MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: YEAR 2003

Fourchette Creek Reservoir Complex Phillips County, Montana



Prepared for:

MONTANA DEPARTMENT OF TRANSPORTATION 2701 Prospect Avenue Helena, MT 59620-1001

March 2004

Project No: 130091.023

Prepared by:

LAND & WATER CONSULTING, INC. P.O. Box 8254 Missoula, MT 59807



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1.0 INTRODUCTION

The Fourchette Creek Reservoir Complex was constructed in the Missouri River Breaks in 1997 and is considered the first attempted wetland mitigation bank in Montana (Urban pers. comm.). The project was enacted to mitigate wetland impacts associated with several Montana Department of Transportation (MDT) projects constructed between 1992 and 1995 that resulted in the cumulative loss of 9.84 wetland acres. These include Stanford East & West, Geyser-North, Eddies Corner-South, Ross Fork Creek – Judith Basin County, Judith River – 6 miles NW of Moore, and Ross Fork Creek – 5 Miles NW of Moore. Constructed in Watershed #9 (Middle Missouri) within the MDT Glendive District, the site is located approximately 15 miles southwest of Sun Prairie (50 miles south of Malta) in Phillips County (**Figure 1**). The site occurs on Bureau of Land Management (BLM) lands roughly 2 miles west and 1.5 miles north of the Charles M. Russell National Wildlife Refuge.

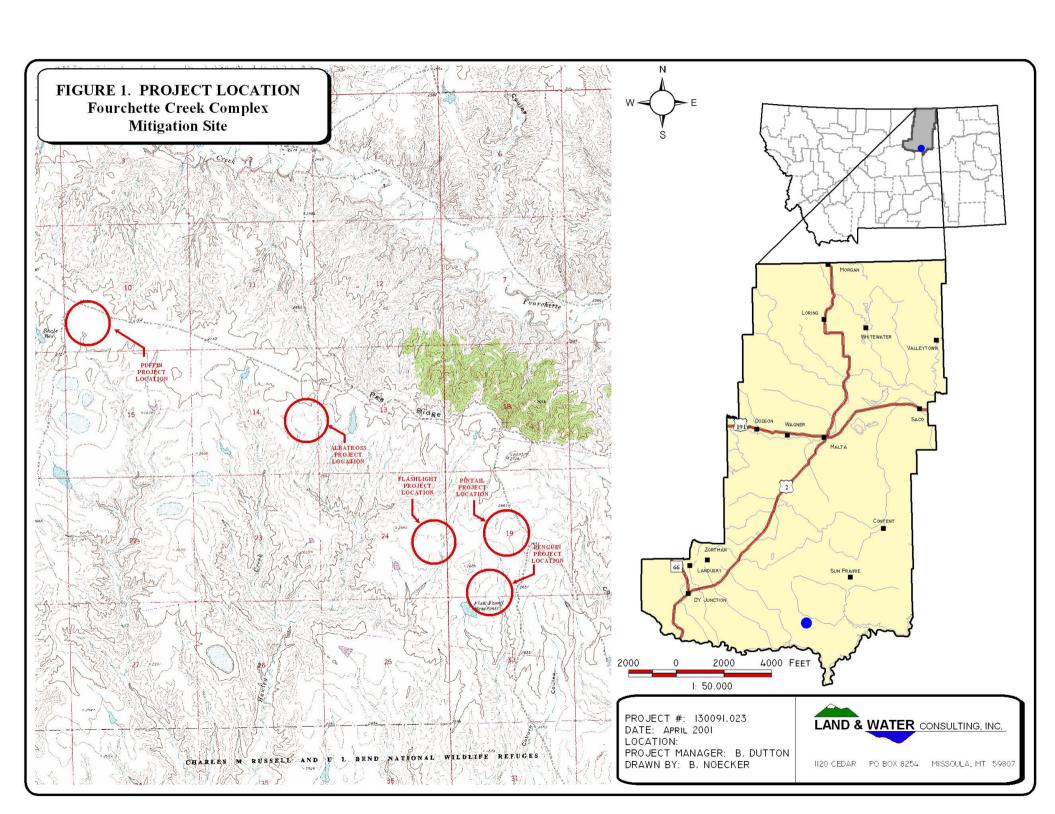
In conjunction with the BLM, MDT's intent was to construct five 2.6 to 6-acre shallow reservoirs at the mitigation site: Puffin, Albatross, Flashlight, Pintail, and Penguin (**Figure 1**). Spaced over approximately four linear miles, these structures were designed to maximize surface area with water depths less than 3 feet, maximizing the potential for establishment of emergent vegetation. The reservoirs were constructed in intermittent drainages to collect surface runoff during spring snowmelt and rainstorm events. No wetlands were present in these areas prior to construction (MDT undated).

The primary objectives at the mitigation site are to provide waterfowl pair and brood habitat and promote greater distribution and use of available habitat for additional wildlife species by providing water sources, food, and cover. Specifically, MDT and BLM seek to provide approximately 10 to 22 acres of emergent wetlands with semi-permanent, fresh-mixosaline water regimes at the mitigation site. Primary wetland functions to be provided include streambank stabilization; nutrient detention/removal/transformation; sediment detention/reduction; intra/inter ecosystem integrity maintenance; and provision of a setting for recreational activities (MDT undated).

Final general success criteria at each reservoir include provision of: waterfowl pair and brood habitat (open water interspersed with emergent vegetation); a mosaic of emergent wetland vegetation communities; and adequate hydrology (maximization of areas three feet in depth) (MDT undated). Again, the goal was to create between 10 and 22 wetland acres between the five ponds.

Specific performance criteria identified in the monitoring plan contained within the project prospectus (MDT undated) address percent cover of emergent species and wetland functions. The plan states that the goal is to provide Type 3 and/or Type 4 wetlands according to the U.S. Fish & Wildlife Service (USFWS) Circular 39 definition of wetland types, with the provision of 10 to 20 percent emergent species cover within 5 years of construction. According to the monitoring plan, primary functions to be evaluated using the MDT method include wildlife use, enhanced biodiversity, water retention, silt retention, recreational opportunity, and erosion control.





Monitoring methods outlined in the plan include: estimation of percent canopy cover of wetland vegetation; mapping of vegetation zones and open water; annual photograph points; water quality sampling; and macroinvertebrate sampling. With the exception of water quality sampling, which will be conducted separately by MDT (Urban pers. comm.), each of these methods was employed during 2001 - 2003 monitoring.

The complex was first monitored in 2001, and was also monitored in 2002. This report documents the results of the 2003 monitoring effort, which is considered the final monitoring year at the site. The specific monitoring areas for each of the five impoundments are illustrated in **Figure 2** for each site (**Appendix A**).

2.0 METHODS

2.1 Monitoring Dates and Activities

Each of the five reservoirs was visited on July 31, 2003. All information contained on the Wetland Mitigation Site Monitoring Form (**Appendix B**) was collected at this time. Activities and information conducted/collected included: wetland delineation; mapping of wetland/open water aquatic habitat boundaries; vegetation community mapping; soils data; hydrology data; bird and general wildlife use; photograph points; macroinvertebrate sampling; functional assessment; and (non-engineering) examination of dike structures. Vegetation transects were not required at this site (Urban pers. comm.).

2.2 Hydrology

Hydrologic indicators were evaluated at each impoundment during the mid-season visit. Predicted high-water lines for each impoundment are presented on plan sheets in **Appendix D**. Wetland hydrology indicators were recorded using procedures outlined in the Army Corps (COE) 1987 Wetland Delineation Manual (Environmental Laboratory 1987). Hydrology data were recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**).

All additional hydrologic data were recorded on the mitigation site monitoring form (**Appendix B**). The boundary between wetlands and open water aquatic habitats (no rooted vegetation present) was mapped on the aerial photograph and an estimate of the average water depth at this boundary was recorded.

No groundwater monitoring wells occur at the site. If located within 18 inches of the ground surface (soil pit depth for purposes of delineation), groundwater depths were documented on the routine wetland delineation data form at each data point.

2.3 Vegetation

At each impoundment, general dominant species-based vegetation community types (e.g., *Typha latifolia/Scirpus acutus*) were delineated on an aerial photograph during the mid-season visit. Standardized community mapping was not employed as many of these systems are geared



towards climax vegetation and may not reflect yearly changes. Estimated percent cover of the dominant species in each community type was listed on the site monitoring form (**Appendix B**). Establishment of permanent vegetation transects was not required at this mitigation site (Urban pers. comm.).

A comprehensive plant species list started in 2001 was updated as new species were encountered in 2002 and 2003. No woody species were planted at any of the impoundments. Consequently, no monitoring relative to the survival of such species was conducted.

2.4 Soils

Soils were evaluated during the mid-season visit according to hydric soils determination procedures outlined in the COE 1987 Wetland Delineation Manual. Soil data were recorded for each wetland determination point on the COE Routine Wetland Delineation Data Form (**Appendix B**). The most current terminology used by NRCS was used to describe hydric soils (USDA 1998).

2.5 Wetland Delineation

Wetland delineation was conducted at each impoundment according the 1987 COE Wetland Delineation Manual. Wetland and upland areas within the monitoring area were investigated for the presence of wetland hydrology, hydrophytic vegetation and hydric soils. The indicator status of vegetation was derived from the National List of Plant Species that Occur in Wetlands: North Plains Region 4 (Reed 1988). The information was recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**). The wetland/upland boundary delineated and recorded with a resource grade GPS unit in 2001 was modified by hand as necessary on 2002 and 2003 aerial photos. The wetland/upland boundary in combination with the wetland/open water habitat boundary was used to calculate the jurisdictional wetland area developed at each impoundment.

2.6 Mammals, Reptiles, and Amphibians

Mammal, reptile, and amphibian species observations and other positive indicators of use, such as vocalizations, were recorded on the wetland monitoring form during each mid-season visit. Indirect use indicators, including tracks; scat; burrows; eggshells; skins; bones; etc., were also recorded. These observations were recorded as the observer traversed the site while conducting other required activities. Direct sampling methods, such as snap traps, live traps, and pitfall traps, were not implemented. A comprehensive species list for the entire site was compiled.

2.7 Birds

Bird observations were recorded during the mid-season visit. No formal census plots, spot mapping, point counts, or strip transects were conducted. Using the bird survey protocol (**Appendix E**) as general guidance, species were recorded as an observer traversed each impoundment during the mid-season visit. In general, bird observations were recorded incidental to other monitoring activities. Observations were categorized by species, activity code, and general habitat association (see data forms in **Appendix B**).



2.8 Macroinvertebrates

Macroinvertebrate samples were collected during the mid-season site visit and data recorded on the wetland mitigation monitoring form. Per MDT instruction, a single sample was collected at Puffin, Albatross, Flashlight, and Penguin reservoirs (Urban pers. comm.). Macroinvertebrate sampling procedures are included in **Appendix F**. The approximate locations of these sample points are shown on **Figure 2** for each site (**Appendix A**). Samples were preserved as outlined in the sampling procedure and sent to Rhithron Associates, Inc. for analysis.

2.9 Functional Assessment

Functional assessments were completed at each wetland impoundment using the 1999 MDT Montana Wetland Assessment Method. Field data necessary for this assessment were collected during the mid-season site visit. An abbreviated field data sheet for the 1999 MDT Montana Wetland Assessment Method was compiled to facilitate rapid collection of field information. The remainder of the functional assessment was completed in the office.

2.10 Photographs

Photographs were taken showing the current land use surrounding the site, the upland buffer, the monitored area, and macroinvertebrate sampling locations. Each photograph point location was recorded with a resource grade GPS in 2001. The approximate location of these photo points is shown on **Figure 2** for each site (**Appendix A**). All photographs were taken using a 50 mm lens. A description and compass direction for each photo was recorded on the wetland monitoring form.

2.11 GPS Data

During the 2001 monitoring season, survey points were collected with a resource grade GPS unit at all photograph locations and along wetland boundaries. No GPS data were collected during 2002 or 2003.

2.12 Maintenance Needs

Dike structures were examined during the site visit for obvious signs of breaching, damage, or other problems. This did not constitute an engineering-level structural inspection, but rather a cursory examination. Current or future potential problems were documented.

3.0 RESULTS

3.1 Hydrology

According to the Western Regional Climate Center, Malta (50 miles north of site) yearly precipitation totals for 2001 (8.57 inches), 2002 (11.72 inches), and 2003 (11.54 inches) were 68%, 92%, and 91% of the total annual mean precipitation (12.68 inches) in this area. In 2003,



the approximate precipitation total at Malta was about 8.9 inches from January through July, which is comparable to the yearly mean of 8.7 inches for this period. Thus, precipitation was likely at or slightly above average at the site during 2003 monitoring activities.

Inundation was present at each of the five impoundments. Overall, water depths at open water/rooted vegetation interfaces ranged between approximately zero inches (the water's edge) and approximately three feet. All sites were inundated to significantly greater extents than were observed during 2002. Open water areas are shown on **Figure 3** for each site (**Appendix A**). Specific recorded values are provided for each impoundment on the attached data forms.

Penguin and Flashlight were approximately 90 percent inundated, which was comparable to 2001 observations, with average depths of one to two feet and a range of depths from zero to six+ feet. Deepest areas were located in the center of the impoundments, which were as yet unvegetated.

Pintail and Albatross were approximately 80 to 85 percent inundated, with an average depth of one to two feet and a range of depths from zero to about three feet. Both sites were inundated to a greater extent than observed during 2002, again similar to 2001 conditions. Deepest areas were located in the center of the impoundments. Based on observations recorded from 2001-2003, surface water at these sites may be of sufficient duration to kill upland plants, but of insufficient duration to support hydrophytes every year or throughout a given growing season. Consequently, these areas were classified as potential "problem areas" (seasonal wetlands) for purposes of delineation. Water was extremely turbid at these sites, which could be indicative of an upstream erosion problem, recent cattle use, or chemical or other problems.

The excavated portion of Puffin was about 80 percent inundated, but the intended mitigation area was only about 30 percent inundated and still supported virtually no wetland plants (one *Eleocharis palustris* plant was observed). Excessive depths and steep slopes in the excavated area at the dike face likely contribute to this condition. Water needs to climb several feet from the bottom of the excavated area in order to back upstream (upgradient) as designed. Based on a lack of watermarks, driftlines, etc. upgradient of the excavated area, this has probably not occurred with any frequency, if at all, over the project life.

3.2 Vegetation

Vegetation species identified on the site are presented in **Table 1** and on the attached data form. Three wetland community types were identified and mapped on the mitigation area in 2001 (**Figure 3**, **Appendix A**). These included Type 1: *Hordeum jubatum/Eleocharis*, Type 2: *Myriophyllum/Potamogeton*, and Type 3: *Hordeum jubatum/Agropyron*. Two additional wetland types were mapped in 2002 that had established in drawdown areas at Albatross. These were Type 4: *Scirpus maritimus/Typha latifolia* and Type 5: *Xanthium strumarium*.



Table 1: 2001-2003 Fourchette Creek Vegetation Species List

Species	Region 4 (North Plains) Wetland Indicator	Penguin	Pintail	Flashlight	Albatross	Puffin
Agropyron dasystachyum	FAC		Х	Х		X
Agropyron repens	FAC	X	X	Х	X	X
Agropyron smithii		X	X		X	X
Alisma plantago-aquatica	OBL			х		
Alisma gramineum	OBL			Х		
Artemisia cana	FACU					X
Artemisia frigida		х	х	х	Х	X
Artemisia tridentate		х	х	х	Х	X
Atriplex argentea	FACU			x		
Beckmannia syzigachne	OBL	х	х			
Bouteloua gracilis		A	X		X	X
Chenopodium album	FAC	х	X	х	X	X
Chrysothamnus nauseosus		X	X	X	A	A
Cirsium arvense	FACU	X	X	X	Х	
Distichlis spicata	FACW	Λ	1	X	X	
Echinochloa crusgalli	FACW	+	X	A .		
<u> </u>		_	X		X	
Eleocharis acicularis	OBL	X	X	X	X	
Eleocharis palustris	OBL	X	X	X	X	X
Elodea Canadensis	OBL	X				
Erodium cicutarium			X	X		X
Grindelia squarrosa		X	X	X	X	X
Gutierrezia sarothrae		X	X		X	X
Helianthus annuus	FACU	X	X		X	X
Hordeum jubatum	FAC+	X	X	X	X	X
Iva axillaries	FACU	X	X			
Juncus balticus	OBL	X			X	
Koeleria pyramidata				X		
Lepidium densiflorum	FACU					X
Marsilea vestita	OBL				X	
Medicago lupulina	FACU					X
Melilotus officinalis	FACU-	X	X	X	X	X
Myriophyllum spicatum	OBL	X		X		
Nasturtium officinale	OBL			X		
Opuntia sp.		Х	X	Х		X
Polygonum lapathifolium	OBL	X	X	X	X	
Polygonum sp. (upland)	?		X	X	X	
Potamogeton foliosus	OBL	X		X	X	
Puccinellia nuttalliana	OBL	X	X	X		
Ranunculus aquatilis	OBL			Х		
Rumex crispus	FACW	х	х	х	Х	
Sagittaria cuneata	OBL	X		X	X	
Salix exigua	FACW+				Х	X
Sarcobatus vermiculatus	FACU	х				
Schizachyrium scoparium		X	1			
Scirpus acutus	OBL	X	1	х	X	
Scirpus americanus	OBL	·-	х	X		
Scirpus maritimus	NI	<u> </u>	^	X	X	
Spergularia rubra				X	Α	
Thlaspi arvense	NI	 	†	^	х	X
Typha latifolia	OBL	v	1	v		Α
Турпа іапјона Xanthium strumarium	FAC	X X	X	X X	X X	V
A CHICKLINK STEHMARIUM	I PAU.	. X	. X	. X	ı X	X

In 2003, Types 1, 2, 3, and 4 were present at the mitigation site. Types 2 and 3 remained consistent over the three-year monitoring period, while Type 1 shifted to a greater dominance of *Eleocharis palustris* over *Hordeum jubatum* in 2003 at Penguin, Flashlight, and Pintail reservoirs. Type 5 had been replaced with Type 4 at Albatross due to increased inundation / saturation. Dominant species within each of these communities are listed on the attached data form (**Appendix B**). Type 1 occurs in emergent habitats surrounding impoundments at Penguin,



Flashlight, and Albatross. Type 2 occurs in aquatic bed habitats at Penguin and Flashlight. Type 3 occurs primarily around the impoundment perimeter at Pintail. Type 4 occurs around the perimeter of Albatross, where it replaced Type 5 in 2003.

Upland communities (Type 6) are dominated by upland grasslands and shrub-steppe habitats. Common species include big sage (*Artemisia tridentata*), fringed sage (*Artemisia frigida*), curlycup gumweed (*Grindelia squarrosa*), broom snakeweed (*Gutierrezia sarothrae*), prickly pear cactus (*Opuntia sp.*), rubber rabbitbrush (*Chrysothamnus nauseosus*), blue gramma (*Bouteloua gracilis*), quackgrass (*Agropyron repens*), prairie junegrass (*Koeleria pyramidata*), and western wheatgrass (*Agropyron smithii*).

No vegetation transects were required or conducted at these impoundments. However, the estimated percent canopy cover of each site by emergent and aquatic bed vegetation is presented in **Table 2**.

Table 2: Estimated Percent Wetland Species Canopy Coverage, 2003

Site	Estimated % Cover of Total Site by Wetland (Emergent and Aquatic Bed) Vegetation
Penguin	75% - 80%
Pintail	25% - 30%
Flashlight	75% - 80%
Albatross	30% - 40%
Puffin	0%

3.3 Soils

A published soil survey does not exist for Phillips County. However, soils have been mapped for the Penguin (Bascovey clay) and Albatross (Sunburst clay) sites. Generally, soils at all of the impoundments consist of poorly drained clays. Soils sampled in wetland areas at Penguin were consistently comprised of clays with a matrix color of 10YR4/2 and distinct, abundant mottles in the range of 10YR5/8, indicating a fluctuating water table. All were inundated or saturated within 12" of the surface.

Soils at Flashlight were comprised of clays with a matrix color of 2.5Y4/2 to 2.5Y or 10YR 4/3 and often contained faint mottles at 2.5Y5/6. These soils were inundated or saturated to the surface throughout the site. Because the soils support dominant vegetation species that have an indicator status of OBL or FACW and the wetland/upland border is abrupt, hydric soils are assumed to be present under application of the 1987 delineation manual (Environmental Laboratory 1987).

Soils at both Pintail and Albatross were comprised of clays with a matrix color of 10YR4/2 and faint to distinct mottles at 10YR5/6 to 10YR5/8. Gleyed 5GY4/1 soils were observed in drawdown areas of Pintail towards the center of the impoundment. Darker soils (2.5Y4/1) were observed in drawdown areas of Albatross. These soils were inundated or saturated to within 12 inches of the surface at both sites. Soils adjacent to the impoundment at Puffin were saturated within 12 inches of the surface, and were comprised of clays with a matrix color of 10YR4/1 and faint mottles at 10YR4/6. As was observed during 2001 and 2002, soils at Puffin supported virtually no wetland vegetation.



3.4 Wetland Delineation

Delineated wetland boundaries are illustrated for each site on **Figure 3** (**Appendix A**). Completed wetland delineation forms are included in **Appendix B**. Soils, vegetation, and hydrology are discussed in preceding sections. Wetland perimeters increased slightly over 2002 at most sites due to increased inundation. 2003 delineation results are as follows:

Penguin: 0 wetland acres pre-existing.

1.48 wetland acres created (emergent, aquatic bed).

0.27 acre open water.

1.75 acres total

Flashlight: 0 wetland acres pre-existing.

1.25 wetland acres created (emergent, aquatic bed).

0.27 acre open water.

1.52 acres total

Pintail: 0 wetland acres pre-existing.

1.00 wetland acre created (emergent). 0.60 acre open water (at max pool).

1.6 acres total

Albatross: 0 wetland acres pre-existing.

0.39 wetland acre created (emergent).

0.53 acre open water.

0.92 acre total

Puffin: 0 wetland acres pre-existing.

0 wetland acres created. 0.34 acre open water.

0.34 acre total

Inclusive of open water areas, approximately 6.13 acres of aquatic habitat have been created on the Fourchette Creek mitigation site to date. This is a 0.91-acre increase from the 5.22 acres delineated during 2002, apparently due to increased inundation during 2003.

3.5 Wildlife

Wildlife species, or evidence of wildlife, observed on the site during 2001-2003 monitoring efforts are listed in **Table 3**. Specific evidence observed, as well as activity codes pertaining to birds, are provided on the completed monitoring form in **Appendix B**. Four mammal, at least two amphibian, one reptile, and 11 bird species were noted using portions of the mitigation site during the July 2003 visit. Greatest use again appeared to occur at Penguin and Flashlight reservoirs, which both support large frog populations and also support painted turtles (*Chrysemys*



picta), although turtles were not observed in 2003. Several hundred tadpoles were observed at Albatross, but could not be captured for identification.

More avian species were observed in the project area in 2003 than in previous years, presumably due to increased inundation at most sites. The degree of seasonal use that these impoundments receive likely varies from year to year in proportion to water availability.

Of special interest were observations of northern leopard frogs (*Rana pipiens*) at Penguin and Flashlight reservoirs. Leopard frogs are considered "species of special concern" by the Montana Natural Heritage Program (MNHP) due largely to their apparent extirpation from the portion of their historic distribution west of the Continental Divide. This species has been assigned a rank of S3 east of the Divide by the MNHP. Due to the hundreds of leopard frogs observed at Penguin and Flashlight reservoirs during 2001 and dozens observed during 2002 and 2003, these sites were classified as Category II wetlands (using the 1999 MDT Wetland Assessment Method) based on sensitive species habitat.

3.6 Macroinvertebrates

Macroinvertebrate sampling results are provided in **Appendix F** and were summarized by Rhithron Associates (Bollman 2003) in the italicized sections below. Bioassessment scores are presented in **Chart 1** (Bollman 2003).

Puffin Reservoir. The overall bioassessment score improved slightly in 2003 at this site; this was mainly due to a small increase in the number of collected taxa, and an overall improvement in assemblage sensitivity. Still, poor water quality and/or limited habitats may continue to be issues here, since the sample yielded few animals. In addition, low diversity persisted in 2003. Poor biotic conditions were indicated in all years of sampling.

Flashlight Reservoir. There were very few organisms in the sample collected at this site. However, the animals that were collected represented a diverse, if sparse, assemblage. This suggests that habitats were complex. The large contribution of predators to the functional composition of the assemblage adds strength to this hypothesis. The low biotic index value suggests that water quality was good at this site. Scores indicate fairly stable, suboptimal biotic condition.

Penguin Reservoir. Biotic conditions were rated optimal at this site in 2003. The site supported a diverse assemblage, and the composition of the fauna suggested ample habitats. The biotic index value was near the median for sites in this study, suggesting fairly good water quality. The functional mix was dominated by gatherers, which is consistent with expectations for a stable wetland.



Table 3: Fish and Wildlife Species Observed on the Fourchette Creek Mitigation Complex, 2001-2003

	Penguin	Flashlight	Pintail	Albatross	Puffin
FISH					
Unidentified Minnow Species (Hybognathus sp.)		X			
AMPHIBIANS					
Western Chorus Frog (Pseudacris triseriata)	x				
Northern Leopard Frog (Rana pipiens)	x x	X		x	
Woodhouse's Toad (Bufo woodhousii)	X	X	X	A.	
Short-horned Lizard (Phrynosoma hernandesi)	Α				X
REPTILES					
Painted Turtle (Chrysemys picta)	X	X			
Plains Garter Snake (Thamnophis radix)	X	X	X		
BIRDS					
Blue-winged Teal (Anas discors)			X		
Eastern Kingbird (Tyrannus tyrannus)	X	X	X		
Northern Harrier (Circus cyaneus)	X	X	Λ	X	
Killdeer (Charadrius vociferous)		X	v	X	
Spotted Sandpiper (Actitis macularia)	X	X	X X		
Gadwall (Anas strepera)	X	X	X X	X	
American Avocet (Recurvirostra americana)	X		X	X	
Savannah Sparrow (Passerculus sandwichensis)			•		
Willet (Catoptrophorus semipalmatus)		X	X	X	
Mourning Dove (Zenaida macroura)			Λ	X	
Northern Shoveler (Anas clypeata)	X		X		
Grebe (Podiceps sp.)			X		
Wilson's Phalarope (Phalaropus tricolor)			X		
Canada Goose (Branta canadensis)			X		
American Coot (Fulica americana)		X	A		
MAMMALS					
Elk (Cervus elaphus)					x
Coyote (Canis latrans)				X	Λ
Mule Deer (Odocoileus hemionus)	x		X		x
Raccoon (Procyon lotor)	^	X		X	X
Red Fox (Vulpes vulpes)			X		A .
Bolded species were observed during 2003 monitoring. All other	er species were observ	ved during one or	more of the p	revious monitorin	ig years,

Bolded species were observed during 2003 monitoring. All other species were observed during one or more of the previous monitoring years, but not during 2003.

Albatross Reservoir. Taxa richness and assemblage sensitivity have slowly increased between 2001 and 2003 at this site. Sub-optimal, but improving habitat and water quality conditions appear to be indicated. Water column filter-feeders and shredders are the major functional components of the fauna, suggesting that large organic debris and suspended organic material were ample.

Pintail Reservoir: Macroinvertebrates were not sampled at Pintail Reservoir.



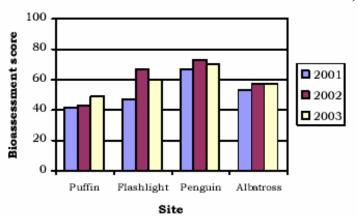


Chart 1: Fourchette Creek Reserve Bioassessment Scores, 2001-2003

3.7 Functional Assessment

Completed functional assessment forms are presented in **Appendix B**. Functional assessment results are summarized in **Table 4** and are similar to identical to 2001 and 2002 results. Penguin and Flashlight rated as Category II wetlands, primarily due to high sensitive species habitat (northern leopard frog) ratings (see discussion under **Section 3.5**). These sites would have achieved higher scores, but for the high disturbance associated with grazing. Each of these sites provides habitat for a variety of wildlife species, particularly amphibians. Penguin and Flashlight both support emergent and aquatic bed communities, and, based on MDT observations (Urban pers. comm.), Flashlight provides a degree of fish habitat. Wildlife habitat, surface water storage, sediment/nutrient/toxicant removal, shoreline stabilization, and food chain support are prominent functions at these sites.

Pintail and Albatross rated as Category IV wetlands. This was primarily due to low vegetative diversity, high disturbance (grazing), and low acreage of actual wetlands present within these assessment areas. Surface water storage is a prominent function at these sites. It should be noted that sediment/nutrient/toxicant removal received a low rating due to the extreme turbidity (impairment) and lack of wetland vegetation at these sites.

A wetland functional assessment was not conducted at Puffin due to the absence of wetlands at this site. According to MDT (Urban pers. comm.) the site is periodically used as an elk wallow, but contained a dozen cattle during 2002 and 2003 monitoring efforts.

Based on functional assessment results (**Table 4**), approximately 25 functional units have been gained thus far at the Fourchette Creek mitigation site, a gain of 4 functional units since 2002.

3.8 Photographs

Representative photographs taken from photo-points in 2003 are provided in **Appendix C**. A presentation of 2001-2003 aerial photographs for each impoundment is also provided in **Appendix C**.



Table 4: Summary of 2003 Wetland Function/Value Ratings and Functional Points ¹ at the

Fourchette Creek Mitigation Project

Function and Value Parameters			Wetland Sit	es	
From the 1999 MDT Montana Wetland Assessment Method	Penguin Reservoir	Flashlight Reservoir	Pintail Reservoir	Albatross Reservoir	Puffin Reservoir
Listed/Proposed T&E Species Habitat	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	NA (no wetlands)
MNHP Species Habitat	High (1.0)	High (1.0)	Low (0.2)	Low (0.1)	NA (no wetlands)
General Wildlife Habitat	High (0.8)	High (0.8)	Mod (0.7)	Low (0.3)	NA (no wetlands)
General Fish/Aquatic Habitat	NA	Mod (0.5)	NA	NA	NA (no wetlands)
Flood Attenuation	Low (0.2)	Low (0.2)	Low (0.2)	Low (0.2)	NA (no wetlands)
Short and Long Term Surface Water Storage	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	NA (no wetlands)
Sediment, Nutrient, Toxicant Removal	Mod (0.5)	Mod (0.5)	Low (0.3)	Low (0.3)	NA (no wetlands)
Sediment/Shoreline Stabilization	Mod (0.6)	Mod (0.6)	Low (0.2)	Low (0.2)	NA (no wetlands)
Production Export/Food Chain Support	Mod (0.7)	Mod (0.7)	Low (0.3)	Low (0.3)	NA (no wetlands)
Groundwater Discharge/Recharge	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)	NA (no wetlands)
Uniqueness	Low (0.2)	Low (0.2)	Low (0.2)	Low (0.2)	NA (no wetlands)
Recreation/Education Potential	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)	NA (no wetlands)
Actual Points/Possible Points	5.1 / 11	5.6 / 12	3.2 / 11	2.7 / 11	NA (no wetlands)
% of Possible Score Achieved	46%	47%	29%	25%	NA (no wetlands)
Overall Category	II	II	IV	IV	NA (no wetlands)
Total Acreage of Assessed Aquatic Habitats within Easement	1.75 ac	1.52 ac	1.60 ac	0.92 ac	0.20 ac (OW only)
Functional Units (acreage x actual points)	8.9 fu	8.5 fu	5.12 fu	2.48 fu	NA (no wetlands)
Net Acreage Gain	1.75 ac	1.52 ac	1.60 ac	0.92 ac	0.34 ac (OW only)
Net Functional Unit Gain	8.9 fu	8.5 fu	5.12 fu	2.48 fu	NA (no wetlands)
Total Functional Unit "Gain"	25 Total Function	onal Units			
¹ See completed MDT functional assessment for	orms in Appendix E	3 for further detail.			

3.9 Maintenance Needs/Recommendations

All dikes were in good condition during the mid-season visit.

Puffin Reservoir has developed no wetlands, presumably due to the depth of excavation and steep gradient of side slopes. As discussed in the 2001 and 2002 reports, it is our recommendation that MDT/BLM re-visit the design of this site, which could involve filling in a portion of the pit excavated along the dike face and minor upstream excavation. This may allow water to back further upgradient, reduce water depths and side slope gradients, and increase surface area of the reservoir. This would also likely result in a more undulating shoreline, as opposed to the largely rectangular shoreline that currently exists.

It may also benefit MDT to investigate water quality at Puffin, Pintail, and Albatross for conditions that would preclude aquatic plant growth. Limited planting may also benefit these three impoundments, although water availability and quality may limit success.

All sites were impacted by grazing, primarily through trampling. MDT/BLM may want to consider fencing these areas and providing water gaps to deeper areas in order to allow cattle access while confining associated impacts.



3.10 Current Credit Summary

Target performance criteria included provision of 10 to 20 percent emergent species cover within 5 years of construction. This was achieved at Penguin, Flashlight, Pintail, and Albatross reservoirs (during drawdown periods), but not at Puffin (**Table 2**).

Primary target wetland functions included wildlife use, enhanced biodiversity, water retention, silt retention, recreational opportunity, and erosion control. Highest quality wildlife habitat is provided at Penguin and Flashlight, as are biodiversity, silt retention, and erosion control. Other reservoirs provide silt retention, but in excessive quantities that impair them. A degree of erosion control is also provided at these sites, but is limited by scant vegetation. All sites provide water retention, and none of the sites were perceived to provide substantial recreational opportunities.

As the project stands, approximately 6.13 acres of aquatic habitats have been created, inclusive of all open water components. Approx. 4.66 acres of "wetlands" have been created, inclusive of minor open water components associated with Penguin and Flashlight reservoirs. Approximately 25 functional units have been created at the site to date. The maximum assignable credit at this site as of 2003, inclusive of all open water areas, is approximately 6.13 acres.

4.0 REFERENCES

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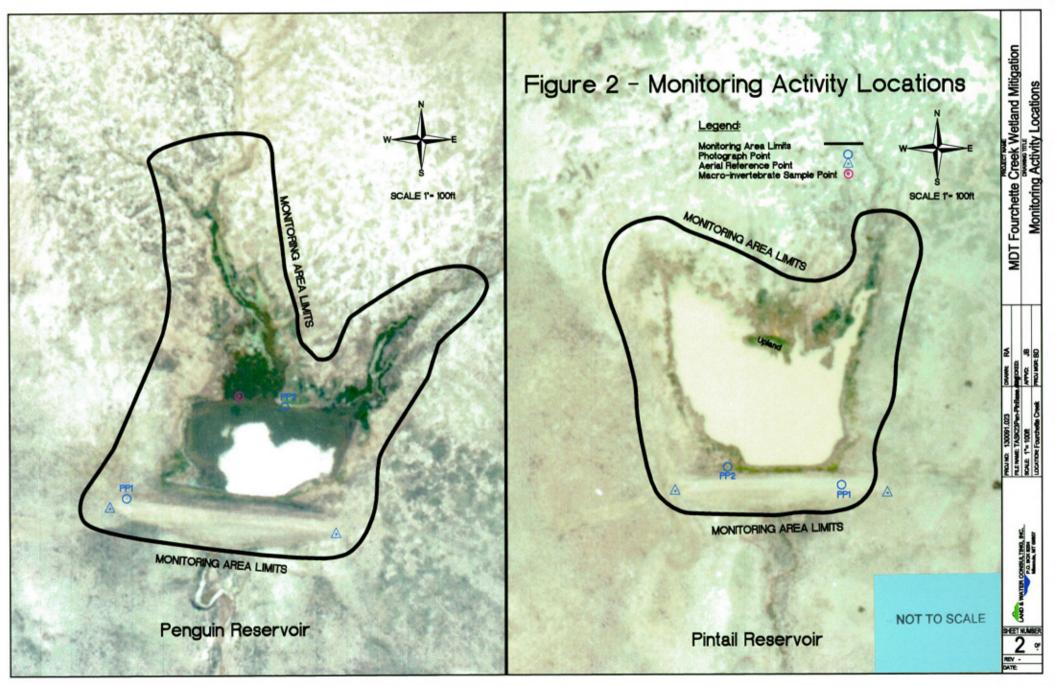


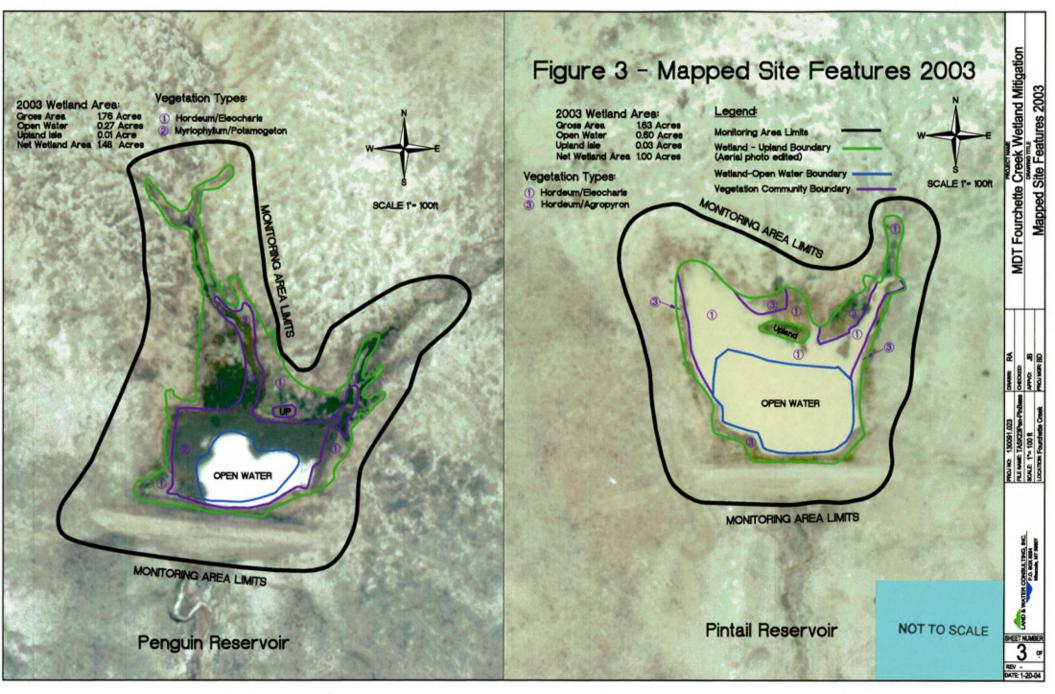
Appendix A

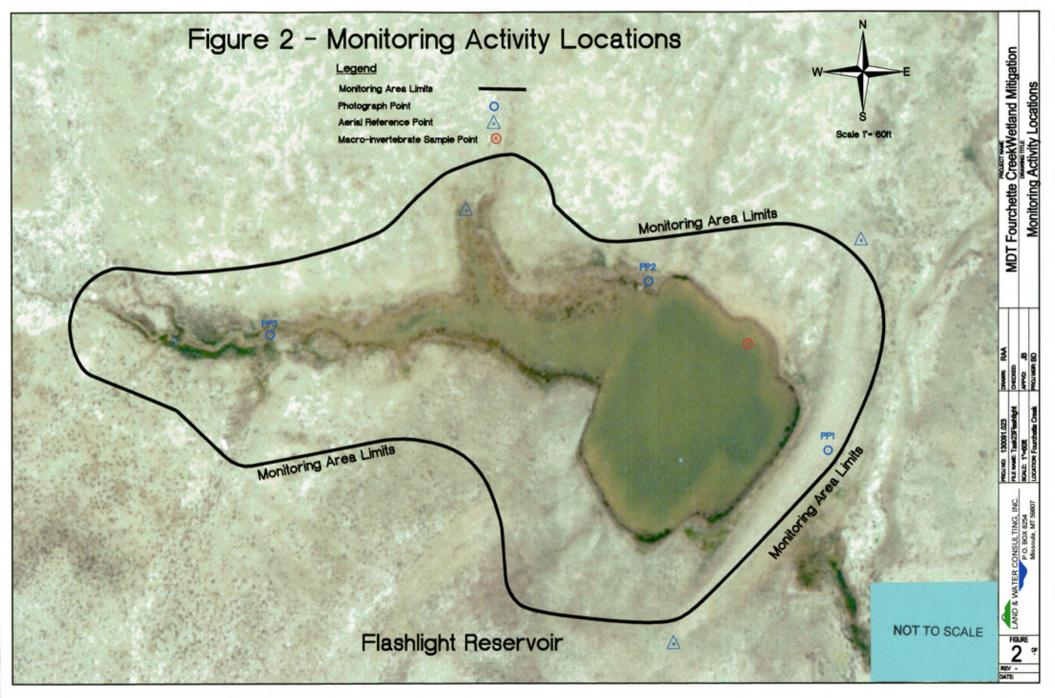
FIGURES 2 - 3

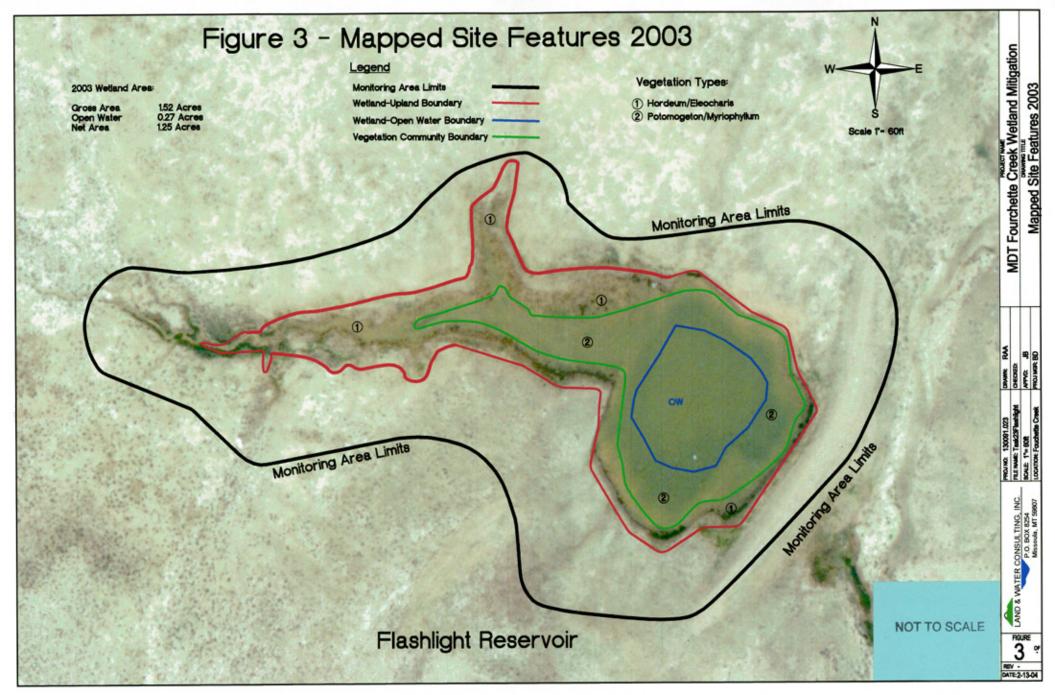
MDT Wetland Mitigation Monitoring Fourchette Creek Phillips County, Montana

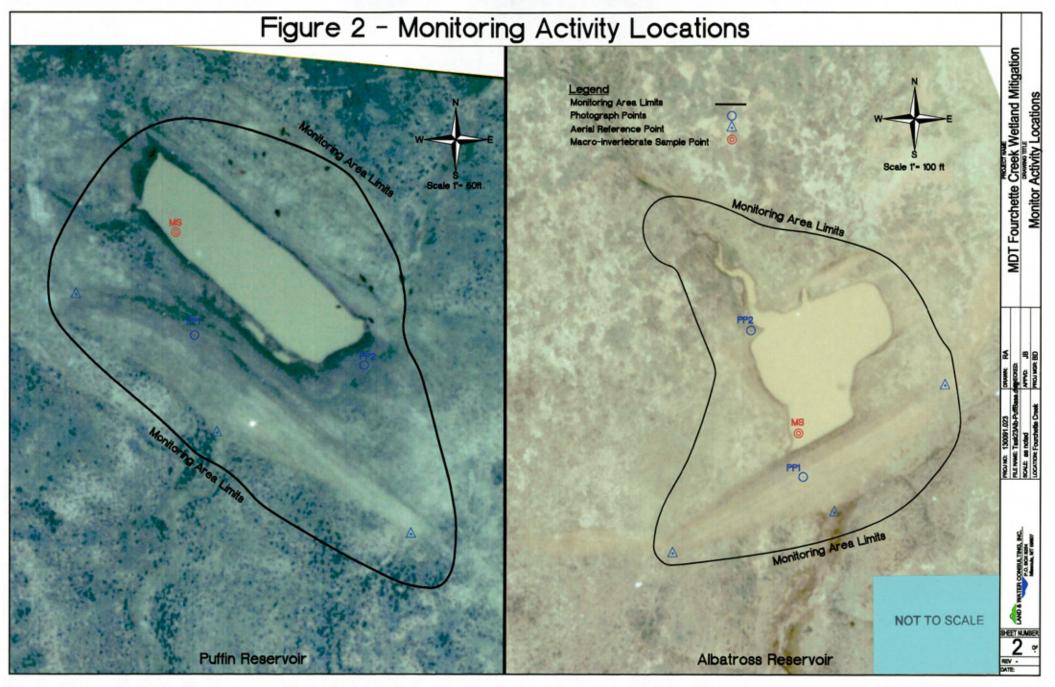


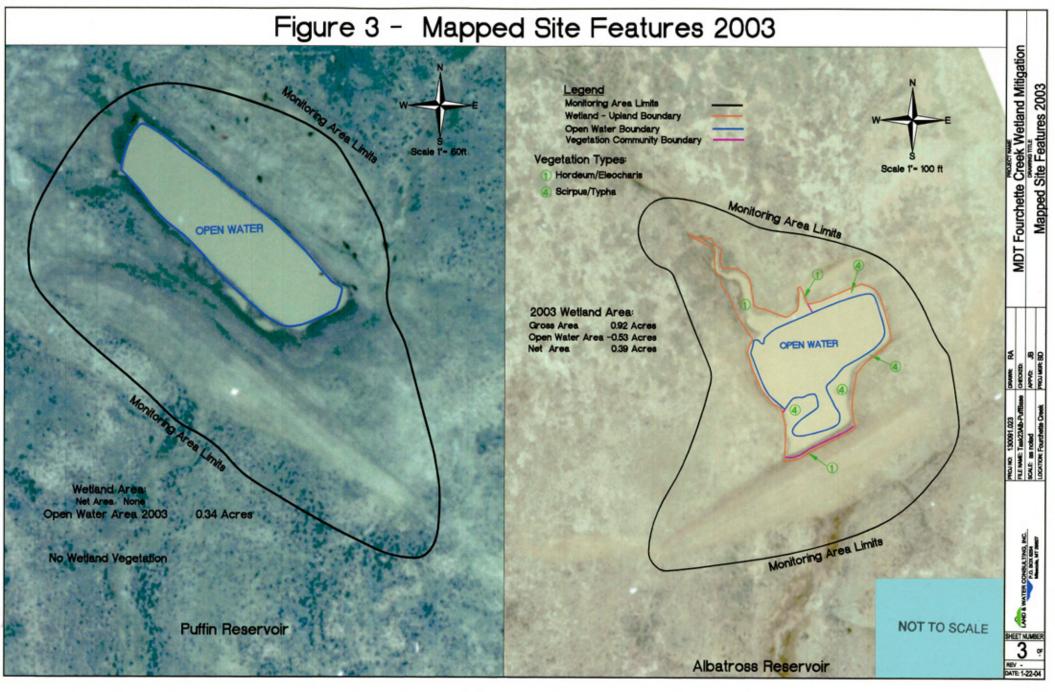












Appendix B

COMPLETED 2003 WETLAND MITIGATION SITE MONITORING FORM
COMPLETED 2003 BIRD SURVEY FORMS
COMPLETED 2003 WETLAND DELINEATION FORMS
COMPLETED 2003 FUNCTIONAL ASSESSMENT FORMS

MDT Wetland Mitigation Monitoring Fourchette Creek Phillips County, Montana



Locat Legal Weat Initia	ion: PENGUIN description: T her Conditions: Evaluation Da	RESERVOIR _22NR_30E So _dry, cloudy te:8 / 30 / 0	MD ection_19_ Ti Perso 01_ Visit #:	er: Task 23 DT District: Gler me of Day: on(s) conducting 3 Monitor rounding wetlar	ndive Milep 0700-0800 the assessment ing Year:3 (2	post:_NA t:Berglund 2003)_	_
			НУ	DROLOGY			
Inund Asses Depth If ass	sment area unden at emergent versment area is	_X Absent er inundation: egetation-open v not inundated a	Average dep 90% vater boundary: re the soils satu	oths:1.5FT R =_2ft rated w/in 12" of sion, stained veg	of surface: Yes	_XNo	and drift lines
Mon	indwater itoring wells: Pord depth of water						
11000	Well #	Depth	Well #	Depth	Well #	Depth	
X X elevar _NA_	tions (drift linesGPS survey g	vegetation-ope t of surface wat , erosion, vegeta roundwater mon	er during each ation staining entioring wells lo	site visit and loc	nt	•	



Locati Legal Weath Initial	et Name: Fourch fon: FLASE description: T22 ner Conditions: C Evaluation Date of evaluation area	ILIGHT RESI 2N_ R29E_ Se dry, cloudy ::8 / 30 /_0	ERVOIR ction_24_ Tin Person 1_ Visit #:	MDT District: ne of Day: {n(s)} conducting 3 Monitori	Glendive 18:00-9:00 the assessment: ing Year:3 (20	Milepost:_NA_ :Berglund 003)_	
			HYI	OROLOGY			
Inunda Assesa Depth If asse	ce Water Source ation: Present_X sment area under at emergent veg essment area is ne evidence of hydronic source.	X_ Absent	_ Average deponsion of the Average deponsion o	3_ <u>ft</u> rated w/in 12" o	f surface: Yes_	_XNo	drift lines
Moni	ndwater toring wells: Pre	r below ground	surface				
	Well #	Depth	Well#	Depth	Well#	Depth	
X X elevat _NA_	ional Activities _Map emergent v _Observe extent ions (drift lines, _GPS survey gro MENTS/PROB)02	vegetation-open of surface wate erosion, vegeta oundwater mon	r during each sition staining eteitoring wells lo	ite visit and loo c.) cations if prese	nt		



Locati Legal Weath Initial	et Name: Fourchion: PINTAIL R description: T2 ner Conditions:_ Evaluation Date of evaluation area	RESERVOIR_ 2N_ R30E_ Se dry, cloudy e:8 / 30 / 0	MDT ection_19_ Tir Persor 1_ Visit #:	District: Glend ne of Day:9:00- n(s) conducting Monitori	live Milepos 10:00 the assessment: ng Year: 3 (20	st:_NA Berglund 003)_	
			НУІ	DROLOGY			
Inund Asses Depth If asse	ation: Present_sment area under at emergent vegessment area is nevidence of hydronical at exidence of hydronical at exiden	X Absent rinundation: 8 getation-open who inundated ar	Average description Average description atter boundary:_e the soils satur	_6"_ <u>ft</u> rated w/in 12" o	f surface: Yes_	XNo	
Moni	indwater toring wells: Pr						
	Well #	Depth	Well #	Depth	Well #	Depth	
X X elevat _NA_	tional Activities _Map emergent _Observe extent tions (drift lines, _GPS survey gr IMENTS/PROF t of inundation s	vegetation-oper of surface water erosion, vegetate oundwater mon	er during each s ation staining etc itoring wells lo vily grazed site.	ite visit and loo c.) cations if present. Surface water	nt levels much hig		



	of evaluation area	:8 / 30 / 01 :2acres	l_ Visit #: Land use suri	3 Monitoricounding wetlan	the assessment: ing Year:3 (20 id:Rangelan	003)_	
			HYI	DROLOGY			
Inund Asses Depth If ass	ace Water Source lation: Present_X is sment area under in at emergent veg essment area is not evidence of hydronical estate.	A Absent inundation:_80 tetation-open wa ot inundated are	Average de O % ater boundary: the soils satur	_6"_ <u>ft</u> rated w/in 12" o	f surface: Yes_	_X_No	lrift lines
Mon	andwater itoring wells: Preord depth of water						
	Well #	Depth	Well #	Depth	Well #	Depth	
		Checklist: vegetation-open			k for evidence o	of past surface w	
X X elevat NA COM	Map emergent v Observe extent of tions (drift lines, o GPS survey gro IMENTS/PROB r than 2002 levels	erosion, vegetate bundwater moning LEMS: _Heav	tion staining et itoring wells lo	c.) cations if presen	nt		
X X elevat NA COM	_Map emergent v _Observe extent of tions (drift lines, of the control of the cont	erosion, vegetate bundwater moning LEMS: _Heav	tion staining et itoring wells lo	c.) cations if presen	nt		
X X elevat NA_	_Map emergent v _Observe extent of tions (drift lines, of the control of the cont	erosion, vegetate bundwater moning LEMS: _Heav	tion staining et itoring wells lo	c.) cations if presen	nt		



Locati Legal Weath Initial	ion: PUFFIN RI description: T2 ner Conditions:_ Evaluation Date	ESERVOIR	MDT ction_10_ Tin Person 1_ Visit #:	District: Glend ne of Day:11:00 n(s) conducting Monitori	Assessmer Milepos D-12:00 the assessment: ang Year:3 (20 dd:Rangelan	Berglund 003)_	1 / 03
			HYI	DROLOGY			
Inund Asses Depth If asse	sment area unde at emergent veg essment area is n	X Absent rinundation: 3 getation-open who inundated are	Average de 0 % ater boundary: e the soils satur	2" <u>ft</u> rated w/in 12" o	ange of depths:_(of surface: Yes_ cetation etc.):	NoX	
Moni	andwater itoring wells: Pr rd depth of wate Well #	r below ground	surface	Donth	Well #	Donth	
	wen#	Depth	Well #	Depth	weii#	Depth	
X X elevat NA COM establ	ions (drift lines, _GPS survey gr IMENTS/PROF	vegetation-oper of surface water erosion, vegetar oundwater monuments LEMS: _Heart to pond. As n	er during each stion staining etcitoring wells lower willy grazed sitestoted in 2001 and	ite visit and loo c.) cations if present ; virtually no end 2002, site was	k for evidence of nt nergent wetland s over-excavated	developing; no	vegetation



VEGETATION COMMUNITIES

Community No.:_1_ Community Title (main species):_HOR JUB / ELE PAL_____

Dominant Species	% Cover	Dominant Species	% Cover
HOR JUB	21-50	RUM CRI	1-5
ELE PAL	>50	JUN BAL	1-5
ELE ACI	11-20		
XAN STR	1-5		

COMMENTS/PROBLEMS:Elec	ocharis greatly increased	l in 2003, dominating this commu	ınity type.
Community No.:_2_ Community Title	(main species):_MYR	SPI / POT FOL	
Dominant Species	% Cover	Dominant Species	% Cover
MYR SPI	>50	-	
POT FOL	>50		
ELO CAN	11-20		
SAG CUN	1-5		
Community No.:_3 Community Titl	e (main species):_HOR		
Dominant Species	% Cover	Dominant Species	% Cover
HOR JUB	>50		
AGR DAS	>50		
AGR REP	21-50		

Additional Activities Checklist:

_X__Record and map vegetative communities on air photo



VEGETATION COMMUNITIES (continued)

Community No.:_4__ Community Title (main species):_SCI MAR / TYP LAT_____

Dominant Species	% Cover	Dominant Species	% Cover
SCI MAR	21-50		
TYP LAT	11-20		
ELE ACI	11-20		
XAN STR	6-10		
COMMENTS/PROBLEMS:New	1n 2002 - at Alba	tross only in 2002 and 2003.	
Community No.:_5 Community Title	(main species):_	XAN STR(2002 only)	

Dominant Species	% Cover	Dominant Species	% Cover
XAN STR	>50		
CHE ALB	21-50		
RUM CRI	6-10		
HOR JUB	6-10		
AGR REP	6-10		

COMMENTS/PROBLEMS: _	New in 2002 at Albatross only; absent in 2003 (replaced by Type 4).

Community No.:__6_ Community Title (main species):_UPLAND_____

Dominant Species	% Cover	Dominant Species	% Cover
ART TRI	21-50	BOU GRA	11-20
HEL ANN	6-10	MEL OFF	11-20
GRI SQU	11-20		
AGR SMI	11-20		
AGR REP	11-20		

COMMENTS/PROBLEMS:	varies site to site	



COMPREHENSIVE VEGETATION LIST

Species	Vegetation Community	Species	Vegetation Community
			-
	Number(s)		Number(s)
Agropyron dasystachyum	3, 6	Polygonum sp. (upland)	6
Agropyron repens	3, 5, 6	Potamogeton foliosus	2
Agropyron smithii	6	Puccinellia nuttalliana	1, 3
Alisma plantago-aquatica	2	Ranunculus aquatilis	2
Alisma gramineum	2	Rumex crispus	1, 5
Artemisia cana	6	Sagittaria cuneata	2
Artemisia frigida	6	Salix exigua	1, 6
Artemisia tridentate	6	Sarcobatus vermiculatus	6
Atriplex argentea	1, 3, 6	Schizachyrium scoparium	6
Beckmannia syzigachne	2	Scirpus acutus	1, 4
Bouteloua gracilis	6	Scirpus americanus	1, 4
Chenopodium album	5	Scirpus maritimus	4
Chrysothamnus nauseosus	6	Spergularia rubra	6
Cirsium arvense	6	Thlaspi arvense	6
Distichlis spicata	1, 3	Typha latifolia	1, 4
Echinochloa crusgalli	1, 3	Xanthium strumarium	1, 4, 5
Eleocharis acicularis	1, 4		
Eleocharis palustris	1, 2, 4		
Elodea canadensis	2		
Erodium cicutarium	6		
Grindelia squarrosa	6		
Gutierrezia sarothrae	6		
Helianthus annuus	6		
Hordeum jubatum	1, 3, 5		
Iva axillaris	1, 3		
Juncus balticus	1		
Koeleria pyramidata	6		
Lepidium densiflorum	6		
Marsilea vestita	1		
Medicago lupulina	6		
Melilotus officinalis	6		
Myriophyllum spicatum	2		
Nasturtium officinale	2		
Opuntia sp.	6		
Polygonum lapathifolium	2		

COMMENTS/PROBLEMS: _Virtually no vegetation surrounding Puffin Reservoir	



PLANTED WOODY VEGETATION SURVIVAL

Species	Number Originally Planted	Number Observed	Mortality Causes
No woody species planted			
COMMENTS/PROBLEMS:			



WILDLIFE

BIRDS

(Attach Bird Survey Field Forms)

MAMMA	ALS AND HER	RPTILES			
Species	Number		Indirect ind	lication of use	
	Observed	Tracks	Scat	Burrows	Other
deer (Puffin, Flashlight, Albatross)	0	yes			
unidentified tadpoles, suspect western chorus frog (Albatross)	500+				
northern leopard frog (Penguin, Flashlight)	50-100				
elk (near Albatross)	6				
raccoon (Puffin)	0	yes			
red fox (Pintail)	0	yes			
plains garter snake (Penguin, Pintail)	2				
Woodhouse's toad (Penguin)	1				
Additional Activities Checklist: _XMacroinvertebrate sampling (if required) COMMENTS/PROBLEMS: _Fewer frogs ob but many more than were observed in 2002. No				ere observed i	in 2001,
_XMacroinvertebrate sampling (if required) COMMENTS/PROBLEMS: _Fewer frogs ob				ere observed i	in 2001,
_XMacroinvertebrate sampling (if required) COMMENTS/PROBLEMS: _Fewer frogs ob				ere observed i	in 2001,
XMacroinvertebrate sampling (if required) COMMENTS/PROBLEMS: _Fewer frogs ob				ere observed i	in 2001,
XMacroinvertebrate sampling (if required) COMMENTS/PROBLEMS: _Fewer frogs ob				ere observed i	in 2001,
XMacroinvertebrate sampling (if required) COMMENTS/PROBLEMS: _Fewer frogs ob				ere observed i	in 2001,
XMacroinvertebrate sampling (if required) COMMENTS/PROBLEMS: _Fewer frogs ob				ere observed i	in 2001,
_XMacroinvertebrate sampling (if required) COMMENTS/PROBLEMS: _Fewer frogs ob				ere observed i	in 2001,
_XMacroinvertebrate sampling (if required) COMMENTS/PROBLEMS: _Fewer frogs ob				ere observed i	in 2001,



PHOTOGRAPHS

Using a camera with a 50 mm lenses and color film take photographs of the following permanent reference points listed in the checklist below. Record the direction of the photograph using a compass. (The first time at each site establish a permanent reference point by setting a ½ inch rebar or fencepost extending 2-3' above ground, survey the location with a resource grade GPS and mark the location on the air photo.) Checklist:

_x At upx At	least one pholand use exist least one pho	ach of the 4 cardinal directions surrounding wetland oto showing upland use surrounding wetland – if more than on ts, take additional photos oto showing buffer surrounding wetland m each end of vegetation transect showing transect	e
Location	Photo	Photograph Description	Compass
Α	Frame #	and whate about	Reading
A B		see photo sheets	
С			
D			
E			
F			
G			
Н			
COMME	NTS/PROBI	LEMS:	
_	_	GPS SURVEYING GPS survey the items on the checklist below. Collect at least ad recording rate. Record file numbers fore site in designated of the checklist below.	-
Checklist:			
_NA4-6 _NA St _NA Ph	5 landmarks r art and end p noto reference	wetland boundary recognizable on the air photo points of vegetation transect(s) e points nonitoring well locations	
COMME	NTS/PROB	LEMS:No GPS data recorded in 2003 – adjustments made	e on aerial photo.



WETLAND DELINEATION

(Attach Corps of Engineers delineation forms)

At each site conduct the items on the checklist below:
 X Delineate wetlands according to the 1987 Army Corps manual. X Delineate wetland-upland boundary on the air photo
_NA Survey wetland-upland boundary with a resource grade GPS survey
_1.1.1 Survey welland obtained y with a resource grade of 8 survey
COMMENTS/PROBLEMS:See data forms
FUNCTIONAL ASSESSMENT (Complete and attach full MDT Montana Wetland Assessment Method field forms; also attach abbreviated field
forms, if used)
COMMENTS/PROBLEMS: _See data forms
MAINTENANCE Were man made posting structures installed at this site? VES NO V
Were man-made nesting structures installed at this site? YES NO_X If yes, do they need to be repaired? YES NO
If yes, describe problems below and indicate if any actions were taken to remedy the problems.
Were man-made structures build or installed to impound water or control water flow into or out of the wetland? YES_XNO
If yes, are the structures working properly and in good working order? YES_X NO If no, describe the problems below.
COMMENTS/PROBLEMS:



	MD	T WETLAND MO	NITORING – VEGETATION TR	ANSECT	
Site:	No Transects at this site	Date:	Examiner:	Transect #	
	x. transect length:		s Direction from Start (Upland):		
Veget	ation type A:		Vegetation type B:		
	h of transect in this type:	feet	Length of transect in this ty	pe:	feet
Specie	es:	Cover:	Species:		Cover:
	Total Vegeta	tive Cover:		Total Vegetative Cover	:
Veget	ation type C:		Vegetation type D:		
Lengtl	h of transect in this type:	feet	Length of transect in this ty	pe:	feet
Specie	es:	Cover:	Species:		Cover:
	Total Vegeta	tive Cover:		Total Vegetative Cover	:



	MDT V	WETLAND MONITORING – VEGE	CTATION TRANSECT (back of form)
Cover Estim + = <1% 1 = 1-5% 2 = 6-10%	3 = 11-20% 4 = 21-50%	Indicator Class: + = Obligate - = Facultative/Wet 0 = Facultative	Source: P = Planted V = Volunteer
Percent of per	rimeter	% developing wetland vegetation – e	xcluding dam/berm structures.
this location water (in open water Estimate cover the wetland.	with a standard metal fear), or at a point where wer within a 10 ft wide "b	ncepost. Extend the imaginary transer vater depths or saturation are maximizately along the transect length. At a m	The transect should begin in the upland area. Permanently mark ct line towards the center of the wetland, ending at the 3 food depth red. Mark this location with another metal fencepost. Aninimum, establish a transect at the windward and leeward sides of the tinventory, representative portions of the wetland site.
Notes. No tra	insects at this site		
		_	



BIRD SURVEY - FIELD DATA SHEET

Page__1_of_1__ Date:7/31/03

SITE: Fourchette Reserve Survey Time: 0700-1200

Bird Species	#	Behavior	Habitat	Bird Species	#	Behavior	Habitat
Penguin Reservoir							
killdeer	6	F	US				
gadwall	6	Brood	MA				
blue-wing teal	5	Brood	MA				
mourning dove	1	F	UP				
Pintail Reservoir							
blue-wing teal	12	Broods	MA				
northern shoveler	6	Brood	MA				
grebe (no ID)	1	F	MA				
Wilson's phalarope	3	F	MA				
American avocet	2	F	MA				
killdeer	4	F	US				
gadwall	1	F	OW				
Canada goose	3	F	OW				
Flashlight Reservoir							
American coot	2	F	OW				
willet	2	F	MA				
killdeer	5	F	US				
Albatross Reservoir							
killdeer	2	F	US				
blue-wing teal	2	F	OW				
Puffin Reservoir							
goose tracks							

Notes: Plains garter snake, several dozen northern leopard frogs, Woodhouse's toad observed at Penguin. Cattle also present.

Plains garter snake, fox tracks, deer tracks at Pintail Reservoir.

Several dozen northern leopard frogs observed at Flashlight Reservoir.

Many tadpoles observed at Albatross, plus deer tracks. Six large bull elk observed heading towards Albatross – left the area when they sighted surveyors.

No wildlife observed at Puffin – goose tracks, raccoon tracks, deer tracks.

Behavior: BP – one of a breeding pair; BD – breeding display; F – foraging; FO – flyover; L – loafing; N – nesting

Habitat: AB – aquatic bed; FO – forested; I – island; MA – marsh; MF – mud flat; OW – open water; SS – scrub/shrub; UP – upland buffer; WM – wet meadow, US – unconsolidated shoreline



DATA FORM ROUTINE WETLAND DETERMINATION (1987 COE Wetlands Delineation Manual)

Berley, For Tall Filescher's patients Filescher's patients Fract OBL Solptous actutus Buthach Hard-Stern Potamogeton finiteaus Potamogeton finiteaus Fact Cockide Bur, Fough Disches spicials Herb Ni Nesturtive orfichase Herb OBL Resturtive orfichase Oreas, riutatis Alkasi Supplants curvatus Herb OBL Remarkatis Herb OBL Remarkatis FAC Neutral: 11/15 = 100 00% Fac Neutral: 11/15	Do Normal Circumstacess exist on the s			State Mot i		
Dominant Plant Species (Latin/Common) Stratum Indicator Plant Species (Latin/Common) Horse My Nophysum spicetum Herb SACW My nophysum spicetum Water - Milot Eurasen Seventhria passatria Spicerum Desping Potamojetun fateaus Potamojetun fateaus Potamojetun fateaus Perb OBL Xentham strumantum Herb OBL Xentham strumantum Pondenes spicats Perb Pil Nesturitum officinale Herb OBL Purchasis nutritions Water-Cress True Beocherts accutants Spicerum Despina Herb OBL Purchasis nutritions Water-Cress True Beocherts accutants Septiants curvests Herb OBL Purchasis nutritions Septiants accutants Septiants accutants Burush Nothers Herb OBL Purchasis nutritions Herb OBL Purchas	is the site significantly disturbed (Atypic is the area a potential Problem Area?	al Situation	0:17	Yes (No) Transect ID: NA Yes (No) Field Location		R
Herb FACW Myriophysum spicetum Herb OBI Bartey, Foo Tall	EGETATION		USFWS P	Region No. 4)		
Herb FACW Myriophysum spicetum Herb OBI Barley, Foo Tall	Dominant Plant Species (Latin/Common)	Stratum	Indicate	Plant Species/Latin/Common)	Stratum	Indica
Barley Foo Tail Sepons paulatric Sepons acutar Sepons Sepons Sepons acutar Sepons acuta	Horpeum jubatum				Herb	OBL.
Spikerush Descring Potamogetion fabragis Potamogetion fabragis Pondwead, Leefy Dischies apt atta Perci Pi Dischies an intrafama Heath Dischies an intrafam	Barley, Fox Tail	-	CAR O	Water-Milfoli Eurasien		10000
Potamogeton fallosize Pondweed, Leety Cockie Bur Rough Abschafs spicials Satignass Inland Pero Ni Nesturtive officease Herb OBI Satignass Inland Pero Ni Nesturtive officease Herb OBI Satignass Inland Pero Ni Nesturtive officease Herb OBI Satignass Inland Pero OBI Satignass Inland Satignass Inland Satignass Inland Satignass Inland Satignass Inland School merithrus Burush Satignas Herb Ni School anteriorus Burush Satignass Herb OBI School anteriorus Burush Consys Percent of Dominant Species that are OBIL FACW or FAC: (excluding FAC-) 12/12 = 100 COh Remarks: Welland Hydrology Indicators Primary		Herb	CBL	Scirpus aculus	Herb	OBL
Pondwead Leafy Discharts spicials Perconditions agriculture Discharts spicials Discharts			lane.	Bultush Hard-Stem		
Application of Colors Perb All Applications of Colors Perb OB		Herb	OBL		Herb	FAC
Satignass, Inland Eleocharts accutation Eleocharts accutation Eleocharts accutation Sapitaria curveata Arrow-Heed Northern Scholar merifyrus Herb OBL Rumax critiquis Herb OBL Rumax critiquis Herb OBL Rumax critiquis Herb OBL Buruath Clariy Scholar merifyrus Herb OBL Buruath Clariy FAC Neutral: 11/15 = 100,00% (excluding FAC-) 12/12 = 100,00% Remarks: Welland Hydrology Indicators Primary Indicator	Pondweed, Leefy	10.77	0.826			377
Fac Parcented Perb Parcented Percented Percented Parcented Par		Hech	741		Hem	QBL.
Spekerish Least Ores, Autiat's Alkal Spekerish Least Ores, Autiat's Alkal Spekerish Least Ores, Culy School Park Original Consecution Science markinus Herb OR Science Markinush Original Consecution (auctualing FAC-) 12/12 = 100 00% Numeric Index: 16/12 = 1.33 Numeric Inde				Water-Cress True		1.1
Septians covers Anow-Heed Northern Dock Curty Dock Curty Schous markinus Burush Selmmanh Burus	Eleocharis acicularis	Herb	OBL		Herb	OBL
Arrow-Head Northern Scholar markinus Herb NI Scholar americanus Burush Ciney's Herb OB Burush Ciney's Percent of Dominant Species that are OBL FACW or FAC: (excluding FAC-) 12/12 = 100 CO% Remarks: PAC Neutral: 11/15 = 100 00% FAC Neutral: 11/15 = 100 00% Faumeric Index: 16/12 = 1.33 Parmarks: Welland Hydrology Indicators Primary Indicators Primary Indicators YES Recorded Data (Describe in Remarks): YES Stream, Lake or Tide Gauge YES Sacrial Photographs YES Studented in Upper 12 Inches NO Water Marks IND Drift Lines YES Sodiment Deposits		1000	120			
Scipus merificus Burush Cineys Percent of Dominant Species that are OBL_FACW or FAC: (excluding FAC-) 12/12 = 100.00% Remarks: Styles Recorded Data/Describe in Remarks): NO Stylesm, Lake or Tide Gauge YES Aerial Photographs JiQ Other NO Recorded Data NO Recorded Data Diff Lines NO Water Marks IND Drift Lines NO Stylesm		Herb	OBL		Herb	FACW
Burush, Salimensh Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 12/12 = 100.00% Remarks: Page 12/12 = 100.00% Numeric Index: 16/12 = 1.33 Remarks: Page 12/12 = 100.00% VES Recorded Data(Describe in Remarks): NO Stream, Lake or Tide Gauge VES Acriet Photographs JEQ Other NO Recorded Data NO Recorded Data Pill Lines NE Sodiment Deposits	American Library Maner Britain			the contract of the contract o	-	
Percent of Dominant Species that are OBL_FACW or FAC: (avcluding FAC-) 12/12 = 100 00% Remarks: Page 100 00% YES Recorded Data(Describe in Remarks): NO Stream, Lake or Tide Gauge YES Serial Photographs JEC Other NO Recorded Data NO Recorded Data YES Sodiment Deposits	NAME OF TAXABLE PROPERTY.				147.040	COBI
(excluding FAC-) 12/12 = 100.00% Numeric Index: 16/12 = 1.33 Remarks: Sypeology YES Recorded Data/Describe in Remarks): NO Stream, Lake or Tide Gauge YES Aerial Photographs JEQ Other NO Recorded Data NO Recorded Data NO Recorded Data YES Solurated in Upper 12 inches NO Water Marks IND Drift Lines YES Sodiment Deposits	Sciepus mertimus	Hierb	N		Hert	- Dec
NO Stream, Lake or Tide Gauge YES Aerial Photographs YES Sturrated in Upper 12 inches NO Recorded Data NO Recorded Data YES Sodiment Deposits	Scipus martimus Burush Settmenth Percent of Dominant Species that are Of (excluding FAC-) 12/12 = 100 CO%			Burush Olney's FAC Neutral: 11/ft =100.00%	Herb	
YES Recorded Data/Describe in Remarks): NO Stream, Lake or Tide Gauge YES Aerial Photographs JEC Other No Recorded Data Welland Hydrology Indicators Primary Indicators YES Solurated in Upper 12 Inches NO Water Marks IND Drift Lines YES Sodiment Deposits	Scipus martimus Burush Settmenth Percent of Dominant Species that are Of (excluding FAC-) 12/12 = 100 CO%			Burush Olney's FAC Neutral: 11/ft =100.00%	Her	
NO Stream, Lake or Tide Gauge YES Aerial Photographs YES Sturated in Upper 12 inches YES Sturated in Upper 12 inches NO Recorded Data YES Sodiment Deposits	Scipus merificus Burush Salmarsh Parcent of Dominant Species that are Of (excluding FAC-) 12/12 = 100 COs Remarks:			Burush Olney's FAC Neutral: 11/ft =100.00%	Herb	
YES Drainage Patterns in Wellands	Scipus meritinus Burush Sahmarsh Percent of Dominant Species that are Of (excluding FAC-) 12/12 = 100 CON Remarks:	BL. FACW	or PAC:	Burush, Ciney's FAC Neutral: 11/11 =100.00% Numeric Index: 16/12 =1.33	1997	
Secondary Indicators Soph of Surface Water: #46 (M.) NO Oxidized Root Channels in Upper 12 suches	Scipus meritinus Burush Salmarsh Percent of Dominant Species that are Of (excluding FAC-) 12/12 = 100 Cots Remarks: (YDROLOGY YES Recorded Data/Describe in Remarks Lake or Tide Gauge YES Aerial Photographs JiQ Other	BL. FACW (or PAC:	Burush, Olney's FAC Neutral: 11/11 = 100.00% Numeric Index: 16/12 = 1.33 Illand Hydrology Indicators: Primary Indicators YES hundated YES Solumated in Upper 12 Inches NO Water Marks IND Drift Lines YES Sodiment Deposits		
NO Water-Stairied Leaves	Scipus merificus Burush Salmarsh Percent of Dominant Species that are Of (excluding FAC-) 12/12 = 100 Cots Remarks: (YDROLOGY YES Recorded Data/Describe in Remarks Lake or Tide Gauge YES Aerial Photographs JiQ Other 150 No Recorded Data Field Observations	SL. FACW (W.	Burush, Olney's FAC Neutral: 11/11 = 100.00% Numeric Index: 16/12 = 1.33 Items		
Depth to Preserve Palls the April 1955 PAC-Heutral Test	Scipus merificus Burush Salmarsh Percent of Dominant Species that are Of (excluding FAC-) 12/12 = 100 Cots Remarks: (YDROLOGY YES Recorded Data/Describe in Remarks Lake or Tide Gauge YES Aerial Photographs JiQ Other 150 No Recorded Data Field Observations	SL. FACW (We	Burush, Cineys FAC Neutral: 11/11 =100.00% Numeric Index: 15/12 =1.33 Illand Hydrology Indicators Primary Indicators YES hundated YES Soturated in Upper 12 inches NO Water Marks TO Drift Lines YES Sodiment Deposits YES Drainage Patterns in Welland Secondary Indicators NO Oxidized Root Channels in Up NO Water-Stained Leaves NO Local Soil Survey Data		
NO Recorded Data NO Drift Unes YES Sodiment Deposits	Scipus martimus Burush Settmenth Percent of Dominant Species that are Of (excluding FAC-) 12/12 = 100 CO%			Burush Olney's FAC Neutral: 11/ft =100.00%		
	Scipus merificus Burush Salmarsh Percent of Dominant Species that are Of (excluding FAC-) 12/12 = 100 Cots Remarks: (YDROLOGY YES Recorded Data/Describe in Remarks Lake or Tide Gauge YES Aerial Photographs JiQ Other 150 No Recorded Data Field Observations	**A5 (h.)	We	Burush, Olney's FAC Neutral: 11/11 = 100.00% Numeric Index: 16/12 = 1.33 Items		

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DATA FORM ROUTINE WETLAND DETERMINATION (1987 COE Wetlands Delineation Manual)

Project/S Applican Investiga	t/Owner: M	ourchette Creek Re onfere Departmen orgiund	eerve (of Transportation	ě	Project N	lo: Task 23	Date: 31-Jul-2003 County: Philips State: Montana Piot ID: 1
BOILE							
Мар Зум	bol: NA y (Subgrou	ies and Phase): Drainage Class: p): Uhknows	Unitroped Unitrope			ped Hydric Ir servations Co	nclusion? onfirm Mapped Type? Yes (No
Depth (Inches)	Herizon	Matrix Color (Mursell Moist)	Mottle Cotor (Munsell Moist)	Mo	ttie e/Contrest	Texture, Co	ecretions, Structure, etc
10	h	2.574/2	NA	NA	NA	Clay	
10		2.574/3	25756	Common	Feint	Cley	
10	n	2.574/2	25Y6/8	Few	Feart	Cley -	
Romarki Clear vete	NO Grey	icing Conditions ed or Law Chrotin a support shigets spe	a Colora ciae. Sole ara claya an	YES OU	er (Explain	onal Hydric S in Remarks) rlydrainad	
WETLAN	DETERM	NATION					
Wetend I	ic Vegetatio lydrology P de Present?		NG No No	a the San	pling Point	within the We	tland? (No
Remarks Emergent/		ommunikas sumaunda	g and orbite Fleshight	Raservor			



DATA FORM ROUTINE WETLAND DETERMINATION (1987 COE Wetlands Delineation Manual)

Do Normal Circumstances exist on the si is the site significantly disturbed (Atypic is the area a potential Problem Area? (If needed, explain on the reverse side)		1:)? Y	(86 (96) (86 (96) (86 (96)	Community ID Transect ID: Field Location Penguin Reserv	NA :		
EGETATION		USFWS K	egion No. 4	*)			
Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Spe	cies(Latin/Com	mon)	Stratun	nindicat
Hordeum jubatum	Herb	FACW	Potamoge	ton foliosus	ALLEA AL	Herb	OBL
Barley,Fox-Tall	7		Pondweed	i, Leafy	WW IN VALUE		
Xanthium strumarium	Herb	FAC	Elodea ca	nadensis		Herb	OBL
Cockle-Bur, Rough		l .	Water-We	ed,Broad			2
Eleocharis palustris	Herb	OBL	Myriophyll	lum spicatum	N 2.0	Herb	OBL
Spikerush, Creeping			Water-Milf	foil,Eurasian			
Eleocharis acicularis	Herb	OBL	Sagittaria	cuneata		Herb	OBL
Spikerush, Least			Arrow-Hee	ad, Northern	6	N .	2
Beckmannia syzigachne	Herb	OBL	Rumex cri		N N N _0000000	Herb	FACW
Sloughgrass, American		tour savenor	Dock, Curl	У		_	
Polygonum lapathifolium	Herb	OBL	Juncus ba	ticus		Herb	OBL
Willow-Weed			Rush, Balt	lc			
Commission of the control of the con		Į.					
			1			᠋	
						_	
(excluding FAC-) 12/12 = 100.00%	SL, FACW (or FAC:		eutral: 11/11 ic Index: 16/	= 100.00% /12 = 1.33		
Percent of Dominant Species that are OE (excluding FAC-) 12/12 = 100.00% Remarks:	BL, FACW (or FAC:					
(excluding FAC-) 12/12 = 100.00%	SL, FACW (or FAC:					
(excluding FAC-) 12/12 = 100.00%	BL, FACW (or FAC:					
(excluding FAC-) 12/12 = 100.00% Remarks:			Numer		/12 = 1.33		
(excluding FAC-) 12/12 = 100.00% Remarks:	·ks);		Numer	ric Index: 16	/12 = 1.33		
(excluding FAC-) 12/12 = 100.00% Remarks: HYDROLOGY YES Recorded Data(Describe in Remarks)	·ks);		Numer tland Hydro Primary In YES In	ology Indicators	/12 = 1.33		
(excluding FAC-) 12/12 = 100.00% Remarks: HYDROLOGY YES Recorded Data(Describe in Remarks) NO Stream, Lake or Tide Gauge	·ks);		tland Hydro Primary In YES In YES S	ology indicators rdicators rundated atturated in Upp	/12 = 1.33		
(excluding FAC-) 12/12 = 100.00% Remarks: AYDROLOGY YES Recorded Data(Describe in Remarks) NO Stream, Lake or Tide Gauge YES Aerial Photographs NO Other	·ks);		tland Hydro Primary In YES In YES S YES W	ology indicators dicators aundated saturated in Upp	/12 = 1.33		
(excluding FAC-) 12/12 = 100.00% Remarks: HYDROLOGY YES Recorded Data(Describe in Remaino No Stream, Lake or Tide Gauge YES Aerial Photographs	·ks);		tland Hydro Primary In YES In YES W NO D	ology Indicators dicators nundated atturated in Upp Vater Marks wrift Lines	/12 = 1.33		
(excluding FAC-) 12/12 = 100.00% Remarks: HYDROLOGY YES Recorded Data(Describe in Remarks) NO Stream, Lake or Tide Gauge YES Aerial Photographs NO Other NO No Recorded Data	·ks);		tland Hydro Primary In YES In YES S YES W NO NO	ology indicators ndicators nundated laturated in Upp Vater Marks prift Lines	/12 = 1.33		
(excluding FAC-) 12/12 = 100.00% Remarks: AYDROLOGY YES Recorded Data(Describe in Remarks) NO Stream, Lake or Tide Gauge YES Aerial Photographs NO Other	·ks);		tland Hydro Primary in YES IN YES W NO D NO S	ology indicators ndicators nundated iaturated in Upr Vater Marks wift Lines iediment Depos rainage Patter	/12 = 1.33		
(excluding FAC-) 12/12 = 100.00% Remarks: HYDROLOGY YES Recorded Data(Describe in Remarks) NO Stream, Lake or Tide Gauge YES Aerial Photographs NO Other NO No Recorded Data Field Observations	ks):		tland Hydro Primary In YES In YES S YES W NO D NO S Secondary	ology Indicators undated laturated in Upr Vater Marks wift Lines lediment Depos kainage Patter y Indicators	/12 = 1.33	12 1000	
(excluding FAC-) 12/12 = 100.00% Remarks: HYDROLOGY YES Recorded Data(Describe in Remarks) NO Stream, Lake or Tide Gauge YES Aerial Photographs NO Other NO No Recorded Data	·ks);		lland Hydro Primary in YES In YES W NO D NO S YES D Secondary	ology indicators ndicators nundated laturated in Upp Vater Marks prift Lines lediment Depos rainage Pattern y Indicators oxidized Root C	s per 12 Inches sits in Wetlands	er 12 Inche	
(excluding FAC-) 12/12 = 100.00% Remarks: HYDROLOGY YES Recorded Data(Describe in Remarks) NO Stream, Lake or Tide Gauge YES Aerial Photographs NO Other NO No Recorded Data Field Observations	ks):		tland Hydro Primary In YES In YES W NO D NO Secondary	ology indicators nundated atturated in Upp Vater Marks wift Lines tediment Depos rainage Patter y indicators Suidized Root C Vater-Stained L	s per 12 Inches sits in Wetlands thannels in Uppreaders	er 12 Inche	\$
(excluding FAC-) 12/12 = 100.00% Remarks: HYDROLOGY YES Recorded Data(Describe in Remainous No. Stream, Lake or Tide Gauge YES Aerial Photographs No. Other NO. No Recorded Data Field Observations Depth of Surface Water: Depth to Free Water in Pit:	= 48 (in.) NA (in.)		tland Hydro Primary in YES S YES W NO D NO S Secondary NO O NO W	ology Indicators undated laturated in Upr Vater Marks wift Lines lediment Depos kainage Patter y Indicators oxidized Root C Vater-Stained L ocal Soil Surve	/12 = 1.33 see 12 Inches sits is in Wetlands hands in Uppe	er 12 Inche	s
(excluding FAC-) 12/12 = 100.00% Remarks: HYDROLOGY YES Recorded Data(Describe in Remainous Stream, Lake or Tide Gauge YES Aerial Photographs NO No Recorded Data Field Observations Depth of Surface Water:	= 48 (in.)		Numer tland Hydro Primary In YES In YES S YES W NO D NO S Secondan NO W NO L YES D	ology indicators nundated atturated in Upp Vater Marks wift Lines tediment Depos rainage Patter y indicators Suidized Root C Vater-Stained L	s per 12 Inches sits in Wetlands in Uppeaves y Data	er 12 Inche	\$

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/S Applican Investiga	t/Owner: Mo	ourchette Creek Res ontana Department irglund			Project N	o: Task 23	County: Phi	Jul-2003 Ilips ntana
SOILS		22						
Map Sym	bol: 250E ly (Subgrou	les and Phase): Drainage Class: p): Unknown	Bascovey clay PD (?)			ped Hydric Inc ervations Con		Type?∕es N
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mo Abundance		Texture, Con	cretions, Stru	icture, etc
10	В	10YR4/2	10YR5/8	Common	Distinct	Clay		
Remarks Sample at v	NO Sulfic NO Aquic NO Redu YES Gleye	c Epipedon dic Odor c Moisture Regim cing Conditions ad or Low Chroma		NO Org NO List NO List	anic Streak ed on Loca ed on Natio	Content in Sur ding in Sandy Il Hydric Soils onal Hydric So in Remarks)	Soils List	Sandy Soils
Wetland	tic Vegetation Hydrology Poils Present?	resent? (es) No) No) No	is the Sam	pling Point	within the Wetl	and? (es) No
Remarks EM / AB co		Penguin Reservoir.	- '	*				4

AND & WATER

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DATA FORM ROUTINE WETLAND DETERMINATION (1987 COE Wetlands Delineation Manual)

Applicant/Owner: Montana Department of Investigators: Berglund	re Transporta	ion		oject No: Task 23	County: Ph	-Jul-2003 illips ontana	
Do Normal Circumstances exist on the si is the site significantly disturbed (Atypica is the area a potential Problem Area? (If needed, explain on the reverse side)		1:)?	Yes No Yes No	Community ID: E Transect ID: N Field Location: Pintail Reservoir			
EGETATION			egion No.				
Dominant Plant Species(Latin/Common)				ecies(Latin/Commo	n)	Stratum	
Hordeum jubatum	Herb	FACW		n dasystachyum		Herb	FAC
Barley,Fox-Tail				ss, Thick-Spike			
Echinochloa crusgalli	Herb	FACW	Agropyroi			Herb	FAC
Grass, Barnyard			Quackgra				
Eleocharis palustris	Herb	OBL		m lapathifolium		Herb	OBL
Spikerush, Creeping			Willow-W				
Distichlis spicata	Herb	NI		mericanus		Herb	OBL
Saltgrass, Inland	}		Bulrush,C	Diney's			-
	+						
	1						<u> </u>
	_						l
							-
	- 1						l `
Percent of Dominant Species that are OB (excluding FAC-) 7/7 = 100.00%	SL, FACW	or FAC:		leutral: 5/5 = 1 ric Index: 13/7		İ	Ľ.
(excluding FAC-) 7/7 = 100.00% Remarks: Vetand species are emerging within the impoundment			Nume	ric Index: 13/7	= 1.86		2
(excluding FAC-) 7/7 = 100.00% Remarks: Wetland species are emerging within the impoundment YDROLOGY	ent basin who	ere surface	Numei water levels h	ric Index: 13/7	= 1.86		
(excluding FAC-) 7/7 = 100.00% Remarks: Wetland species are emerging within the impoundment of the impoundme	ent basin who	ere surface	Numer	ric Index: 13/7 ave increased from 2002 ology Indicators	= 1.86		
(excluding FAC-) 7/7 = 100.00% Remarks: Wetand species are emerging within the impoundment IYDROLOGY YES Recorded Data(Describe in Remark) NO Stream, Lake or Tide Gauge	ent basin who	ere surface	Numer water levels h	ric Index: 13/7 ave increased from 2002 ology Indicators	= 1.86	1	
(excluding FAC-) 7/7 = 100.00% Remarks: Wetland species are emerging within the impoundment IYDROLOGY YES Recorded Data(Describe in Remar NO Stream, Lake or Tide Gauge YES Aerial Photographs	ent basin who	ere surface	Numer water levels h	ave incressed from 2002 ave incressed from 2002 ology Indicators indicators nundated	= 1.86 2. No aquatic veg.	<u> </u>	
(excluding FAC-) 7/7 = 100.00% Remarks: Netland species are emerging within the impoundment YDROLOGY YES Recorded Data(Describe in Remar NO Stream, Lake or Tide Gauge YES Aerial Photographs NO Other	ent basin who	ere surface	water levels had been seen to be	ave increased from 2002 ology Indicators ndicators	= 1.86 2. No aquatic veg.		
(excluding FAC-) 7/7 = 100.00% Remarks: Wetland species are emerging within the impoundment YDROLOGY YES Recorded Data(Describe in Remarkon Tide Gauge YES Aerial Photographs	ent basin who	ere surface	tland Hydromary in YES in YES VES VES VES VES VES VES VES VES VES V	ric Index: 13/7 ave increased from 2002 cology Indicators ndicators numdated saturated in Upper Vater Marks	= 1.86 2. No aquatic veg.		
(excluding FAC-) 7/7 = 100.00% Remarks: Wetland species are emerging within the impoundment of the impound	ent basin who	ere surface	water levels h	ology Indicators ndicators ndicators ndicators daturated in Upper Vater Marks Defit Lines Sediment Deposits	= 1.86 2. No aquatic veg.		
(excluding FAC-) 7/7 = 100.00% Remarks: Wetland species are emerging within the impoundment WES Recorded Data(Describe in Remar NO Stream, Lake or Tide Gauge YES Aerial Photographs NO Other	ent basin who	ere surface	water levels h	ology Indicators ndicators nundated Saturated in Upper Vater Marks Orift Lines Sediment Deposits orange Patterns in	= 1.86 2. No aquatic veg.		
(excluding FAC-) 7/7 = 100.00% Remarks: Wetland species are emerging within the impoundment WES Recorded Data(Describe in Remarks: NO Stream, Lake or Tide Gauge YES Aerial Photographs NO Other NO No Recorded Data Field Observations	ent basin who	ere surface	Numer water levels h ttland Hydri Primary It YES It YES V NO D NO C NO C Secondar	ric Index: 13/7 ave increased from 2002 ave increased	= 1.86 2. No aquatic veg.		
(excluding FAC-) 7/7 = 100.00% Remarks: Wetland species are emerging within the impoundment of the impound	ent basin who	ere surface	water levels h	ology Indicators ndicators ndicators ndicators ndicators nundated saturated in Upper Vater Marks Orift Lines sediment Deposits orainage Patterns ir y Indicators oxidized Root Chan	= 1.86 2. No aquatic veg. 12 Inches 1 Wetlands nels in Upper 1	12 Inches	
(excluding FAC-) 7/7 = 100.00% Remarks: Wetland species are emerging within the impoundment YDROLOGY YES Recorded Data(Describe in Remarks) No Stream, Lake or Tide Gauge YES Aerial Photographs NO Other NO No Recorded Data Field Observations	ent basin who	ere surface	Numer water levels h ttland Hydr Primary Ir YES Ir YES S NO C NO C Secondar NO C NO C	ric Index: 13/7 ave increased from 2002 ave increased	= 1.86 2. No squatic veg. 12 Inches a Wetlands nels in Upper 1	12 Inches	

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DATA FORM ROUTINE WETLAND DETERMINATION (1987 COE Wetlands Delineation Manual)

Project/S Applican Investiga	t/Owner: M	purchette Creek Resontana Department orglund			Project N	o: Task 23	Date: County: State: Plot ID:	31-Jul-2003 Phillips Montana 3	3
SOILS									
Map Sym	ibol: NA iy (Subgrou	ies and Phase): Drainage Class: p): Unknown	Unmapped Unknown	×		ped Hydric In ervations Co		ped Type? `	Yes (No
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mo	**************************************	Texture, Co	ncretions,	Structure,	etc
10	В	10YR4/2	10YR5/8	Common	Distinct	Clay			
10	. В	10YR4/2	10YR5/6	Few	Faint	Clay			×
10	. A/B	5GY4/1	N/A	N/A	N/A	Clay			
Remarks First 2 Sam	NO Redu YES Gley	dic Odor c Moisture Regime cing Conditions ed or Low Chroma age area. Third in draw	Colors	NO Org NO List NO List NO Oth	anic Streat ed on Loca ed on Natio	Content in Su ding in Sandy al Hydric Soils onal Hydric S in Remarks)	Soils S List Soils List	9	2
	5	· ·							
Wetland	tic Vegetation	resent?	No No No	is the Sam	pling Point	within the We	tland? (Pes No	
Remarks EM commu		Reservoir. Wetland ver	g increasing in main im	poundment are	s. Water extr	remely turbid.			#
The site is	ion for resp likely a season ason. Site wa	onse to: Normal wetland (Problem Air much more inundated	al Circumstances? rea Type b); hydrology d than it appeared in 20	may be present	Situation ?	Potential Pr growing season,			ring later

Page WetForm*



DATA FORM ROUTINE WETLAND DETERMINATION (1987 COE Wetlands Delineation Manual)

is the site significantly disturbed (Aty is the area a potential Problem Area? (If needed, explain on the reverse si		on:)?	Yes No Community ID: EM Transect ID: NA Field Location: Albatross Reservoir	8	
EGETATION		(USFWS R	Region No. 4)		
Dominant Plant Species(Latin/Commo	on) Stratum	n Indicato	Plant Species(Latin/Common)	Stratum	Indicat
Eleocharis palustris	Herb	OBL	Typha latifolia	Herb	OBL
Spikerush, Creeping			Cattail, Broad-Leaf		
Hordeum jubatum	Herb	FACW	Rumex crispus	Herb	FACW
Barley, Fox-Tail			Dock, Curly		
Kanthium strumarium	Herb	FAC	Eleocharis acicularis	Herb	OBL
Cockle-Bur,Rough			Spikerush, Least		
Marsilea vestita	Herb	OBL	Cirsium arvense	Herb	FACU
Fern, Hairy Water	200,000		Thistle, Creeping		
Scirpus maritimus	Herb	NI			200
Bulrush, Saltmarsh			a salaran	_	
		T			
		1			1
					A 2 10 10 10
900 N N N			THE REPORT OF THE PARTY OF THE		
				-	1
	_			1	
(excluding FAC-) 7/8 = 87.50%		or FAC:	FAC Neutral: 6/7 = 85.71% Numeric Index: 15/8 = 1.88		
(excluding FAC-) 7/8 = 87.50% Remarks:		n n water	Numeric Index: 15/8 = 1.88		
Remarks: 1 sallx exigue seedling. Wetland veg ia emerging		n n water	Numeric Index: 15/8 = 1.88		
(excluding FAC-) 7/8 = 87.50% Remarks: I salix exigue seedling. Wetland veg is emerging	g along fring. No	aquatic veg	Numeric Index: 15/8 = 1.88		
(excluding FAC-) 7/8 = 87.50% Remarks: I salix exigue seedling. Wetland veg is emerging PDPQLOGY YES Recorded Data(Describe in Rei	g along fring. No marks):	aquatic veg	Numeric Index: 15/8 = 1.88 in impoundment tland Hydrology Indicators		
(excluding FAC-) 7/8 = 87.50% Remarks: salix exigue seedling. Wetland veg is emerging Salix exigue seedling. Wetland veg is emerging.	g along fring. No marks):	aquatic veg	Numeric Index: 15/8 = 1.88 in impoundment. Itland Hydrology Indicators Primary Indicators		
(excluding FAC-) 7/8 = 87.50% Remarks: salix exigus seedling. Wetland veg is emerging VNDOLOGY YES Recorded Data(Describe in Rei NO Stream, Lake or Tide Gat YES Aerial Photographs	g along fring. No marks):	aquatic veg	Numeric Index: 15/8 = 1.88 in Impoundment. stland Hydrology Indicators Primary Indicators NO Inundated		
(excluding FAC-) 7/8 = 87.50% Remarks: salix exigus seedling. Wetland veg is emerging VNDOLOGY YES Recorded Data(Describe in Rei NO Stream, Lake or Tide Gat YES Aerial Photographs NO Other	g along fring. No marks):	aquatic veg	Numeric Index: 15/8 = 1.88 in impoundment Itland Hydrology Indicators Primary Indicators NO Inundated YES Saturated in Upper 12 Inches		
(excluding FAC-) 7/8 = 87.50% Remarks: salix exigus seedling. Wetland veg is emerging VNDOLOGY YES Recorded Data(Describe in Rei NO Stream, Lake or Tide Gat YES Aerial Photographs	g along fring. No marks):	aquatic veg	Numeric Index: 15/8 = 1.88 in impoundment. Itland Hydrology Indicators Primary Indicators NO Inundated YES Saturated in Upper 12 Inches YES Water Marks		
(excluding FAC-) 7/8 = 87.50% Remarks: salix exigus seedling. Wetland veg is emerging VNDOLOGY YES Recorded Data(Describe in Rei NO Stream, Lake or Tide Gat YES Aerial Photographs NO Other	g along fring. No marks):	aquatic veg	Numeric Index: 15/8 = 1.88 in Impoundment. Itland Hydrology Indicators Primary Indicators NO Inundated YES Saturated in Upper 12 Inches YES Water Marks NO Drift Unes		
(excluding FAC-) 7/8 = 87.50% Remarks: I salix exigue seedling. Wetland veg is emerging VNDOLOGY YES Recorded Data(Describe in Rei NO Stream, Lake or Tide Gat YES Aerial Photographs	g along fring. No marks):	aquatic veg	Numeric Index: 15/8 = 1.88 in impoundment Itland Hydrology Indicators Primary Indicators NO Inundated YES Saturated in Upper 12 Inches YES Water Marks NO Drift Lines NO Sediment Deposits		
(excluding FAC-) 7/8 = 87.50% Remarks: I salix exigue seedling. Wetland veg is emerging VDPQLOGY YES Recorded Data(Describe in Rei NO Stream, Lake or Tide Gat YES Aerial Photographs NO Other NO No Recorded Data	g along fring. No marks):	aquatic veg	Numeric Index: 15/8 = 1.88 in impoundment Itland Hydrology Indicators Primary Indicators NO Inundated YES Saturated in Upper 12 Inches YES Water Marks NO Drift Lines NO Sediment Deposits NO Drainage Patterns in Wetlands		
(excluding FAC-) 7/8 = 87.50% Remarks: salix exigus seedling. Welland veg is emerging VNDOLOGY YES Recorded Data(Describe in Rei NO Stream, Lake or Tide Gat YES Aerial Photographs NO Other NO No Recorded Data Field Observations	g along fring. No marks): uge	aquatic veg	Numeric Index: 15/8 = 1.88 in Impoundment. Itland Hydrology Indicators Primary Indicators NO Inundated YES Saturated in Upper 12 Inches YES Water Marks NO Drift Lines NO Sediment Deposits NO Drainage Patterns in Wetlands Secondary Indicators		
(excluding FAC-) 7/8 = 87.50% Remarks: I salix exigue seedling. Wetland veg is emerging VDPQLOGY YES Recorded Data(Describe in Rei NO Stream, Lake or Tide Gat YES Aerial Photographs NO Other NO No Recorded Data	g along fring. No marks): uge N/A (<i>in.</i>)	aquatic veg	Numeric Index: 15/8 = 1.88 in impoundment. Itland Hydrology Indicators Primary Indicators NO Inundated YES Saturated in Upper 12 Inches YES Water Marks NO Drift Lines NO Sediment Deposits NO Drainage Patterns in Wetlands Secondary Indicators NO Oxidized Root Channels in Uppe	r 12 Inches	
(excluding FAC-) 7/8 = 87.50% Remarks: salix exigus seedling. Welland veg is emerging VNDOLOGY YES Recorded Data(Describe in Rei NO Stream, Lake or Tide Gat YES Aerial Photographs NO Other NO No Recorded Data Field Observations	g along fring. No marks): uge	aquatic veg	Numeric Index: 15/8 = 1.88 In impoundment. Itland Hydrology Indicators Primary Indicators NO Inundated YES Saturated in Upper 12 Inches YES Water Marks NO Drift Lines NO Sediment Deposits NO Drainage Patterns in Wetlands Secondary Indicators NO Oxidized Root Channels in Uppe	r 12 Inches	
(excluding FAC-) 7/8 = 87.50% Remarks: salix exigus seedling. Wetland veg is emerging YES Recorded Data(Describe in Rei NO Stream, Lake or Tide Gat YES Aerial Photographs NO Other NO No Recorded Data Field Observations Depth of Surface Water:	g along fring. No marks): uge N/A (<i>in.</i>)	aquatic veg	Numeric Index: 15/8 = 1.88 in impoundment. Itland Hydrology Indicators Primary Indicators NO Inundated YES Saturated in Upper 12 Inches YES Water Marks NO Drift Lines NO Sediment Deposits NO Drainage Patterns in Wetlands Secondary Indicators NO Oxidized Root Channels in Uppe	r 12 Inches	

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DATA FORM ROUTINE WETLAND DETERMINATION (1987 COE Wetlands Delineation Manual)

Project/S Applican Investiga	t/Owner: M	ourchette Creek Res ontana Department orgiund			Project N	o: Task 23	Date: 31-Jul-2003 County: Phillips State: Montana Plot ID: 4
SOILS							
Map Sym	bol: 925C y (Subgrou	les and Phase): Drainage Class: p): Unknown	Sunburst PD (?)			ped Hydric II ervations Co	nclusion? onfirm Mapped Type? Yes No
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	000	ottle ce/Contrast	Texture, Co	oncretions, Structure, etc
70	В	10YR4/2	10YR5/8	Few	Distinct	Clay	
10	В	2.574/1	10YR4/6	N/A	NA	Clay	(2)
Remarks 1st Sample	NO Sulfic NO Aquic NO Redu YES Gleye	Epipedon	Colors	NO His NO Cis NO Lis	ganic Streak ted on Loca ted on Natio	Content in Su ding in Sandy I Hydric Soil onal Hydric S in Remarks	s List Soils List
Wetland H	lc Vegetation	esent? (es) No) No) No	is the San	npling Point v	within the We	tland? (%) No
Remarks:	y	ng most of shoreline ar					
	# P						
	on for resp ossibly a seas g season.		d Circumstances? Aras Type b); hydrolo		Situation ?		roblem Area ? on, but may be reduced or lacking durin

WetForm**

Page

WetFormtm



DATA FORM ROUTINE WETLAND DETERMINATION (1987 COE Wetlands Delineation Manual)

s the site significantly disturbed (Afr s the area a potential Problem Area? (If needed, explain on the reverse s)? Ye	s No	Community Transect ID Field Locati Puffin Reser	: NA on:			
EGETATION	and the same of th	SFWS Reg	ion No. 4)			400.00	
Cominant Plant Species(Latin/Comm	on) Stratum li	ndicator I	Plant Spe	cies(Latin/C	ommon)		Stratum	Indic
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		_						
								
		- +					⊣	
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		L						
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	 	-					_	
								-
	OBL, FACW or	FAC:	FAC No		0 = 0.00			
(excluding FAC-) 0/0 = 0.00% emarks: a wetand vegetation; site virtually unvegetated			Numeri	c Index:	0/0 = 0	.00	rickly peer cac	tus, blu
recent of Dominant Species that are (excluding FAC-) 0/0 = 0.00% lemarks: overland vegetation; sits virtually unvegetated rame, and wheatgrase.			Numeri	c Index:	0/0 = 0	.00	rickly peer cac	tus, blu
(excluding FAC-) 0/0 = 0.00% emarks: execution site virtually unvegetated ame, and wheatgrase. IDROLOGY YES Récorded Data(Describe in Re	. Surrounded by sca marks):	attered Xanth	Numeri	c Index:	0/0 = 0 e, curtycup	.00	rickly pear cac	tus, blu
(excluding FAC-) 0/0 = 0.00% em arks: became arks: became and wheatgrass. **PROLOGY** YES Recorded Data(Describe in ReNO Stream, Lake or Tide Gain)	. Surrounded by sca marks):	attered Xanti	Numeri	c Index: ge, fringed sag	0/0 = 0 e, curtycup	.00	rickly pear cac	tus, blu
(excluding FAC-) 0/0 = 0.00% emarks: wetand vegetation: site virtually unvegetated ama, and wheatgrass. (DROLGGY YES Récorded Data(Describe in Re NO Stream, Lake or Tide Gai YES Aerial Photographs	. Surrounded by sca marks):	attered Xanti	Numeri nium, big sa nd Hydro rimary In YES In	c Index: ge, fringed eag logy Indicate dicators undated	o/o ± 0	gurnweed, pi	rickly pear cac	tus, blu
(excluding FAC-) 0/0 = 0.00% emarks: wetand vegetation; site virtually unvegetated ama, and wheatgrass. //DROLGGY YES Récorded Data(Describe in Re NO Stream, Lake or Tide Gat YES Aerial Photographs	. Surrounded by sca marks):	attered Xanti	Numeri nium, big sa and Hydro rimary In YES In YES Sa	c Index: ge, fringed sag logy Indicated dicators undated turated in U	o/o ± 0	gurnweed, pi	rickly pear cac	tus, blu
(excluding FAC-) 0/0 = 0.00% emarks: wetand vegetation: site virtually unvegetated ama, and wheatgrass. (DROLGGY YES Récorded Data(Describe in Re NO Stream, Lake or Tide Gai YES Aerial Photographs	. Surrounded by sca marks):	attered Xanti	Numeri nium, big sa and Hydro rimary In YES In YES Sa YES W	c Index: Ige, fringed sag logy Indicate dicators undated atturated in U ater Marks	o/o ± 0	gurnweed, pi	rickly pear cac	tus, blu
(excluding FAC-) 0/0 = 0.00% erm arks: oweland vegetation; site virtually unvegetated arms, and wheatgrase. PROLOGY YES Recorded Data(Describe in Re NO Stream, Lake or Tide Gai YES Aerial Photographs NO Other NO No Recorded Data	. Surrounded by sca marks):	attered Xanti	Numerinium, big sand Hydrorimary in YES in YES Say YES W	c Index: ge, fringed sag logy Indicated dicators undated turated in U	0/0 = 0 o, curlycup pors	gurnweed, pi	rickly pear cac	tus, blu
(excluding FAC-) 0/0 = 0.00% erm arks: oweland vegetation; site virtually unvegetated arms, and wheatgrase. PROLOGY YES Recorded Data(Describe in Re NO Stream, Lake or Tide Gai YES Aerial Photographs NO Other NO No Recorded Data	. Surrounded by sca marks):	Wetla	nd Hydro rimary in YES in YES W NO Dr NO Dr	c Index: ge, fringed sag logy Indicate dicators undated atturated in U ater Marks ift Lines adiment Dep alnage Patta	0/0 = 0 o, curlycup pors pper 12 li	gumweed, pi	itckly pear cac	tus, blu
(excluding FAC-) 0/0 = 0.00% emarks: oweland vegetation; site virtually unvegetated arms, and wheatgrass. (DROLOGY YES Recorded Data(Describe in Re No Stream, Lake or Tide Gai YES Aerial Photographs No Other NO No Recorded Data Field Observations	Surrounded by sca marks): uge	Wetla	nd Hydro rimary in YES in YES W NO Dr NO Dr econdary	logy Indicated in United States and Indicators and Indicated in United States and Indicators alinage Patter Indicators	o/o = 0 o curlycup pors pper 12 le osits osits osits	gurnweed, pi		tus, blu
(excluding FAC-) 0/0 = 0.00% emarks: owaland vegetation; site virtually unvegetated arms, and wheatgrass. //DROLGGY YES Recorded Data(Describe in Re NO Stream, Lake or Tide Gai YES Aerial Photographs NO Other NO No Recorded Data Field Observations Depth of Surface Water:	Surrounded by scale marks): uge	Wetla	nd Hydro rimary in YES in YES Sa YES NO Dr scondary NO Or	c Index: logy Indicated control in United Marks ifft Lines additionable to the United Marks ifft Lines and Lines additionable to the United Marks if Lines and Lines	0/0 = 0 ors pper 12 le orsits ors in W Channels	gurnweed, pi		blus, blu
(excluding FAC-) 0/0 = 0.00% emarks: oweland vegetation; site virtually unvegetated arms, and wheatgrass. (DROLOGY YES Recorded Data(Describe in Re No Stream, Lake or Tide Gai YES Aerial Photographs No Other NO No Recorded Data Field Observations	Surrounded by sca marks): uge	Wetla	nd Hydrorimary In- YES Ini YES Sa YES W. NO Dr Scondary NO Or NO Sc	c Index: logy indicate dicators undated turated in undater Marks iff Lines diment Dep alinage Patte Indicators didized Root ater-Stained	0/0 = 0 curlycup pper 12 le psits rns in W Channels Leaves	gurnweed, pi		tus, blu
(excluding FAC-) 0/0 = 0.00% tern arks: o weland vegetation; site virtually unvegetated arms, and wheatgrass. **PROLOGY YES Recorded Data(Describe in Re NO Stream, Lake or Tide Gai YES Aerial Photographs NO Other NO No Recorded Data Field Observations Depth of Surface Water:	Surrounded by scale marks): uge	Wetla	nd Hydro rimary in YES in YES W NO Dr Sondor NO W NO LO	c Index: logy Indicated control in United Marks ifft Lines additionable to the United Marks ifft Lines and Lines additionable to the United Marks if Lines and Lines	o/o = 0 o curlycup ors pper 12 li osits channels Leaves yes bat asst	gumweed, pr niches etlands s in Upper		tus, blu

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/S Applican Investiga	t/Owner: M	ourchette Creek Res ontana Department orglund		Project No: Task 23 Date: 31-Jul-2003 County: Phillips State: Montana Plot ID: 5							
SOILS				-							
Map Sym	bol: NA y (Subgrou	les and Phase): Drainage Class; p): Unknown	Unmapped Unknown			ped Hydric In ervations Co	nclusion? unfirm Mapped Type? Yes N				
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mot Abundance		Texture, Co	ncretions, Structure, etc				
10	В	10YR4/1	10YR4/6	Few	Faint	Clay					
Remarks Sample slor	NO Redu YES Gleye	c Moisture Regime cing Conditions ad or Low Chroma aturated to surface.		NO Liste	d on Natio	l Hydric Soils onal Hydric S in Remarks)	oils List				
VETLAND	DETERMI	NATION					- A.				
Wetland F	ic Vegetatio lydrology Pr ls Present?		No No No	is the Samp	ling Point v	within the Wet	tland? Yes No				
Remarks: Puffin Rese		and vegetation present.	Site consists of floor	ed rectangular u	nvenetated n	it Water extrien	nely turbid. Heavy cattle use.				
			Olio College of 11000	ec i ec cangdiai o	irregetated p	IL VVIII WALL	lary wirbid. Heavy cathe use.				

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MDT MONTANA WETLAND ASSESSMENT FORM (revised May 25, 1999)

171	DI MONTAN	NA WEILANL	ASSES	SIVIENT FURIV	i (reviseu may 25	, 1999)		
1. Project Name: Fourchette Cree	ek Wetland Mitigat	ion Reserve 2.	Project #:	130091-023	Control #: <u>NA</u>			
3. Evaluation Date: <u>7/31/2003</u>	4. Eval	luator(s): Berglund	<u>d</u>	5. W	etland / Site #(s): Alb	atross Re	<u>servoir</u>	
6. Wetland Location(s) i. T: 2	2 N R: 29 E	S: <u>14</u>		T: <u>N</u> R:	<u>E</u> S:			
ii. Approx. Stationing / Milep	osts: <u>NA</u>							
iii. Watershed: 10040104		GPS Reference I	No. (if appl	ies): NA				
Other Location Information	n: 50 miles south o	of Malta, 1.5 miles	north of CN	I Russell NWR. Mic	ldle Missouri Watershe	ed (#9)		
				, , , , , , , , , , , , , , , , , , , ,				
7. A. Evaluating Agency MDT		8. Wetla	nd Size (to		_ (visually estimated) (measured, e.g. GPS)			
B. Purpose of Evaluation:	pre-construction			a (total acres):	(visually 0.92 (measured			
10. CLASSIFICATION OF WE	TLAND AND AQ	UATIC HABITA	ΓS IN AA					
HGM CLASS ¹	SYSTEM ²	SUBSYSTEM 2	2	CLASS ²	WATER REGIN	1E ²	MODIFIER ²	% OF AA
Depression	Palustrine	None	Em	ergent Wetland	Seasonally Floor	led	Impounded	45
Depression	Palustrine	None	Unco	nsolidated Bottom	Seasonally Floor	led	Impounded	55
1 = Smith et al. 1995. 2 = Cowardi	in et al. 1979.							
Comments:								
11. ESTIMATED RELATIVE A Common Comme 12. GENERAL CONDITION O	nts:	·		·	ntana Watershed Basii	1)		
i. Regarding Disturbance:	(Use matrix below	to select appropria			:4 (:4L: 500 F4)	Т- АА		
	state; is not	ed in predominantly n grazed, hayed, logged onverted; does not con	atural or	Land not cultivated, by or hayed or selectivel		Land cu subject t clearing	ltivated or heavily grazed o substantial fill placeme , or hydrological alteratio	ent, grading,
Conditions Within AA AA occurs and is managed in predomin	or buildings.	•		or buildings.		road or l	ouilding density.	
a natural state; is not grazed, hayed, log or otherwise converted; does not contain roads or occupied buildings.	ged, n							
AA not cultivated, but moderately graze hayed or selectively logged or has been subject to relatively minor clearing, or f placement, or hydrological alteration; contains few roads or buildings.								
AA cultivated or heavily grazed or logg subject to relatively substantial fill placement, grading, clearing, or hydrolo alteration; high road or building density	ogical			high di	sturbance			
Comments: (types of dist	urbance, intensity,	season, etc.) Grazir	<u>ıg</u>					
ii. Prominent weedy, alien,	, & introduced spe	cies: <u>CIR ARV</u>						
iii. Briefly describe AA and use is undeveloped rangeland.	d surrounding land	d use / habitat: <u>All</u>	oatross Res	ervoir - Impoundmer	nt with emergent and o	pen water	r components - surrou	nding land
13. STRUCTURAL DIVERSIT	Y (Based on 'Class	column of #10 abo	ove.)					
Number of 'Cowardin' Vegetated Classes Present in AA	d ≥3 Vegetat	ted Classes or class is forested		ed Classes or ed	= 1 Vegetated Class			
Select Rating					Low			



Comments: ____

14A. H	AA is Documented								NED ()R E	NDAN	GERI	ED P	LAN	ΓS AN	ID Al	NIMA	LS					
	Primary or Critical h Secondary habitat (li Incidental habitat (li s No usable habitat	st species)		□ D □ D □ D □ D	□ s ⊠ s	Pip	ing pl	over (incide	ntal r	nigrati	on)											
ii.	RATING (BASED ON (L) FOR THIS F		EST HA	BITAT	CHOS	EN IN	N 14A	(I) AB	OVE, I	IND T	тне со	ORRES	POND	ING F	RATIN	G OF l	HIGH	(H), N	MODE	RATE	(M), (or Lo	W
HIGH	EST HABITAT LEVEL	DOC/PRIMA RY	SU	S/PRIN Y	MAR	DO	C/SEC ARY		SU	S/SEC ARY		DOG	C/INC TAL		SU	S/INC TAI			NON	E			
FUNC RATII	TIONAL POINT AND NG								_							.3 (L	a)						
	IF DOCUM	MENTED, LIST T	HE SOU	URCE (E.G., O	BSEF	RVATI	ONS, I	RECOI	RDS, I	етс.):												
i. iii	ABITAT FOR PLANT Do not include spec AA is Documented of Primary or Critical h Secondary habitat (li Incidental habitat (lis No usable habitat RATING (BASED ON	cies listed in 1 (D) or Suspect abitat (list spe ist species) st species)	4A(i). ed (S) cies)	to con D D D D D D D D D	tain (c S S S S S	heck No	box):	Leop	ard Fr	og											(M), c	or Lo	w
High	(L) FOR THIS F EST HABITAT LEVEL:	DOC/PRIMA	RY S	SUS/PF	RIMAR	Y I	ooc/s	ECON	DARY	st	JS/SEC	ONDAI	RY	DOC/	INCID	ENTA	L S	US/IN	ICIDEN	NTAL		NONE	i.
	TIONAL POINT AND			_	_						_	_							1 (L)				_
RATI		MENTED, LIST T	HE SOI	URCE (E.G., 0	BSE	RVATI	ONS. I	RECOI	RDS. I	ETC.):	Nume	EROUS	SUNII	ENTI	FIED '	ΓADPO	DLES (OBSEE	EVED 2	2003: 5	SUSPE	СТ
_	ESTERN CHORUS FROGS eneral Wildlife Habita	S (OBS. 2001).		onez (2021		.0110,1				1101112		3 01112				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	02022	.,		COL	_
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	observations of abundant wildlife sign presence of extremely interviews with local lerate (based on any of observations of scatter common occurrence of adequate adjacent uplainterviews with local learning observations of scatter common occurrence of adequate adjacent uplainterviews with local learning of abundant with local learning of abundant with local learning of abundant with local learning observations of abundant with local learning of abundant with local learning observations of abundant with learning observations of abundant with local learning observations of abundant wildlife sign presence of extremely abundant wildlife sign presence of extremely interviews with local learning observations of abundant wildlife sign presence of extremely interviews with local learning observations of scatters.	a such as scat, a limiting habita biologists with the following) red wildlife great of wildlife sign and food source	know	nest s ures no ledge r indiv	tructur of avail of the A riduals , tracks	es, galable AA or re	ame tr in the	rails, e surro	unding	g area	ring pe	eak per		little spars	to no e adja	wildli cent u	fe sig	n l food	ons du source ists wi	es		•	
(I	. WILDLIFE HABITAT FE H), MODERATE (M), OR RATING. STRUCTURAI)% OF EACH OTHER IN THEIR PERCENT COME T/E = TEMPORARY/EP	LOW (L) L DIVERSITY IS TERMS OF POSITION IN TH	S FROM HE AA	м #13. (SEE #	For o	CLAS	s cov	ER TO	BE C	ONSII	DERED	EVEN	LY DI	STRIE	BUTED	, VEG	ETAT	ED CL	LASSES	S MUST	r be w	THIN	N
	Structural Diversity (fr	rom #13)					ligh						[□Mo	derate	;				⊠I	Low		
	Class Cover Distribution (all vegetated classes)	on		□E	even			Uu	neven			ШΕ	ven			Uı	neven			⊠E	even		
	Duration of Surface W 10% of AA		P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	
	Low disturbance at AA Moderate disturbance (see #12)																						
	High disturbance at A	A (see #12)																		L			
iii	. Rating (Using 14C(i) a for this function.)	and 14C(ii) abo	ove and	d the n	natrix l	elow	to ar	rive at	t the fi	unctio	nal po	int and	d ratir	ng of e	except	ional	(E), h	igh (F	I), mo	derate	(M),	or low	(L)
	Evidence of Wildlife	e Use				Wild		_		ures	Rating			ii)									
	from 14C(i)		☐ Ex	ceptio	onal	-		Hig	h			Moder	ate	\perp		Lov	N	_					
	Substantial Moderate									-				+		3 (L)		\dashv					

Low -- | -- | -- | -- | Comments: Few waterfowl / shorebirds observed; numerous unidentified tadpoles observed 2003; suspect western chorus frogs (obs. 2001).

14D. GENERAL FISH/A	OUATIC HABITAT RATING	NA (proceed to 14E)
14D. GENEKAL FISIDA	OUATIC HADITAT KATING	ZI IVA (DIOCCCU IO 14L)

Duration of Surface Water in AA

AA contains **no or restricted outlet**AA contains **unrestricted outlet**

Comments: Nutrient loading from cattle use; water very turbid.

If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, then check the NA box above.

i. Habitat Quality (Pick the appropriate AA attributes in matrix to pick the exceptional (E), high (H), moderate (M), or low (L) quality rating

Assess if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [e.g. fish use is precluded by perched culvert or other barrier, etc.]. If fish use occurs in the AA but is not desired from a resource management perspective (e.g. fish use within an irrigation canal], then Habitat Quality [14D(i)] below should be marked as "Low", applied accordingly in 14D(ii) below, and noted in the comments.

Permanent/Perennial

Seasonal / Intermittent

☐ Temporary / Ephemeral

submerged logs, large rocks & bo floating-leaved vegetation)	oulders, overhanging banks,	>25%	10 050/							
		>23%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<10%
Shading ->75% of streambank or										
riparian or wetland scrub-shrub or										
Shading – 50 to 75% of streambar					-					
riparian or wetland scrub-shrub or										
Shading - < 50% of streambank o			-						-	
riparian or wetland scrub-shrub or	r forested communities.									
•		lopment' w level and o	ith 'Probable theck the mo	e Impaired odified hab	Uses' list itat quality	ed as cold of rating:	or warm war E	ter fishery o	or aquatic life	e support?
Types of Fish Known or	()			Habitat (\ // B \	,,	// // // // // // // // // // // // //	,,,
Suspected Within AA	☐ Exceptional		High			Moder	ate		Low	
Native game fish										
Introduced game fish										
Non-game fish										
No fish										
Comments: NA										
i. Rating (Working from top to be function.)		outes to arri	ive at the function $\square \ge 10$ a		nt and rat			ate (M), or l	low (L) for th	
Estimated wetland area in AA sub	* *	7.50			. 750/	<10, >2		750/		
% of flooded wetland classified a		75%		-		_		_	25-75%	_
AA contains no outlet or restrict AA contains unrestricted outlet	ted outlet			-						.2 (L)
·· A • 1 • 1 •	41 6 4 1 1 1	• • • • • • • • • • • • • • • • • • • •				41 . 0.5		6.41	44971	1.5
Applies to wetlands that flo If no wetlands in the AA are	RM SURFACE WATER STOR od or pond from overbank or in-cie subject to flooding or ponding, c	AGE hannel flow heck NA a	NA (prov, precipitation	ceed to 14 on, upland	G) surface fl	ow, or grou	ndwater flo	w.		
□Y ☑N Comm 14F. SHORT AND LONG TER Applies to wetlands that flo If no wetlands in the AA are i. Rating (Working from top to Abbreviations: P/P = permane	RM SURFACE WATER STORA od or pond from overbank or in-cle e subject to flooding or ponding, co bottom, use the matrix below to an ent/perennial; S/I = seasonal/interr	AGE hannel flov heck NA a rrive at the nittent; T/E	□ NA (prov., precipitation).	ceed to 14 on, upland	G) surface fleting of hig	ow, or grou	ndwater flo	w.		
□Y ☑N Comm 14F. SHORT AND LONG TER Applies to wetlands that flo If no wetlands in the AA are i. Rating (Working from top to Abbreviations: P/P = permane Estimated maximum acre feet of	RM SURFACE WATER STORAGE of or pond from overbank or in-cle subject to flooding or ponding, cobottom, use the matrix below to an ent/perennial; S/I = seasonal/interrestate contained in wetlands within	AGE hannel flov heck NA a rrive at the nittent; T/E	□ NA (prov., precipitation).	ceed to 14 on, upland oint and ra	G) surface fleting of high	ow, or grou	ndwater flo	w.		on.)
□Y ☑N Comm 14F. SHORT AND LONG TER Applies to wetlands that flo If no wetlands in the AA are i. Rating (Working from top to l Abbreviations: P/P = permane	RM SURFACE WATER STORA od or pond from overbank or in-ci e subject to flooding or ponding, of bottom, use the matrix below to an ent/perennial; S/I = seasonal/interr water contained in wetlands withing of flooding or ponding.	AGE hannel flov heck NA a rrive at the nittent; T/E	□ NA (prov, precipitation) NA (prov, precipitation) NA (provention) NA (provention) E = temporar □ >5 acro	ceed to 14 on, upland oint and ra	G) surface fleting of high	ow, or grounds h (H), mode	ndwater flo	w.	or this function	on.)
□Y ☑N Comm 14F. SHORT AND LONG TER Applies to wetlands that flo If no wetlands in the AA are i. Rating (Working from top to l Abbreviations: P/P = permane Estimated maximum acre feet of the AA that are subject to periodic Duration of surface water at wetlands.)	RM SURFACE WATER STORA od or pond from overbank or in-ci e subject to flooding or ponding, of bottom, use the matrix below to an ent/perennial; S/I = seasonal/interr water contained in wetlands within c flooding or ponding.	AGE hannel flov heck NA a rrive at the nittent; T/E	□ NA (prov, precipitation) NA (prov, precipitation) NA (provention) Functional provention Section Section Section Section NA (provention) NA (provention)	ceed to 14 on, upland oint and ra y/ephemers	G) surface fleting of high	ow, or grough (H), mode S/1	ndwater flo erate (M), o cre feet T/E	w. or low (L) fo	or this function ≤1 acre f	on.)
□Y ☑N Comm 14F. SHORT AND LONG TER Applies to wetlands that flo If no wetlands in the AA are i. Rating (Working from top to laboreviations: P/P = permane Estimated maximum acre feet of the AA that are subject to periodic Duration of surface water at wetlands in AA flood or pond 3 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands in AA flood or pond < 5 & Wetlands i	ents: CMM SURFACE WATER STORA and or pond from overbank or in-cit e subject to flooding or ponding, of bottom, use the matrix below to an ent/perennial; S/I = seasonal/interr water contained in wetlands within c flooding or ponding. ands within the AA 5 out of 10 years	hannel flow heck NA a rrive at the nittent; T/E	□ NA (prov, precipitation of the provincial	oceed to 14 on, upland oint and ra y/ephemer e feet T/E	G) surface fletting of high	ow, or grounds h (H), mode	ndwater flo erate (M), o cre feet T/E	w. or low (L) fo	or this function ≤1 acre f S/I	on.)
□Y ☑N Comm 14F. SHORT AND LONG TER Applies to wetlands that flo If no wetlands in the AA are i. Rating (Working from top to be Abbreviations: P/P = permane Estimated maximum acre feet of the AA that are subject to periodic Duration of surface water at wetlaw Wetlands in AA flood or pond 3 Setlands in AA flood or pond 4 Comments: 14G. SEDIMENT/NUTRIENT Applies to wetlands with positions.	RM SURFACE WATER STORAGE of or pond from overbank or in-cite subject to flooding or ponding, of bottom, use the matrix below to an ent/perennial; S/I = seasonal/interrwater contained in wetlands within c flooding or ponding. ands within the AA 5 out of 10 years /TOXICANT RETENTION AN otential to receive excess sediment to subject to such input, check NA oottom, use the matrix below to are the produced by all of social to produce to such of social to produce to such of social to produce to such or social to	AGE hannel flov heck NA a rive at the nittent; T/E P/F D REMO s, nutrients above. rive at the figland use hannents, nutries stantially im	□ NA (pro v, precipitation bove. functional po E = temporar □ >5 acro > S/I VAL s, or toxicant functional po as potential to nts, or compon paired. Minor	oceed to 14 on, upland oint and ra y/ephemer. e feet T/E NA (pros through i	surface floor su	ow, or grounds th (H), models	erate (M), or cre feet T/E T/E Dund water Dund water Parate (M), or create (w. P/P P/P r low (L) for terbodies in resorrelated to counding land a nutrients, or impaired. M	or this function S/I put. r this function sed of TMDL sediment, nuture has poten compounds sufajor sediments.	on.) T/E on.) rients, or tial to ach that ation,
□Y ☑N Comm 14F. SHORT AND LONG TER Applies to wetlands that flo If no wetlands in the AA are i. Rating (Working from top to be abbreviations: P/P = permane Estimated maximum acre feet of the AA that are subject to periodic distribution of surface water at wetlands in AA flood or pond 3 distribution of surface water at wetlands in AA flood or pond 4 distribution of Section 14G. SEDIMENT/NUTRIENT. Applies to wetlands with poor If no wetlands in the AA are i. Rating (Working from top to be Sediment, Nutrient, and Toxicant Input Levels Within AA	RM SURFACE WATER STORA od or pond from overbank or in-ci e subject to flooding or ponding, of bottom, use the matrix below to an ent/perennial; S/I = seasonal/interry water contained in wetlands within of flooding or ponding. ands within the AA 5 out of 10 years TOXICANT RETENTION AN otential to receive excess sediment e subject to such input, check NA outtom, use the matrix below to are AA receives or surrounding to moderate levels of sedim other functions are not sub sedimentation, sources of eutrophication present.	AGE hannel flov heck NA a rive at the nittent; T/E P/F D REMO s, nutrients above. rive at the figland use hannents, nutries stantially im	NA (pro v, precipitation v, precipitation v, precipitation v, precipitation v, precipitation vector of the property of the property vector of the property of	oceed to 14 on, upland oint and ra y/ephemer e feet T/E NA (pross through i	surface floor su	sh (H), mode S/I S/I S/I	erate (M), or cre feet T/E Dund water Dund water Parate (M), or EQ list of warobable causer of sediments, substantially sor toxicants	w. P/P P/P r low (L) for terbodies in resorrelated to counding land a nutrients, or impaired. M	or this function S/I put. r this function need of TMDL sediment, nut use has poten compounds su fajor sediment eutrophication	on.) T/E on.) ricents, or tial to uch that atton, present.
□Y ☑N Comm 14F. SHORT AND LONG TER Applies to wetlands that flo If no wetlands in the AA are i. Rating (Working from top to be Abbreviations: P/P = permane Estimated maximum acre feet of the AA that are subject to periodic Duration of surface water at wetlaw Wetlands in AA flood or pond ○ Setlands in AA flood or pond ○ Setlands in AA flood or pond ○ Setlands in the AA are 1. Rating (Working from top to be Sediment, Nutrient, and Toxicant Input Sediment, Nutrient, and Toxicant Input	RM SURFACE WATER STORA od or pond from overbank or in-ci e subject to flooding or ponding, of bottom, use the matrix below to an ent/perennial; S/I = seasonal/interr water contained in wetlands within of flooding or ponding. ands within the AA 5 out of 10 years /TOXICANT RETENTION AN otential to receive excess sediment e subject to such input, check NA bottom, use the matrix below to ar AA receives or surroundin to moderate levels of sedin other functions are not sub sedimentation, sources of eutrophication present. □ ≥ 70%	AGE hannel flov heck NA a rive at the nittent; T/E P/F D REMO' s, nutrients above. rive at the fi g land use ha nents, nutrie stantially im nutrients or	□ NA (pro v, precipitation bove. functional po E = temporar □ >5 acro > S/I VAL s, or toxicant functional po as potential to nts, or compon paired. Minor	oceed to 14 on, upland oint and ra y/ephemer e feet T/E NA (pross through i	surface floor su	sh (H), mode S/I S/I S/I	erate (M), or cre feet T/E T/E Dund water Dund water Parate (M), or create (or low (L) for P/P	or this function S/I put. r this function sed of TMDL sediment, nuture has poten compounds sufajor sediments.	on.) T/E on.) ricents, or tial to uch that attion, present.

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LAND & WATER

Α	pplie	es onl	ly if AA	HORELING occurs on on. If this	or within	n the ban	ks or a ri	ver, stream above.			proceed to al or man-		inage, o	r on the sh	oreline of	a stand	ing water l	ody th	nat is
i. Ratin	ıg (W	Vorkin	g from top	to bottom,	use the m	natrix belo	w to arrive	at the fund	tional poi	nt and ra	ting excepti	onal (E), h	igh (H), i	moderate (M	1), or low (L) for thi	is function.		
				d streamb										oted V					
				s with dee	ep, bindii	ng		ent / Perer			asonal / In			Tempora					
r	ootn	nasse		75 O/				Ziit / I CiCi	iiiai	Дъс	asonai / In	termitten	-	Tempora	Ty / Epilei	nerai	<u> </u> 		
-				65 % 64 %															
-				5 %							.2 (L)								
Comm	ents	:	Wave ac								.= (=)						<u>1</u>		
i. Rati i. A =	ng (\)	Work	ing from f vegetate tlet; P/P	ed compo = perman	ttom, use nent in tl nent/pere	the matr he AA. I nnial; S/I	rix below 3 = struct 1 = seasor	to arrive a	sity rating	g from ‡ E/ A = te	#13. C = 7	Yes (Y) o ephemeral	r No (N l/absent.) as to who	ether or no	ot the A	for this fur A contains	a surf	ace or
\boldsymbol{A}				getated co	_						omponent						omponent		_
В	.		High		oderate		Low		High		/Ioderate		Low		High		Ioderate		Low
C	_	ΓY	□N	<u> </u>	□N	□Y	□N	□Y	□N	□Y		□Y	□N	□Y	□N	□Y	□N	⊠Y	
P/P																			
S/I T/E/A																		.3L	
Commo	RO	:		DISCH					the indic	ators in	i & ii belo	ow that ap							1
iii 1 0	[[[□ Se □ A □ W □ O	eeps are postering A perma Vetland continued ther		the wetla oded dur outlet, b	and edge ring drou out no inl	ght periodet.		e table b			he functio	onal noi	nt and ratio	ng of high	(H) or	low (L) fo	r this f	iunction
III. I	Latin	ig. C	se the m	TOTTILLETOT		Criteria	1-1(11) 400	ove and th	e table be	210 W 10	annve at t			al Point and	0 0	(11) 01	10W (L) 10	1 1113 1	anetion.
AA	\ has	s knov	wn Disch	arge/Rech	narge are	a or one	or more i	ndicators	of D/R pi	resent									
				ge indica					•					0.1 (L)					
			ischarge/	Recharge	informa	tion inad	equate to	rate AA I	D/R poten	ıtial									
Comm	ents	: _																	
14K. U i. Rati		•		top to bo	ottom, us	e the mat	rix below	to arrive	at the fur	nctional			<u> </u>	//		low (L)	for this fu	nction	
	Re	eplacei	ment Poter	ntial	(>	80 yr-old) forested v	warm sprin vetland or p S1" by the M	lant	ire	types and s	structural d s plant asso	iversity (y cited rare #13) is high sted as "S2"	types	or associ	ontain previ ations and s is low-mod	tructura	
				e from #11		□rare	. [common	□abu	ndant	□rare	Con	nmon	abundar	ıt 🗆 ra	are	Common		abundant
			at AA (#						-								-		
			e at AA (AA (#12i))	<u></u>											 2I		
Comme			at AA (1	π121)													.2L		
14L. R i. ii. iii	RECI Is 1 Ch	REA' the A neck o ased o	A a know categorie on the looses [Proces	cation, di ed to 14L	ational o ply to th iversity, (ii) and	r educate AA: size, and then 14L	ional site Educa l other si (iv).]	tional / sc te attribu N	tes, is the No [Rate	tudy ere a st as low i	Constrong pote	sumptive : ential for	rec. recreat	□ Non-ional or e	consumpti	ive rec. al use?	ed to 14L(
iv	R	ating	(Use the	matrix b	elow to a	arrive at t	he functi					oderate (N	Л), or lo	w (L) for t	his functi	on.			
	1,	Owne	rship	-		□ I.a	,	Disturba	nce at AA		#12(1)		Uiak						
			c owners	hip		∐ Low	V			raie			High 						

Private ownership

Comments: Extremely remote



.1(L)

FUNCTION, VALUE SUMMARY, AND OVERALL RATING

Function and Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	Low	0.30	1	
B. MT Natural Heritage Program Species Habitat	Low	0.1	1	
C. General Wildlife Habitat	Low	0.30	1	
D. General Fish/Aquatic Habitat	NA	0.00		
E. Flood Attenuation	Low	0.20	1	
F. Short and Long Term Surface Water Storage	Moderate	0.60	1	
G. Sediment/Nutrient/Toxicant Removal	Low	0.30	1	
H. Sediment/Shoreline Stabilization	Low	0.20	1	
I. Production Export/Food Chain Support	Low	0.30	1	
J. Groundwater Discharge/Recharge	Low	0.10	1	
K. Uniqueness	Low	0.20	1	
L. Recreation/Education Potential	Low	0.10	1	
	Totals:	2.70	<u>11.00</u>	
	Percent of	Total Possible Points:	25% (Actual / Possible) x 100 [rd to nearest whole #]

Score of 1 functio Score of 1 functio Score of 1 functio	(Must satisfy one of the following criteria. If not proceed to Category II.) mal point for Listed/Proposed Threatened or Endangered Species; or mal point for Uniqueness; or mal point for Flood Attenuation and answer to Question 14E(ii) is "yes"; or possible Points is > 80%.										
Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following Category II criteria. If not satisfied, proceed to Category IV.) Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish/Aquatic 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 total possible points is > 65%.											
☐ Category III Wetland: (Criteria for Categories I, II, or IV not satisfied.)											
☐ Category III Wet	land: (Criteria for Categories I, II, or IV not satisfied.)										
Category IV Wetland "Low" rating for U "Low" rating for F	l: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; If not satisfied, proceed to Category III.)										
Category IV Wetland "Low" rating for I "Low" rating for I Percent of total po	l: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; If not satisfied, proceed to Category III.) Uniqueness; and Production Export / Food Chain Support; and										



MDT MONTANA WETLAND ASSESSMENT FORM (revised May 25, 1999)

141	IDI MO	JINTAIN	A WEILAND	ASSES	SWIENT FORW	i (reviseu May 25	, 1999	')					
I. Project Name: Fourchette Creek Wetland Mitigation Reserve 2. Project #: 130091-023 Control #: NA													
3. Evaluation Date: <u>7/31/2003</u>		4. Evalu	uator(s): Berglund	<u>1</u>	5. We	etland / Site #(s): Flas	hlight R	<u>Reservoir</u>					
6. Wetland Location(s) i. T: 2 ii. Approx. Stationing / Milep iii. Watershed: 10040104 Other Location Information	osts: <u>NA</u>		GPS Reference N		ies): <u>NA</u>		ed (#9)						
7. A. Evaluating Agency MDT B. Purpose of Evaluation: Wetlands potentially a Mitigation wetlands; Mitigation wetlands; Mitigation wetlands;	pre-constru	uction	oject 9. Asses			_(visually estimated) (measured, e.g. GPS) (visually or instance) 1.52 (measured,							
Other					<u> </u>								
10. CLASSIFICATION OF WE								1	0/ 05				
HGM CLASS ¹	SYST	EM ²	SUBSYSTEM 2	3	CLASS ²	WATER REGIN	1E ²	MODIFIER ²	% OF AA				
Depression	Palus	strine	None	Em	ergent Wetland	Seasonally Flood	led	Impounded	45				
Depression	Palus	strine	None		Aquatic Bed	Semipermanently Fl	ooded	Impounded	40				
Depression	Palus	strine	None	Unco	nsolidated Bottom	Semipermanently Fl	ooded	Impounded	1:				
11. ESTIMATED RELATIVE A Common Comme 12. GENERAL CONDITION O	nts:	_	·		v	ntana Watershed Basir	n)						
i. Regarding Disturbance:	(Use man	rix below	to select appropria			jacent (within 500 Feet)	To AA						
Conditions Within AA AA occurs and is managed in predomin a natural state; is not grazed, hayed, log or otherwise converted; does not contain	sta oth or antly ged,	ate; is not g	ed in predominantly n razed, hayed, logged, nverted; does not cont	atural or	Land not cultivated, b or hayed or selectivel	out moderately grazed	Land c subject clearing	ultivated or heavily grazed to substantial fill placeme g, or hydrological alteratio building density.	nt, grading				
roads or occupied buildings. AA not cultivated, but moderately graze hayed or selectively logged or has been subject to relatively minor clearing, or f placement, or hydrological alteration; contains few roads or buildings.	fill												
AA cultivated or heavily grazed or logg subject to relatively substantial fill placement, grading, clearing, or hydrolo alteration; high road or building density	ogical				high di	sturbance							
Comments: (types of dist ii. Prominent weedy, alien, iii. Briefly describe AA and surrounding land use is undeveloped.	, & introd d surround ed rangelar	luced spec ding land	cies: <u>CIR ARV</u> l use / habitat: <u>Fla</u>	sklight Res	ervoir - Impoundmei	nt with emergent, aqua	tic bed,	and open water compo	nents -				
Number of 'Cowardin' Vegetated Classes Present in AA	d ≥3	3 Vegetate	column of #10 about ed Classes or lass is forested		ed Classes or ed	= 1 Vegetated Class							
Select Rating					Moderate								



Comments: ____

iv. AA is Documented (ATEN	NED O	R E	NDAN	GER	ED P	LAN	ΓS AN	ID AN	NIMA	LS					
Primary or Critical h Secondary habitat (li Incidental habitat (lis No usable habitat	st species)		D D D D	□ s ⊠ s	Pir	oing pl	over (incide	ntal n	nigrati	on)											
v. RATING (BASED ON (L) FOR THIS F		ST HA	BITAT	CHOS	EN II	N 14A((I) AB	OVE, F	IND T	тне со	ORRES	SPONE	DING I	RATIN	G OF I	HIGH	(H), N	MODE	RATE	(M), 0	or Lo	W
HIGHEST HABITAT LEVEL	DOC/PRIMA RY	SU	S/PRIN Y	MAR	DO	OC/SEC ARY		SU	S/SEC ARY		DO	C/INC TAL		SU	S/INCI TAL			NON	E			
FUNCTIONAL POINT AND RATING															.3 (L	a)						
IF DOCUM	ENTED, LIST TH	HE SOU	URCE (E.G., 0	BSE	RVATI	ONS, I	RECOR	RDS, E	ETC.):										<u> 4</u>		
IF DOCUMENTED, LIST THE SOURCE (E.G., OBSERVATIONS, RECORDS, ETC.): 4B. HABITAT FOR PLANTS AND ANIMALS RATED AS S1, S2, OR S3 BY THE MONTANA NATURAL HERITAGE PROGRAM. Do not include species listed in 14A(i). ii. AA is Documented (D) or Suspected (S) to contain (check box): Primary or Critical habitat (list species)																						
	— — — — — — — — — — — — — — — — — — —																					
HIGHEST HABITAT LEVEL:	DOC/PRIMAR	RY S	SUS/PR	RIMAR	Y	DOC/S	ECON	DARY	st	JS/SEC	ONDA	RY	DOC	'INCID	ENTA	L S	US/IN	CIDEN	TAL		NONE	S
FUNCTIONAL POINT AND RATING	1 (H)	_ -	-		- · - ·					_	-					_ -						
IF DOCUM 2001, 2002, 2003. 14C. General Wildlife Habita	ENTED, LIST TE	HE SOU	URCE (E.G., 0)BSE	RVATI	ONS, I	RECOF	RDS, I	ETC.):	Numi	EROU	s Noi	RTHER	N LEC	OPARE	FRO	GS OB	SERVI	ED AT	SITE I	N
Substantial (based on any o	ant wildlife #s such as scat, to limiting habita biologists with the following) red wildlife ground found food source biologists with	or hig racks, it feati know oups of such a es know	nest s ures no ledge of r indiverse scat- ledge of	tructur of avail of the A riduals , tracks	res, g lable AA or re s, nes	ame tr in the elativel	rails, e surro ly few etures,	specie game	g area	ring pe	eak pe	eriods	few little spars inter	or no v to no se adja views	wildlif wildli cent u with l	fe sigi	ervati 1 food iolog	ons du source ists wi	es th kno	owledg	ge of A	AA
II. WILDLIFE HABITAT FE (H), MODERATE (M), OR RATING. STRUCTURAL 20% OF EACH OTHER IN THEIR PERCENT COMP T/E = TEMPORARY/EP	LOW (L) L DIVERSITY IS FERMS OF OSITION IN TH	FROM	м #13. (SEE #	For o	CLAS	S COV	ER TO	BE CO	ONSII	DERED	EVEN	NLY DI	ISTRII	BUTED	, VEG	ETATI	ED CL	ASSES	MUS	ΓBE W	THI	N
Structural Diversity (fr	om #13)				□I	High							⊠Mo	derate	;					Low		
Class Cover Distribution (all vegetated classes)			□Е	ven			□Uı	neven			⊠E	Even			□Ur	neven			□F	Even		
Duration of Surface Wa 10% of AA		P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	
Low disturbance at AA Moderate disturbance (see #12)																						
High disturbance at AA	A (see #12)										M											}
iii. Rating (Using 14C(i) a for this function.)	nd 14C(ii) abo	ve and	d the n	natrix l	oelov	v to ar	rive a	t the fu	ınctio	nal po	int an	d ratii	ng of	except	ional	(E), hi	gh (F		derate	(M), (or low	/ (L)
Evidence of Wildlife	Use	_			Wild	llife H			ures		_		(ii)		7-							
from 14C(i) Substantial	 	∐ Ex	ceptic	nal		L	Hig 	h	+		Moder .8 (H)			L	Lov	N	\dashv					

Moderate
Low

Comments: leopard frogs, painted turtles observed



		NA (proce	ed to 14E)							
Assess if the AA is used by fish	rically used by fish due to lack of loor the existing situation is "correct							ded by perc	hed culvert o	r other
	in the AA but is not desired from a d as "Low", applied accordingly in						an irrigation	canal], the	n Habitat Qu	ality
i. Habitat Quality (Pick the app	propriate AA attributes in matrix to	nick the ex	ceptional (E), high (H), modera	te (M), or lo	w (L) qualit	ty rating.		
Duration of Surface Water in AA			rmanent/Per			asonal / Inte			nporary / Epl	emeral
Cover - % of waterbody in AA c	containing cover objects (e.g.									
submerged logs, large rocks & be floating-leaved vegetation)		>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<10%
Shading - >75% of streambank of										
riparian or wetland scrub-shrub of Shading – 50 to 75% of streamba										
riparian or wetland scrub-shrub of										
Shading - < 50% of streambank					M					
riparian or wetland scrub-shrub of										
included on the 'MDEQ list of w Y N If yes, red iii. Rating (Use the conclusions from	Is fish use of the AA precluded or vaterbodies in need of TMDL deve duce the rating from 14D(i) by one 14D(i) and 14D(ii) above and the m	elopment' we level and c	ith 'Probable heck the mo	e Impaired odified habi	Uses' list tat quality and rating	ed as cold of reting:	r warm wat	er fishery o H 🛭 M	r aquatic life I	support?
Types of Fish Known or				Habitat Q	uality fro					
Suspected Within AA	Exceptional		☐ High			Moder Moder	ate		Low	
Native game fish										
Introduced game fish Non-game fish						.5 (M)				
No fish										
J	never documented fish at this si	te hut MD	T indicates	that fish h	ave hee	n observed	l (Urhan ne	ers comm	١	
If wetlands in AA do not f	ubject to flooding via in-channel or looded from in-channel or overbar bottom, mark the appropriate attri	k flow, che	ck NA abov		nt and rat	ing of high	(H), modera	te (M), or l	ow (L) for th	is
Estimated Westerna area in Till St	ibject to periodic flooding		$\square > 10$ 2	icres		$\Box < 10. > 2$	acres		X <2. acre	S
% of flooded wetland classified a		75%	☐ ≥ 10 a		5 75%	<10, >2 25-75°		75%		
% of flooded wetland classified a	as forested, scrub/shrub, or both	75%	25-75	% <25%	_	25-75	% <25%	75%	25-75%	<25%
% of flooded wetland classified and contains no outlet or restrict AA contains unrestricted outlet	as forested, scrub/shrub, or both	75%			5 75%			75%		
AA contains no outlet or restricted AA contains unrestricted outlet ii. Are residences, businesses, of the common	as forested, scrub/shrub, or both cted outlet t or other features which may be seements: ERM SURFACE WATER STOR ood or pond from overbank or incre subject to flooding or ponding, bottom, use the matrix below to a	AGE channel flow check NA al	y damaged NA (proprecipitation) Note: The properties of the prop	% <25% by floods Isoceed to 144 on, upland oint and rat	ocated w G) surface fl	25-750 ithin 0.5 mi	% <25%	ream of the	25-75%	<25%
AA contains no outlet or restricted AA contains unrestricted outlet ii. Are residences, businesses, of the common	as forested, scrub/shrub, or both cted outlet t or other features which may be seements: RM SURFACE WATER STOR ood or pond from overbank or incre subject to flooding or ponding, bottom, use the matrix below to a lent/perennial; S/I = seasonal/inter	AGE channel flow check NA al rrive at the smittent; T/E	y damaged NA (productional productional pro	by floods less to the control of the	ocated w G) surface fl ing of highl.	25-75° ithin 0.5 mi	6 <25% les downstr ndwater flowerate (M), on	ream of the	25-75% 2 AA? (check	<25% .2 (L))
AA contains no outlet or restricted AA contains unrestricted outlet ii. Are residences, businesses, of the common	as forested, scrub/shrub, or both cted outlet t or other features which may be seements: ERM SURFACE WATER STOR cood or pond from overbank or incre subject to flooding or ponding, bottom, use the matrix below to a cent/perennial; S/I = seasonal/inter water contained in wetlands with	AGE channel flow check NA al rrive at the smittent; T/E	y damaged NA (proprecipitation) Note: The properties of the prop	by floods less to the control of the	ocated w G) surface fl ing of highl.	25-750 ithin 0.5 mi	6 <25% les downstr ndwater flowerate (M), on	ream of the	25-75%	<25% .2 (L))
AA contains no outlet or restricted AA contains unrestricted outlet ii. Are residences, businesses, under the transfer of th	as forested, scrub/shrub, or both cted outlet t or other features which may be seements: RM SURFACE WATER STOR cood or pond from overbank or incre subject to flooding or ponding, bottom, use the matrix below to a cent/perennial; S/I = seasonal/inter water contained in wetlands within ic flooding or ponding.	AGE channel flow check NA al rrive at the smittent; T/E	y damaged NA (proceedings of the process of the pr	by floods less to the control of the	ocated w G) surface fl ing of highl.	25-75° ithin 0.5 mi	6 <25% les downstr ndwater flowerate (M), on	ream of the	25-75% 2 AA? (check	<25% .2 (L))
AA contains no outlet or restricted AA contains unrestricted outlet ii. Are residences, businesses, on Y N Comm 14F. SHORT AND LONG TE Applies to wetlands that flet If no wetlands in the AA at i. Rating (Working from top to Abbreviations: P/P = permant Estimated maximum acre feet of the AA that are subject to period	as forested, scrub/shrub, or both cted outlet t or other features which may be seements: RM SURFACE WATER STOR ood or pond from overbank or in-cre subject to flooding or ponding, bottom, use the matrix below to a sent/perennial; S/I = seasonal/inter water contained in wetlands within ic flooding or ponding. lands within the AA	AGE channel flow check NA al rrive at the mittent; T/E	y damaged NA (pro r, precipitati bove. functional p = temporar	by floods lessed to 144 on, upland oint and rate y/ephemera	ocated w G) surface fl	25-75° ithin 0.5 mi ow, or grou ch (H), mode <>5, >1 a	% <25%	ream of the	25-75% 2 AA? (check	<25% .2 (L))
AA contains no outlet or restricted AA contains unrestricted outlet ii. Are residences, businesses, on a common service of the AA and the AA and the AA and the AA and the AA that are subject to period Duration of surface water at wet the AA flood or pond wetlands in AA flood or pond wetlands in AA flood or pond wetlands in AA flood or pond contains the AA flood o	as forested, scrub/shrub, or both cted outlet t or other features which may be seements: RM SURFACE WATER STOR cood or pond from overbank or incre subject to flooding or ponding, bottom, use the matrix below to a cent/perennial; S/I = seasonal/inter water contained in wetlands within ic flooding or ponding. lands within the AA 5 out of 10 years	AGE Channel flow check NA al rrive at the mittent; T/E	y damaged NA (pro , precipitati bove. functional p t temporar >5 acr	deceed to 144 oon, upland ooint and rat y/ephemera e feet T/E	ocated w G) surface fl ting of high	25-75° ithin 0.5 mi ow, or grou ch (H), mode \$\int <5, >1 ac S/I	% <25%	ream of the	25-75% 2 AA? (check or this function ≤1 acre for	<25% .2 (L)) n.)
AA contains no outlet or restrict AA contains unrestricted outlet ii. Are residences, businesses, and a common service of the AA and the AAA and the AA and the AA a	as forested, scrub/shrub, or both cted outlet t or other features which may be a nents: RM SURFACE WATER STOR ood or pond from overbank or incre subject to flooding or ponding, bottom, use the matrix below to a nent/perennial; S/I = seasonal/inter water contained in wetlands within ic flooding or ponding. lands within the AA 5 out of 10 years T/TOXICANT RETENTION AN notential to receive excess sedimen re subject to such input, check NA bottom, use the matrix below to an A receives or surrounding to moderate levels of sedi	AGE thannel flow check NA all rrive at the mittent; T/E ND REMOVATES, nutrients above. Trive at the fig land use haments, nutrier costantially important and the costantial	y damaged NA (pro property, precipitation bove. NA (pro property, precipitation bove.	by floods level to 140 on, upland oint and rate y/ephemera e feet NA (pross through in oint and rational deliver low and such that	G) surface fl ing of hig il. P/P coceed to 1 influx of s water devel devel devel detire delive other	ow, or grounds th (H), models and the (H), models and the (H), models are the (H), mod	des downstr les downstr les downstr crate (M), or cre feet T/E ound water of rate (M), or rate (M), or equipment of sediments, substantially	ream of the	25-75% 2 AA? (check or this function ≤1 acre for S/I Dut.	<25% .2 (L)

Comments: Nutrient loading from cattle use.

☐ Yes

☐ No

Evidence of flooding or ponding in AA

AA contains **no or restricted outlet**AA contains **unrestricted outlet**

☐ No

☐ No

☐ Yes

☐ No

⊠ Yes

.5 (M)

A	pplies o	only if A	AA oo		or within	n the ban					proceed al or ma			nage, o	r on the sh	noreline	of a st	andin	ig water l	oody th	at is
				o bottom,											moderate (I			_	function.		
s	horelin	ne by spe		with dee		ng	_								ooted V						
r	ootmas		2 (-	. 0 /			Permane		miai	⊠Se	easonal /		mittent	L	Tempora	ary / Ep	nemera	aı			
			³ 65 35-64								.6 (1										
			< 35																		
Comme	ents:		e acti																		
i. Rati r A = 3	ng (Wo	orking fr e of vege	om to	op to bot	tom, use	the mati		to arrive a	sity rating	g from	#13. C	= Ye	es (Y) o	r No (N), modera () as to wh						
A			Vege	tated cor	mponent	>5 acres	S			etated c	compone	nt 1-	-5 acres			□ V	egetate	ed cor	mponent	<1 acr	е
В		High		☐ Mo	derate		Low	☐ I	ligh		Moderate	9		Low		High		Mo	derate		Low
<u>C</u>	Y		N	□Y	□N	□Y	□N	□Y	□N	⊠Y	<u> </u>	1	□Y	□N	□Y			JΥ	□N	\square Y	
P/P											-										
S/I T/E/A										.7M											
Comme													-								
iii. R		Vegeta Wetlan Seeps a AA per Wetlan Other	tion god occurrence of the contract occurrence occ	curs at the resent at ently floor ntains an	during due toe of the wetlanded during outlet, b	ormant s a natural and edge ing drou out no inl	ght period et.	ds.	e table b		☐ Wet	land er _	contair	ns inlet	esents with but not ou nt and rati	tlet.				•	unction.
					(Criteria							Fı	ınction	al Point ar	nd Ratin	g				
				_			or more in	ndicators of	of D/R p	resent											
				e indicat					N/D /	1					0.1 (L)						
Comme	ents:			echarge	informat	ion inad	equate to	rate AA L	D/R poter	itial	<u> </u>										
14K. U i. Rati				top to bo	ttom, use	e the mat	rix below	to arrive	at the fur	nctiona	ıl point a	nd ra	ating of	high (F	I), modera	ite (M),	or low	(L) f	or this fu	ınction	
	Repla	acement F	Potenti	ial	(>	80 yr-old	s fen, bog,) forested w listed as "S	etland or p	lant	ure	types an	d struins pl	uctural d lant asso	iversity	ly cited rare (#13) is high isted as "S2	h typ	es or as	ssociat	ntain previ	structura	
				from #11		□rare	. [common	□abu		□rare	•	Com	mon	abunda	nt [rare	Σ	commor		abundant
Low dis			٠.									-					-				
Modera High di				A (#12i))													+	.2L	-	
Comme		nec at A	Λ (π.	121)					-					J					.2L		
i. ii. iii	Is the Chec. Base Rati	e AA a k k catego ed on the Yes [Pr	know ories e loca oceed e the 1	that appation, did to 14L	ntional o ply to the versity, (ii) and t	r educate AA: size, and then 14L	ional site Educat other sit (iv).]	tional / sc te attribu N	ientific s tes, is th No [Rate and ratin	tudy ere a s as low ng of hi A from	Cotrong point 14L(i	onsur otent v)]	mptive in tial for erate (N	rec. recreat 1), or lo	L(ii) only Non- ional or e	-consum educatio	ptive i	rec.	d to 14L(☐ Oth		
	Pri	i vate ow	nersl	hip									.1(L)							

Comments: Extremely remote



FUNCTION, VALUE SUMMARY, AND OVERALL RATING

Function and Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	Low	0.30	1	
B. MT Natural Heritage Program Species Habitat	High	1.00	1	
C. General Wildlife Habitat	High	0.80	1	
D. General Fish/Aquatic Habitat	Moderate	0.50	1	
E. Flood Attenuation	Low	0.20	1	
F. Short and Long Term Surface Water Storage	Moderate	0.60	1	
G. Sediment/Nutrient/Toxicant Removal	Moderate	0.50	1	
H. Sediment/Shoreline Stabilization	Moderate	0.60	1	
I. Production Export/Food Chain Support	Moderate	0.70	1	
J. Groundwater Discharge/Recharge	Low	0.10	1	
K. Uniqueness	Low	0.20	1	
L. Recreation/Education Potential	Low	0.10	1	
	Totals:	<u>5.6</u>	12.00	
	Percent of	Total Possible Points:	47% (Actual / Possible	x 100 [rd to nearest whole #]

Score of 1 funct Score of 1 funct Score of 1 funct	l: (Must satisfy one of the following criteria. If not proceed to Category II.) ional point for Listed/Proposed Threatened or Endangered Species; or ional point for Uniqueness; or ional point for Flood Attenuation and answer to Question 14E(ii) is "yes"; or Possible Points is > 80%.										
Score of 1 funct Score of .9 or 1 Score of .9 or 1 "High" to "Exce	Percent of total Possible Points is > 80%. Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following Category II criteria. If not satisfied, proceed to Category IV.) Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish/Aquatic 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 total possible points is > 65%.										
☐ Category III W	Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; If not satisfied, proceed to Category III.) "Low" rating for Uniqueness; and "Low" rating for Production Export / Food Chain Support; and										
Category IV Wetlan "Low" rating for "Low" rating for	nd: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; If not satisfied, proceed to Category III.) **Uniqueness; and										
Category IV Wetlan "Low" rating fo "Low" rating fo	nd: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; If not satisfied, proceed to Category III.) Tuniqueness; and Production Export / Food Chain Support; and										



MDT MONTANA WETLAND ASSESSMENT FORM (revised May 25, 1999)

141	DIP	MONTAN	NA WEILANL	ASSES	SWIENT FURIV	i (reviseu May 25	, 1995	')	
1. Project Name: Fourchette Cree	k Wet	land Mitigat	ion Reserve 2.	Project #:	130091-023	Control #: <u>NA</u>			
3. Evaluation Date: <u>7/31/2003</u>		4. Eval	luator(s): Berglun	<u>d</u>	5. Wo	etland / Site #(s): Pen	guin Re	<u>eservoir</u>	
6. Wetland Location(s) i. T: 22 ii. Approx. Stationing / Milep iii. Watershed: 10040104 Other Location Information	osts: <u>N</u>		S: 19 GPS Reference Not Malta, 1.5 miles		ies): <u>NA</u>	E S:	ed (#9)		
7. A. Evaluating Agency MDT			8. Wetla	nd Size (to		(visually estimated)			
B. Purpose of Evaluation: Wetlands potentially a Mitigation wetlands; p Mitigation wetlands; p	ore-cor oost-co	nstruction onstruction	Comme	nts: <u>Pengui</u>	a (total acres): n Reservoir	(measured, e.g. GPS) (visually 1.75 (measured)			
10. CLASSIFICATION OF WE HGM CLASS ¹		STEM ²	SUBSYSTEM ²		CLASS ²	WATER REGIN	лъ ²	MODIFIER ²	% OF
Depression		alustrine	None		ergent Wetland	Seasonally Floor		Impounded	AA 5
		alustrine			-	Semipermanently Fl		•	3
Depression Depression		alustrine	None		Aquatic Bed	Semipermanently Fl		Impounded	1
Depression			None 	Unco	nsolidated Bottom			Impounded	-
$^{}$ = Smith et al. 1995. 2 = Cowardi	n et al	1979							
11. ESTIMATED RELATIVE A Common Comment 12. GENERAL CONDITION Of i. Regarding Disturbance:	nts: _ F AA		·		·	ntana watershed Basii	1)		
i. Regarding Disturbance.	(USE I	naura below	то велест арргоргіа			jacent (within 500 Feet)	To AA		
Conditions Within AA AA occurs and is managed in predomin	antly	state; is not	ged in predominantly n grazed, hayed, logged, onverted; does not con	, or	or hayed or selectivel	but moderately grazed y logged or has been ring; contains few roads	subject clearin	cultivated or heavily grazed t to substantial fill placeme g, or hydrological alteration r building density.	nt, grading
a natural state; is not grazed, hayed, log or otherwise converted; does not contain roads or occupied buildings.	1								
AA not cultivated, but moderately graze hayed or selectively logged or has been subject to relatively minor clearing, or f placement, or hydrological alteration; contains few roads or buildings.	ill								
AA cultivated or heavily grazed or logg subject to relatively substantial fill placement, grading, clearing, or hydrolo alteration; high road or building density	gical				high di	sturbance			
Comments: (types of dist	urbanc	e, intensity,	season, etc.) Grazir	<u>ıg</u>					
ii. Prominent weedy, alien,	& int	roduced spe	cies: CIR ARV						
iii. Briefly describe AA and surrounding land use is undeveloped	l surro	ounding lan		nguin Reser	voir - Impoundment	with emergent, aquation	bed, a	nd open water compone	ents -
13. STRUCTURAL DIVERSITY	Y (Bas	ed on 'Class	column of #10 abo	ove.)					
Number of 'Cowardin' Vegetated Classes Present in AA	_	≥3 Vegetat	ted Classes or class is forested		ed Classes or ed	= 1 Vegetated Class			
Select Rating					Moderate				



Comments: ____

vii. AA is Documented Primary or Critical h Secondary habitat (li Incidental habitat (li No usable habitat	(D) or Suspecte abitat (list spec ist species)	d (S) ies)	to con	tain (c □ S □ S ☑ S	heck	box):				nigrati		ED F	LAN	is ar	ND AI	NIIVIA	LS					
viii. RATING (BASED ON (L) FOR THIS I		ST HA	BITAT	сноя	SEN IN	14A	(I) AB	OVE, I	FIND T	тне со	ORRES	SPONE	OING R	RATIN	G OF l	High	(H), N	MODE	RATE	(M), c	or Lo	W
HIGHEST HABITAT LEVEL	DOC/PRIMA RY	SU	S/PRIN Y	MAR	DO	C/SEC ARY		SU	S/SEC		DO	C/INC TAL		SU	S/INC TAL			NON	E			
FUNCTIONAL POINT AND RATING															.3 (L	(ر						
IF DOCUM	MENTED, LIST TH	IE SOU	URCE (E.G., (BSEI	RVATI	ONS, I	RECO	RDS, I	етс.):		_										
14B. HABITAT FOR PLANT Do not include spe iii. AA is Documented Primary or Critical be Secondary habitat (li Incidental habitat (li No usable habitat ix. RATING (BASED ON)	cies listed in 14 (D) or Suspecte abitat (list spec ist species) st species)	A(i). d (S) ries)	to con D [D [D [D [D [tain (c	heck No	box): rthern	Leop	ard Fr	og											(M), (or Lov	w
(L) FOR THIS I	DOC/PRIMAR	v	SUS/PR	IMAR	V I	ooc/s	FCON	DARY	SI	JS/SEC	ONDA	PV	DOC/	INCIT	ENTA	T S	ris/in	CIDEN	JTAI		NONE	_
FUNCTIONAL POINT AND	1 (H)				<u>- -</u>	DOC/S		DAKI	50			IKI	DOC		ENTA		305/11		(TAL	_		=
RATING	1 (11)	_ -			_ -				-			_				_ -						_
<u>2001, 2002, 2003.</u>	MENTED, LIST TI	IE SOU	URCE (E.G., (DBSEI	RVATI	ONS, I	RECO	RDS, I	ETC.):	NUM	EROU	s Nor	THER	N LEC	OPARI	D FRO	GS OB	SERVI	ED AT	SITE I	<u>N</u>
14C. General Wildlife Habita iii. Evidence of overal		the A	AA: (0	Check	eithe	r subs	stantia	l, mod	lerate,	or lov	v)											
Substantial (based on any of observations of abundant wildlife sign presence of extremely interviews with local Moderate (based on any of observations of scatte common occurrence of adequate adjacent upl interviews with local	lant wildlife #s n such as scat, to limiting habita biologists with the following) red wildlife gro of wildlife sign and food source	or hig racks, t featu know ups or such a	nest sources not ledge of rindivas scat.	tructure of avai of the riduals , track	res, galable AA or re s, nes	ame trin the	rails, e surro	etc. unding	g area	ring pe			few of little spars	or no to no e adja	wildlii wildli icent u	fe obs ife sig upland	ervati n l food	sourc	nring p es ith kno			
II. WILDLIFE HABITAT FE (H), MODERATE (M), OR RATING. STRUCTURA 20% OF EACH OTHER IN THEIR PERCENT COMI T/E = TEMPORARY/EF	LOW (L) L DIVERSITY IS TERMS OF POSITION IN TH	FRON E AA	м #13. (SEE #	For	CLAS	s cov	ER TO	BE C	ONSII	DERED	EVEN	NLY DI	ISTRIE	BUTEL	, VEG	ETAT	ED CI	ASSES	S MUST	r be w	THIN	I
Structural Diversity (fi	rom #13)				П	ligh							⊠Mo	derate	,					Low		
Class Cover Distribution (all vegetated classes)			E	ven			Uı	neven			⊠E	Even		dorate		neven				Even		
Duration of Surface W 10% of AA	ater in =	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	
Low disturbance at AA Moderate disturbance												-										
(see #12) High disturbance at A.	A (see #12)				-						 M											
iii. Rating (Using 14C(i) a for this function.)		ve and	d the n	natrix	below	to ar	rive a	t the fi	unctio	nal po		nd ratii	ng of e	except	ional	(E), h	igh (F	H), mo	derate	(M),		(L)
Evidence of Wildlif	e Use				Wild	life H	labita	t Feat	ures	Rating			(ii)									
from 14C(i)		☐ Ex	ceptio				Hig				Mode	rate			Lov	w						
Substantial					\bot				_		.8 (H))	_									

Comments: leopard frogs, Woodhouse's toad, painted turtles observed



14D. GENERAL FISH/A	OUATIC HABITAT RATING	NA (proceed to 14E)
14D. GENEKAL FISH/A	OUATIC HADITAT KATING	Z INA (DIOCEEU 10 14E)

AA contains no or restricted outlet

Comments: Nutrient loading from cattle use.

AA contains unrestricted outlet

If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, then check the NA box above.

Assess if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [e.g. fish use is precluded by perched culvert or other barrier, etc.]. If fish use occurs in the AA but is not desired from a resource management perspective (e.g. fish use within an irrigation canal], then Habitat Quality [14D(i)] below should be marked as "Low", applied accordingly in 14D(ii) below, and noted in the comments.

 Habitat Quality (Pick the approximately) 		in matrix to pic										
Duration of Surface Water in AA			Peri	manent/Per	ennial	□Se	asonal / Inte	rmittent	ПТе	emporary / Ep	hemeral	
Cover - % of waterbody in AA c												
submerged logs, large rocks & b	oulders, overhanging ba	anks, >	>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<10%	
floating-leaved vegetation)												
Shading - >75% of streambank of						-						
riparian or wetland scrub-shrub												
Shading – 50 to 75% of streamba												
riparian or wetland scrub-shrub o												
Shading - < 50% of streambank												
riparian or wetland scrub-shrub of	or forested communities	S.										
ii. Modified Habitat Quality: included on the 'MDEQ list of w Y N If yes, reciii. Rating (Use the conclusions from	vaterbodies in need of T duce the rating from 14	MDL developm D(i) by one leve	nent' wi	th 'Probabl neck the mo	e Impaired odified habi	Uses' list tat quality	ted as cold of y rating:	r warm wat	er fishery H	or aquatic life M L	e support?	
Types of Fish Known or				Modified	Habitat Q	uality fro	m 14D(ii)					
Suspected Within AA	☐ Exception	al		☐ High			☐ Moder	ate		Low		
Native game fish												
Introduced game fish												
Non-game fish												
No fish												
Comments: NA												
Applies only to wetlands so If wetlands in AA do not float. Rating (Working from top to function.)	ubject to flooding via in looded from in-channel	or overbank flo	ow, chec	k NA abov		nt and rat	ing of high	(H), modera	ate (M), or	low (L) for the	nis	
Estimated wetland area in AA su	bject to periodic floodi	ng		≥ 10 a	acres		□ <10, >2	acres		⊠ ≤2 acre	es	
% of flooded wetland classified	• •		75%	25-759	% <25%	75%			75%	25-75%	<25%	
70 Of Hooded Wetland Classified a	us forested, seruo/siliuo											
A A contains no outlet or restric	atad autlat	<u> </u>	1				_					
		,						% <25% 			.2 (L)	
AA contains unrestricted outlet	AA contains no outlet or restricted outlet AA contains unrestricted outlet AA? (check) AR (proceed to 14G) Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, check NA above.											
ii. Are residences, businesses, and a Community N Comm	or other features which the control of the control	ER STORAGI pank or in-chang r ponding, chec below to arrive	 ificantly E [nel flow, k NA ab	damaged NA (proc. precipitatiove.	by floods loceed to 140 on, upland	ocated w	ithin 0.5 mi	les downstr	ream of the	 ne AA? (chec	.2 (L) k)	
ii. Are residences, businesses, \(\bigcup Y \bigcup N \\ Comm \) 14F. SHORT AND LONG TE Applies to wetlands that fle If no wetlands in the AA are	or other features which the contents: RM SURFACE WAT condor pond from overbre subject to flooding or bottom, use the matrix ent/perennial; S/I = sea	ER STORAGI oank or in-chang r ponding, chec below to arrive sonal/intermitte	 ificantly E [nel flow, k NA ab	damaged NA (property precipitation) unctional p = temporar	by floods lessed to 140 on, upland oint and rat	ocated with a surface fluing of highlight.	ithin 0.5 mi	les downstr	ream of the		.2 (L)	
ii. Are residences, businesses, and a contains unrestricted outlet iii. Are residences, businesses, and a common	or other features which the contents: RM SURFACE WAT result from overbre subject to flooding or bottom, use the matrix ent/perennial; S/I = sea water contained in wet	ER STORAGI oank or in-chang r ponding, chec below to arrive sonal/intermitte	 ificantly E [nel flow, k NA ab	damaged NA (proc. precipitatiove.	by floods lessed to 140 on, upland oint and rat	ocated with a surface fluing of highlight.	ithin 0.5 mi	les downstr	ream of the	 ne AA? (chec	.2 (L)	
AA contains unrestricted outlet ii. Are residences, businesses, comparison of the property o	or other features which the contents: RM SURFACE WAT condor pond from overbre subject to flooding or bottom, use the matrix ent/perennial; S/I = sea water contained in wet ic flooding or ponding.	ER STORAGI oank or in-chang r ponding, chec below to arrive sonal/intermitte	 ificantly E [nel flow, k NA ab	damaged NA (property) precipitation ove. unctional p temporar	by floods lessed to 140 on, upland oint and rat	ocated with a surface fluing of highlight.	ow, or grough (H), mode	les downstr	ream of the		.2 (L)	
ii. Are residences, businesses, and a contains unrestricted outlet iii. Are residences, businesses, and a common late. SHORT AND LONG TE Applies to wetlands that flet if no wetlands in the AA at i. Rating (Working from top to Abbreviations: P/P = permant Estimated maximum acre feet of the AA that are subject to period Duration of surface water at wetled wetlands in AA flood or pond in the AA flood or pond i	or other features which the contents: RM SURFACE WAT result of pond from overbre subject to flooding or bottom, use the matrix ent/perennial; S/I = sea water contained in wethin the flooding or ponding. It leads within the AA to out of 10 years	ER STORAGI oank or in-chang r ponding, chec below to arrive sonal/intermitte	E Inel flow, k NA ab	damaged NA (proprecipitation) unctional p = temporar	by floods leader to 144 on, upland oint and rate y/ephemera	G) surface fl	ow, or grough (H), mode	les downstrandwater florerate (M), o	ream of the	 ne AA? (chec	.2 (L)	
ii. Are residences, businesses, and a contains unrestricted outlet iii. Are residences, businesses, and a common late. SHORT AND LONG TE Applies to wetlands that fle If no wetlands in the AA at i. Rating (Working from top to Abbreviations: P/P = perman Estimated maximum acre feet of the AA that are subject to period Duration of surface water at wetlength.	or other features which the contents: RM SURFACE WAT result of pond from overbre subject to flooding or bottom, use the matrix ent/perennial; S/I = sea water contained in wethin the flooding or ponding. It leads within the AA to out of 10 years	ER STORAGI oank or in-chang r ponding, chec below to arrive sonal/intermitte	E Inel flow, k NA abe at the frent; T/E	damaged NA (propression precipitation preci	by floods less to 140 on, upland oint and rate y/ephemerate feet	G) surface fl	ow, or grough (H), mode S/I	les downstrandwater florerate (M), o	ream of the	ne AA? (chec	.2 (L)	
ii. Are residences, businesses, and a community and a communit	or other features which the contents: RM SURFACE WAT result of pond from overbre subject to flooding or bottom, use the matrix ent/perennial; S/I = sea water contained in wethin the flooding or ponding. It leads within the AA to out of 10 years	ER STORAGI oank or in-chang r ponding, chec below to arrive sonal/intermitte	E Inel flow, k NA abe at the frent; T/E	damaged NA (propression precipitation preci	by floods less to 140 on, upland oint and rate y/ephemerate feet T/E	G) surface fl ling of highly	ow, or grough (H), mode S/I	les downstrandwater florerate (M), o		ne AA? (chec	.2 (L)	
ii. Are residences, businesses, and a contains unrestricted outlet iii. Are residences, businesses, and a common late. SHORT AND LONG TE Applies to wetlands that fle If no wetlands in the AA and i. Rating (Working from top to Abbreviations: P/P = perman Estimated maximum acre feet of the AA that are subject to period Duration of surface water at wetle Wetlands in AA flood or pond < Comments: 14G. SEDIMENT/NUTRIENT Applies to wetlands with pure lands in the AA and surface water at wetlength and surface water at well wate	or other features which nents: RM SURFACE WAT red or pond from overb re subject to flooding of bottom, use the matrix ent/perennial; S/I = sea water contained in wet ic flooding or ponding. lands within the AA 5 out of 10 years 5 out of 10 years f/TOXICANT RETE otential to receive exce re subject to such input	ER STORAGI pank or in-chant r ponding, chec below to arrive sonal/intermitte lands within NTION AND F ss sediments, no , check NA abo	E Inel flow, k NA able at the frent; T/E P/P	damaged NA (proprocession precipitation pre	by floods leader to 144 on, upland oint and rate y/ephemera e feet T/E	G) surface fl ing of high lal.	ow, or grough (H), mode S, >1 a S/I .6 (M	les downstrandwater florerate (M), or cre feet T/E Dund water	w. r low (L) P/P or direct in	ne AA? (chec	.2 (L)	
ii. Are residences, businesses, IV N Comm 14F. SHORT AND LONG TE Applies to wetlands that fle If no wetlands in the AA are i. Rating (Working from top to Abbreviations: P/P = perman Estimated maximum acre feet of the AA that are subject to period Duration of surface water at wetl Wetlands in AA flood or pond Wetlands in AA flood or pond Comments: 14G. SEDIMENT/NUTRIENT Applies to wetlands with p	or other features which nents: RM SURFACE WAT red or pond from overb re subject to flooding of bottom, use the matrix ent/perennial; S/I = sea water contained in wet ic flooding or ponding. lands within the AA 5 out of 10 years 5 out of 10 years f/TOXICANT RETE otential to receive exce re subject to such input	ER STORAGI pank or in-chant r ponding, chec below to arrive sonal/intermitte lands within NTION AND F ss sediments, no , check NA abo	E Inel flow, k NA able at the frent; T/E P/P	damaged NA (proprocession precipitation pre	by floods leader to 144 on, upland oint and rate y/ephemera e feet T/E	G) surface fl ring of high l. P/P		les downstrandwater florerate (M), or cre feet T/E Dund water	ream of the w. r low (L) P/P or direct in the low (L) f		.2 (L)	
ii. Are residences, businesses, and a contains unrestricted outlet iii. Are residences, businesses, and a common series of the Applies to wetlands that fle and a common series of the AA that are subject to period and and an are subject to period and are subject to period are subject to period and are subject to period are subject to period and are subject to period are subject to period and are subject to period and are subject to period are subject to period and a	or other features which the contents: RM SURFACE WAT to od or pond from overbre subject to flooding or bottom, use the matrix ent/perennial; S/I = sea water contained in weight in the content of the c	ER STORAGI bank or in-chant r ponding, chec below to arrive sonal/intermitte lands within NTION AND R ss sediments, m , check NA abo below to arrive or surrounding lan evels of sediments as are not substant a, sources of nutri	E nel flow, k NA ab e at the frent; T/E P/P REMOV utrients, we. at the fund use hass, nutrient tially imp	damaged NA (protation precipitation precipitation precipitation precipitation precipitation precipitation precipitation precipitation precipitation protection prote	by floods leaded to 140 on, upland oint and rate y/ephemera e feet NA (pross through in oint and ratideliver low and such that it is not a such that it i	G) surface fl ing of hig al. P/P occeed to 1 nflux of si water development tut tut tut occeed to 1 nflux of si water development	ow, or grounds of the control of the	les downstrandwater flor erate (M), or cre feet T/E T/E Dund water rate (M), or EQ list of war robable cause erives or surr of sediments, substantially	P/P or direct in the ferbodies in ses" related to ounding lar nutrients, 6 impaired.	ne AA? (chec	i.2 (L) ion.) Toot T/E ion.) rients, or tial to ach that ation,	
ii. Are residences, businesses, IV N Comm 14F. SHORT AND LONG TE Applies to wetlands that fle If no wetlands in the AA are i. Rating (Working from top to Abbreviations: P/P = perman Estimated maximum acre feet of the AA that are subject to period Duration of surface water at wetl Wetlands in AA flood or pond < Wetlands in AA flood or pond < Comments: 14G. SEDIMENT/NUTRIENT Applies to wetlands with p If no wetlands in the AA are i. Rating (Working from top to	or other features which the contents: RM SURFACE WAT to od or pond from overbre subject to flooding or bottom, use the matrix ent/perennial; S/I = sea water contained in weight in the AA to out of 10 years T/TOXICANT RETEROTEM TO	ER STORAGI bank or in-chant r ponding, chec below to arrive sonal/intermitte lands within NTION AND R ss sediments, m , check NA abo below to arrive or surrounding lan evels of sediments as are not substant a, sources of nutri	E nel flow, k NA ab e at the frent; T/E P/P REMOV utrients, we. at the fund use hass, nutrient tially imp	damaged NA (properties of the precipitation of the	by floods leaded to 140 on, upland oint and rate y/ephemera e feet NA (pross through in bint and ratideliver low ands such that igns of	G) surface fl ing of hig al. P/P occeed to 1 nflux of si water development tut tut tut occeed to 1 nflux of si water development	ithin 0.5 mi ow, or grounds of the control of the	les downstrandwater flor erate (M), or cre feet T/E T/E Dund water rate (M), or EQ list of war robable cause erives or surr of sediments, substantially	P/P ream of the condition of the condit	ne AA? (chece for this function ≤1 acre for this function soft in this function or this function need of TMDL os sediment, nut d use has poten or compounds soft Major sediment	i.2 (L) con.) T/E con. con.) rients, or tial to uch that ation, present.	

LAND & WATER

.5 (M)

Ar	plies o	MENT/SI nly if AA wave acti	occurs on	or within	n the ban	ks or a ri	ver, strean A above.			proceed to al or man		ainage,	or o	on the sh	oreline o	f a stand	ing water	body tl	nat is
i. Ra <u>ting</u>	g (Worki	ing from top	p to bottom	, use the m	natrix belo	w to arriv	e at the func	tional poi	nt and ra	ting excep	tional (E)	, high (H), m	oderate (N	A), or low	(L) for th	is function.		
		of wetlan			\boldsymbol{L})uratio	on of S	urfac	e Wa	ter Ad	jacen	t to K	Roc	oted V	egetat	tion			
	orenne ootmass	by specieses.	es with de	ep, binaii	ng [Perman	ent / Peren	nnial	⊠Se:	asonal / I	ntermitte	nt		Tempora	ry / Ephe	meral	1		
		з (65 %														1		
			64 %							.6 (M)								
		<3	35 %																
Comme	nts:	Wave a	ction.																
i. Ratin A = a	g (Wor	of vegetat utlet; P/P	top to bo ted compo = permar	ttom, use onent in the nent/pere	the math he AA. Innial; S/I	rix below B = struct I = season	RT to arrive a tural divers nal/intermi	sity rating	g from E/A= te	#13. C =	Yes (Y) ephemer	or No (ral/abse	(N)						
A			getated co							omponen							omponent		
В		High		oderate		Low		High		Moderate		Low			High		Ioderate		Low
<u>C</u>	□Y		□Y	□N	□Y	□N	□Y	□N	⊠Y		□Y		N	□Y	□N	□Y	□N		
P/P S/I									.7M										
T/E/A									. / IVI							_			
Comme																			
AA No Ava Comme	has kno Discharuilable I	own Disch rge/Recha Discharge/	present at the presen	he toe of the wetla poded durn n outlet, b n from 14 harge are tors preso: informat	a natural and edge ing drou out no inlude of the content of the co	slope. ght perio et. 14j(ii) ab or more i	ove and the	of D/R pr	elow to		the func	tional po	oint onal	and ration	ng of higl d Rating				
i. Ratiı	ng (Wo	rking fron	n top to bo	ottom, use	e the mat	rix belov	v to arrive	at the fur	nctiona							low (L)) for this f	unction	1.
	Replac	ement Pote	ential	(>	80 yr-old) forested	warm sprin wetland or p S1" by the M	lant	ure	types and	structural is plant as	diversity	y (#1	cited rare 13) is high ed as "S2"	types	or assoc	contain previations and) is low-mo	structur	
		e Abundan		1	□rare	;	common	□abu		rare	Пс	ommon		abundar		are	Commo	n [abundant
		e at AA (-			-					<u> </u>		-	-			
		rbance at ce at AA ()											-				
Comme		ce at AA ((#121)					_	•						-	-	.2L		
i. ii. iii.	Ratin Owr	l on the loves [Procesting (Use the nership lic owners	own recrees that appocation, deed to 14L e matrix b	ational o ply to the iversity, . (ii) and t	r educate AA: size, and then 14L	ional site Education other site (iv).]	ational / sc i te attribu	ientific s tes, is th No [Rate and ratin nce at An Mode	tudy ere a st as low ng of hi A from	Cor trong pot in 14L(iv gh (H), m	sumptivential for some state of the sound is sumptive to the sound is sumptive to the sound is sumptive to the sound is	e rec. or recre (M), or High	atio	☐ Non- onal or e	consump ducation	tive rec. al use?	eed to 14L ☐ Oth		
	Priv	ate owner	rship									1(L)							

Comments: Extremely remote



FUNCTION, VALUE SUMMARY, AND OVERALL RATING

Function and Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	Low	0.30	1	
B. MT Natural Heritage Program Species Habitat	High	1.00	1	
C. General Wildlife Habitat	High	0.80	1	
D. General Fish/Aquatic Habitat	NA	0.00		
E. Flood Attenuation	Low	0.20	1	
F. Short and Long Term Surface Water Storage	Moderate	0.60	1	
G. Sediment/Nutrient/Toxicant Removal	Moderate	0.50	1	
H. Sediment/Shoreline Stabilization	Moderate	0.60	1	
I. Production Export/Food Chain Support	Moderate	0.70	1	
J. Groundwater Discharge/Recharge	Low	0.10	1	
K. Uniqueness	Low	0.20	1	
L. Recreation/Education Potential	Low	0.10	1	
	Totals:	<u>5.10</u>	<u>11.00</u>	
	Percent of	Total Possible Points:	46% (Actual / Possible) x 100 [rd to nearest whole #]

Score of 1 functi Score of 1 functi Score of 1 functi	: (Must satisfy one of the following criteria. If not proceed to Category II.) onal point for Listed/Proposed Threatened or Endangered Species; or onal point for Uniqueness; or onal point for Flood Attenuation and answer to Question 14E(ii) is "yes"; or Possible Points is > 80%.									
Score of 1 functi Score of .9 or 1 f Score of .9 or 1 f Score of .9 or 1 f "High" to "Exce										
☐ Score of .9 functional point for Uniqueness; or ☐ Percent of total possible points is > 65%.										
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; If not satisfied, proceed to Category III.) "Low" rating for Uniqueness; and "Low" rating for Production Export / Food Chain Support; and										
Category IV Wetlan "Low" rating for "Low" rating for	d: (Criteria for Categories I or II are not satisfied and <u>all</u> of the following criteria are met; If not satisfied, proceed to Category III.) Uniqueness; and									
Category IV Wetlan "Low" rating for "Low" rating for Percent of total p	d: (Criteria for Categories I or II are not satisfied and <u>all</u> of the following criteria are met; If not satisfied, proceed to Category III.) Uniqueness; and Production Export / Food Chain Support; and									



MDT MONTANA WETLAND ASSESSMENT FORM (revised May 25, 1999)

141	DI MONIA	NA WEILANI	ASSES	SMENT FORM	i (reviseu may 25	, 1999)	
1. Project Name: Fourchette Cree	ek Wetland Mitiga	ation Reserve 2.	Project #:	130091-023	Control #: NA			
3. Evaluation Date: <u>7/31/2003</u>	4. Ev	aluator(s): Berglun	<u>d</u>	5. W	etland / Site #(s): Pint	ail Rese	rvoir	
6. Wetland Location(s) i. T: 2 ii. Approx. Stationing / Milep iii. Watershed: 10040104 Other Location Information	oosts: <u>NA</u>	GPS Reference		ies): <u>NA</u>	E S:	ed (#9)		
7. A. Evaluating Agency MDT		8. Wetla	and Size (to		_ (visually estimated) neasured, e.g. GPS)			
B. Purpose of Evaluation: Wetlands potentially a Mitigation wetlands; Mitigation wetlands; Other	pre-construction		ssment Are	a (total acres):	(visually 1.6 (measured, o			
10. CLASSIFICATION OF WE	TLAND AND A	QUATIC HABITA	TS IN AA				T	1
HGM CLASS 1	SYSTEM ²	SUBSYSTEM	2	CLASS ²	WATER REGIN	IE ²	MODIFIER ²	% OF AA
Depression	Palustrine	None	Em	ergent Wetland	Seasonally Floor	led	Impounded	60
Depression	Palustrine	None	Unco	nsolidated Bottom	Seasonally Floor	led	Impounded	40
$^{-1}$ = Smith et al. 1995. 2 = Coward								
11. ESTIMATED RELATIVE A Common Comme 12. GENERAL CONDITION O i. Regarding Disturbance:	nts:	·		v	mana watersned bash	1)		
i. Regarding Disturbance:	(Use mairix belo	w to select appropria			jacent (within 500 Feet)	To AA		
Conditions Within AA AA occurs and is managed in predomin	state; is no otherwise or building	aged in predominantly r at grazed, hayed, logged converted; does not con gs.	, or	or hayed or selectivel	out moderately grazed y logged or has been ring; contains few roads	subject clearing	ultivated or heavily grazed to substantial fill placeme g, or hydrological alteration building density.	ent, grading
a natural state; is not grazed, hayed, log or otherwise converted; does not contai roads or occupied buildings. AA not cultivated, but moderately grazi	ged, n							
hayed or selectively logged or has been subject to relatively minor clearing, or placement, or hydrological alteration; contains few roads or buildings.	5111							
AA cultivated or heavily grazed or logs subject to relatively substantial fill placement, grading, clearing, or hydrole alteration; high road or building density	ogical			high di	sturbance			
Comments: (types of dist	urbance, intensity	, season, etc.) Grazii	<u>1g</u>					
ii. Prominent weedy, alien,	& introduced sp	oecies: <u>CIR ARV</u>						
iii. Briefly describe AA and use is undeveloped rangeland.	d surrounding la	nd use / habitat: Pir	ntail Reserv	oir - Impoundment w	vith emergent and open	water c	omponents - surroundi	ng land
13. STRUCTURAL DIVERSIT					T			
Number of 'Cowardin' Vegetated Classes Present in AA		ated Classes or class is forested	2 Vegetat 1 if forest	ed Classes or ed	= 1 Vegetated Class			
Select Rating					Low			



Comments: ____

Primary or C Secondary ha	nented (D) or Su ritical habitat (list abitat (list species bitat (list species	spected (S st species) s)	S) to con	tain (ched ☐ S ☐ S ☐ S ☑ S							LAN	is ar	ND AN	IIVIA	LS				
	SED ON THE STR R THIS FUNCTION		HABITAT	CHOSEN	N IN 14A	(I) AB	OVE, F	IND T	не со	DRRESPON	DING R	RATIN	G OF I	IIGH ((H), M	ODER	RATE (M), o	R LOW
HIGHEST HABITAT LI	EVEL DOC/PI		SUS/PRIN Y	IAR I	DOC/SEC		SUS	S/SECO ARY	OND	DOC/INC		SU	S/INCI TAL			NONE	E		
FUNCTIONAL POINT A RATING	AND												.3 (L)					
IF	DOCUMENTED, I	IST THE S	OURCE (E.G., OBS	SERVATI	IONS, I	RECOR	DS, E	TC.):	<u> </u>		1			<u> </u>			<u>11</u>	
iv. AA is Docur	de species listed mented (D) or Su	l in 14A(i spected (S	i). S) to con	tain (che			ву тн	IE M	ONTA	ANA NAT	URAI	НЕ	RITAC	GE PI	ROGR	AM.			
Secondary ha	ritical habitat (list abitat (list species bitat (list species bitat	s)) □ □ (] D □] D □	⊒ s ⊒ s <u>1</u>	Northern	ı Leop	ard Fro	<u>og</u>											
	SED ON THE STR R THIS FUNCTION		HABITAT	CHOSEN	IN 14B	(I) AB	OVE, F	IND TI	не со	RRESPON	DING R	ATIN	G OF E	IIGH ((H), M	ODER	RATE (M), o	R LOW
HIGHEST HABITAT LI	EVEL: DOC/PI	RIMARY	SUS/PR	IMARY	DOC/S	SECON	DARY	SUS	S/SECO	ONDARY	DOC/	INCID	ENTA	L S	US/INC	IDEN	TAL	_	NONE
FUNCTIONAL POINT A RATING	AND	-		-						-		.2 (L	a)	- - - -	-			_	
IF OBSERVED 2002 O	DOCUMENTED, I	LIST THE S	SOURCE (E.G., OBS	SERVATI	IONS, I	RECOR	DS, E	TC.): <u>.</u>	3 Northe	RN LE	OPAR	D FRO	GS OB	SERVE	D AT	SITE	N 200	1; NONE
interviews witi Moderate (based on observations or common occur adequate adjac interviews witi II. WILDLIFE HAB (H), MODERATE (I RATING. STRU- 20% OF EACH OTT THEIR PERCEN	f abundant wildlife sign such as tremely limiting h local biologists any of the follow f scattered wildlife tent upland food h local biologists. ITAT FEATURES (M), OR LOW (L) CTURAL DIVERS HER IN TERMS OF COMPOSITION	ife #s or h scat, track habitat fe with kno ving) fe groups sign such sources with kno WORKIN ITY IS FR F IN THE A	eatures no owledge of sor individuals sorting of the second of the secon	tructures, of available of the AA iduals or tracks, r of the AA TOP TO D	, game to the late of the late	rails, es surro ely few ctures, M, SELI	y specie game	area duri trails,	ing pe etc. PRIATI	ak periods E AA ATTI EVENLY D	few of little spars interview	or no vito no se adja views	wildlif wildlif wildlif wildlif with less with	e obsefe sign pland ocal b	ervation food s iologis	EXCEP	es th kno PTION MUST	owledg	TTHIN
	ARY/EPHEMERA	L; A= AB	SENT.		7											_	N7-	_	
Class Cover Di	rsity (from #13) stribution				High					□E	□Mo	derate			-		⊠L ⊠E		
(all vegetated of Duration of Sur 10% of AA		P/:	P S/I	T/E A	A P/P	S/I	T/E	A	P/P	□Even S/I T/E	A	P/P	□Un S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance Moderate distu	e at AA (see #12 arbance at AA	2)																	
	ce at AA (see #1		l l														L		
iii. Rating (Using for this function	1.)	i) above a	and the m									except	ional ((E), hi	igh (H)	, mod	lerate	(M), (or low (L
Evidence of			Evecati -			_		ures F		g from 14C	(ii)		√II a	,	_				
from Subst			Exceptio	nai		Hig 	,11	+	<u> </u>	Moderate 			Lov .7 (M)		_				
	erate	1											. / (IVI) 						

Comments: Three Blue-winged teal and northern shoveler broods observed in 2003, plus additional waterfowl and shorebirds.



14D. GENERAL FISH/A	OUATIC HABITAT RATING	NA (proceed to 14E)
14D. GENEKAL FISIDA	OUATIC HADITAT KATING	ZI IVA (DIOCCCU IO 14L)

If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, then check the NA box above.

Assess if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [e.g. fish use is precluded by perched culvert or other barrier, etc.]. If fish use occurs in the AA but is not desired from a resource management perspective (e.g. fish use within an irrigation canal], then Habitat Quality [14D(i)] below should be marked as "Low", applied accordingly in 14D(ii) below, and noted in the comments.

i. Habitat Quality (Pick the app	propriate AA attr	ibutes in 1	matrix to pic	k the exc	ceptional	(E), h	igh (H),	moderat	e (M), or lo	w (L) qı	ality r	ating.		
Duration of Surface Water in AA				Perr	nanent/Pe	erenni	ial	Sea	asonal / Inte	rmittent		Tem	porary / Epl	hemeral
Cover - % of waterbody in AA c														
submerged logs, large rocks & b	oulders, overhan	ging bank	s, >	25%	10-25%	<	10%	>25%	10-25%	<10%		>25%	10-25%	<10%
floating-leaved vegetation) Shading - >75% of streambank of	or charaling of A	A contains												
riparian or wetland scrub-shrub of			,											
Shading – 50 to 75% of streamba			ntains											
riparian or wetland scrub-shrub of														
Shading - < 50% of streambank	or shoreline of A	A contain	ıs							-				
riparian or wetland scrub-shrub of	or forested comm	nunities.												
iii. Rating (Use the conclusions fro	aterbodies in nea duce the rating fr	ed of TMI om 14D(i	DL developn) by one leve	nent' wit	th 'Probal neck the n	ble Im nodific	npaired U ed habita al point ar	Jses' listo at quality and rating o	ed as cold of rating:	r warm ' □ E	water f	ishery or	aquatic life	support?
Types of Fish Known or							bitat Qu	ı ality fro	m 14D(ii)					
Suspected Within AA	☐ Exc	ceptional			☐ High	l			☐ Moder	ate			Low	
Native game fish														
Introduced game fish														
Non-game fish														
No fish Comments: NA														
 14E. FLOOD ATTENUATION Applies only to wetlands so If wetlands in AA do not floor. i. Rating (Working from top to function.) 	ubject to flooding looded from in-c	g via in-ch hannel or	overbank flo	ow, chec	k NA abo		onal point	t and rati	ing of high	(H), mod	lerate ((M), or lo	ow (L) for th	nis
Estimated wetland area in AA su	bject to periodic	flooding			□ ≥ 10) acres	S		☐ <10, >2	acres			⊠ ≤2 acre	S
% of flooded wetland classified	as forested, scrub	o/shrub, oi	r both	75%	25-7	5%	<25%	75%	25-75	% <2	5%	75%	25-75%	<25%
AA contains no outlet or restric														.2 (L)
AA contains unrestricted outlet	İ					-					-			
ii. Are residences, businesses, Y N Comm 14F. SHORT AND LONG TE Applies to wetlands that fle If no wetlands in the AA ar i. Rating (Working from top to Abbreviations: P/P = perman	RM SURFACE cod or pond from re subject to floo bottom, use the	WATER n overbanding or po	STORAGE k or in-chanr onding, check	E [nel flow, k NA ab	NA (p precipita ove.	roceed tion, u	d to 14G upland su and ratir	ng of hig	ow, or grou	ndwater	flow.		· ·	
Estimated maximum acre feet of				1, 1, 1								-	7.4.0	
the AA that are subject to period	ic flooding or po	nding.			□ >5 ac				⊠ <5, >1 a	cre teet			☐ ≤1 acre f	oot
Duration of surface water at wet				P/P	S/	I	T/E	P/P	S/I	_	/E	P/P	S/I	T/E
Wetlands in AA flood or pond 3									.6 (M)				
Wetlands in AA flood or pond <	5 out of 10 year	rs				-					- 1			
Comments: 14G. SEDIMENT/NUTRIENT Applies to wetlands with p If no wetlands in the AA at i. Rating (Working from top to	otential to receive subject to such	re excess son input, ch	sediments, nu neck NA abo	utrients, ve. at the fu	or toxica	nts thr	and ratin	flux of su	rface or ground (H), mode body on MD	erate (M) EQ list of	, or low	w (L) for	this functio	•
Sediment, Nutrient, and Toxicant Inp Levels Within AA	to mo	derate level	urrounding lan ls of sediments re not substant	s, nutrient	s, or comp	ounds		toxica		ceives or	surround	ding land	ediment, nutr	tial to
	sedim		ources of nutri				of	other	functions are	substantia	ally imp	aired. Ma	jor sedimenta trophication j	tion, present.
% cover of wetland vegetation in AA Evidence of flooding or ponding in A	sedim eutrop	entation, so	ources of nutri esent.		_ <	70%	of No	other	functions are s of nutrients	substantia or toxica 70%	ally imp	signs of eu	jor sedimenta	tion, present.

Comments: Nutrient loading from cattle use; water very turbid.

AA contains no or restricted outlet AA contains unrestricted outlet

LAND & WATER

Ap	plies o	MENT/SH nly if AA wave acti	occurs on	or within	n the ban	ks or a riv	ver, stream above.			proceed to al or man-		inage, or	on the sh	oreline of	a standi	ng water l	body tha	at is
		ing from top														s function.		
		by specie			ng	_		-		iter Ad								
ro	otmass				L]Permane	ent / Peren	nnial	⊠Se	asonal / In	termittent	t L	Tempora	ry / Ephei	neral			
			65 % 64 %															
			5 %							.2 (L)								
Comme	nts:	Wave ac								()								
i. Ratin A = a	g (Wor	cking from of vegetate utlet; P/P	top to bot ed compos = perman	ttom, use nent in tl nent/pere	the matr ne AA. Innial; S/I	rix below B = structu = season	to arrive a	sity rating ittent; T /l	g from E/A= t	#13. C = emporary/	Yes (Y) o ephemera	or No (N l/absent.		ether or no	ot the A	A contains	s a surfa	
A			getated co	_						component						omponent		
<u>В</u>	ПΥ	High N		oderate		Low N		High □N	I Y	Moderate N		Low		High □N	<u>M</u>	oderate	⊠Y	Low 🔲 N
P/P				N		N		N				N						
S/I																	.3L	
T/E/A																		
iii. R: AA No Ava Comme	has kno	rge Indica Springs ar Vegetatior Wetland or Seeps are AA perma Wetland or Other Use the in own Disch rge/Rechar Discharge/	e known of a growing cours at the present at the nently floontains an arge/Recharge indicate Recharge	during de toe of the wetle oded during outlet, but from 14 during area area tors presented information.	ormant s a natural and edge ing droug out no inl J(i) and i Criteria a or one ent tion inade	slope. ght periodet. 14j(ii) abcor more in equate to	bye and the adicators of the arrive	of D/R potern	elow to	l point and	able subs nd contain the function F	onal poir unctiona	ut not out it and ratii I Point and 0.1 (L)	ng of high d Rating	(H) or l	low (L) fo	r this fu	
		ement Poter		(> as	80 yr-old)	forested w listed as "S	warm sprin vetland or p 1" by the M	olant MTNHP.		types and or contain by the MT	structural d s plant asso NHP.	liversity (#13) is high sted as "S2"	types divers	or associativ (#13)	ontain previ ations and s is low-moo	structural lerate.	l
		e Abundance e at AA (#			□rare 		_common	□ abu		□rare 	□con		abundan	it		Commor 	1	abundant
		rbance at)				-										
0		ce at AA (#12i)						-							.2L		
i. ii. iii.	ECREA Is the Check Based	ATION / I AA a know categorie I on the lo Yes [Proce ng (Use the mership	wn recrea s that app cation, di ed to 14L	ational o ply to th iversity, (ii) and	r educat e AA: size, and then 14L	ional site Deduca other sit (iv).]	tional / sc te attribu	eientific s ates, is the No [Rate and ration	tudy ere a s as low ng of h	trong poto in 14L(iv) igh (H), m	sumptive ential for] oderate (N	rec. recreati	□ Non- onal or e	consumpt	ive rec. al use?	ed to 14L(☐ Oth		
	Pub	lic owners	hip															

Comments: Extremely remote

Private ownership



.1(L)

FUNCTION, VALUE SUMMARY, AND OVERALL RATING

Function and Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	Low	0.30	1	
B. MT Natural Heritage Program Species Habitat	Low	0.20	1	
C. General Wildlife Habitat	Moderate	0.70	1	
D. General Fish/Aquatic Habitat	NA	0.00		
E. Flood Attenuation	Low	0.20	1	
F. Short and Long Term Surface Water Storage	Moderate	0.60	1	
G. Sediment/Nutrient/Toxicant Removal	Low	0.30	1	
H. Sediment/Shoreline Stabilization	Low	0.20	1	
I. Production Export/Food Chain Support	Low	0.30	1	
J. Groundwater Discharge/Recharge	Low	0.10	1	
K. Uniqueness	Low	0.20	1	
L. Recreation/Education Potential	Low	0.10	1	
	Totals:	3.2	<u>11.00</u>	
	Percent of	Total Possible Points:	29% (Actual / Possible) x 100 [rd to nearest whole #]

Score of 1 functio Score of 1 functio Score of 1 functio	(Must satisfy one of the following criteria. If not proceed to Category II.) nal point for Listed/Proposed Threatened or Endangered Species; or nal point for Uniqueness; or nal point for Flood Attenuation and answer to Question 14E(ii) is "yes"; or ossible Points is > 80%.
Score of 1 functio Score of .9 or 1 fu Score of .9 or 1 fu Score of .9 or 1 fu "High" to "Except Score of .9 function	(Criteria for Category I not satisfied and meets any one of the following Category II criteria. If not satisfied, proceed to Category IV.) nal point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or inctional point for General Wildlife Habitat; or inctional point for General Fish/Aquatic Habitat; or tional? ratings for both General Wildlife Habitat and General Fish / Aquatic Habitat; or onal point for Uniqueness; or ossible points is > 65%.
☐ Category III Wet	land: (Criteria for Categories I, II, or IV not satisfied.)
Category IV Wetland "Low" rating for U "Low" rating for F	: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; If not satisfied, proceed to Category III.)
Category IV Wetland "Low" rating for I "Low" rating for F Percent of total po	l: (Criteria for Categories I or II are not satisfied and <u>all</u> of the following criteria are met; If not satisfied, proceed to Category III.) Uniqueness; and Production Export / Food Chain Support; and



Appendix C

REPRESENTATIVE PHOTOGRAPHS 2001-2003 AERIAL PHOTOGRAPHS

MDT Wetland Mitigation Monitoring Fourchette Creek Phillips County, Montana









PENGUIN RESERVOIR (LEFT) AND PINTAIL RESERVOIR (RIGHT)







FLASHLIGHT RESERVOIR







ALBATROSS RESERVOIR







FOURCHETTE RESERVE PHOTO SHEET 3

PUFFIN RESERVOIR







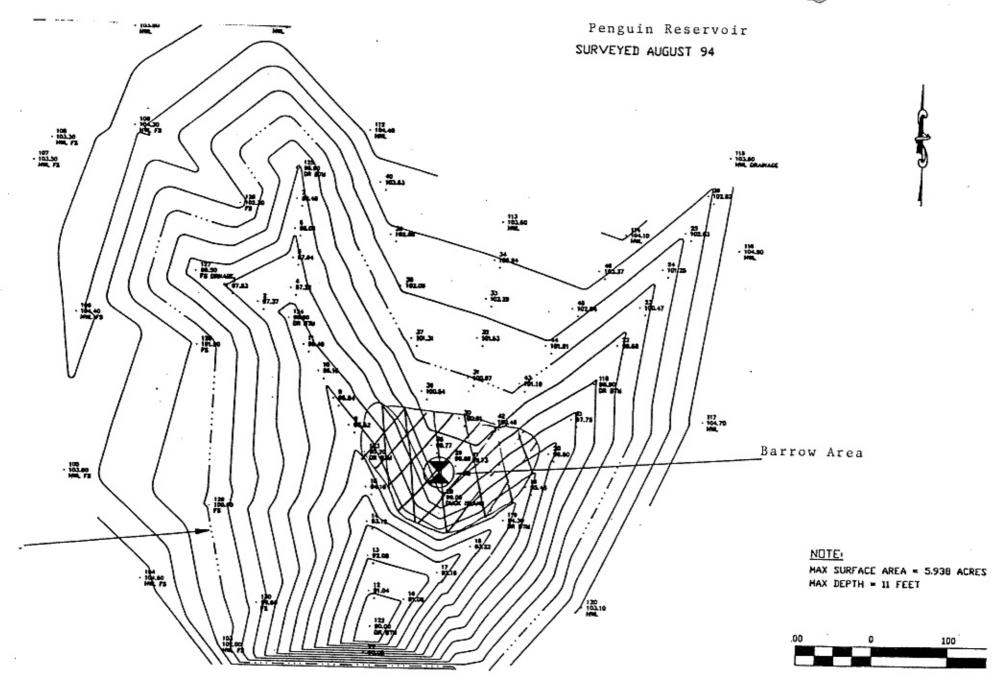


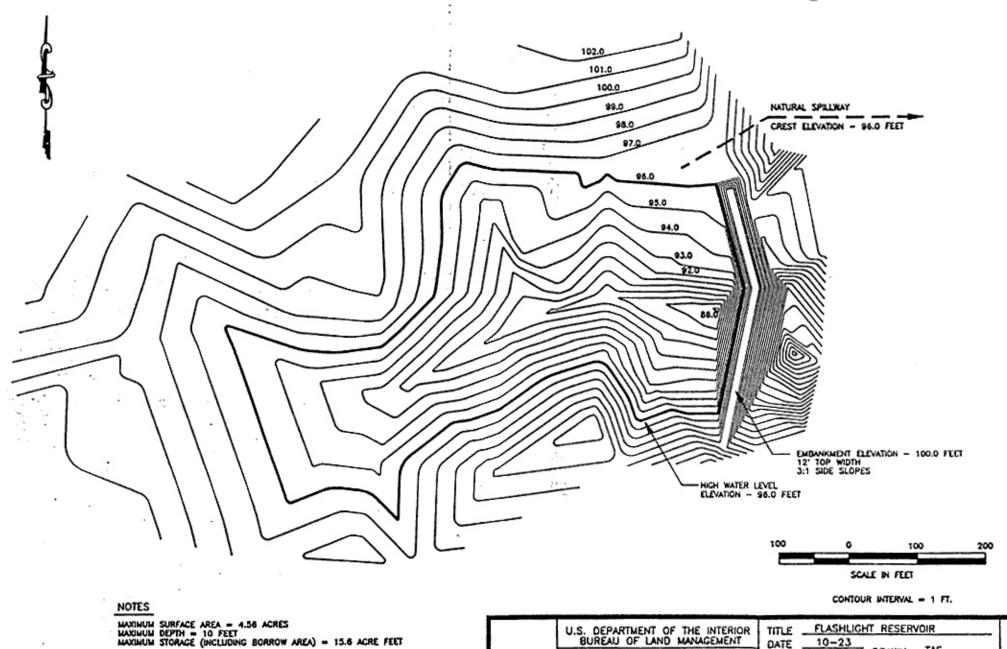
Appendix D

CONCEPTUAL SITE LAYOUTS

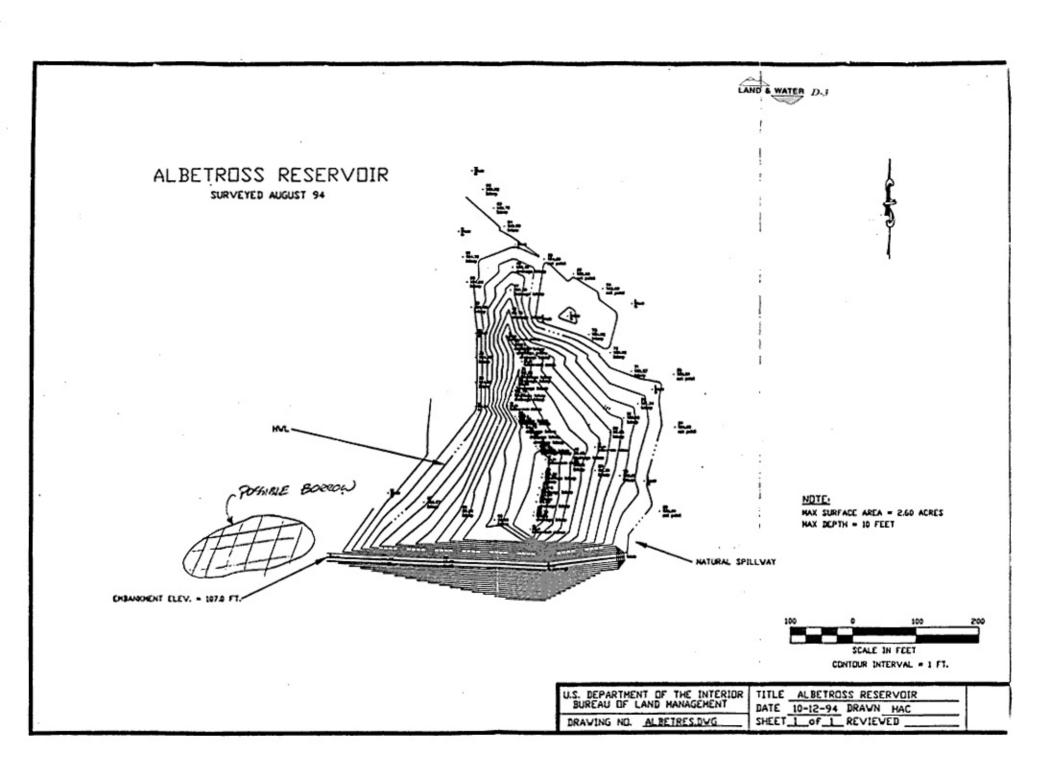
MDT Wetland Mitigation Monitoring Fourchette Creek Phillips County, Montana

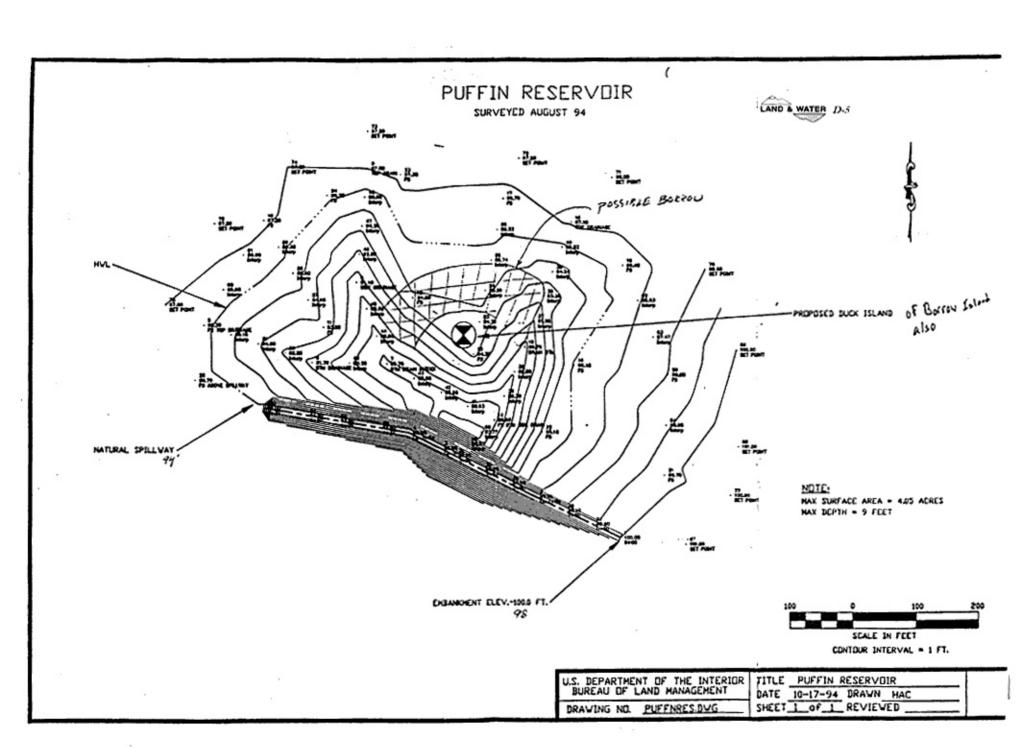






U.S. DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT 10-23 DATE SHEET _1 of _1 DRAWN _TAS DRAWING NO. __FLASHLT.DWG DESIGNED. REVIEWED APPROVED





Appendix E

BIRD SURVEY PROTOCOL GPS PROTOCOL

MDT Wetland Mitigation Monitoring Fourchette Creek Phillips County, Montana



BIRD SURVEY PROTOCOL

The following is an outline of the MDT Wetland Mitigation Site Monitoring Bird Survey Protocol. Though each site is vastly different, the bird survey data collection methods must be standardized to a certain degree to increase repeatability. An Area Search within a restricted time frame will be used to collect the following data: a bird species list, density, behavior, and habitat-type use. There will be some decisions that team members must make to fit the protocol to their particular site. Each of the following sections and the desired result describes the protocol established to reflect bird species use over time.

Species Use within the Mitigation Wetland: Survey Method

Result: To conduct a bird survey of the wetland mitigation site within a restricted period of time and the budget allotment.

Sites that can be circumambulated or walked throughout.

These types of sites will include ponds, enhanced historic river channels, wet meadows, and any area that can be surveyed from the entirety of its perimeter or walked throughout. If the wetland is not uncomfortably inundated, conduct several "meandering" transects through the site in an orderly fashion (record the number and approximate location/direction of the transects in the field notebook; they do not have to be formalized or staked). If a very small portion of the site cannot be crossed due to inundation, this method will also apply. Though the sizes of the site vary, each site will require surveying to the fullest extent possible within a set time limit. The optimum times to conduct the survey are in the morning hours. Conduct the survey from sunrise to no later than 11:00 AM. (Note: some sites may have to be surveyed in the late afternoon or evening due to time constraints or weather; if this is the case, record the time of day and include this information in your report discussion.) If the survey is completed before 11:00 AM and no additions are being made to the list, then the task is complete. The overall limiting factor regarding the number of hours that are spent conducting this survey is the number of budgeted hours; this determination must be made by site by each individual.

In many cases, binoculars will be the only instrument that is needed to identify and count the birds using the wetland. If the wetland includes deep water habitat that can not be assessed with binoculars, then a scope and tripod are necessary. If this is the case, establish as many lookout posts as necessary from key vantage points to collect the data. Depending on the size of the open water, more time may be spent viewing the mitigation area from these vantage points than is spent walking the peripheries of more shallow-water wetlands.

Sites that cannot be circumambulated.

These types of sites will include large-bodied waters, such as reservoirs, particularly those with deep water habitat (>6 ft) close to the shore and no wetland development in that area of the shoreline. If one area of the reservoir was graded in such a way to create or enhance the development of a wetland, then that will be the area in which the ambulatory bird survey is conducted. The team member must then determine the length of the shoreline that will be surveyed during each visit.



As stated above in the ambulatory site section, these large sites most likely will have to be surveyed from established vantage points.

Species Use within the Mitigation Wetland: Data Recording

Result: A complete list of bird species using the site, an estimate of bird densities and associated behaviors, and identification of habitat use.

1. Bird Species List

Record the bird species on the Bird Survey - Field Data Sheet using the appropriate 4-letter code of the common name. The coding uses the first two letters of the first two words of the birds' common name or if one name, the first four (4) letters. For example, mourning dove is coded MODO and mallard is MALL. If an unknown individual is observed, use the following protocol and define your abbreviation at the bottom of the field data sheet: unknown shorebird: UNSB; unknown brown bird (UNBR); unknown warbler (UNWA); unknown waterfowl (UNWF). For a flyover of a flock of unknown species, use a term that describes the birds' general characteristics and include the approximate flock size in parentheses; do not fill in the habitat column. For example, a flock of black, medium-sized birds could be coded: UNBB / FO (25). You may also note on the data sheet if that particular individual is using a constructed nest box.

2. Bird Density

In the office, sum the Bird Survey – Field Data Sheet data by species and by behavior. Record this data in the Bird Summary Table.

3. Bird Behavior

Bird behavior must be identified by what is known. When a species is simply observed, the behavior that it is immediately exhibiting is what is recorded. Only behaviors that have discreet descriptive terms should be used. The following terms are recommended: breeding pair individual (BP); foraging (F); flyover (FO); loafing (L; e.g. sleeping, roosting, floating with head tucked under wing are loafing behaviors); and, nesting (N). If more behaviors are observed that do have a specific descriptive word, use them and we will add it to the protocol; descriptive words or phrases such as "migrating" or "living on site" are unknown behaviors.

4. Bird Species Habitat Use

We are interested in what bird species are using which particular habitat within the mitigation wetlands. This data is easily collected by simply recording what habitat the species was initially observed. Use the following broad category habitat classifications: aquatic bed (AB - rooted floating, floating-leaved, or submergent vegetation); forested (FO); marsh (MA – cattail, bulrush, emergent vegetation, etc. with surface water); open water (OW – primarily unvegetated); scrubshrub (SS); and upland buffer (UP); wet meadow (WM – sedges, rushes, grasses with little to no surface water). If other categories are observed onsite that are not suggested here, we will make a new category next year.



GPS Mapping and Aerial Photo Referencing Procedure

The wetland boundaries, photograph location points and sampling locations were field located with mapping grade Trimble Geo III GPS units. The data was collected with a minimum of three positions per feature using Course/Acquisition code. The collected data was then transferred to a PC and differentially corrected to the nearest operating Community Base Station. The corrected data was then exported to ACAD drawings in Montana State Plain Coordinates NAD 83 international feet.

The GPS positions collected and processed had a 68% accuracy of 7 feet except in isolated areas of Tasks .008 and .011, where it went to 12 feet. This is within the 1 to 5 meter range listed as the expected accuracy of the mapping grade Trimble GPS.

Aerial reference points were used to position the aerial photographs. This positioning did not remove the distortion inherent in all photos; this imagery is to be used as a visual aide only. The located wetland boundaries were given a final review by the wetland biologist and adjustments were made if necessary.

Any relationship of features located to easement or property lines are not to be construed from these figures. These relationships can only be determined with a survey by a licensed surveyor.



Appendix F

MACROINVERTEBRATE SAMPLING PROTOCOL AND DATA

MDT Wetland Mitigation Monitoring Fourchette Creek Phillips County, Montana



AQUATIC INVERTEBRATE SAMPLING PROTOCOL

Equipment List

- D-frame sampling net with 1 mm mesh. Wildco is a good source of these.
- Spare net.
- 1-liter plastic sample jars, wide-mouth. VWR has these: catalog #36319-707.
- 95% ethanol: Northwest Scientific in Billings carries this.

All these other things are generally available at hardware or sporting goods stores. Make the labels on an ink jet printer preferably.

- hip waders.
- pre-printed sample labels (printed on Rite-in-the-Rain or other coated paper, two labels per sample).
- pencil.
- plastic pail (3 or 5 gallon).
- large tea strainer or framed screen.
- towel.
- tape for affixing label to jar.
- cooler with ice for sample storage.

Site Selection

Select the sampling site with these considerations in mind:

- Select a site accessible with hip waders. If substrates are too soft, lay a wide board down to walk on.
- Determine a location that is representative of the overall condition of the wetland.

Sampling

Wetland invertebrates inhabit the substrate, the water column, the stems and leaves of aquatic vegetation, and the water surface. Your goal is to sweep the collecting net through each of these habitat types, and then to combine the resulting samples into the 1-liter sample jar.

Dip out about a gallon of water into the pail. Pour about a cup of ethanol into the sample jar. Fill out the top half of the sample labels, using pencil, since ink will dissolve in the ethanol.

Ideally, you can sample a swath of water column from near-shore outward to a depth of approximately 3 feet with a long sweep of the net, keeping the net at about half the depth of the water throughout the sweep. Sweep the water surface as well. Pull the net through a vegetated area, beneath the water surface, for at least a meter of distance.

Sample the substrate by pulling the net along the bottom, bumping it against the substrate several times as you pull.



This step is optional, but it gives you a chance to <u>see</u> that you've collected some invertebrates. Rinse the net out into the bucket, and look for insects, crustaceans, etc. If necessary, repeat the sampling process in a nearby location, and add the net contents to the bucket. Remember to sample all four environments.

Sieve the contents of the bucket through the straining device and pour or carefully scrape the contents of the strainer into the sample jar.

If you skip the bucket-and-sieve steps, simply lift handfuls of material out of the sampling net into the jars. In either case, please include some muck or mud and some vegetation in the jar. Often, you will have collected a large amount of vegetable material. If this is the case, lift out handfuls of material from the sieve into the jar, until the jar is about half full. Please limit material you include in the sample, so that there is only a single jar for each sample.

Top off the sample jar with enough ethanol to cover all the material in the jar. Leave as little headroom as possible.

It is not necessary to sample habitats in any specified order. Keep in mind that disturbing the habitats prior to sampling will chase off the animals you are trying to capture.

Complete the sample labels. Place one label inside the sample jar and tape the other label securely to the outside of the jar. Dry the jar before attaching the outer label if necessary. In some situations, it may be necessary to collect more than one sample at a site. If you take multiple samples from the same site, clearly indicate this by using individual sample numbers, along with the total number of samples collected at the site (e.g. Sample #3 of 5 total samples).

Photograph the sampled site.

Sample Handling/Shipping

- In the field, keep collected samples cool by storing them in a cooler. Only a small amount of ice is necessary.
- Inventory all samples, preparing a list of all sites and enumerating all samples, before shipping or delivering to the laboratory.
- Deliver samples to Rhithron.



MDT WETLAND MITIGATION MONITORING PROJECT Aquatic Invertebrate Monitoring Summary 2001, 2002, 2003

METHODS

Among other monitoring activities, aquatic invertebrate assemblages were collected at a number of mitigation wetlands throughout Montana. This report summarizes data generated from three years of collection.

The method employed to assess these wetlands is based on constructing an index using a battery of 12 bioassessment metrics or attributes (**Table 1**) tested and recommended by Stribling et al. (1995) in a report to the Montana Department of Health and Environmental Science. In that study, it was determined that some of the metrics were of limited use in some geographic regions, and for some wetland types. Despite that finding, all 12 metrics are used in this evaluation of mitigated wetlands, since detailed geographic information and wetland classifications were unavailable.

Scoring criteria for metrics were developed by generally following the tactic used by Stribling et al. Boxplots were generated and distributions, ranges, and quartiles for each metric were examined. All sites were used except Camp Creek, which was sampled in 2002 and 2003. The fauna at that site was different from that of the other sites, and suggested montane stream conditions rather than wetland conditions. The Camp Creek site was assessed using the tested metric battery developed for montane streams of Western Montana (Bollman 1998). For the wetlands, "optimal" scores were generally those that fell above the 75th percentile (for those metrics that decrease in value in response to stress) or below the 25th percentile (for metrics that respond to stress by an increase in value) of all scores. Additional scoring ranges were established by bisecting the range below the 75th percentile for decreasing scores (or above the 25th percentile for increasing scores) into "sub-optimal" and "poor" assessment categories. A score of 5, 3, or 1 was assigned to optimal, sub-optimal, and poor metric performance, respectively. In this way, metric values were translated into normalized metric scores, and scores for all metrics were summed to produce a total bioassessment score. Total bioassessment scores were classified according to a similar process, using the ranges and distributions of total scores for all sites studied.

The purpose of constructing an index from biological attributes or metrics is to provide a means of integrating information to facilitate the determination of whether management action is needed. The nature of the action needed is not determined solely by the index score, however, but by consideration of an analysis of the component metrics, the taxonomic composition of the assemblages and other issues. The diagnostic functions of the metrics and taxonomic data need more study; our understanding of the interrelationships of natural environmental factors and anthropogenic disturbances are tentative. Thus, the further interpretive remarks accompanying the raw taxonomic and metric data are offered cautiously.

Sample Processing

Aquatic invertebrate samples were collected at mitigation wetland sites in the summer months of 2001, 2002, and 2003 by personnel of Wetlands West, Inc. and/or Land & Water Consulting, Inc. Sampling procedures utilized were based on the protocols developed by the Montana Department of Environmental Quality (MDEQ).

Sampling consisted of D-frame net sweeps through emergent vegetation (when present), the water column, over the water surface, and included disturbing and scraping substrates at each sampled sites. Samples were preserved in ethanol at each wetland site and subsequently delivered to Rhithron Associates, Inc. for processing, taxonomic determinations, and data analysis.

At Rhithron's laboratory, Caton subsamplers and stereomicroscopes with 10X magnification were used to randomly select a minimum of 200 organisms, when possible, from each sample. In some cases, the entire sample contained fewer than 200 organisms; in these cases, all organisms from the sample were taken. Taxa were identified in general accordance with the taxonomic resolution standards set out in the MDEQ Standard Operating Procedures for Sampling and Sample Analysis (Bukantis 1998). Ten percent of samples were re-identified by a second taxonomist



for quality assurance purposes. The identified samples have been archived at Rhithron's laboratory. Taxonomic data and organism counts were entered into an Excel 2000 spreadsheet, and metrics were calculated and scored using spreadsheet formulae.

Bioassessment Metrics

An index based on the performance of 12 metrics was constructed, as described above. **Table 1** lists those metrics, describes their calculation and the expected response of each to increased degradation or impairment of the wetland.

In addition to the summed scores of each metric and the associated impairment classification described above, each individual metric informs the bioassessment to some degree. The four richness metrics (Total taxa, POET, Chironomidae taxa, and Crustacea taxa + Mollusca taxa) can be interpreted to express habitat complexity as well as water quality. Complex, diverse habitats consist of variable substrates, emergent vegetation, variable water depths and other factors, and are potential features of long-established stable wetlands with minimal human disturbance. In the study conducted by Stribling et al. (1995), all four richness metrics were found to be significantly associated with water quality parameters including conductance, salinity, and total dissolved solids.

Four composition metrics (%Chironomidae, %Orthocladiinae of Chironomidae, %Crustacea + %Mollusca, and Amphipoda) measure the relative contributions of certain taxonomic groups that may have significant responses to habitat and/or water quality impacts. For example, amphipods have been demonstrated to increase in abundance in alkaline conditions. Short-lived, relatively mobile taxa such as chironomids dominate ephemeral environments; any are hemoglobin-bearers capable of tolerating de-oxygenated conditions.

Two tolerance metrics (the Hilsenhoff Biotic Index and %Dominant taxon) were included in the bioassessment battery. The HBI indicates the overall invertebrate assemblage tolerance to nutrient enrichment, warm water, and/or low dissolved oxygen conditions. The percent abundance of the dominant taxon has been demonstrated to be strongly associated with pH, conductance, salinity, total organic carbon, and total dissolved solids.

Two trophic measures (%Collector-gatherers and %Filterers) may be helpful in expressing functional integrity of the invertebrate assemblage, which can be impacted by poor water quality or habitat degradation. High proportions of filtering organisms suggest nutrient and/or organic enrichment, while abundant collectors suggest more positive functional conditions and well-developed wetland morphology. These organisms graze periphyton growing on stable surfaces such as macrophytes.

RESULTS

In 2001, 29 sites were sampled statewide. Nineteen of these sites were revisited in 2002, and 13 new sites were sampled. In 2003, 17 sites that had been visited in both 2001 and 2002 were re-sampled, and 11 sites sampled for the first time in 2001 were re-visited. In addition, 2 new sites were sampled. Thus, the 2003 database contains records for 90 sampling events at 44 unique sites. **Table 2** summarizes sites and sampling dates.

Metric scoring criteria were re-developed each year as new data was added. For 2003, 88 records were utilized. Because of the addition of data, scoring criteria changed for several metrics in 2003; thus, biotic condition classifications assigned in 2002 for some sites also changed. However, ranges of individual metrics, as well as median metric values remained remarkably consistent in each of the three years.



F-4

Table 1. Aquatic invertebrate metrics employed in the MTDT mitigation wetland monitoring study, 2001- 2003.

Metric	Metric Calculation	Expected Response to Degradation or Impairment
Total taxa	Count of unique taxa identified to lowest recommended taxonomic level	Decrease
POET	Count unique Plecoptera, Trichoptera, Ephemeroptera, and Odonata taxa identified to lowest recommended taxonomic level	Decrease
Chironomidae taxa	Count unique midge taxa identified to lowest recommended taxonomic level	Decrease
Crustacea taxa + Mollusca taxa	Count unique Crustacea taxa and Mollusca taxa identified to lowest recommended taxonomic level	Decrease
% Chironomidae	Percent abundance of midges in the subsample	Increase
Orthocladiinae/Chironomidae	Number of individual midges in the sub-family Orthocladiinae / total number of midges in the subsample.	Decrease
%Amphipoda	Percent abundance of amphipods in the subsample	Increase
%Crustacea + %Mollusca	Percent abundance of crustaceans in the subsample plus percent abundance of molluses in the subsample	Increase
нві	Relative abundance of each taxon multiplied times that taxon's modified Hilsenhoff Biotic Index value. These numbers are summed over all taxa in the subsample.	Increase
%Dominant taxon	Percent abundance of the most abundant taxon in the subsample	Increase
%Collector-Gatherers	Percent abundance of organisms in the collector-gatherer functional group	Decrease
%Filterers	Percent abundance of organisms in the filterer functional group	Increase

LITERATURE CITED

Bollman, W. 1998. Montana Valleys and Foothill Prairies Ecoregion. Master's Thesis. (M.S.) University of Montana. Missoula, Montana.

Bukantis, R. 1998. Rapid bioassessment macroinvertebrate protocols: Sampling and sample analysis SOP's. Working draft. Montana Department of Environmental Quality. Planning Prevention and Assistance Division. Helena, Montana.

Stribling, J.B., J. Lathrop-Davis, M.T. Barbour, J.S. White, and E.W. Leppo. 1995. Evaluation of environmental indicators for the wetlands of Montana: the multimetric approach using benthic macroinvertebrates. Report to the Montana Department of Health and Environmental Science. Helena, Montana.



Table 2. Sampled MDT Mitigation Sites by Year

2001	2002	2003
Beaverhead 1	Beaverhead 1	Beaverhead 1
Beaverhead 2	Beaverhead 2	Beavernead 1
Beaverhead 3		
	Beaverhead 3	D
Beaverhead 4	Beaverhead 4	Beaverhead 4
Beaverhead 5	Beaverhead 5	Beaverhead 5
Beaverhead 6	Beaverhead 6	Beaverhead 6
Big Sandy 1		
Big Sandy 2		
Big Sandy 3		
Big Sandy 4		
Johnson-Valier		
VIDA		
Cow Coulee	Cow Coulee	Cow Coulee
Fourchette - Puffin	Fourchette - Puffin	Fourchette - Puffin
Fourchette – Flashlight	Fourchette – Flashlight	Fourchette – Flashlight
Fourchette – Penguin	Fourchette – Penguin	Fourchette – Penguin
Fourchette – Albatross	Fourchette - Albatross	Fourchette – Albatross
Big Spring	Big Spring	Big Spring
Vince Ames		
Ryegate		
Lavinia		
Stillwater	Stillwater	Stillwater
Roundup	Roundup	Roundup
Wigeon	Wigeon	Wigeon
Ridgeway	Ridgeway	Ridgeway
Musgrave – Rest. 1	Musgrave – Rest. 1	Musgrave - Rest. 1
Musgrave - Rest. 2	Musgrave - Rest. 2	Musgrave – Rest. 2
Musgrave – Enh. 1	Musgrave – Enh. 1	Musgrave – Enh. 1
Musgrave – Enh. 2		
	Hoskins Landing	Hoskins Landing
	Peterson - 1	Peterson – 1
	Peterson – 2	reteriori 1
	Peterson – 4	Peterson – 4
	Peterson – 5	Peterson – 5
	Jack Johnson - main	Jack Johnson - main
	Jack Johnson - SW	Jack Johnson - SW
	Creston	Creston
	Lawrence Park	Creston
	Perry Ranch	
	SF Smith River	SF Smith Di
		SF Smith River
	Camp Creek	Camp Creek
	Kleinschmidt	Kleinschmidt – pond
		Kleinschmidt – stream
		Ringling - Galt



Aquatic Invertebrate Taxonomic Data

Site Name FOU	RCHETTE CREEK PU	JFFIN RESERVOIR		Date Col	lected	7/31	/2003
Order	Family	Taxon	Count	Percent	Unique	ВІ	FFG
		Ostracoda	4	6.45%	Yes	8	CG
A !		Copepoda	49	79.03%	Yes	8	CG
Acarina	Acari					_	
Amphipoda		Acari	1	1.61%	Yes	5	PR
	Talitridae	Hyalella	1	1.61%	Yes	8	CG
Basommatophor	ra Lymnaeidae						
Coleoptera	2,	Stagnicola	1	1.61%	Yes	6	SC
Coleoptera	Hydrophilidae	Danasa	1	1.610/	V	_	DD
Diplostraca		Berosus	1	1.61%	Yes	5	PR
		Cladocera	1	1.61%	Yes	8	CF
Heteroptera	Corixidae						
	Corizidae	Corixidae	2	3.23%	No	10	PH
	Notonectidae	Sigara	1	1.61%	Yes	5	PH
	notoffectidae	Notonectidae	1	1.61%	Yes	10	PR
Grand Total			62				

Aquatic Invertebrate Taxonomic Data

Site Name FOURCHETTE CREEK ALBATROSS RESERVOIR			Date Col	lected '	7/31	/2003	
Order	Family	Taxon	Count	Percent	Unique	ві	FFG
Coleoptera		Ostracoda	1	0.76%	Yes	8	CG
Diplostraca	Dytiscidae	Hygrotus Liodessus	2 1	1.53% 0.76%	Yes Yes	5 5	PR PR
Diptera	Ceratopogonidae	Cladocera	59	45.04%	Yes	8	CF
	Chironomidae	Ceratopogoninae	1	0.76%	Yes	6	PR
		Cricotopus (Isocladius) Glyptotendipes Psectrocladius	40 1 5	30.53% 0.76% 3.82%	Yes Yes Yes	7 10 8	SH SH CG
Ephemeroptera	Baetidae	Callibaetis	5	3.82%	Yes	9	CG
Haplotaxida	Naididae	Nais	6	4.58%	Yes	8	CG
Heteroptera	Corixidae	Corixidae	2	1.53%	No	10	PH
	Notonectidae	Sigara Notonecta	3 1	2.29% 0.76%	Yes Yes	5 5	PH PR
Odonata	Coenagrionidae	Enallagma	3	2.29%	Yes	7	PR
Rhynchobdellida Grand Total	Glossiphoniidae	Theromyzon	1 131	0.76%	Yes	10	PR

Aquatic Invertebrate Taxonomic Data

Site Name FOURCHETTE CREEK FLASHLIGHT RESERVOIR				Date Collected		7/31/200	
Order	Family	Taxon	Count	Percent	Unique	BI	FFG
Acarina	Acari	Acari	1	1.64%	Yes	5	PR
Amphipoda	Talitridae	Hyalella	21	34.43%	Yes	8	CG
Basommatophora		11gaieua	21	04.4070	105	O	ca
Coleoptera	Physidae	Physidae	6	9.84%	Yes	8	SC
o o o o o o o o o o o o o o o o o o o	Haliplidae	Haliplidae	2	3.28%	Yes	7	SH
D	Hydrophilidae	Helophorus	1	1.64%	Yes	11	SH
Diptera	Ceratopogonidae	Ceratopogoninae	4	6.56%	Yes	6	PR
	Chironomidae	Cricotopus (Isocladius)	1	1.64%	Yes	7	SH
		Cryptochironomus Psectrocladius	1 1	1.64% 1.64%	Yes Yes	8 8	PR CG
Tabanidae	Tabanidae	2	3.28%	Yes	6	PR	
Ephemeroptera	Baetidae	Callibaetis	1	1.64%	Yes	9	CG
	Caenidae	Caenis	5	8.20%	Yes	9 7	CG
Heteroptera	Corixidae	Cuchia	Ü	0.2070	100	•	Cu
		Corixidae Sigara	3 1	4.92% 1.64%	No Yes	10 5	PH PH
Rhynchobdellida	Notonectidae	Notonecta	9	14.75%	Yes	5	PR
Knynchobueniua	Glossiphoniidae	Helobdella stagnalis	1	1.64%	Yes	10	PR
Trichoptera	Leptoceridae	Ü					
Grand Total		Mystacides	1 61	1.64%	Yes	4	CG

Aquatic Invertebrate Taxonomic Data Site Name FOURCHETTE CREEK PENGUIN RESERVOIR

Aquatic Invertebrate Taxonomic Data Site Name FOURCHETTE CREEK PENGUIN RESERVOIR Date Collected 7/31/2003					/2003		
Order	Family	Taxon	Count	Percent	Unique	ві	FFG
		Ostracoda	40	23.53%	Yes	8	CG
Amphipoda		Copepoda	1	0.59%	Yes	8	CG
	Talitridae	Hyalella	38	22.35%	Yes	8	CG
Basommatophor	a Physidae						
	Filysidae	Physidae	2	1.18%	Yes	8	SC
	Planorbidae	111,01440	_	111070	100	Ü	~~
		Gyraulus	2	1.18%	Yes	8	SC
Coleoptera	5						
	Dytiscidae	Agghus	1	0.59%	Yes	5	PR
		Agabus Hygrotus	1	0.59%	Yes	5	PR
		Liodessus	6	3.53%	Yes	5	PR
	Haliplidae	Zioacocac	J	0.0070	100	Ü	110
	•	Haliplus	6	3.53%	Yes	5	PH
	Hydrophilidae						
		Tropisternus	1	0.59%	Yes	5	PR
Diplostraca							
		Cladocera	1	0.59%	Yes	8	CF
Diptera							
	Ceratopogonidae		-	4.100/	37	_	DD
	China nanida a	Ceratopogoninae	7	4.12%	Yes	6	PR
	Chironomidae	Ablabesmyia	1	0.59%	Yes	8	CG
		Chironomus	2	1.18%	Yes	10	CG
		Corynoneura	1	0.59%	Yes	7	CG
		Cricotopus (Isocladius)	1	0.59%	Yes	7	SH
		Cryptochironomus	1	0.59%	Yes	8	PR
		Paratanytarsus	8	4.71%	Yes	6	CG
		Procladius	1	0.59%	Yes	9	PR
		Psectrocladius	24	14.12%	Yes	8	CG
	Culicidae	Tvetenia	2	1.18%	Yes	5	CG
	Culicidae	Culicidae	1	0.59%	Yes	10	CG
Ephemeroptera			•	0.0070	100	-0	
• •	Baetidae						
		Callibaetis	12	7.06%	Yes	9	CG
	Caenidae		2	1 1007	37	_	00
Untorortoro		Caenis	2	1.18%	Yes	7	CG
Heteroptera	Corixidae						
	Cormidae	Corixidae	7	4.12%	Yes	10	PH
	Notonectidae		•	= 7.0		- •	
		Notonecta	1	0.59%	Yes	5	PR
Grand Total			170				

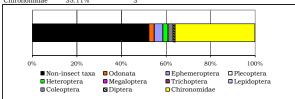
Aquatic Invertebrate Data Summary Project ID: MDT03LW STORET Station ID:

SS RESERVOIR

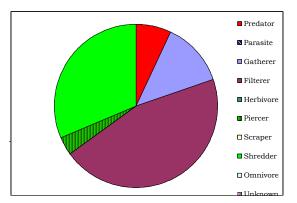
Station Name:	FOURCHETTE	CREEK ALBATROS
Sample type		
SUBSAMPLE TOTAL ORGA	NISMS	131
Portion of sample used		10.00%
Estimated number in total :	sample	1310
Sampling effort		
Time		
Distance		
Jabs		
Habitat type		
EPT abundance		5
Taxa richness		14
Number EPT taxa		1
Percent EPT		3.82%

TAXONOMIC COMPOSITION

GROUP	PERCENT	#TAXA
Non-insect taxa	51.15%	4
Odonata	2.29%	1
Ephemeroptera	3.82%	1
Plecoptera	0.00%	0
Heteroptera	2.29%	3
Megaloptera	0.00%	0
Trichoptera	0.00%	0
Lepidoptera	0.00%	0
Coleoptera	2.29%	2
Diptera	0.76%	1
Chironomidae	25 110/	2



FUNCTIONAL COMPOSITION					
GROUP	PERCENT	#TAXA			
Predator	6.87%	6			
Parasite	0.00%	0			
Gatherer	12.98%	4			
Filterer	45.04%	1			
Herbivore	0.00%	0			
Piercer	3.82%	2			
Scraper	0.00%	0			
Shredder	31.30%	2			
Omnivore	0.00%	0			
Unknown	0.00%	0			



COMMUNITY TOLERANCES

Sediment tolerant taxa	0
Percent sediment tolerant	0.00%
Sediment sensitive taxa	0
Metals tolerance index (McGuire)	10.05
Cold stenotherm taxa	0
Percent cold stenotherms	0.00%

HABITUS MEASURES

Hemoglobin bearer richness	2
Percent hemoglobin bearers	1.53%
Air-breather richness	2
Percent air-breathers	2.29%
Burrower richness	2
Percent burrowers	1.53%
Swimmer richness	5
Percent swimmers	19.08%

Activity ID:

Sample Date:	7/31/2003
DOMINANCE	

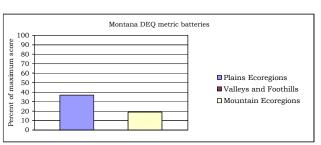
DOMINANCE		
TAXON	ABUNDANCE	PERCENT
Cladocera	59	45.04%
Cricotopus (Isocladius)	40	30.53%
Nais	6	4.58%
Callibaetis	5	3.82%
Psectrocladius	5	3.82%
SUBTOTAL 5 DOMINANTS	115	87.79%
Enallagma	3	2.29%
Sigara	3	2.29%
Corixidae	2	1.53%
Hygrotus	2	1.53%
Theromyzon	1	0.76%
TOTAL DOMINANTS	126	96.18%

SAPROBITY			
Hilsenhoff Biotic Inde	x		7.21
DIVERSITY			
Shannon H (loge)			1.94
Shannon H (log2)			1.35
Margalef D			2.87
Simpson D			0.30
Evenness			0.09
VOLTINISM			
TYPE		# TAXA	PERCENT
Multivoltine		6	84.73%
Univoltine		6	12.98%
Semivoltine		2	2.29%
TAXA CHARACTERS	3		
	#TAXA		PERCENT
Tolerant	2		7.63%

B-IBI (Karr et al.)		
BIOASSESSMENT INI	DICES	
Clinger	1	30.53%
Intolerant	0	0.00%
TOICIAIIC	-	7.0070

D-IDI (Narr et al.)				
METRIC	VALUE	S	CORE	
Taxa richness	14		1	
E richness	1		1	
P richness	0		1	
T richness	0		1	
Long-lived	2		1	
Sensitive richness	0		1	
%tolerant	7.63%		5	
%predators	6.87%		1	
Clinger richness	1		1	
%dominance (3)	80.15%		1	
		TOTAL SCORE	14	28%

MONTANA DEQ METRICS (Bukantis 1998)				
METRIC	VALUE	Plains Ecoregions	Valleys and Foothills	Mountain Ecoregions
Taxa richness	14	1	1	0
EPT richness	1	0	0	0
Biotic Index	7.21	0	0	0
%Dominant taxon	45.04%	1	1	0
%Collectors	58.02%	3	3	3
%EPT	3.82%	0	0	0
Shannon Diversity	1.35	0		
%Scrapers +Shredders	31.30%	3	3	1
Predator taxa	6	3		
%Multivoltine	84.73%	0		
%H of T	#DIV/0!		#DIV/0!	
TOTAL SCORES		11	#DIV/0!	4
PERCENT OF MAXIMUM		36.67	#DIV/0!	19.05
IMPAIRMENT CLASS		MODERATE	#DIV/0!	SEVERE



Riffle	Pool	
EPT richness	1 E richness	1
Percent EPT	3.82% T richness	0
Percent Oligochaetes and Leeches	5.34% Percent EPT	3.82%
Percent 2 dominants	75.57% Percent non-insect	51.15%
Filterer richness	1 Filterer richness	1
Percent intolerant	0.00% Univoltine richness	6
Univoltine richness	6 Percent supertolerant	61.07%
Percent clingers	30.53%	
Swimmer richness	5	

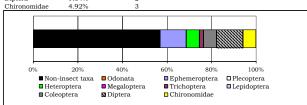
Aquatic Invertebrate Data Summary Project ID: MDT03LW STORET Station ID: Station Name: FOURCHET

CREEK FLASHLIGHT RESERVOIR

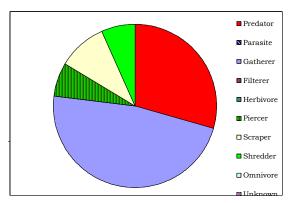
Station Name:	FOURCHETTE	E CREEK FLASHLIGH
Sample type		
SUBSAMPLE TOTAL ORGA	ANISMS	61
Portion of sample used		100.00%
Estimated number in total	l sample	61
Sampling effort		
Time		
Distance		
Jabs		
Habitat type		
EPT abundance		7
Taxa richness		16
Number EPT taxa		3
Percent EPT		11.48%

TAXONOMIC COMPOSITION

GROUP	PERCENT	#TAXA
Non-insect taxa	47.54%	4
Odonata	0.00%	0
Ephemeroptera	9.84%	2
Plecoptera	0.00%	0
Heteroptera	4.92%	3
Megaloptera	0.00%	0
Trichoptera	1.64%	1
Lepidoptera	0.00%	0
Coleoptera	4.92%	2
Diptera	9.84%	2



FUNCTIONAL COMPOSITION				
GROUP	PERCENT	#TAXA		
Predator	29.51%	6		
Parasite	0.00%	0		
Gatherer	47.54%	5		
Filterer	0.00%	0		
Herbivore	0.00%	0		
Piercer	6.56%	2		
Scraper	9.84%	1		
Shredder	6.56%	3		
Omnivore	0.00%	0		
Unlenoum	0.00%	0		



COMMUNITY TOLERANCES

Sediment tolerant taxa	0
Percent sediment tolerant	0.00%
Sediment sensitive taxa	0
Metals tolerance index (McGuire)	2.70
Cold stenotherm taxa	0
Percent cold stenotherms	0.00%

HABITUS MEASURES

Hemoglobin bearer richness	1
Percent hemoglobin bearers	14.75%
Air-breather richness	1
Percent air-breathers	3.28%
Burrower richness	1
Percent burrowers	6.56%
Swimmer richness	5
Percent swimmers	19.67%

Activity ID:

Sample Date: 7/31/2003

ABUNDANCE	PERCENT
21	34.43%
9	14.75%
6	9.84%
5	8.20%
4	6.56%
45	73.77%
3	4.92%
2	3.28%
2	3.28%
1	1.64%
1	1.64%
54	88.52%
	21 9 6 5 4 45 3 2 2 2 1

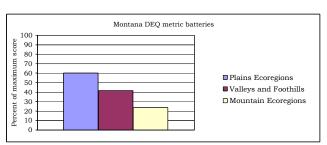
SAPROBITY Hilsenhoff Biotic Index	6.87
DIVERSITY	
Shannon H (loge)	3.17
Shannon H (log2)	2.20
Margalef D	3.89
Simpson D	0.15
Evenness	0.13
VOLTINISM	

TYPE		# TAXA	PERCENT
Multivoltine		5	8.20%
Univoltine		9	86.89%
Semivoltine		2	4.92%
TAXA CHARACTER	s		
	#TAXA		PERCENT
Tolerant	8		31.15%
Intolerant	0		0.00%
Clinger	1		1.64%

BIOASSESSMENT I	NDICES
B-IBI (Karr et al.)	

METRIC	VALUE	5	SCORE	
Taxa richness	16		1	
E richness	2		1	
P richness	0		1	
T richness	1		1	
Long-lived	2		1	
Sensitive richness	0		1	
%tolerant	31.15%		3	
%predators	29.51%		3	
Clinger richness	1		1	
%dominance (3)	59.02%		3	
		TOTAL SCORE	16	32%

MONTANA DEQ METRICS (Bukantis 1998)				
		Plains	Valleys and	Mountain
METRIC	VALUE	Ecoregions	Foothills	Ecoregions
Taxa richness	16	1	1	0
EPT richness	3	1	0	0
Biotic Index	6.87	1	0	0
%Dominant taxon	34.43%	2	2	2
%Collectors	47.54%	3	3	3
%EPT	11.48%	1	0	0
Shannon Diversity	2.20	1		
%Scrapers +Shredders	16.39%	2	1	0
Predator taxa	6	3		
%Multivoltine	8.20%	3		
%H of T	0.00%		3	
TOTAL SCORES		18	10	5
PERCENT OF MAXIMUM		60.00	41.67	23.81
IMPAIRMENT CLASS		SLIGHT	MODERATE	MODERATE



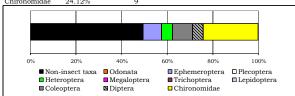
Riffle	Pool	
EPT richness	3 E richness	2
Percent EPT	11.48% T richness	1
Percent Oligochaetes and Leeches	1.64% Percent EPT	11.48%
Percent 2 dominants	49.18% Percent non-insect	47.54%
Filterer richness	0 Filterer richness	0
Percent intolerant	0.00% Univoltine richness	9
Univoltine richness	9 Percent supertolerant	57.38%
Percent clingers	1.64%	
Swimmer richness	5	

Aquatic Invertebrate Data Summary Project ID: MDT03LW STORET Station ID:

STORET Station ID:			
Station Name:	FOURCHETTI	E CREEK PENGUI	N RESERVOIR
Sample type			
SUBSAMPLE TOTAL OR	GANISMS	170	
Portion of sample used		21.67%	
Estimated number in to	al sample	785	
Sampling effort			
Time			
Distance			
Jabs			
Habitat type			
EPT abundance		14	
Taxa richness		26	
Number EPT taxa		2	
Percent EPT		8.24%	

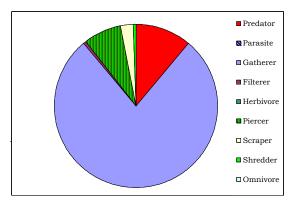
TAXONOMIC COMPOSITION

GROUP	PERCENT	#TAXA
Non-insect taxa	49.41%	6
Odonata	0.00%	0
Ephemeroptera	8.24%	2
Plecoptera	0.00%	0
Heteroptera	4.71%	2
Megaloptera	0.00%	0
Trichoptera	0.00%	0
Lepidoptera	0.00%	0
Coleoptera	8.82%	5
Diptera	4.71%	2
Chironomidae	24.12%	9



FUNCTIONAL COMPOSITION

GROUP	PERCENT	#TAX
Predator	11.18%	8
Parasite	0.00%	0
Gatherer	77.65%	12
Filterer	0.59%	1
Herbivore	0.00%	0
Piercer	7.65%	2
Scraper	2.35%	2
Shredder	0.59%	1
Omnivore	0.00%	0
Unknown	0.00%	0



COMMUNITY TOLERANCES

Sediment tolerant taxa	1
Percent sediment tolerant	1.18%
Sediment sensitive taxa	0
Metals tolerance index (McGuire)	6.20
Cold stenotherm taxa	0
Percent cold stenotherms	0.00%

HABITUS MEASURES

Hemoglobin bearer richness	3
Percent hemoglobin bearers	2.94%
Air-breather richness	5
Percent air-breathers	5.88%
Burrower richness	2
Percent burrowers	5.29%
Swimmer richness	0
Percent swimmers	0.00%

Activity ID:

SAPROBITY

Sample Date: 7/31/2003

TAXON	ABUNDANCE	PERCENT
Ostracoda	40	23.53%
Hyalella	38	22.35%
Psectrocladius	24	14.12%
Callibaetis	12	7.06%
Paratanytarsus	8	4.71%
SUBTOTAL 5 DOMINANTS	122	71.76%
Corixidae	7	4.12%
Ceratopogoninae	7	4.12%
Liodessus	6	3.53%
Haliplus	6	3.53%
Physidae	2	1.18%
TOTAL DOMINANTS	150	88.24%

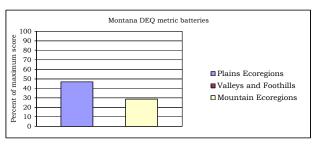
Hilsenhoff Biotic Index		7.23
DIVERSITY		
Shannon H (loge)		3.36
Shannon H (log2)		2.34
Margalef D		4.86
Simpson D		0.13
Evenness		0.09
VOLTINISM		
TYPE	# TAXA	PERCENT
Multivoltine	13	55.88%
Univoltine	8	35.29%

Semivoltine		5	8.82%
TAXA CHARACTERS	s		
	#TAXA		PERCENT
Tolerant	11		31.76%
Intolerant	0		0.00%
Clinger	1		0.59%

BIOASSESSMENI	NDICES		
B-IBI (Karr et al.)			
METRIC	VALUE	SCORE	
Γaxa richness	26	3	
E richness	2	1	
P richness	0	1	
Γ richness	0	1	
Long-lived	5	5	

Long-lived
Sensitive richness
%tolerant
%predators
Clinger richness
%dominance (3) 5 0 31.76% 11.18% 1 60.00% TOTAL SCORE 44%

MONTANA DEQ METRICS (Bukantis 1998)				
METRIC	VALUE	Plains Ecoregions	Valleys and Foothills	Mountain Ecoregions
Taxa richness	26	3	2	2
EPT richness	2	0	0	0
Biotic Index	7.23	0	0	0
%Dominant taxon	23.53%	3	3	3
%Collectors	78.24%	2	1	1
%EPT	8.24%	0	0	0
Shannon Diversity	2.34	1		
%Scrapers +Shredders	2.94%	0	0	0
Predator taxa	8	3		
%Multivoltine	55.88%	2		
%H of T	#DIV/0!		#DIV/0!	
TOTAL SCORES		14	#DIV/0!	6
PERCENT OF MAXIMU!	M	46.67	#DIV/0!	28.57
IMPAIRMENT CLASS		MODERATE	#DIV/0!	MODERATE



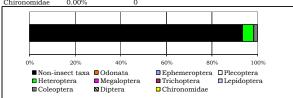
Riffle		Pool	
EPT richness	2	E richness	2
Percent EPT	8.24%	T richness	0
Percent Oligochaetes and Leeches	0.00%	Percent EPT	8.24%
Percent 2 dominants	45.88%	Percent non-insect	49.41%
Filterer richness	1	Filterer richness	1
Percent intolerant	0.00%	Univoltine richness	8
Univoltine richness	8	Percent supertolerant	78.24%
Percent clingers	0.59%		
Swimmer richness	0		

Aquatic Invertebrate Data Summary Project ID: MDT03LW STORET Station ID:

STORET Station ID:			
Station Name:	FOURCHETT	E CREEK PUFFIN	RESERVOIR
Sample type			
SUBSAMPLE TOTAL ORG	GANISMS	62	
Portion of sample used		100.00%	
Estimated number in tot	al sample	62	
Sampling effort			
Time			
Distance			
Jabs			
Habitat type			
EPT abundance		0	
Taxa richness		9	
Number EPT taxa		0	
Percent EPT		0.00%	

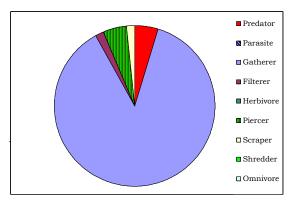
TAXONOMIC COMPOSITION

GROUP	PERCENT	#TAXA
Non-insect taxa	91.94%	6
Odonata	0.00%	0
Ephemeroptera	0.00%	0
Plecoptera	0.00%	0
Heteroptera	4.84%	3
Megaloptera	0.00%	0
Trichoptera	0.00%	0
Lepidoptera	0.00%	0
Coleoptera	1.61%	1
Diptera	0.00%	0
01.	0.000/	



FUNCTIONAL COMPOSITION

GROUP	PERCENT	#TAXA
Predator	4.84%	3
Parasite	0.00%	0
Gatherer	87.10%	3
Filterer	1.61%	1
Herbivore	0.00%	0
Piercer	4.84%	2
Scraper	1.61%	1
Shredder	0.00%	0
Omnivore	0.00%	0
Unknown	0.00%	0



COMMUNITY TOLERANCES

Sediment tolerant taxa	1
Percent sediment tolerant	1.61%
Sediment sensitive taxa	0
Metals tolerance index (McGuire)	10.27
Cold stenotherm taxa	0
Percent cold stenotherms	0.00%

HABITUS MEASURES

Hemoglobin bearer richness	1
Percent hemoglobin bearers	1.61%
Air-breather richness	1
Percent air-breathers	1.61%
Burrower richness	0
Percent burrowers	0.00%
Swimmer richness	7
Percent swimmers	45.16%

Activity ID:

Sample Date:	7/31/2003
DOMINANCE	

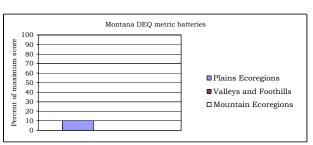
TAXON	ABUNDANCE	PERCENT
Copepoda	49	79.03%
Ostracoda	4	6.45%
Corixidae	2	3.23%
Stagnicola	1	1.61%
Cladocera	1	1.61%
SUBTOTAL 5 DOMINANTS	57	91.94%
Hyalella	1	1.61%
Acari	1	1.61%
Sigara	1	1.61%
Notonectidae	1	1.61%
Berosus	1	1.61%
TOTAL DOMINANTS	62	100.00%

SAPROBITY Hilsenhoff Biotic Index		7.00
DIVERSITY		
Shannon H (loge)		1.15
Shannon H (log2)		0.80
Margalef D		2.18
Simpson D		0.63
Evenness		0.08
VOLTINISM		
TYPE	# TAXA	PERCENT
Multivoltine	4	88.71%
Univoltine	4	9.68%
Semivoltine	1	1.61%
TAXA CHARACTERS		

TAXA CHARACT	ERS	
	#TAXA	PERCENT
Tolerant	2	3.23%
Intolerant	0	0.00%
Clinger	0	0.00%

B-IBI (Karr et al.)				
METRIC	VALUE	SC	CORE	
Taxa richness	9		1	
E richness	0		1	
P richness	0		1	
T richness	0		1	
Long-lived	1		1	
Sensitive richness	0		1	
%tolerant	3.23%		5	
%predators	4.84%		1	
Clinger richness	0		1	
%dominance (3)	88.71%		1	
		TOTAL SCORE	14	28%

MONTANA DEQ METRICS (Bukantis 1998)				
_	•	Plains	Valleys and	Mountain
METRIC	VALUE	Ecoregions	Foothills	Ecoregions
Taxa richness	9	0	0	0
EPT richness	0	0	0	0
Biotic Index	7.00	1	0	0
%Dominant taxon	79.03%	0	0	0
%Collectors	88.71%	1	1	0
%EPT	0.00%	0	0	0
Shannon Diversity	0.80	0		
%Scrapers +Shredders	1.61%	0	0	0
Predator taxa	3	1		
%Multivoltine	88.71%	0		
%H of T	#DIV/0!		#DIV/0!	
TOTAL SCORES		3	#DIV/0!	0
PERCENT OF MAXIMUI	M	10.00	#DIV/0!	0.00
IMPAIRMENT CLASS		SEVERE	#DIV/0!	SEVERE



Riffle		Pool		
EPT richness	0	E richness	0	
Percent EPT	0.00%	T richness	0	
Percent Oligochaetes and Leeches	0.00%	Percent EPT	0.00%	
Percent 2 dominants	85.48%	Percent non-insect	91.94%	
Filterer richness	1	Filterer richness	1	
Percent intolerant	0.00%	Univoltine richness	4	
Univoltine richness	4	Percent supertolerant	93.55%	
Percent clingers	0.00%			
Swimmer richness	7			