eastern pivot field July 2019 (left) and June 2021 (right).

- DR Livestock Pivots 2 & 3 were installed fall 2019. A site visit was completed in July 2021. Wetland characteristics were still present in the 2.6 acres assessed in the #2 field. Saturated soils in depressions, wild iris, rushes and sedges still present. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 13: Northwestern corner of pivot field #2 near irrigation ditch, July 2019 (left) and July 2021 (right).

- S. Slagowski Pod-Lines were installed spring of 2020. A site visit was completed June 2021. Wetland habitat was still present on the 0.83 acres assessed. Standing water still present in draw, as well as rushes, sedges and saturated soils. Since the conditions had not changed noticeably, photos were taken and the follow-up assessment was postponed for the following year.

Photo 14: Draw in pod-line field with standing water and wetland vegetation present, July 2019 (left) and June 2021 (right).

Habitat Replacement Projects

No habitat replacement projects were completed in 2021. The Molly Bullock and House Pasture riparian fence projects were surveyed to document vegetative changes. No wetland assessments were completed since the fencing has only been in place a few years. The monitoring results are promising with a narrowing channel and increased willow and other riparian species growth. Vegetative monitoring will continue to occur annually to document changes. Below are photos documenting the changes found in the Molly Bullock riparian fence and the House Pasture fence.

Photo 15: Photopoint for the Beaver Creek Molly Bullock pasture comparing June 2017 (left) prior to fencing and September 2021 (right), three years after fencing was completed.

Photo 16: House Pasture riparian fence June 2020 (left) and Sept 2021 (right), two years after fencing was completed.

There are several habitat replacement projects planned for implementation in 2022. The Interstate Canal diversion improvement project finalized designs with project partners and secured funding in 2021, project construction is planned for fall 2022. The Henry's Fork Fish Passage project is also moving forward, with final designs being completed and funding secured in 2021. Project permitting is currently taking place and 2-3 diversions are scheduled for construction in fall 2022. For photos of the Henry's Fork Fish Passage project, please see the 2019 Monitoring and Evaluation Report.

Considerations and Conclusions

There were no irrigation improvement projects that required wetland assessments in 2021 in the Henry's Fork Salinity Control Program Area. Follow-up site visits to eleven irrigation projects that have been in operation for over a year were completed. Though conditions were drier than in previous years, there were no noticeable changes in wetland characteristics. All follow-up assessments were postponed for another year to fully capture any permanent changes. **No habitat values have been lost at this time.**

Although no habitat values have been lost to date, we have completed habitat projects in anticipation of values that may be lost over time. There have been six habitat replacement projects completed: Peoples Canal Fish Barrier, the Beaver Creek diversion improvement project, the Nelson diversion improvement project, riparian fencing on the Molly Bullock pasture on Beaver Creek, the Blue Bell diversion improvement project and riparian fencing on the House pasture of Beaver Creek (summarized in previous reports). The Beaver Creek riparian fence projects will be monitored annually to document any measurable vegetative changes. There are several diversion projects that are planned for implementation this year. **Currently, we have 240.45 replacement habitat values accumulated** (See tables below).

Table 3: Completed and Planned Habitat Replacement projects and their estimated totals using the replacement value calculator or MDOT wetland assessment form.

Name	**Habitat Value**	**Replacement Value Totals***
Peoples Canal Fish Barrier	100 stream miles protected	178.2
Beaver Creek Diversion Improvement	6 stream miles seasonally connected	14.9
Nelson Diversion Improvement	10 stream miles seasonally reconnected	24.9
Blue Bell Diversion Improvement	9 stream miles seasonally connected	22.45
		240.45 Total Completed
Molly Bullock Riparian Fencing	26 acres excluded from grazing	139.1 present, estimate will improve by 50-100 pts
House Pasture Riparian Fencing	15 acres excluded from grazing	57 present, estimate will improve by 50-100 pts
Planned Replacement Projects		
Interstate Canal Diversion Improvement	12 stream miles seasonally connected	29.94 estimated
Mainstem diversions improvement	27 stream miles seasonally connected	67.35 estimated

*See Appendix A for Value Calculations

Appendix A

Replacement Habitat Values Calculations

The replacement value calculator was developed by cooperating agencies and partners (NRCS, Wyoming Game and Fish Dept, Fish and Wildlife Service and Trout Unlimited) to add value to out-of-kind wildlife habitat replacement projects that were not captured with the MDOT wetland assessment method. These project types include: wetland and upland easements, refuge expansion, upland habitat improvement, instream flow, fish barrier construction, fish screen construction and fish friendly diversions. The calculator can also be used with the MDOT wetland assessment tool to estimate replacement values for certain projects that cannot be monitored after installation. These projects include wetland restoration, wetland enhancement, wetland creation, riparian grazing and instream habitat improvements.

*(Location + Similarity + Species)Misc. Multiplier*Size*Ranking*MDOT = Replacement Value*

Location = Location of wildlife replacement project (Henry's Fork Salinity Control Area= 5, Green River Watershed below Fontenelle Reservoir = 3, Green River above Fontenelle Reservoir=1)

Similarity = Similarity to lost values (In-kind wetland values= 4, Out-of-kind values = 1)

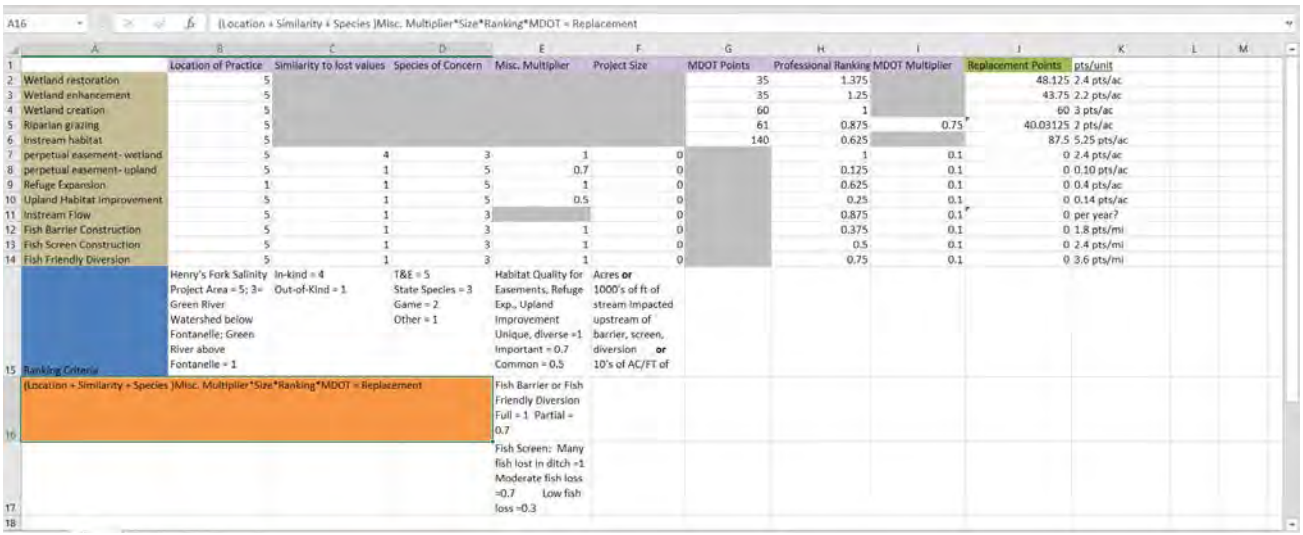
Species = Species of Concern benefitting from project (Threatened & Endangered= 5, State Species of Concern= 3, Game= 2, Other =1)

Misc. Multiplier = Habitat Quality for easements, Refuge expansion, Upland improvement (Unique/Diverse = 1, Important = 0.7, Common = 0.5), Fish barrier or fish friendly diversion (full= 1, partial = 0.7), Fish screen (many fish lost in ditch= 1, moderate fish loss = 0.7, low fish loss= 0.3).

Project Size = Acres **or** 1,000's of feet of stream impacted upstream of barrier, screen, diversion **or** 10's of Acre/Ft of water

Professional Ranking = Ranking based on interested parties' professional preference for project prioritization (NRCS, FWS, WGFD, TU). See the replacement value calculator for all ranking values.

MDOT Multiplier = Multiplier that relates replacement project values to the values calculated with the Montana Wetland Assessment Method. See the replacement value calculator for all multiplier values.



	A	B	C	D	E	F	G	H	I	J	K
1		Location of Practice	Similarity to lost values	Species of Concern	Misc. Multiplier	Project Size	MDOT Points	Professional Ranking	MDOT Multiplier	Replacement Points	pts/unit
2	Wetland restoration	5					35	1.375		48.125	2.4 pts/ac
3	Wetland enhancement	5					35	1.25		43.75	2.2 pts/ac
4	Wetland creation	5					60	1		60	3 pts/ac
5	Riparian grazing	5					61	0.875	0.75	40.03125	2 pts/ac
6	Instream habitat	5					140	0.625		87.5	5.25 pts/ac
7	perpetual easement- wetland	5	4	3	1	0		1	0.1	0	2.4 pts/ac
8	perpetual easement- upland	5	1	5	0.7	0		0.125	0.1	0	0.10 pts/ac
9	Refuge Expansion	1	1	5	1	0		0.625	0.1	0	0.4 pts/ac
10	Upland Habitat Improvement	5	1	5	0.5	0		0.25	0.1	0	0.14 pts/ac
11	Instream Flow	5	1	3		0		0.875	0.1	0	per year?
12	Fish Barrier Construction	5	1	3	1	0		0.375	0.1	0	1.8 pts/mi
13	Fish Screen Construction	5	1	3	1	0		0.5	0.1	0	2.4 pts/mi
14	Fish Friendly Diversion	5	1	3	1	0		0.75	0.1	0	3.6 pts/mi
15	Ranking Criteria	Henry's Fork Salinity Project Area = 5; 3= Green River Watershed below Fontanelle; Green River above Fontanelle = 1	In-kind = 4 Out-of-Kind = 1	T&E = 5 State Species = 3 Game = 2 Other = 1	Habitat Quality for Easements, Refuge Exp., Upland Improvement Unique, diverse =1 Important = 0.7 Common = 0.5	Acres **or** 1000's of ft of stream impacted upstream of barrier, screen, diversion **or** 10's of AC/FT of					
16	(Location + Similarity + Species)Misc. Multiplier*Size*Ranking*MDOT = Replacement				Fish Barrier or Fish Friendly Diversion Full = 1 Partial = 0.7						
17					Fish Screen: Many fish lost in ditch =1 Moderate fish loss =0.7 Low fish loss =0.3						
18											

Photo 17: Henry's Fork Replacement Value Calculator

Habitat Replacement Project Calculations:

Peoples Canal Fish Barrier= (5 +1 + 3)1*528*0.375*0.1 = 178.2
Blue Bell Diversion Improvement- (5+1+3)0.7*47.52*0.75*0.1 = 22.45
Beaver Creek Diversion Improvement= (5+1+3)0.7*31.6*0.75*0.1= 14.9
Nelson Diversion Improvement = (5+1+3)0.7*52.8*0.75*0.1= 24.9
Molly Bullock Riparian Fencing = 26 acres assessed with MDOT tool with 139.1 values present. (see Molly Bullock Riparian Fence wetland assessment for totals calculation). Will monitor annually to document any changes that have occurred.
House Pasture Riparian Fencing= 15 acres assessed with MDOT tool with 57 values present (see House Pasture Riparian Fence wetland assessment for totals calculation). Will monitor annually to document any changes that have occurred.
Interstate Canal Company Diversion Improvement= (5+1+3)0.7*63.36*0.75*0.1= 29.94 (estimate)
Mainstem Diversions Improvement= (5+1+3)0.7*142.56*0.75*0.1= 67.35 (estimate)

Detailed Examples of Habitat Calculations

People's Canal Fish Barrier Project: This project is located on the Henry's Fork River, approximately 10 miles upstream from the outlet of Flaming Gorge Reservoir and within the Salinity Control Area boundary (location score = 5). This project is instream rather than a wetland project (similarity score = 1). The goal of this project was to protect native fish species of concern in Wyoming from non-native invasive burbot that reside in Flaming Gorge Reservoir and had been documented below the People's Canal diversion (State species of concern benefitting = 3). This project was crucial for the success of future projects and unique in opportunity since this diversion was low in the system and could be improved to a permanent fish barrier (Misc. Multiplier = 1). With the assistance of WGFD and FWS, we estimated the length of stream that burbot could invade and occupy based on where they are found in other

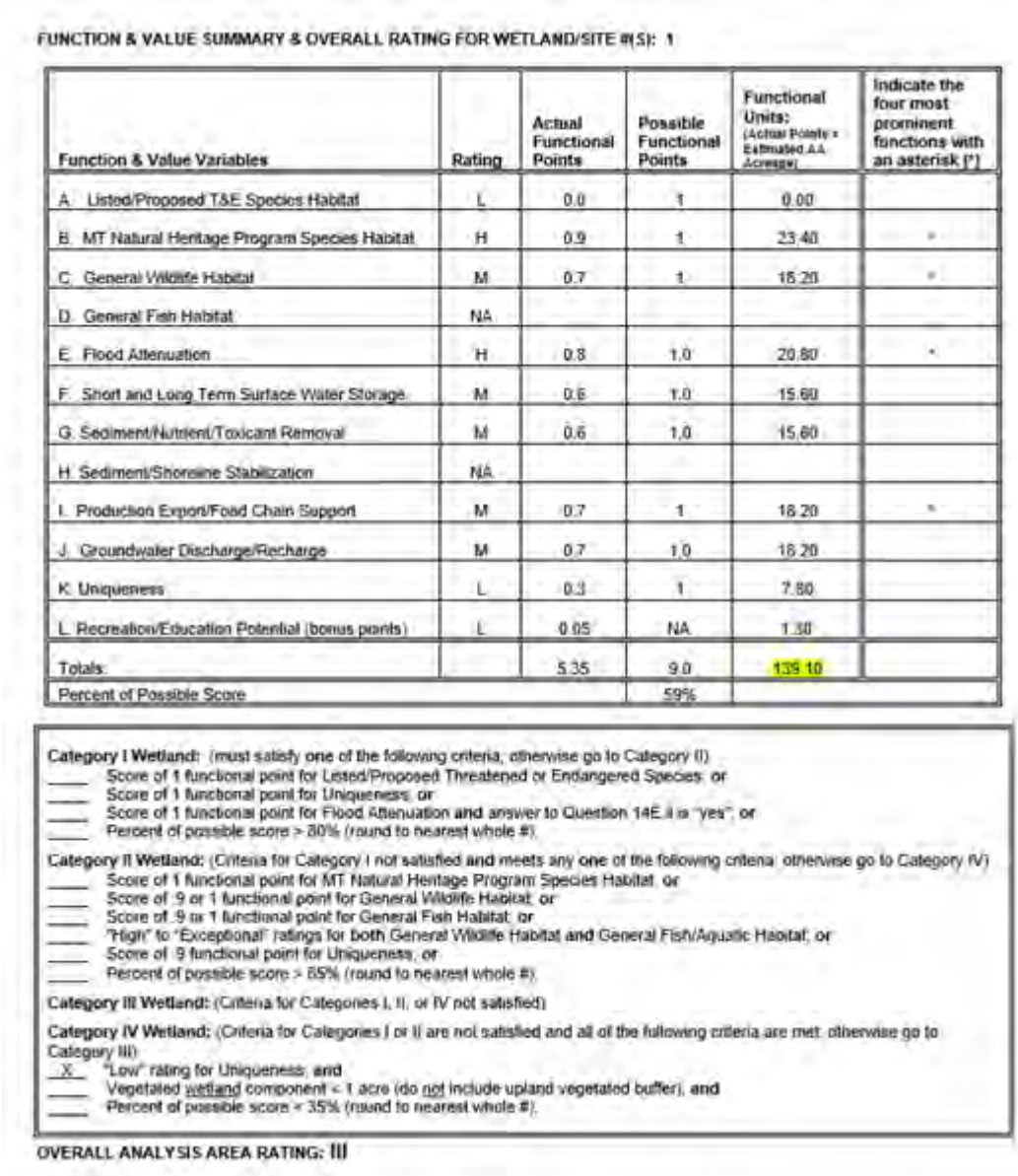
systems. We considered stream gradient, velocity and elevation and it was determined that burbot would not occupy above 7,500 ft in elevation in the Henry's Fork system. We calculated the length of stream above People's Canal that was below 7,500 ft in elevation, which approximated 100 miles. For the project size calculation, instream projects consider 1,000ft of stream impacted (1 mile= 5.28 thousands of ft, 100 miles = 528 score). This was a fish barrier, so the professional ranking was 0.375. The MDOT multiplier that relates the replacement values to those equated with the MDOT wetland assessment method is 0.1. Using these values in the replacement calculator equation results in 178.2 replacement points.

(5 +1 + 3)1*528*0.375*0.1 = 178.2

Nelson Diversion Improvement Project: This project is located on Beaver Creek, a major tributary to the Henry's Fork River and is within the Salinity Control Area boundary (location score = 5). This project is instream rather than a wetland project (similarity score = 1). The goal of this project was to improve a diversion that was a seasonal (partial) fish barrier to a structure that diverted water while allowing permanent fish passage for native fish species of concern in Wyoming (State species of concern benefitting = 3, misc. multiplier = 0.7). To determine project size, we estimated the miles of Colorado River cutthroat trout habitat located above the diversion to be approximately 10 miles (1 mile = 5.28 thousands of ft, 10 miles = 52.8 score). This was a fish friendly diversion project, so the professional ranking was 0.75. The MDOT multiplier that relates the replacement values to those equated with the MDOT wetland assessment method is 0.1. Using these values in the replacement calculator equation results in 24.9 replacement points.

(5+1+3)0.7*52.8*0.75*0.1= 24.9

Molly Bullock Riparian Fence Project: Approximately 26 acres of riparian habitat along Beaver Creek of the Henry's Fork were fenced with high-tensile wildlife friendly fence. This section of the creek previously had moderate to heavy grazing along the creek. A wetland assessment using the Montana Wetland Assessment Method was performed prior to fencing and found 139.1 wetland habitat values present. It is estimated that improving the acres to no livestock grazing will add functional points (50-100 estimated) to many of the categories included in the assessment, such as the general wildlife habitat, flood attenuation and uniqueness. Since WY NRCS plans to monitor the site annually, a follow-up assessment can be conducted once the area has improved and the documented changes in habitat values present will be compared to the previous assessment. The difference in functional points will be added to the total replacement habitat value count. For projects that cannot be monitored and compared after treatment, MDOT values can be entered into the replacement calculator for an estimate of replacement points.



FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): 1

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0.0	1	0.00	
B. MT Natural Heritage Program Species Habitat	H	0.9	1	23.40	*
C. General Wildlife Habitat	M	0.7	1	18.20	*
D. General Fish Habitat	NA				
E. Flood Attenuation	H	0.8	1.0	20.80	*
F. Short and Long Term Surface Water Storage	M	0.6	1.0	15.60	
G. Sediment/Nutrient/Toxicant Removal	M	0.6	1.0	15.60	
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	M	0.7	1	18.20	*
J. Groundwater Discharge/Recharge	M	0.7	1.0	18.20	
K. Uniqueness	L	0.3	1	7.80	
L. Recreation/Education Potential (bonus points)	L	0.05	NA	1.30	
Totals:		5.35	9.0	139.10	
Percent of Possible Score			59%		

Category I Wetland: (must satisfy one of the following criteria, otherwise go to Category II)
____ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or
____ Score of 1 functional point for Uniqueness; or
____ Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; or
____ Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)
____ Score of 1 functional point for MT Natural Heritage Program Species Habitat; or
____ Score of .9 or 1 functional point for General Wildlife Habitat; or
____ Score of .9 or 1 functional point for General Fish Habitat; or
____ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; or
____ Score of .9 functional point for Uniqueness; or
____ Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)
__X__ "Low" rating for Uniqueness; **and**
____ Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
____ Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: III

Photo 18: MDOT Montana Wetland Assessment Form Summary for the Molly Bullock Pasture prior to fencing.