BIOLOGICAL RESOURCES REPORT
BIOLOGICAL ASSESSMENT

Stone Creek – North
STPP 49-1(25)9
UPN 7931

Beaverhead and Madison Counties, Montana
October 2013

Prepared on behalf of:

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EXECUTIVE SUMMARY

This Biological Resources Report identifies and addresses potential effects on biological resources from the Stone Creek – North project (STPP49-1(25)9). It has been prepared in compliance with the environmental review process associated with the National Environmental Policy Act (NEPA), the Montana Environmental Policy Act (MEPA), and the US Endangered Species Act of 1973 (ESA). This report presents an evaluation of the existing conditions within the project area and the project's potential impacts on terrestrial and aquatic plant and animal species, wetlands, species of special concern (SOC), and threatened or endangered (T&E) species.

The Montana Department of Transportation (MDT) proposes to reconstruct a portion of MT Highway Route 41 (P-49) northeast of Dillon in Beaverhead and Madison Counties. Specifically, the project will include improvements to both horizontal and vertical highway alignments, two bridge replacements (Stone Creek, Beaverhead River), and shoulder widening.

For the purpose of this report, the study area is located along the existing roadway of a 7.2±-mile stretch of MT Highway Route 41, beginning at Reference Marker (RM) 9.0± just south of the Stone Creek Bridge and extends north to RM 16.2± approximately 1.6 miles north of the Beaverhead River Bridge. Wetland delineation and vegetation mapping extended roughly 100 feet away from the existing road centerline and encompassed approximately 176 acres. The study area extends further from the centerline in the areas of Stone Creek and the Beaverhead River to provide supporting documentation of existing aquatic conditions within 0.5 mile up and down stream of the existing road centerline. Additionally, a broader area was assessed to identify the suitability of adjacent habitat to support SOC and T&E plants and animals.

Biological resource field surveys were conducted between June 10 and 13, June 26 and 27, and July 15, 2013. Field surveys included the identification and mapping of general vegetation communities, observation of wildlife use, a delineation of aquatic resources, surveys of streams and wetlands, identification and mapping noxious of weed species, surveys for SOC and T&E plant and animal species, and reconnaissance for suitable locations for potential wildlife underpasses along Highway 41. The U.S. Fish and Wildlife Service (USFWS), Montana Fish Wildlife and Parks (MFWP), and the Montana Natural Heritage Program (MTNHP) were contacted for information and potential issues and specific concerns for the Stone Creek – North project to biological resources, including T&E and sensitive plant/animal species and critical habitat.

Background research and agency coordination indicated the possible occurrence of eight T&E species and fourteen SOC, with two species (Arctic grayling and Ute Ladies' Tresses), identified as both T&E and SOC. These species include:

	Common Name	*Scientific Name*	MTNHP/ USFWS Status	County Listed
MTNHP Species of Concern	Hoary Bat	*Lasiurus cinereus*	S3	Madison/Beaverhead
	Great Basin Pocket Mouse	*Perognathus parvus*	S3	Madison/Beaverhead
	Great Blue Heron	*Ardea herodias*	S3	Madison/Beaverhead
	Bald Eagle	*Haliaeetus leucocephalus*	S4	Madison/Beaverhead
	Golden Eagle	*Aquila chrysaetos*	S3	Madison/Beaverhead
	Long-billed Curlew	*Numenius americanus*	S3B	Madison/Beaverhead
	Sage Thrasher	*Oreoscoptes montanus*	S3B	Madison/Beaverhead
	Brewer's Sparrow	*Spizella breweri*	S3B	Madison/Beaverhead
	Westslope Cutthroat Trout	*Oncorhynchus clarkii lewisi*	S2	Madison/Beaverhead
	Arctic Grayling	*Thymallus arcticus*	S1	Madison/Beaverhead
	Annual Indian Paintbrush	*Castilleja exilis*	S2	Madison
	Mealy Primrose	*Primula incana*	S3	Madison/Beaverhead
	Beaked Spikerush	*Eleocharis rostellata*	S3	Madison
	Ute Ladies' Tresses	*Spiranthes diluvialis*	S1S2	Madison/Beaverhead
USFWS T&E Species	Canada Lynx	*Lync canadensis*	LT	Madison/Beaverhead
	Grizzly Bear	*Ursus arctos horribilis*	LT	Madison/Beaverhead
	Greater Sage-Grouse	*Centrocercus urophasianus*	C	Madison/Beaverhead
	Sprague's Pipit	*Anthus spragueii*	C	Madison
	Arctic Grayling	*Thymallus arcticus*	C	Madison/Beaverhead
	Wolverine	*Gulo gulo luscus*	P	Madison/Beaverhead
	Ute Ladies' Tresses	*Spiranthes diluvialis*	LT	Madison/Beaverhead
	Whitebark Pine	*Pinus albicaulis*	C	Madison/Beaverhead

None of the T&E species were identified with known occurrence within the project area. As such, this project will likely have a "no effect" determination on federally listed species. One SOC, beaked spikerush, was identified along the boundary of the study area. Potential impacts to this species as a result of this project, and recommended conservation measures are presented in Section 5.0 of this report.

Three Waters of the U.S, two irrigation ditches, and fourteen wetland areas were delineated along the approximate 7.2-mile highway reach and totaled 11.30 acres of aquatic habitat within the 100-ft buffer on either side of centerline. The three Waters of the U.S. consist of the Beaverhead River, Stone Creek, and an unnamed tributary (UT-3) supported by a perennial spring. Two irrigation ditches, located north of the Beaverhead River, include the Co-op Ditch and Warm Springs Ditch. Wetland areas included palustrine emergent and scrub/shrub community types, and were primarily concentrated from RM 14.5 to the northern extent of the study area around RM 16.2. Stone Creek is located near the southwestern extent of the project reach. Three separate drainages with apparent connection to a Water of the US (WUS) are located between Stone Creek and the Beaverhead River. Four of the fourteen wetlands identified within the project site do not have an apparent connection to a WUS. One small road-side wetland (WL-5) was rated as a Category IV wetland (2008 Montana Wetland

Assessment Method). Wetland area WW-3 (west) was identified along a lower terrace of the Beaverhead River and achieved a Category II rating. All remaining wetlands were rated Category III.

Noxious weed surveys within the Stone Creek project area documented presence of Canadian thistle, houndstongue, yellow toadflax, and hoary cress. Canadian thistle was generally distributed along the boundary of wetlands within the project area. This species was also identified in some of the moister, non-wetland areas in the ephemeral drainages that cross the site. Isolated Canadian thistle plants were encountered during the field survey. A small infestation of yellow toadflax was identified along the boundary of a wetland near the Beaverhead River. One infestation of hoary cress was identified in uplands near a turn-out close to the Beaverhead River. Six infestations of houndstongue were identified along the project area, including two areas around RP 9.4, one near RP 12.8, and three around RP 15.4. The location, infestation size, and approximate cover of infestation areas are provided in Section 3.0 of this report.

A very suitable location for the placement of a wildlife underpass within the Stone Creek – North project area was identified at RM 11.2. This location displayed evidence of high wildlife use, including documented road kill, good connectivity between habitat types, minimal adjacent residential and ranching infrastructure, and suitable topography for construction. A second location for a potential wildlife underpass was identified at RM 10.2. This site displayed an increased level of adjacent residential and ranching infrastructure but maintained suitable topography and wildlife usage to consider this location a feasible option. Consideration of an adjacent wildlife trail along Stone Creek as part of the bridge design may provide a third suitable location to promote wildlife passage. This would likely include raising the deck elevation and managing wildlife-friendly fences along adjacent ranch lands. Two other locations within the Stone Creek – North corridor were investigated based on the high number of wildlife-vehicle collisions through these areas. Both of these additional locations, at ~RP 15.5 and ~RP 13.7, were deemed less feasible based on existing topographic and/or hydrologic constraints.

1.0 INTRODUCTION

The purpose of this general biological resources study report is to provide a detailed examination of the biological resources related to the Stone Creek – North highway reconstruction project along approximately 7.2 miles of MT Highway Route 41 (Route P-49) between the towns of Twin Bridges and Dillon, Montana (Figure 1). This report includes an evaluation and assessment of the proposed project's effects on the fish, wildlife, rare and/or sensitive plants, species of concern, wetlands, rivers, streams, and general biological resources located along the project corridor. A Biological Assessment was completed to analyze and discuss this project's potential effect on Threatened and Endangered (T&E), Proposed, and Candidate species and designated critical habitat. In addition, conservation measures and other relevant mitigation to avoid/minimize or compensate for adverse impacts to potentially affected natural resources are included. This report follows the general MDT guidelines for preparation of biological reports.

This study presents an evaluation of existing conditions based on field surveys and a review of the U.S. Fish and Wildlife Service Endangered, Threatened, Proposed and Candidate Species listed by Counties, Montana Natural Heritage Program (MTNHP) Natural Heritage Tracker and Species of Concern reports, NRCS Soil Survey Geographic Data (SURRGO), U.S. Geologic Survey (USGS) 1:24,000 scale topographic maps, U.S. Farm Services Agency National Agricultural Imagery Program (NAIP) 2011 aerial photographs, National Hydrography Dataset (NHD), geologic maps, Ecoregions of Montana (2002), the Montana Fisheries Information System (MFISH), and other relevant databases. MDT technical reports for this project, a wetland delineation report dated October 31, 2012 completed by Confluence for a ranch adjacent to this highway project, and a 2006 MDT Wetland Mitigation Monitoring Report for the Beaverhead Gateway mitigation site were also reviewed for supplemental technical and biological information pertaining to the study area.

For the purpose of this report, the study area is located along the existing roadway of a 7.2±-mile stretch of MT Highway Route 41 (Route P-49). The project begins at Reference Marker (RM) 9.0± just south of Stone Creek Bridge and extends north to RM 16.2± approximately 1.6 miles north of the Beaverhead River Bridge (Figure 1). For the wetland delineation and vegetation mapping, the study area extends roughly 100 feet away from the existing road centerline and encompasses approximately 176 acres. The study area extends further from the centerline in the areas of Stone Creek and the Beaverhead River to provide supporting documentation of existing aquatic conditions within 0.5 mile up and down stream of the existing road centerline.

MDT proposes to reconstruct this portion of MT Hwy 41 to provide geometric improvements to the existing roadway, shoulder widening and structure replacements and bring the roadway up to modern road design standards. Improvements will be made to both horizontal and vertical alignments. In addition, the project will include two bridge replacements, one over Stone Creek and the other over the Beaverhead River. The project will be coordinated with safety project HSIP 49-2(11)14 near Beaverhead Rock. All construction staging will occur within the project site.

1.1. General Area Description

The Stone Creek – North project is located in Beaverhead County and Madison County, Montana, between the towns of Twin Bridges and Dillon (Figure 1). The study area is located on the Beaverhead Rock, Beaverhead Rock SW, and Glen SE USGS 1:24,000 topographic maps. The linear project bisects nine sections within three ranges and two townships, including T6S R8W S12, T6S R7W S5 and S6, and T5S R7W S15, S22, S27, S28, S32, and S33.

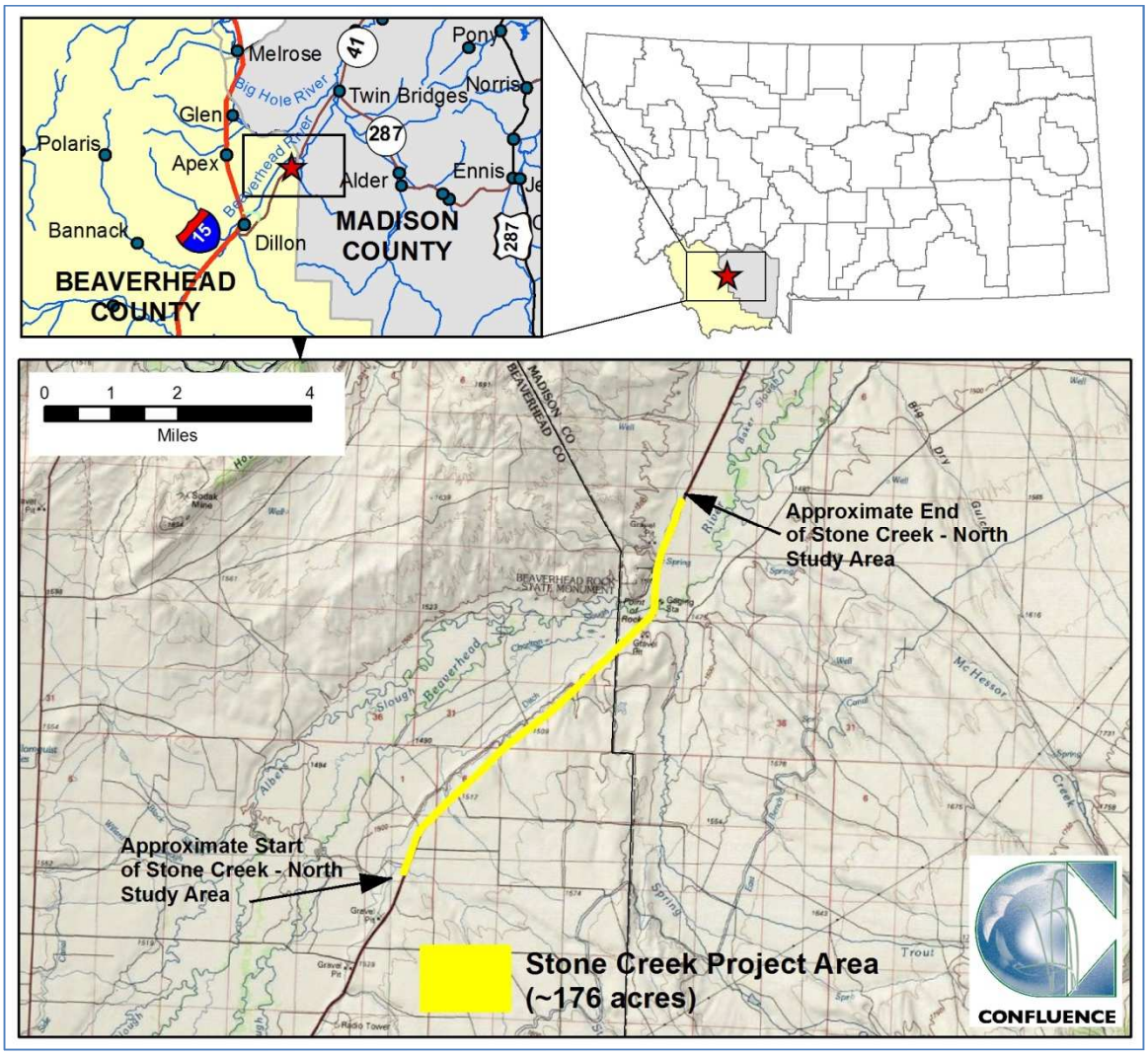


Figure 1. Location map for the Stone Creek - North project.

One USGS blue line stream was identified within the study area and includes the Beaverhead River. Six ephemeral/intermittent streams were identified within the study area on the USGS topographic maps and included Stone Creek and five unnamed stream channels. Two bridges are present within the project limits and include Stone Creek at RM 9.05 and Beaverhead River at RM 14.67. The upper reach of the site lies within the Stone Creek Hydrologic Unit Code (HUC 100200020605); the majority of the site is located in the Beaverhead River-Charlton Slough subwatershed

(HUC100200020703); the lower reach of the site is located in the Beaverhead River-Big Dry Gulch subwatershed (HUC 100200020705).

The terrain is rolling hills from Stone Creek (RM 9.0) to approximately RM 14.34 where the road drops into the Beaverhead River valley and routes across level terrain to the northern extent of the study area around RM 16.2. The assessed highway corridor is underlain by alluvium sedimentary and tertiary sedimentary geology. Unconsolidated alluvium has been mapped along the Stone Creek and Beaverhead River drainages. Undifferentiated tertiary sedimentary rocks, in part deposited in lakes 206-248 million years ago, encompass the underlying geology of the majority of the study area. The NRCS mapped sixteen separate soil map units within the study area (Figure 2). Four soil units mapped within the study area are found on the Montana Hydric Soils list and cover approximately 28% of the site.

2.0 GENERAL STUDY METHODS

2.1. Agency Coordination

Agency coordination was initiated with letters sent to state and federal regulatory agencies. Letters were sent to the following resource agencies:

- U.S. Fish and Wildlife Service (USFWS)
- Montana Fish, Wildlife, and Parks (MFWP)
- Montana Natural Heritage Program (MTNHP)

With these letters, each agency was requested to identify any concerns that would need to be addressed through the completion of this BRR. Agency consultations, letters, emails, and phone logs are included in the appendices of this report.

2.1. Literature/Database Searches

Project documents, maps, aerial photographs, and other materials were obtained from MDT, MFWP, the US Fish and Wildlife Service (USFWS), US Forest Service (USFS), Natural Resource Information System (NRIS) Geographic Information Clearinghouse, and the Natural Resource Conservation Service (NRCS). Aerial photographs were obtained from NRIS. The Montana Natural Heritage Program (MTNHP) provided information pertaining to endangered, threatened, and sensitive plant and animal species in the project area. Threatened and endangered species information for Beaverhead and Madison Counties, Montana was obtained from the USFWS. Hydrologic information was derived from USGS quadrangle maps and the USGS Water Resources of Montana database. Soil information was obtained from the NRCS

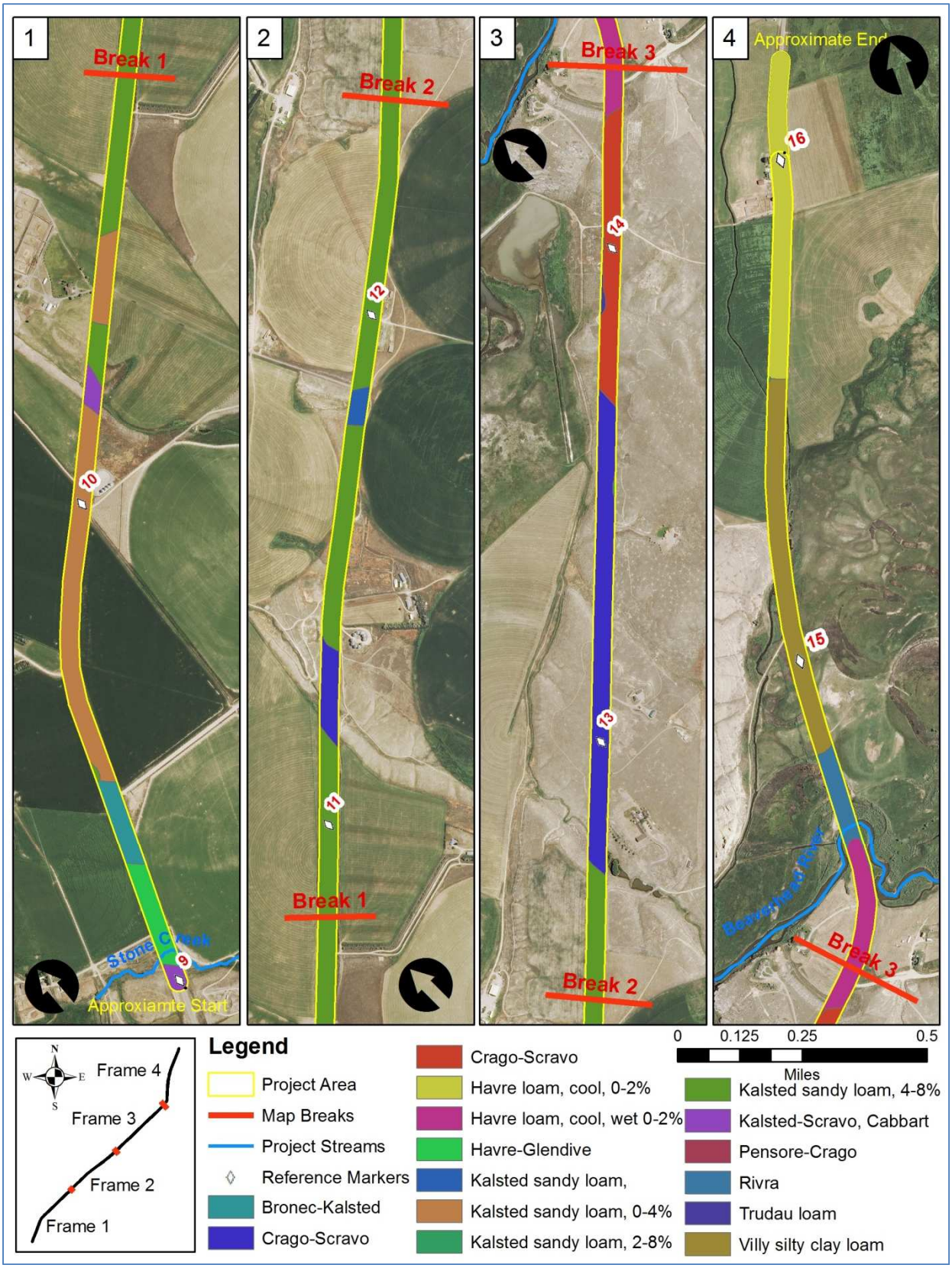


Figure 2. NRCS mapped soils within Stone Creek - North study area.

SSURGO database for Madison and Beaverhead Counties, Montana (2012). The MFISH database was queried regarding potential fisheries resources in the project area, specifically within Stone Creek and the Beaverhead River. The Western Regional Climate Center (WRCC) Dillon ARPT, Montana (242404) weather station was used to obtain climate data for the study area. The MDT Preliminary Field Review (*MDT,* September 26, 2012) for this project, a wetland delineation report dated October 31, 2012 completed by Confluence for a ranch adjacent to this highway project, and a 2006 MDT Wetland Mitigation Monitoring Report for the Beaverhead Gateway mitigation site were also reviewed for supplemental technical and biological information pertaining to the study area.

Prior to the site visit, Confluence biologists reviewed the current USFWS species list for Beaverhead and Madison Counties, Montana, and conferred with the Montana Natural Heritage Program to identify species of concern. This was done to determine which species, or suitable habitat, might be present in the project area. Table 1 shows the Endangered Species Act (ESA) federally listed and candidate species in Beaverhead and Madison Counties. Table 2 displays a list of animal and plant species of concern identified by MTNHP as elemental occurrence within/around the Stone Creek – North study area. A full review of the species of concern within the project area is addressed in Section 5 of this BRR and T&E species discussed in Section 6.

Table 1. Federally Listed Species in Beaverhead and Madison Co, MT.

Common Name ***Scientific Name***	**USFWS Status***	**County Listed**	**Short Habitat**
Canada Lynx *Lynx canadensis*	LT	Madison/Beaverhead	Subalpine forest
Grizzly Bear *Ursus arctos horribilis*	LT	Madison/Beaverhead	Meadows, seeps, riparian zones, mixed shrub fields, closed/open timber
Greater Sage-Grouse *Centrocercus urophasianus*	C	Madison/Beaverhead	Sagebrush
Sprague's Pipit *Anthus spragueii*	C	Madison	Short grass prairie
Arctic Grayling Thymallus arcticus	C	Madison/Beaverhead	Mountain rivers, lakes
Wolverine Gulo gulo luscus	P	Madison/Beaverhead	Alpine tundra, boreal and mountain forest
Ute Ladies' Tresses *Spiranthes diluvialis*	LT	Madison/Beaverhead	Wetland/Riparian
Whitebark Pine *Pinus albicaulis*	C	Madison/Beaverhead	Subalpine and krummholtz habitat

*LT=Listed Threatened; C=Candidate; P=Proposed

Table 2. MTNHP SOC elemental occurrence within proximity of study area.

Common Name Scientific Name	MTNHP Status*	County Listed	Short Habitat
Hoary Bat *Lasiurus cinereus*	S3	Madison/Beaverhead	Riparian and forest
Great Basin Pocket Mouse *Perognathus parvus*	S3	Madison/Beaverhead	Sagebrush/grassland
Great Blue Heron *Ardea herodias*	S3	Madison/Beaverhead	Riparian forest
Bald Eagle *Haliaeetus leucocephalus*	S4	Madison/Beaverhead	Riparian forest
Golden Eagle *Aquila chrysaetos*	S3	Madison/Beaverhead	Grasslands
Long-billed Curlew *Numenius americanus*	S3B	Madison/Beaverhead	Grasslands
Sage Thrasher *Oreoscoptes montanus*	S3B	Madison/Beaverhead	Sagebrush
Brewer's Sparrow *Spizella breweri*	S3B	Madison/Beaverhead	Sagebrush
Westslope Cutthroat Trout *Oncorhynchus clarkii lewisi*	S2	Madison/Beaverhead	Mountain streams, rivers, lakes
Arctic Grayling *Thymallus arcticus*	S1	Madison/Beaverhead	Mountain rivers, lakes
Annual Indian Paintbrush *Castilleja exilis*	S2	Madison	Wetland/Riparian
Mealy Primrose *Primula incana*	S3	Madison/Beaverhead	Wetland/Riparian
Beaked Spikerush *Eleocharis rostellata*	S3	Madison	Wetlands (Alkaline)
Ute Ladies' Tresses *Spiranthes diluvialis*	S1S2	Madison/Beaverhead	Wetland/Riparian

*__S1__ - At high risk because of extremely limited and potentially declining numbers, extent and/or habitat, making it highly vulnerable to global extinction or extirpation in the state;
__S2__ - At risk because of very limited and potentially declining numbers, extent and/or habitat, making it vulnerable to global extinction or extirpation in the state;
__S3__ - Potentially at risk because of limited and potentially declining numbers, extent and/or habitat, even though it may be abundant in some areas;
__S4__ - Uncommon but not rare (although it may be rare in parts of its range). Not vulnerable in most of its range;
__B__ - Breeding - Rank refers to the breeding population of the species in Montana.

2.2. Field Surveys

Confluence Consulting conducted an on-site survey of the project area between June 10th and 13th with additional site visits on June 26th and 27th, and July 15, 2013. The biologist surveyed the entirety of the approximate 176-acre Stone Creek – North project area and completed reconnaissance level investigation of a broader area to assess wildlife usage, migration corridors, and any nearby suitable habitat. The aquatic and terrestrial survey was conducted on foot by a biologist looking for animal sign and assessing habitat. All land cover types and vegetation communities were mapped and are shown in Figure 3. The study area was surveyed for the presence of wetlands, vegetation communities including invasive species, T&E plant and animals, SOC plants and animals, and wildlife usage including tracks, scat, nest structures, and other signs.

3.0 TERRESTRIAL RESOURCES

3.1. Methods

Three USGS 1:24,000 topographic maps (Beaverhead Rock, Beaverhead Rock SW, and Glen SE) were reviewed to determine the terrestrial setting of the project site. The MTNHP web site was researched for further information on the natural setting of the area (MTNHP, 2013). Aerial maps and other published resource maps (geologic, soils) were reviewed. The local area was visited and photographed to confirm the setting and obtain an overview of the local biotic and abiotic resources.

3.2. Results

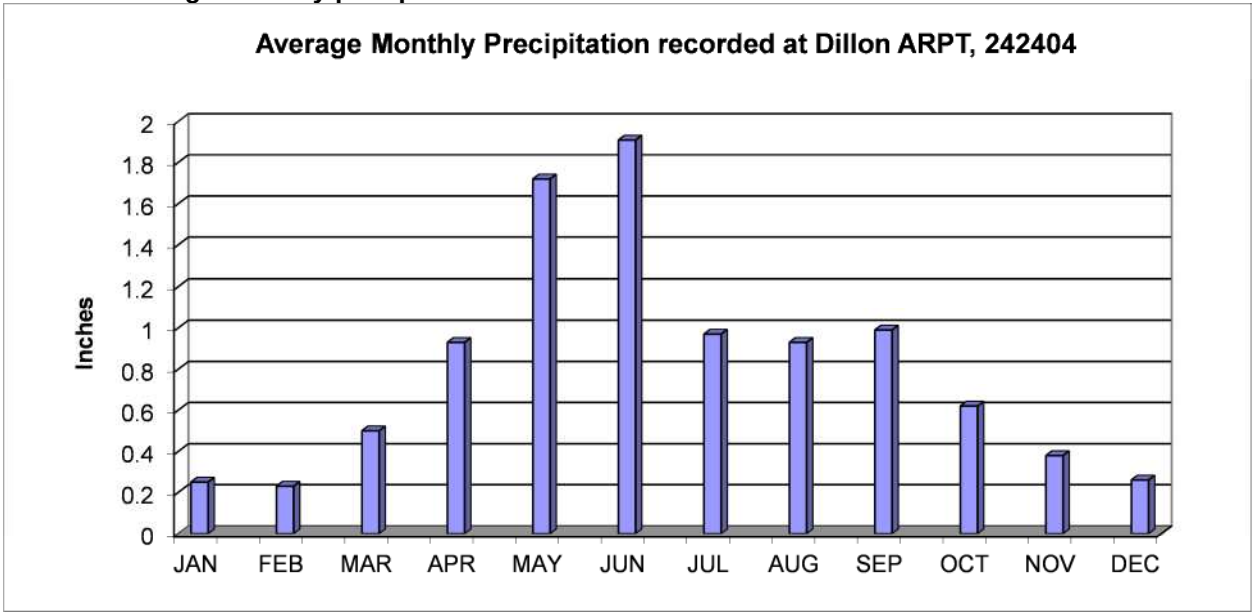
3.2.1. *Ecological Setting and General Description*

The Stone Creek-North project area is located within the Dry Intermontane Sagebrush Valleys Level IV ecoregion within the Middle Rockies Level III ecoregion and composed of alluvium, fan, and valley-fill deposits. Stream terraces, floodplains, saline areas, and alluvial fans in this ecoregion are less rugged than the adjacent Townsend-Horseshoe-London Sedimentary Hills and Dry Gneissic-Schistose-Volcanic Hills (Woods et al, 2002). The potential natural vegetation is sagebrush steppe, defined as largely treeless, dry, level grassland dominated by sagebrush (*Artemisia tridentata*).

The growing season ranges from 70 to 110 days and exceeds that of the Big Hole and Centennial Basins. The Western Regional Climate Center (WRCC) at the Dillon Airport, Montana weather station (242404) is located approximately 8.5 miles south of the study area. Since 1940, this station has recorded an average yearly precipitation total of 9.76 inches, with the majority falling during the early growing season (Chart 1). The mean annual air temperature is 42 degrees Fahrenheit (^{o}F). In summer, the average temperature is 62.8 degrees ^{o}F. In winter, the average temperature is 23.6 degrees ^{o}F.

Agriculture is common along the study area. Privately-owned rural agricultural, farmstead and residential property encompass the project area in all directions. Predominant land uses surrounding the study area include irrigated grain and hay fields and associated irrigation networks, dry-land farming, potato fields, livestock meadows and pastures, and rural residential.

Chart 1. Average monthly precipitation recorded at Dillon ARPT 242404.



3.2.2. *General Vegetation*

The Dry Intermontane Sagebrush region is generally a transition zone between prairie grasslands and montane forests. These generally large, open valleys support plant communities dominated by grasses and a variety of shrubs. The dominant upland vegetation is a mosaic of fescue-wheatgrass grasslands and sagebrush steppe. Rough fescue (*Festuca scabrella*), bluebunch wheatgrass (*Pseudoroegneria spicata*), prairie junegrass (*Koeleria macrantha*), basin wildrye (*Elymus cinereus*), Idaho fescue (*Festuca idahoensis*), and needle and thread (*Hesperostipa comata*) are common native grasses in the intermountain grassland (Lesica, 1997). Common forbs include silky lupine (*Lupinus sericeus*), arrowleaf balsamroot (*Balsamorhiza sagitatta*), and blanket flower (*Gaillardia arisata*). Fringed sagewort (*Artemisia frigida*), big sagebrush (*Artemisia tridentata*), and skunkbush sumac (*Rhus trilobata*) are common shrubs within the dry, open sites in this region. Although not common within the upland landscape, larger trees (*Populus trichocarpa, P. angustifolia*) and shrubs (*Salix* spp.) occupy the plant communities along the riparian area of the Beaverhead River.

3.2.2.1. Baseline Conditions

The native vegetation of the Beaverhead River Valley has been affected by anthropic activity since European settlement, with changes attributed to three major causes: agriculture, fire suppression, and changes in grazing pressure (Lesica, 1997). Additionally, extensive excavation and grading along the Highway 41 study area has resulted in a shift from native forbs and grasses to a vegetation community generally dominated by introduced grasses and legume species. Smooth brome (*Bromus inermis*), crested wheatgrass (*Agropyron cristatum*), Kentucky bluegrass (*Poa pratensis*), orchardgrass (*Dactylis glomerata*), alfalfa (*Medicago sativa*), clover (*Trifolium* spp.) and sweetclover (*Meliotis* spp.) have been sown extensively throughout both dryland and irrigated pastures and hayfields throughout the region.

The current vegetation conditions in both wetlands and uplands were assessed during the field surveys. General vegetation communities were mapped and are shown in Figure 3. Vegetation species identified during the field investigation are summarized in Table 3. The Dryland Introduced Grasses community dominated the area of investigation for this Stone Creek – North BRR. A Greasewood community was mapped between reference posts 13 and 14. Alfalfa and wheat fields, irrigated hayfields, and pastures were mapped in select locations and generally surround the highway corridor throughout the project area. Emergent and scrub-shrub wetland communities are prevalent in the northern quarter of the site once the road drops into the Beaverhead River valley.

The MTNHP database search identified four plant species of concern (within the area defined by the requested townships and ranges, and an additional one-mile buffer surrounding the requested area (MTNHP 2013). A Listed Threatened species, Ute Ladies' Tresses (*Spiranthes diluvialis*), and a T&E candidate, whitebark pine (*Pinus albicaulis*), were identified by USFWS within Beaverhead and Madison Counties. The Ute Ladies' Tresses is a perennial orchid that usually blooms in August to early September. Field surveys were conducted outside the normal flowering-time of this species, making it difficult to ascertain presence/absence of this species within the study area. No SOC or T&E plant species was identified within the project area during the 2013 field surveys.

The Dryland Introduced Grasses community mapped along the ±7.2-mile stretch of assessed highway reflects the arid, disturbed roadside vegetation community primarily dominated by introduced grasses. Common grasses identified throughout this community include smooth brome (*Bromus inermis*), crested wheatgrass, Kentucky bluegrass, blue-bunch wheatgrass, cheatgrass (*Bromus tectorum*), bluebunch fescue, curly bluegrass (*Poa secunda*), streamside wild-rye (*Elymus laneolatus*), basin wild-rye, creeping wild rye (*Elymus repens*), orchardgrass (*Dactylis glomerata*), tall fescue (*Festuca arundinacea*), foxtail barley (*Hordeum jubatum*), and common timothy (*Phleum pratense*). Tall hedge-mustard (*Sisymbrium altissimum*), prairie sagewort, yellow sweetclover (*Melilotus officinalis*), white sweetclover (*M. alba*), common yarrow (*Achillea millefolium*), white clover (*Trifolium repens*), red clover (*T. pratense*), scarlet globemallow (*Sphaeralcea coccinea*), hairy false goldenaster (*Heterotheca villosa*), garden bird's-foot-trefoil (*Lotus corniculatus*), wild mustard (*Brassica kaber*), field mustard (*B. rapa*), pale madwort (*Alyssum alyssoides*), yellow salsify (*Tragopogon dubius*), great mullein (*Verbascum thapsus*), prickly lettuce (*Lactuca serriola*), herb Sophia (*Descurainia sophia*), field penny-cress (*Thlapsi arvense*), plains pricklypear (*Opuntia polyacantha*), alfalfa (*Medicago sativa*), black medic (*M. lupulina*), Canadian thistle (*Cirsium arvense*), and Mexican-fireweed (*Bassia scoparia*) were common herbaceous components of this community type. Shrubs were uncommon but included big sagebrush (*Artemisia tridentata*), common snowberry (*Symphoricarpos albus*), brome snakeweed (*Gutierrezia sarothrae*), woods' rose (*Rosa woodsii*), greasewood (*Sarcobatus vermiculatus*), choke cherry (*Prunus virginiana*) and common snowberry (*Symphoricarpos albus*).

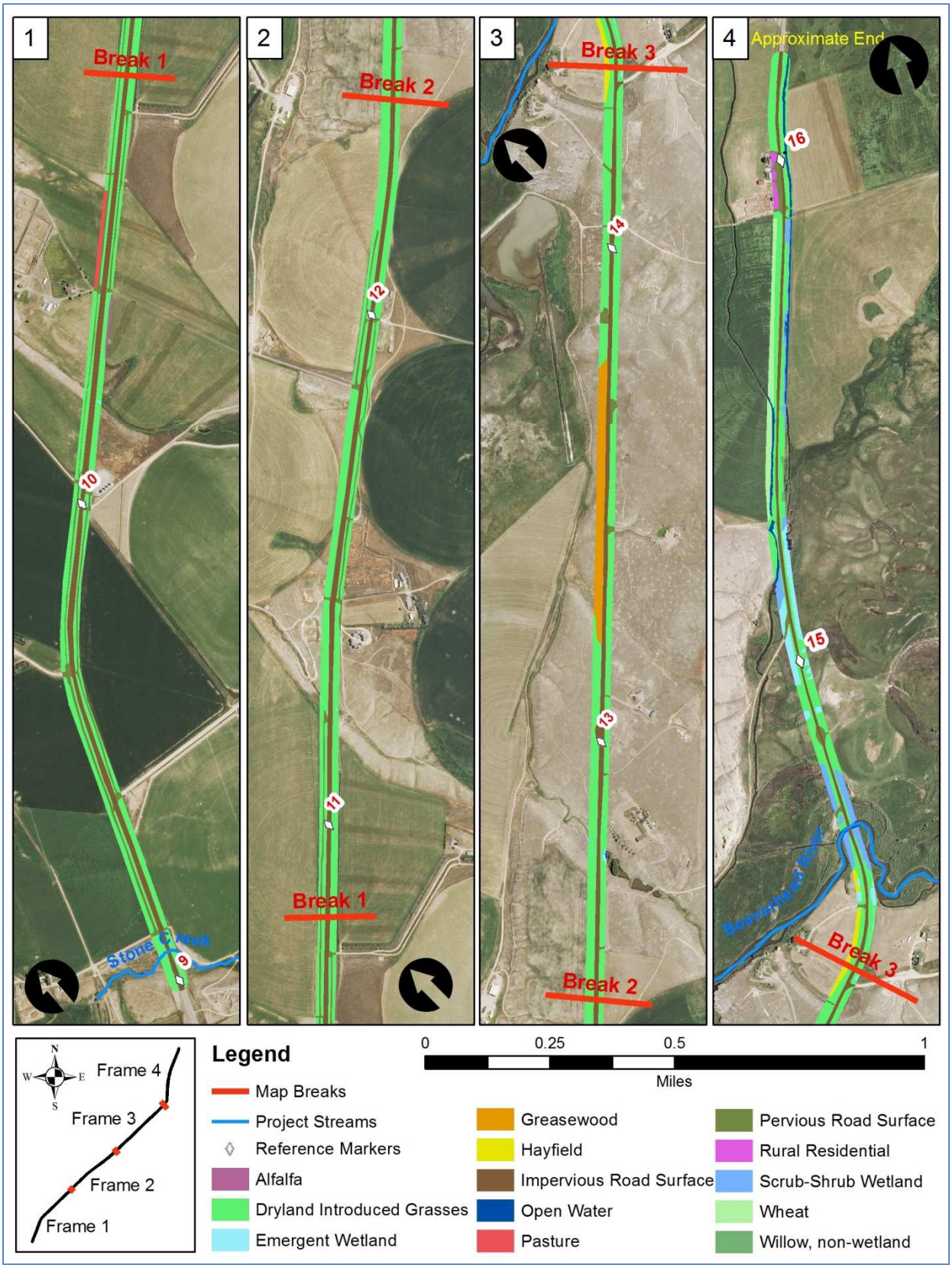


Figure 3. Mapped vegetation communities within Stone Creek - North project area.

Table 3. Vegetation observed within Stone Creek - North project area.

Scientific Name	Common Name	2012 NWPL* Indicator Status
Achillea millefolium	Common Yarrow	FACU
Agropyron cristatum	Crested Wheatgrass	UPL
Agrostis gigantea	Black Bentgrass	FAC
Alopecurus arundinaceus	Creeping Meadow-Foxtail	FAC
Alopecurus pratensis	Field Meadow-Foxtail	FAC
Alyssum alyssoides	Pale Madwort	UPL
Artemisia frigida	Prairie Sagewort	UPL
Artemisia tridentata	Big Sagebrush	UPL
Asclepias speciosa	Showy Milkweed	FAC
Bassia scoparia	Mexican-Fireweed	FAC
Brassica kaber	Brassica kaber	NL
Brassica rapa	Field Mustard	FACU
Bromus inermis	Smooth Brome	FAC
Bromus tectorum	Cheatgrass	UPL
Carex utriculata	Northwest Territory Sedge	OBL
Cirsium arvense	Canadian Thistle	FAC
Chenopodium album	Lamb's-Quarters	FACU
Cornus alba	Redosier Dogwood	UPL
Dactylis glomerata	Orchard Grass	FACU
Descurainia sophia	Herb Sophia	UPL
Elaeagnus angustifolia	Russian-Olive	FAC
Elaeagnus commutata	American Silver-Berry	FAC
Eleocharis palustris	Common Spike-Rush	OBL
Eleocharis rostellata	Beaked Spike-Rush	OBL
Elymus cinereus	Basin wild-rye	NL
Elymus lanceolatus	Streamside Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FAC
Epilobium ciliatum	Fringed Willowherb	FACW
Equisetum hyemale	Tall Scouring-Rush	FACW
Festuca arundinacea	Tall fescue	FAC
Festuca campestris	Rough fescue	UPL
Festuca idahoensis	Bluebunch Fescue	FACU
Glycyrrhiza lepidota	American Licorice	FAC
Gutierrezia sarothrae	Broom Snakeweed	UPL
Heterotheca villosa	Hairy False Goldenaster	UPL
Hordeum jubatum	Fox-Tail Barley	FAC
Juncus arcticus	Arctic Rush	FACW
Lactuca serriola	Prickly Lettuce	FACU
Lotus corniculatus	Garden Bird's-Foot-Trefoil	FAC
Medicago lupulina	Black Medick	FACU
Medicago sativa	Alfalfa	UPL
Melilotus alba	White Sweet-Clover	UPL

Table 3 (cont.) Vegetation observed within Stone Creek – North project area.

Scientific Name	Common Name	2012 NWPL* Indicator Status
Melilotus officinalis	Yellow Sweet-Clover	FACU
Opuntia polyacantha	Plains Pricklypear	UPL
Phalaris arundinacea	Reed Canary Grass	FACW
Phleum pratense	Common Timothy	FAC
Phragmites australis	Common Reed	FACW
Poa pratensis	Kentucky Blue Grass	FAC
Poa secunda	Curly Blue Grass	FACU
Polypogon monspeliensis	Annual Rabbit's-Foot Grass	FACW
Prunus virginiana	Choke Cherry	FACU
Pseudoroegneria spicata	Blue-Bunch Wheatgrass	UPL
Ranunculus cymbalaria	Alkali Buttercup	OBL
Ribes inerme	White-Stem Gooseberry	FAC
Rosa woodsii	Woods' Rose	FACU
Rumex crispus	Curly Dock	FAC
Salix exigua	Narrow-Leaf Willow	FACW
Sarcobatus vermiculatus	Greasewood	FACU
Schoenoplectus acutus	Hard-Stem Club-Rush	OBL
Scirpus microcarpus	Red-Tinge Bulrush	OBL
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Sphaeralcea coccinea	Scarlet Globemallow	UPL
Symphoricarpos albus	Common Snowberry	FACU
Thlaspi arvense	Field Penny-Cress	UPL
Tragopogon dubius	Yellow Salsify	UPL
Trifolium pratense	Red Clover	FACU
Trifolium repens	White Clover	FAC
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Urtica dioica	Stinging Nettle	FAC
Verbascum thapsus	Great Mullein	FACU
Veronica anagallis-aquatica	Blue Water Speedwell	OBL

*Indicator status from 2012 National Wetland Plant List for Western Mountains, Valleys and Coast.

A Greasewood community was identified along the west side of the highway between mileposts 13 and 14 near the Beaverhead Gateway MDT wetland mitigation site. In addition to several of the grasses and herbs common within the Dryland Introduced Grasses community described above, this community was dominated by greasewood and extended west from the highway corridor into the Beaverhead Gateway wetland site.

Alfalfa, wheat fields, irrigated hayfields, and dryland pastures were mapped in select areas along the site within 100 feet of the highway centerline. These communities represent areas with active agricultural land management practices and are in general

heavily manipulated by land-tilling and seeding to achieve desired vegetation communities. Aside from the dryland pastures, these fields are subjected to annual or semi-annual crop rotation and cover crops.

Emergent wetland communities were mapped along the Stone Creek riparian corridor (Figure 3). This community was mapped in some additional unnamed drainages with intermittent and perennial hydrology that cross the highway through the project reach, around the vicinity of the Beaverhead River, and along the irrigation canals located along the northern extent of the study area. The vegetation communities within the emergent wetlands generally included reed canarygrass (*Phlaris arundinacea*), field meadow foxtail (*Alopecurus pratensis*), common spikerush (*Eleocharis palustris*), alkali buttercup (*Ranunculus cymbalaria*), creeping meadow foxtail (*Alopecurus arundinaceus*), showy milkweed (*Asclepias speciosa*), hard-stem club-rush (*Schoenoplectus acutus*), Northwest territory sedge (*Carex utriculata*), broadleaf cattail (*Typha latifolia*), stinging nettle (*Urtica dioicia*), American licorice (*Glycyrrhiza lepidota*), common reed (*Phragmites australis*), curly dock (*Rumex crispus*), black bentgrass (*Agrostis gigantea*), fringed willowherb (*Epilobium ciliatum*), Arctic rush (*Juncus arcticus*), blue water speedwell (*Veronica anagallis-aquatica*), and tall scouring-rush (*Equisetum hyemale*). Canadian thistle was a common component along the transition from emergent wetland to dryland grasses.

Willow-dominated scrub-shrub wetlands were mapped along the Beaverhead River and portions of the irrigation canal network in the northern portion of the site (Figure 3). Narrow-leaf willow (*Salix exigua*) was the dominant shrub throughout this community with lesser amounts of Russian-olive (*Eleagnus angustifolia*), American silver-berry (*E. commutata*), woods' rose, white-stem gooseberry (*Ribes inerme*), and redosier dogwood (*Cornus alba*). The herbaceous understory within the scrub-shrub wetlands included common components of the emergent wetland communities. A small area near the Beaverhead River was generally dominated by willows but did not exhibit signs of contemporary wetland hydrology.

Other polygons identified in Figure 3 include Impervious Road Surface, Pervious Road Surface, and Rural Residential. Impervious Road Surface included asphalt and pavement along Highway 41 and select driveway entries along the corridor. Pervious Road Surfaces generally include gravel driveways, agricultural parking areas, and unvegetated accessory routes parallel to the highway typically used by farmers and ranchers to access fields and irrigation infrastructure. An area of Rural Residential was mapped along the northern extent of the project. This polygon included a house, yard, various sheds and other amenities typical of rural residential and agricultural infrastructure.

3.2.2.2. Potential Impacts

Vegetation along both sides of Highway 41 throughout the length of the study area has been previously impacted by the original road construction, periodic maintenance, and active agricultural activities. As noted in the above section, dominant vegetation includes introduced pasture grasses. The road improvements may disturb a limited

area of shrubs near the Beaverhead River. No T&E plant species and one SOC species were identified throughout the course of the field survey.

It is anticipated that there will be a temporary loss of existing vegetation and an increased risk of weed infestation as a result of construction activities. These activities may result in soil compaction and an increased risk of soil erosion prior to vegetation establishment.

3.2.2.3. Avoidance and Minimization

The disturbance to the existing vegetation cover resulting from construction should be limited to the smallest area practicable. Stock piles should be stored a minimum of 100 feet from the Beaverhead River, Stone Creek, and project wetlands. Exposed soils are vulnerable to weed establishment. Dispersal of weed seeds can be limited by removing existing weeds prior to construction and by seeding as soon as possible following construction. Seeding with native grasses and/or forbs may limit the establishment of noxious and other invasive species.

3.2.2.4. Recommended Conservation Measures

MDT Standard Specifications for Road and Bridge Construction (2006), Stormwater, erosion and sediment control, and general construction Best Management Practices (BMPs) should be used to limit ground disturbance, control erosion, and to revegetate disturbed areas within the construction limits. Any proposed mitigation or restoration should involve planting native vegetation. The following general BMP's should be implemented during construction:

- Minimize disturbance to shrubs to the extent practical.
- Stockpile spoil materials away from the river, stream, and wetlands and install appropriate erosion control measures.
- Prepare the seedbed adequately by removing large rocks and replacing salvaged topsoil.
- Revegetate the river banks and disturbed areas with native herbaceous and woody plants as soon as practical following construction.
- Implement a weed management plan to control invasive species short and long-term.

3.2.3. ***Noxious Weeds / Invasive Species***

The State of Montana designates certain exotic plants as "noxious". Executive Order 13112 signed on February 3, 1999, addresses federal agency responsibility with respect to invasive species (noxious weeds). The project is subject to provision of EO 13113, as a partially federally funded action.

There are 31 Category 1, 2, and 3 noxious weeds generally distributed throughout the state. Table 4 lists the noxious weed species found in Beaverhead and Madison Counties.

3.2.3.1. Species Present and Distribution

The field surveys of the Stone Creek project area documented the presence of Canadian thistle, houndstongue, yellow toadflax, and hoary cress. The location, size of infestation, and approximate cover of noxious weeds within each infestation area are shown on Figure 4.

3.2.3.2. General Description and Degree of Infestation

Canadian thistle was generally distributed along the boundary of wetlands within the project area. This species was also identified in some of the moister, non-wetland, areas in the ephemeral drainages that cross the site. Isolated plants of Canadian thistle were encountered during the field survey. A small infestation of yellow toadflax was identified along the boundary of a wetland near the Beaverhead River (Figure 4). One infestation of hoary cress was identified in uplands near a turn-out close to the Beaverhead River. Six infestations of houndstongue were identified along the project area, including two areas around RP 9.4, one near RP 12.8, and three around RP 15.4.

Table 4. List of noxious weeds distributed in Beaverhead and/or Madison Co.

Genus	Species	Common Name	Category: 1, 2, or 3[1]	County
Cardaria	*draba*	Hoary cress	2B	Beaverhead/Madison
Centaurea	*diffusa*	Diffuse knapweed	2B	Beaverhead/Madison
Centaurea	*maculosa*	Spotted knapweed	2B	Beaverhead/Madison
Centaurea	*repens*	Russian knapweed	2B	Beaverhead/Madison
Chrysanthemu	*leucanthemu*	Oxeye daisy	2B	Beaverhead/Madison
Cirsium	*arvense*	Canada thistle	2B	Beaverhead/Madison
Convolvulus	*arvensis*	Field bindweed	2B	Beaverhead/Madison
Cynoglossum	*officinale*	Houndstongue	2B	Beaverhead/Madison
Euphorbia	*esula*	Leafy spurge	2B	Beaverhead/Madison
Hieracium	*aurantiacum*	Orange hawkweed	2A	Madison
Iris	*pseudacorus*	Yellowflag iris	2A	Madison
Isatis	*tinctoria*	Dyer's woad	1B	Beaverhead
Linaria	*dalmatica*	Dalmatian toadflax	2B	Beaverhead/Madison
Linaria	*vulgaris*	Yellow toadflax	2B	Beaverhead/Madison
Potentilla	*recta*	Sulfur cinquefoil	2B	Beaverhead/Madison
Tanacetum	*vulgare*	Common tansy	2B	Beaverhead/Madison

[1]Category 1B - Noxious weeds have limited presence in Montana.
Category 2A - Weeds are common in isolated areas of Montana.
Category 2B - Weeds are abundant in Montana and widespread in many counties.

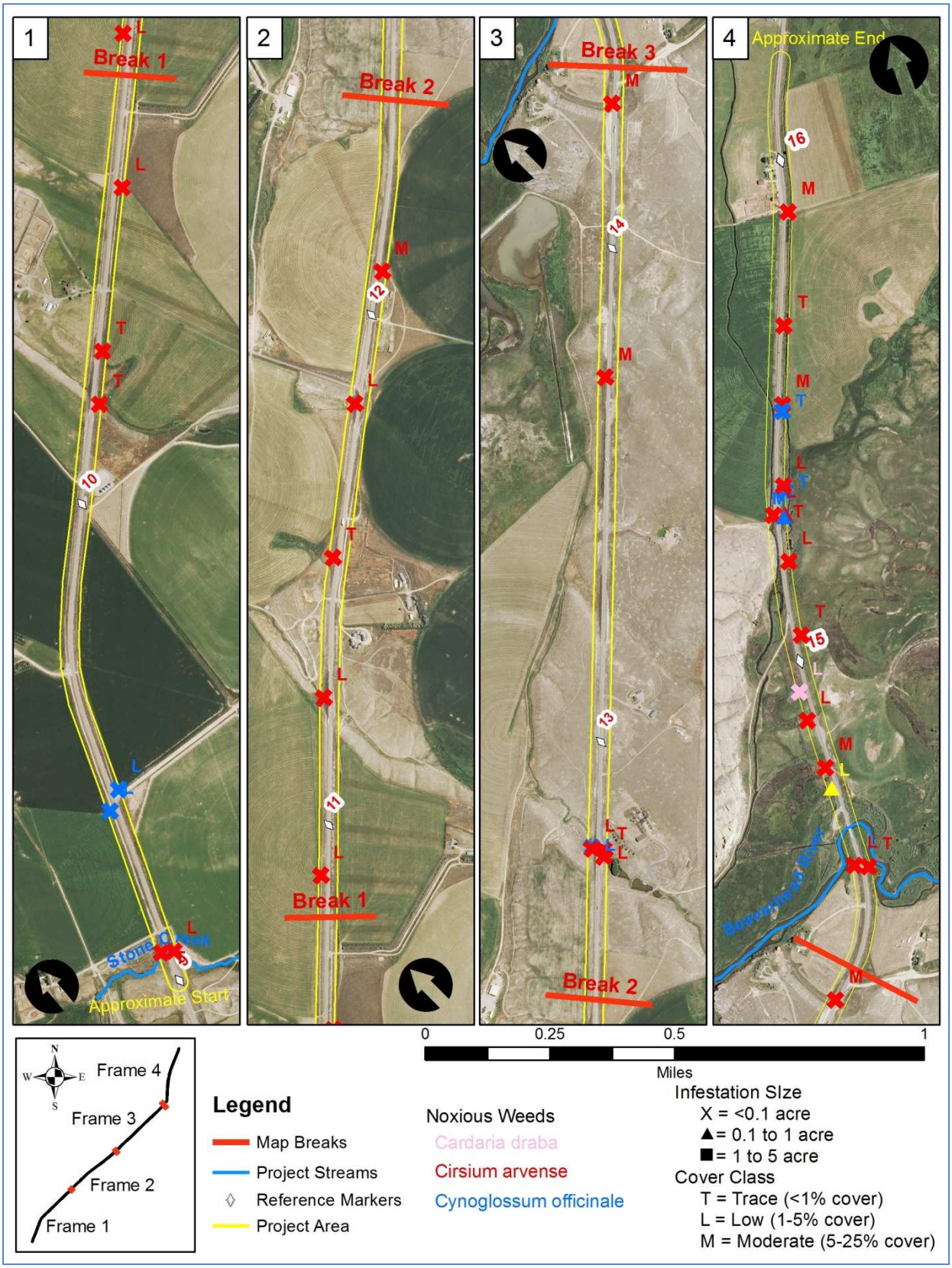


Figure 4. Location of noxious weeds within the Stone Creek - North project area.

3.2.3.3. Recommended Conservation Measures

Best Management Practices (BMPs) should be used to limit ground disturbance, control erosion, and to revegetate disturbed areas within the construction limits. The project should include an approved weed management program to decrease the potential for spread of noxious weeds. A native seed mix should be used to stabilize the right-of-way after construction. The following general BMP's should be implemented during construction:

- Minimize disturbance to shrubs to the extent practical.
- Stockpile spoil materials away from the river, stream, and wetlands and install appropriate erosion control measures.
- Prepare the seedbed adequately by removing large rocks and replacing salvaged topsoil.
- Revegetate the river banks and disturbed areas with native herbaceous and woody plants as soon as practical following construction.
- Implement a weed management plan to control invasive species short and long-term.
- Time construction to avoid spring runoff in May and June. Note: This bullet does not apply to the Beaverhead River as it is dam released and does not exhibit increased river levels in spring related to snow melt.

3.2.4. ***General Wildlife Species***

A comprehensive list of wildlife species known to occur in Beaverhead and Madison Counties is presented in Appendix G. In addition to the direct observation of several species listed below, tracks and other signs were noted during the field survey. Several carcasses, apparently killed by vehicles, were observed and their location was recorded with GPS (results discussed in Section 8.0 of this report).

Wildlife habitats in the project area consist of roadside ditches, pastures (active and inactive), wheat and hay fields, greasewood vegetation community, emergent and scrub-shrub wetlands, and open water habitat (Stone Creek, Beaverhead River). A discussion of fish species and aquatic habitat are provided in Section 4.0. A list of wildlife species noted during the field survey is provided in Table 5.

3.2.4.1. Species Description and Distribution

<u>Avian</u>

The Beaverhead Valley provides habitat for nesting, migrating, and wintering waterfowl and a range of habitats for upland game birds, raptors, shorebirds, and other resident and migratory species. Direct evidence of avian nesting observed within the project corridor or observed within 0.5-mile upstream and downstream of the Beaverhead River Bridge was limited to existing swallow nests on both the Stone Creek Bridge and Beaverhead River Bridge. Swallow nests on the bridges should be addressed in compliance with the Migratory Bird Treaty Act. No active nests supporting chicks or eggs should be destroyed, nesting deterrents should be installed and removal of structures and vegetation (trees and shrubs) should occur outside of nesting season.

Bird activities noted during the field surveys primarily included foraging and fly-overs. A lack of large trees within the project area limits nesting by raptors and other species. A large eagle was noted circling Beaverhead Rock, which may provide suitable golden eagle nesting habitat. Incidental occurrence of bald and/or golden eagles along the project corridor is likely due to suitable foraging areas. No raptor nests were identified during the field surveys. If any nests or primary habitat for bald and/or golden eagle is identified during the course of this project, compliance with the Bald and Golden Eagle Protection Act will be required. Bald and Golden eagles are discussed in detail in Sections 6.1.2.4 and 6.1.2.5, respectively, in this report. A great blue heron was noted flying over the river outside the study area. Suitable rookery habitat within the study area is not present and generally limited upstream and downstream along the Beaverhead River. Incidental secondary habitat for a range of birds is present but use of the study area for primary habitat is likely limited due to persistent vehicular traffic, maintenance of the highway right-of-way, and active agricultural activity.

Table 5. Wildlife species and sign observed during survey of Stone Creek - North project area.

Common Name	Scientific Name	Type
American Robin	*Turdus migratorius*	Birds
Bank Swallow	*Riparia riparia*	Birds
Barn Swallow	*Hirundo rustica*	Birds
Black-billed Magpie	*Pica hudsonia*	Birds
Brewer's Blackbird	*Euphagus cyanocephalus*	Birds
Brown-headed Cowbird	*Molothrus ater*	Birds
Cliff Swallow	*Petrochelidon pyrrhonota*	Birds
Common Gartersnake	*Thamnophis sirtalis*	Reptiles
Common Nighthawk	*Chordeiles minor*	Birds
Eastern Kingbird	*Tyrannus tyrannus*	Birds
European Starling	*Sturnus vulgaris*	Birds
Gray Catbird	*Dumetella carolinensis*	Birds
House Wren	*Troglodytes aedon*	Birds
Killdeer	*Charadrius vociferus*	Birds
Mallard	*Anas platyrhynchos*	Birds
Meadow Vole	*Microtus pennsylvanicus*	Mammals
Merriam's Shrew	*Sorex merriami*	Mammals
Mule Deer	*Odocoileus hemionus*	Mammals
Porcupine	*Erethizon dorsatum*	Mammals
Pronghorn	*Antilocapra americana*	Mammals
Raccoon	*Procyon lotor*	Mammals
Red Fox	*Vulpes vulpes*	Mammals
Richardson's Ground Squirrel	*Urocitellus richardsonii*	Mammals
Sandhill Crane	*Grus canadensis*	Birds
Striped Skunk	*Mephitis mephitis*	Mammals
Swainson's Hawk	*Buteo swainsoni*	Birds
Tree Swallow	*Tachycineta bicolor*	Birds
Turkey Vulture	*Cathartes aura*	Birds
White-tailed Deer	*Odocoileus virginianus*	Mammals
Western Meadowlark	*Sturnella neglecta*	Birds

Mammals

Ninety-three mammalian species are known to occur in Beaverhead and/or Madison County. The majority of these species require habitat not present within the study area (i.e., alpine, forest and woodland systems). Ten mammalian species were noted during the field survey and include meadow vole (*Microtus pennsylvanicus*), Merriam's shrew (*Sorex merriami*), mule deer (*Odocoileus hemionus*), porcupine (*Erethizon dorsatum*), pronghorn (*Antilocapra americana*), raccoon (*Procyon lotor*), red fox (*Vulpes vulpes*), Richardson's ground squirrel (*Urocitellus richardsonii*), striped skunk (*Mephitis mephitis*), and white-tailed deer (*Odocoileus virginianus*). The majority of wildlife identified was observed in the dryland introduced grass community and appeared to be transient between sagebrush steppe and riparian habitats. No T&E or SOC wildlife species were observed during the field survey although transient and incidental occurrence by sensitive species is likely.

Herptiles

Eight amphibians and eight reptiles are known to occur in Beaverhead and/or Madison County (MTNHP 2013). Only one of these species, Plains Spadefoot, is listed as an S3 SOC while the other 15 are not identified as T&E or SOC. A lack of suitable habitat within the study area and range of the Plains Spadefoot make occurrence of this species along Highway 41 between Stone Creek and the Beaverhead River unlikely. The Plains Spadefoot was not identified in the MTNHP SOC report. Although incidental occurrences of eleven species of reptiles and amphibians within the project area are likely, only the common garter snake was observed during field survey.

Fish

Fishery resources within the Stone Creek – North project area are described in detail in the General Aquatic Species section of this report, Section 5.2.4.

3.2.4.2. Habitat Requirements

No unique, uncommon, or undisturbed habitats were observed within the study area. The dryland introduced grass community, pastures, hayfields, wheat fields, and emergent and scrub-shrub wetland habitats are common throughout the region. Disturbances along the highway corridor primarily include active right-of-ways, farming, and grazing. The introduction of many grass species has resulted in a shift away from community-dominance by native species. Habitats identified in the vicinity of the project area include Rocky Mountain lower montane, foothill, and valley grassland, montane sagebrush steppe, alpine-montane wet meadow, and cultivated crops. Wildlife common along the highway corridor generally include species with increased tolerance to traffic and anthropogenic activities, such as white-tailed deer, red fox, raccoons, and Richardson's ground squirrels.

3.2.4.3. Potential to Occur in Project Area

The animal species listed in Table 5 are known to occur within the project area. Additionally, the MTNHP indicate an extensive list of species that may commonly or incidentally occur within the adjacent habitats types listed above. The potential for occurrence of SOC and T&E species are discussed in detail in sections 6.0 and 7.0, respectively.

3.2.4.4. Potential Impacts

Permanent impacts to general wildlife species in the project areas are expected to be minor. There will be no significant amount of habitat lost and much of the disturbed areas will be revegetated with a combination of desirable and native species. Indirect disturbance to wildlife communities in the project area is considered minor as a result of the temporary nature of the construction and the availability of alternate habitat in the general vicinity. Species such as mice and voles that reside exclusively within the construction area exhibit limited home ranges. Their survival depends on the carrying capacity of the adjacent undisturbed habitat.

Temporary impacts to wildlife may include loss of some habitat within the construction zone. Construction activities may affect individuals through noise, vibration, human activity, and construction equipment. Loss of nesting, foraging, and cover habitat may occur from either direct removal of habitat for road alignment and side slopes and temporary vegetation clearing. The amount of habitat disturbed, both temporary and permanent, are small and the habitats affected are not rare and occur commonly adjacent to the project area. Most wildlife within the study area at the time of construction is expected to be able to move to surrounding similar habitat.

The impacts to Stone Creek and the Beaverhead River are expected to be inconsequential as a result of minimizing construction within the streambed. The existing bridge spans are situated outside of the stream and river beds and will be replaced with piers and abutments outside delineated aquatic resources. Several swallow nests, primarily barn swallows, are currently present within the existing bridge infrastructures over both Stone Creek and the Beaverhead River. These nests must be removed as part of bridge replacement and should be conducted in compliance with the Migratory Bird Treaty Act (MBTA). Compliance with the MBTA will require prevention of nesting, removal of inactive nests, and avoid/minimizing take. To prevent nesting, installation of netting or approved nesting repellants around suitable nests locations on existing bridges may aid in controlling access to nests by adult swallows. Nests may be removed from structures if there are no eggs or chicks in them. Nest surveys should begin in early spring and occur frequently prior to nest removal. Avoid nest disturbance during peak breeding season, usually May through July. It is recommended to remove existing nests outside of the nesting season, typically August 15 through April 15, and actively prevent further nesting until structure has been replaced.

3.2.4.5. Avoidance and Minimization

Disruption of bird nesting will be avoided by scheduling the vegetation clearing outside the bird nesting window, typically mid-April through mid-August. Conducting construction during August and September would avoid critical egg-laying and incubation time periods for birds, reptiles and amphibians, and birthing time frames for mammals.

3.2.4.6. Recommended Conservation Measures

MDT Standard Specifications for Road and Bridge Construction (2006) effectively address the protection of environmental resources. The following recommended measures are in addition to the Standard Specifications.

- Limit vegetation removal to the confines of the permanent construction limits. Do not remove, but trim trees and shrubs as necessary for equipment access and other temporary construction activities outside of the permanent construction limits.
- Do not remove active nests. Remove existing nests outside nesting season, typically April 15th through August 15th. Install and maintain netting or approved nesting repellants following nests removal to prevent additional nesting until bridge structure has been replaced. Appropriate nesting repellants should be installed on existing and temporary structures (i.e., bridges, scaffolding) before and during construction.
- Restore disturbed ground with a combination of desirable and native vegetation and landscape components where possible
- Store all hazardous materials including petroleum compounds away from the river, stream, and wetlands in a protected impoundment with overflow prevention and erosion controls.

4.0 POTENTIAL WILDLIFE CROSSINGS

4.1. Introduction

Collisions between automobiles and wildlife along Highway 41 between Dillon and Twin Bridges are common. MDT is concerned about safety along Highway 41 and would like to reduce the number of wildlife/vehicle collisions along the road. As part of the biological resource evaluation for this BRR, Confluence investigated potential locations for wildlife underpasses along the assessed stretch of highway.

4.2. Methods

A Confluence biologist walked the entire project area and noted evidence of existing wildlife such as trails, tracks, scat, and hair on fences. Carcasses were documented with GPS points. Additionally, MDT provided Confluence with wildlife road-kill data from January 2002 through December 2012 for the entire project area. The GPS carcass points collected by Confluence were categorized based on the nearest tenth of a mile and this data was combined to the data provided by MDT to construct a graph (Chart 2) and a map (Figure 5) denoting carcass numbers per tenth-mile. Chart 3 displays wildlife roadkill data separated by month over the recorded 11 year period. Potential wildlife underpasses locations were evaluated based on existing topography, adjacent habitat, and other landscape-level considerations such as fences, irrigation and agriculture infrastructure, residential concentration, and known or suspected wildlife corridors.

Chart 2. Wildlife roadkill data for Highway 41 from RM 9.0 to 16.2.

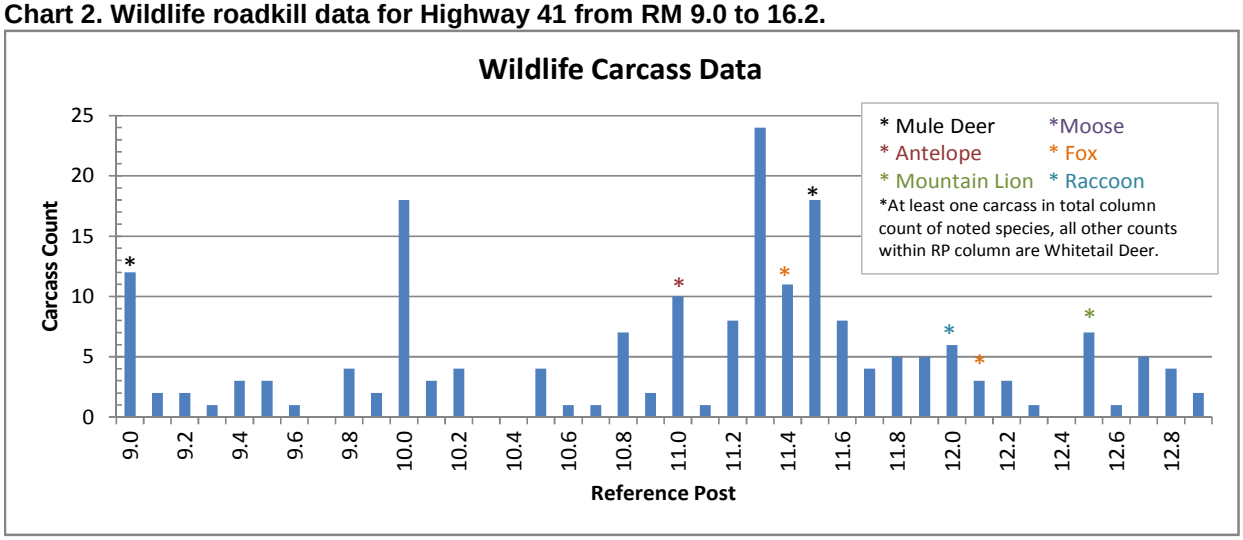


Chart 2 (cont.) Wildlife roadkill data for Highway 41 from RM 9.0 to 16.2.

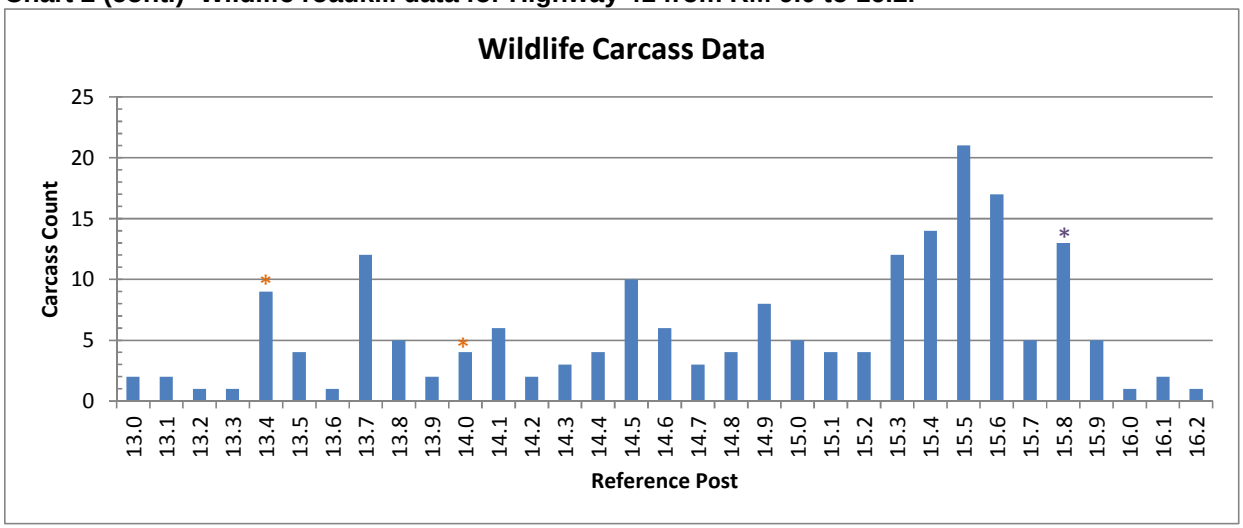
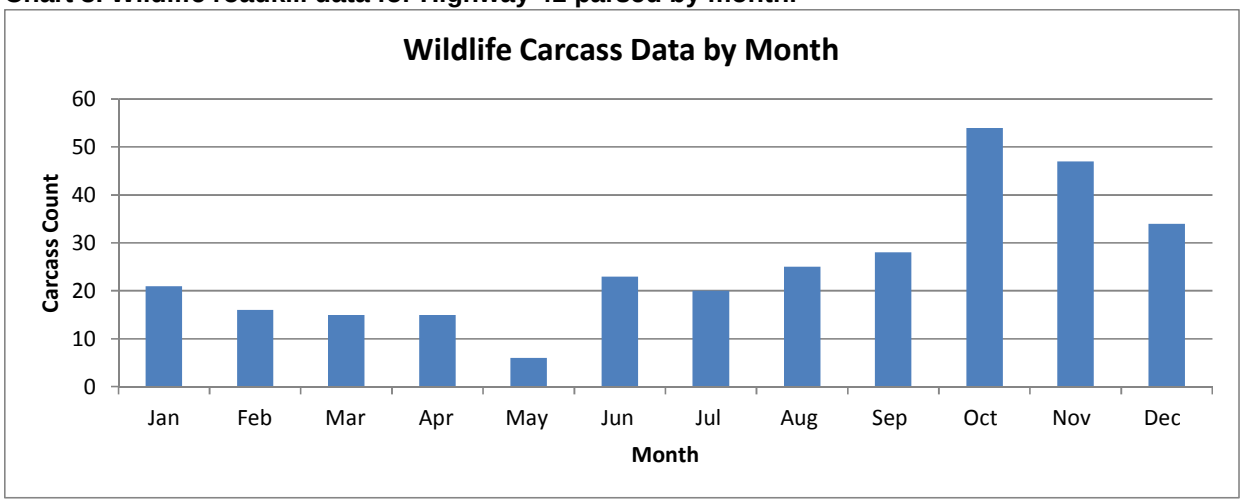


Chart 3. Wildlife roadkill data for Highway 41 parsed by month.



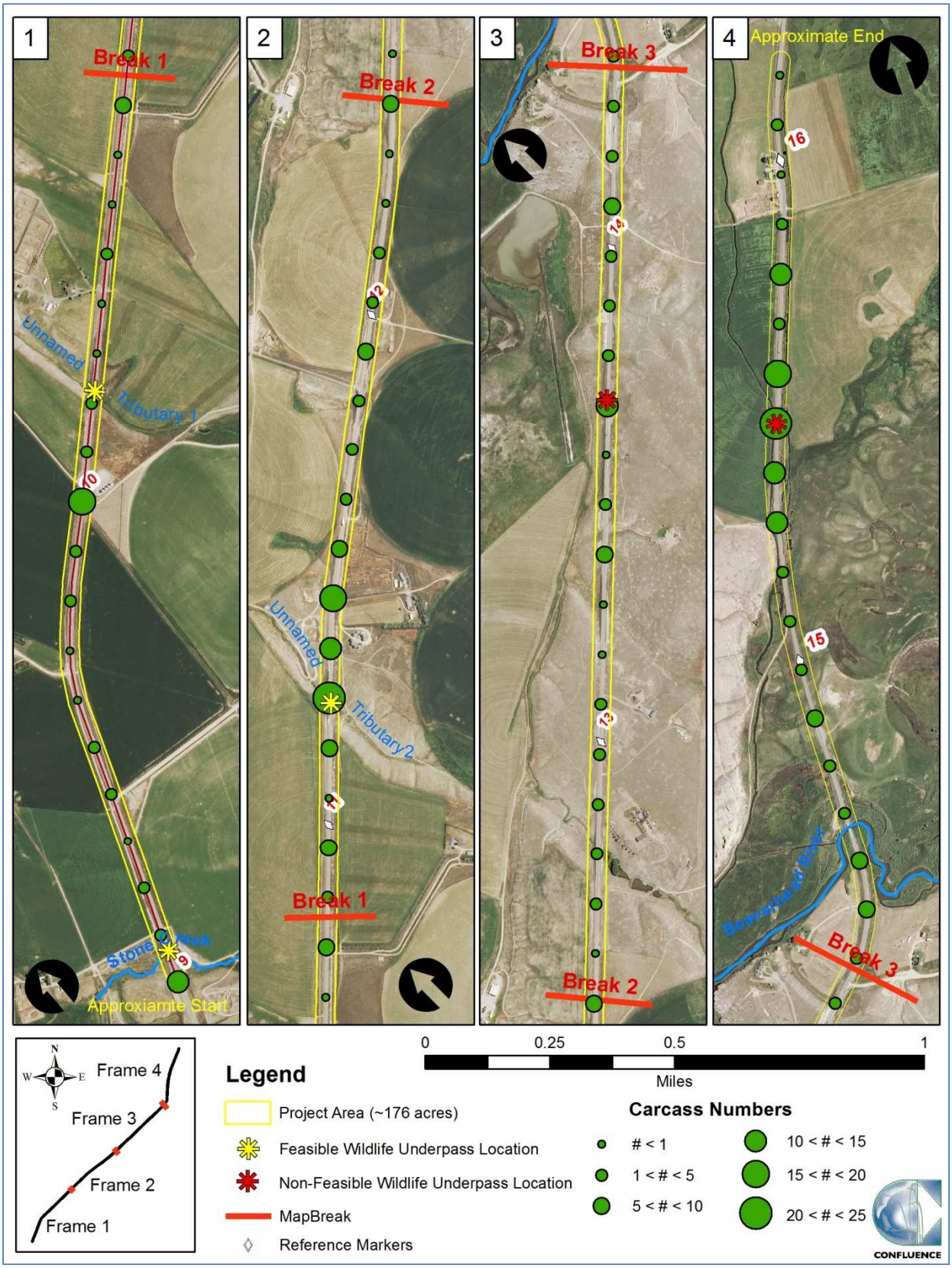


Figure 5. Documented wildlife road kill along the Stone Creek - North highway corridor.

4.3. Results

The dominant species killed within the project area is whitetail deer. Other species carcasses that have been documented within the project area include: fox, mule deer, moose, mountain lion, raccoon, and antelope. Based on the eleven years of wildlife carcass data and the 2013 field survey data (Figure 5), five locations were identified as potential locations for a wildlife underpass based solely on the high number of documented carcasses at these locations (RM 9.0, 10.2, 11.2, 13.7, and 15.5). An examination of the topography in the vicinity of these five high wildlife-collision locations further refined potential underpass locations.

The highest number of carcasses was documented between RM 15.3 and RM 15.8 along a section of road north of the Beaverhead River. The terrain through this stretch is flat, the adjacent land is somewhat swampy, and there are irrigation ditches parallel to the road. A wildlife underpass in this area was deemed unsuitable based on topography and hydrology limitations. Further considerations for implementing safety precautions to reduce wildlife-vehicle collisions through this area may include installation of higher fencing, lighting, signing, and/or detection systems to advise drivers of potential dangers.

A relatively high number of wildlife-vehicle collisions were noted around RM 13.7. This location is near an existing vehicle turnout (photo in Appendix C). A wildlife underpass at this location would provide a safe passageway for animal travel between the large dryland pasture to the southeast of the highway and the wetlands and riparian corridor of the Beaverhead River to the northwest of the highway. However, the topography of the highway right-of-way through this reach would require significant excavation and likely result in an awkward-looking underpass not readily used by wildlife.

Based on the evaluation of the available data and the topography of the highway corridor, three suitable locations for wildlife underpasses have been identified within the Stone Creek – North project area (Figure 5). Highway 41 crosses a number of deep gullies between Stone Creek and the Beaverhead River. Three of these drainages pass beneath Highway 41 near the identified potential wildlife underpass locations based on carcass numbers: Stone Creek is near RM 9.0; unnamed tributary 1 is near RM 10.2; and unnamed tributary 2 is near RM 11.2.

The most suited location for a wildlife underpass identified within the assessed reach of Highway 41 is near RM 11.2 (Photograph in Appendix C). This seasonal drainage (UT-2) flows under the highway through a culvert. Abundant wildlife signs and trails were identified during the field survey in this area and were corroborated by the plotted roadkill data (Chart 2), displaying a peak of 24 reported vehicle-animal collisions since January 2002. The topography of the existing drainage and road grade are compatible with the installation of a wildlife underpass. A high number of vehicle-animal collisions were generally noted between RM 11.0 and 11.6. A safe underpass at RM 11.2 may attract traveling wildlife along this expanded reach and condition the animals into routine safe underpass usage. An underpass at this location would provide a safe

wildlife corridor connecting the foothills and farmlands to the east with the Beaverhead River riparian corridor to the west.

A second location for a wildlife underpass was identified at UT-1 (Figure 5, photograph in Appendix C). Although this stretch of highway did not display the level of documented roadkill as UT-2 at RM 11.2, abundant wildlife usage was noted through this drainage. Additionally, the topography is well suited for the installation of an underpass at this location (RM 10.2).

Consideration for a wildlife underpass during the design of the bridge at Stone Creek may result in a usable wildlife corridor without incurring the expense of a separate underpass specifically designated for wildlife. Stone Creek is a narrow channel as it flows under Highway 41. Providing an upland strip along the creek under the bridge and managing fencing and wildlife access through the area would likely result in wildlife use and reduce the number of animals crossing the road at this location.

4.3.1. *Recommended Conservation Measures*

Because the existing culverts at the two unnamed tributaries are likely to be replaced, replacement with an oversized corrugated metal arch or concrete box culvert to allow for passage of both the stream and wildlife is recommended. At Stone Creek the bridge is currently wide enough to allow for passage of wildlife next to the creek, but fencing on the downstream face of the bridge for cattle is not wildlife friendly. It is recommended that the new bridge span at Stone Creek be no shorter than the existing span, elevation be increased to allow adequate wildlife passage, and that a wildlife path be included along the channel under the bridge. We also recommend new fencing in the vicinity of the bridge to facilitate both the cattle operation and wildlife passage. Wildlife underpasses at the three recommended sites in conjunction with wildlife exclusion fencing to guide animals to these passages should assist MDT in managing the animal-vehicle collisions south of the Beaverhead River.

5.0 AQUATIC RESOURCES

5.1. Methods

For the purpose of this BRR, Aquatic Resources discussed in this chapter refer to rivers, streams, ephemeral/intermittent drainage ditches, and irrigation ditches with downstream connections to Waters of the U.S. Wetland resources identified within the study area are described in detail in Section 6.0 of this report. Waters of the U.S. have different technical criteria for delineation than jurisdictional wetlands. Waters of the U.S. are identified as those areas with a definable bed and bank and an ordinary high water mark (OHWM) that are contiguous to other jurisdictional waters of the U.S., as outlined in 33 CFR Part 328. In general terms, rivers, streams or drainage ways with a definable bed and bank and OHWM are typically designated as Waters of the U.S.

Prior to the field visit, the study area was researched for potential presence of aquatic resources. Various mapping resources were used, including the National Wetland

Inventory maps, USGS topographic quad maps, aerial photographs, NRCS soils maps, MTNHP, and MFISH.

Three Waters of the US cross the project area, including Stone Creek, the Beaverhead River, and an unnamed spring creek. Stone Creek crosses the project area near mile marker 9 at the southeast end of the project area; the unnamed spring creek crosses the project area near RM 12.73; and the Beaverhead River crosses the project area near RM 14.6.

Each aquatic site was assessed during a site visit on June 26 and 27, 2013. The site assessments included:

- GPS surveys of the ordinary high water mark/bankfull channel elevation, and water surface profile for a minimum of 100 meters upstream and downstream of Highway 41 along Stone Creek and the Beaverhead River;
- Documentation of riffle, pool, and pond habitat features;
- Documentation of channel impairments and restrictions for a minimum of 0.5 miles upstream and downstream of Highway 41;
- Documentation of observed fish and wildlife species;
- Photo-documentation of observations and stream channel/riparian conditions;
- Landowner interview (unnamed spring creek only)

Additional, site-specific information for each of these aquatic sites is provided in the following sections.

5.2. Results

5.2.1. ***Stone Creek***

5.2.1.1. Site Description

Stone Creek originates in the Ruby Mountains and flows approximately 13.4 miles in a northwesterly direction until its confluence with the Beaverhead River. Much of the Stone Creek watershed has been converted to agricultural production. Several pivot irrigation systems draw water from the stream and drain tiles discharge back to the stream. The creek flows beneath a bridge with wooden timbers and piers just northeast of mile marker 9 on Highway 41 (photograph in Appendix C).

<u>Hydrology</u>

Although the creek originates in the Ruby Mountains, the headwaters of the creek receive relatively little snowpack; therefore, Stone Creek's hydrology is not significantly influenced by spring snowmelt. The bankfull/ordinary high water mark along Stone Creek is representative of a spring-type system, and is approximately 0.4 feet above the base flow water surface elevation. The spring-type hydrology of the stream is primarily driven by groundwater recharge and drain tile inputs from adjacent, irrigated fields. Headwater reaches of Stone Creek are isolated from reaches further downstream due to irrigation demands and the channel flowing subsurface while the lower segments of Stone Creek remain flowing year-round (Jaeger pers comm.).

Channel Surveys

Stream surveys of the thalweg 300 feet upstream and downstream of the highway bridge indicate a channel slope of 0.0045 feet/feet upstream of the highway and 0.0037 feet/feet downstream of the highway. Bankfull width, as measured at riffles averages 10.9 feet, while average channel depth at these features is 0.6 feet. Pool habitat features are slightly deeper, with an average depth of 0.7 feet.

Channel Alignment

Aerial photography and site topography suggest the Stone Creek channel has been manipulated from its historic configuration upstream and downstream of Highway 41. The creek is channelized for approximately 575 feet upstream and 280 feet downstream of the highway to better align the channel with the bridge.

Habitat Components

Stream habitat components consist primarily of long, straight riffles separated by short, shallow pools. One high-quality pool exists approximately 70 feet downstream of the bridge and is created by a rock grade control feature (photograph in Appendix C). This grade control feature effectively prevents the channel from head cutting upstream and destabilizing the bridge footings. The channel drops 1.5 feet over the course of about 20 feet in length at the grade control feature. This grade control feature is recommended for upgrading as part of the bridge replacement.

Riparian Corridor

The riparian corridor along the creek has been reduced to a thin band of pasture grasses and sparse woody shrubs (photograph in Appendix C). Crops have been planted up to the edge of the channel and have replaced much of the native riparian vegetation upstream of the bridge. Downstream of the bridge, the channel is incised and includes a narrow band of grasses and forbs along the immediate channel fringe. Approximately ten mature narrow-leaf willows have established along roughly 100 feet of the left bank downstream of the bridge, and provide the only source of shade and cover within a half mile of the bridge (photograph in Appendix C).

Channel Restrictions/Impairments

Culverts have been placed in the channel at road crossings 800 feet upstream and 850 feet downstream of the bridge (photograph in Appendix C). The culvert downstream of the bridge also serves as a check dam for an irrigation pump station. A check structure has been placed in the channel approximately 1,000 feet downstream of the bridge which diverts all of Stone Creek into an irrigation ditch servicing agricultural operations to the north. The historic alignment of Stone Creek downstream of this check structure has been largely eliminated due to extensive agricultural, residential, and livestock activities.

Fish and Wildlife Observations

Several brown trout were observed in Stone Creek both upstream and downstream of the highway bridge. Three trout (species unidentified) were observed utilizing the shallow pools upstream of the highway, and approximately 30 brown trout were observed in the backwater habitat created by the check structure downstream of the highway. Avian observations included mallard ducks, a kingfisher, swallows, and

redwing blackbirds. Approximately two dozen active swallow nests were identified on the bridge structure.

5.2.1.2. Potential Impacts

This Stone Creek Bridge is subject to removal and replacement with a new bridge as part of the proposed Stone Creek – North highway improvement project. The new bridge will be widened to 28' plus some additional width to accommodate future widening of the connecting roadway.

The current bridge does not create a floodplain constriction or impede Stone Creek's flood flows. The channel was previously manipulated to align perpendicular to the bridge, and has remained in this configuration. Widening the bridge at this location is not expected to permanently impact the stream channel or the riparian fringe along the channel, as long as the newly constructed bridge span does not confine the channel and floodplain more than the existing bridge, and the channel is not manipulated from its existing configuration.

A grade control feature exists approximately 70 feet downstream of the bridge, and prevents a head cut from migrating further upstream. This grade control feature is constructed of rounded cobbles and extends across the width of the channel. Downstream of the grade control feature, the channel has eroded the left bank, causing the channel configuration to shift west. Continued bank erosion at this location may cause the channel to flank the grade control feature.

If the grade control feature is replaced with larger material, the stream bed and banks in the vicinity of the new grade control feature will be temporarily impacted. However, improving the grade control feature would include the replacement of an existing feature; therefore no new permanent impacts to the stream channel and riparian corridor are anticipated as a result of improving this grade control feature. The channel immediately downstream of the grade control could also be impacted if the bank is stabilized or the channel re-aligned to a straighter configuration.

A temporary detour off-set to one side of the existing bridge may be required to maintain traffic flow during the construction process. If this is necessary, placing this detour to the east (upstream) of the existing bridge may provide a more suitable route due to topography and existing infrastructure (fencing) in this vicinity, although either side may be equally suited due to comparable conditions. Any permanent or temporary structures should completely span the active channel and avoid impacts to the existing narrow wetland fringe along Stone Creek.

5.2.1.3. Avoidance and Minimization

The current alignment of Stone Creek perpendicular to the bridge already minimizes the extent of the channel affected by widening the bridge. The new bridge should be designed with a span that accommodates flood flows and that will not infringe upon riparian and wetland habitats immediately adjacent to the stream channel. No fill

materials should be placed within the stream channel as part of the bridge replacement.

5.2.1.4. Recommended Conservation Measures

MDT Standard Specifications for Road and Bridge Construction (2006) effectively address the protection of environmental resources. The following recommended measures are in addition to the Standard Specifications.

- Temporary erosion control should be installed in accordance with current BMPs along the newly constructed bridge approaches to prevent sediment from reaching the stream channel and riparian fringe.
- If possible, the stream bed and banks should remain undisturbed to prevent sediment delivery downstream.
- Heavy equipment operation in the active channel should be minimized to reduce turbidity and the potential for fuel spills into the creek.
- Removal of riparian and streamside vegetation should be kept to a minimum to reduce bank erosion.
- Manage existing swallow nests in accordance with the MBTA.
- The eroding bank should be evaluated to determine if additional protection is necessary to protect the new bridge from vertical channel adjustments.
- The grade control feature on Stone Creek just downstream of existing bridge should be upgraded as part of the bridge replacement.

5.2.1.5. Permitting Required

Widening the bridge over Stone Creek should not affect the stream bed and banks or wetland fringe adjacent to the creek. As a result, this activity alone will not require an Army Corps 404 permit or SPA 124 permit, so long as any piers and abutments, or riprap are not constructed within or immediately adjacent to the active stream channel. CWA 404 and SPA 124 permitting will be required if structure or other materials are placed along the banks or within the OWHM of Stone Creek, or if the existing timber bridge is replaced with a culvert or box culvert.

If the grade control feature and/or eroding bank just downstream of the bridge are upgraded or repaired, an Army Corps of Engineers 404 and SPA 124 permit will be required. In addition, a DEQ 318 permit for temporary turbidity exceedence may be required. All activities associated with the project will be subject to a Storm Water Pollution Prevention Plan (SWPPP) to minimize the risk of sediment delivery to stream and wetland features within the project area.

5.2.1.6. Exemptions

Downstream of Highway 41, Stone Creek is diverted into an irrigation ditch, which connects to a canal. This canal flows directly into the Beaverhead, establishing connectivity between Stone Creek and a jurisdictional waterway. As a result, Stone Creek is considered a jurisdictional waterway itself, and is not subject to any permitting exemptions under the Clean Water Act, Montana Stream Protection Act, or Montana 310 law.

5.2.1.7. Baseline Stream Factors

Baseline stream factors were considered for two separate actions that could result in the need for stream mitigation, including 1) upgrading the rock grade control structure downstream of the existing bridge, and 2) replacing the existing bridge with a wider bridge. The tables below present the baseline stream factors and assumptions for each of these actions at the Stone Creek crossing.

Stone Creek Baseline Stream Factors - Grade Control Feature	
Stream Type	Perennial
Stream Order	2nd Order
Stream Status	Not high resource value
Existing Condition	Impaired
Duration	Permanent*
Dominant Impact	Bank Stabilization*
Collective Impact	0.0005 x 50 feet = 0.025

*Assumes bank stabilization will be required to maintain grade control feature downstream of bridge. Type of bank stabilization TBD. Duration of impact will not be considered in determining mitigation requirements as per the 2013 Stream Mitigation Procedures.

Stone Creek Baseline Stream Factors - Bridge Replacement	
Stream Type	Perennial
Stream Order	2nd Order
Stream Status	Not high resource value
Existing Condition	Impaired
Duration	Permanent*
Dominant Impact	None*
Collective Impact	None*

*Assumes bridge construction will not result in any fill or riprap materials placed within the OHWM and the new bridge will span the width of the channel and adjacent floodplain. Assumes no piers or abutments well encroach upon the OHWM. Assumes no bank stabilization necessary along channel under bridge. Duration of impact will not be considered in determining mitigation requirements as per the 2013 Stream Mitigation Procedures.

5.2.1.8. Credit Factors

<u>Riparian Enhancement</u>

The existing riparian corridor is a thin band of shallow-rooted pasture grasses which offer little cover and shade for aquatic habitat. Opportunities for riparian enhancements include:

- establishing a buffer adjacent to the channel to restrict livestock grazing;
- installing woody riparian vegetation along the stream banks to improve shade and cover for aquatic species
- installing deep-rooted wetland species along the immediate stream banks
- reduce undesirable vegetation and weeds

<u>Stream Channel Restoration</u>

The existing channel in the vicinity of the project area is channelized, resulting in over-simplified habitat complexity. Opportunities for stream channel restoration include:

- Reconstructing portions of the stream channel to a natural pattern and profile
- Enhancing pool features to accommodate aquatic species

5.2.2. ***Unnamed Spring Creek***

5.2.2.1. Site Description

An unnamed spring creek crosses beneath Highway 41 between reference markers 12 and 13 at approximately RM 12.7 (photograph in Appendix C). This spring creek originates approximately 2 miles south of the highway, and flows adjacent to several pivot irrigated fields before reaching the highway. Immediately upstream of the highway, two impoundments have been constructed across the channel to create a series of fish ponds (photograph in Appendix C). Downstream of the highway, the creek continues to flow through a draw before being diverted into an irrigation ditch (photograph in Appendix C). This ditch maintains connectivity with a constructed wetland, which discharges into the Beaverhead River.

Hydrology

Stream flow in the channel is generated from groundwater recharge, and is likely influenced by pivot irrigation practices in adjacent fields. The East Bench Canal may also influence discharges by leaking water into the spring creek system. The unnamed creek originates approximately 2 miles south of Highway 41, and therefore has no snowmelt influence.

Channel Alignment

Upstream of the highway, the channel exhibits a naturally meandering pattern prior to being impounded into a series of three ponds. Downstream of the highway, the channel was moved east of its historic alignment for approximately 575 feet, presumably to accommodate the location of the culvert installed beneath Highway 41 during road construction. At the base of the draw, the entire channel has been diverted into an irrigation ditch, which runs along the base of a bluff before being diverted into an MDT mitigation wetland. The channel's historic configuration below the base of the bluff has been obliterated by agricultural development and pivot irrigation operations. It is unclear if the historic alignment of the spring directly connected with the Beaverhead River, or if it naturally terminated in the meadows before reaching the river.

Habitat Components

With the exception of the artificially constructed online pond features, the relatively steep channel consists of riffle habitat features only. No pool features were observed within 500 feet upstream and downstream of the highway. The spring hydrology of the channel does not produce enough discharge to scour deeper pool habitat; therefore, deeper pool formations are not present in the vicinity of the highway.

Just upstream of the highway, the landowners have constructed two impoundments to create two fish ponds, with the highway grade creating a third pond. According to the landowners, all necessary regulatory approval was granted prior to constructing the ponds. The lower pond is approximately 0.12 acres, while the middle and upper ponds are approximately 0.6 acres in size.

Riparian Corridor

Downstream of the highway, the unnamed spring creek's channel is approximately 2 feet wide with a thin, 5-10 foot wide band of riparian vegetation primarily composed of pasture grasses, thistle, sparse sedges, and sparse hawthorne shrubs (photograph in Appendix C). Due to the spring driven hydrology, the creek lacks an extensive floodplain and does not exhibit indicators of frequent flooding outside of its banks.

Upstream of the highway, the riparian vegetation has been manipulated due to the pond developments. Cattails surround the pond closest to the highway, while pasture grasses surround the upper ponds.

Channel Restrictions/Impairments

Downstream of the highway, the unnamed spring creek has been channelized and diverted from its original configuration for approximately 550 feet, likely as part of earlier road construction efforts. Although the creek has been diverted from its historic location, it appears stable vertically and laterally. Approximately 1,100 feet downstream from the highway, the entire channel has been diverted into an irrigation ditch, and the remaining length of natural channel has been obliterated.

Upstream of the highway, two impoundments have been constructed to create on-line fish ponds. These impoundments check water to create the pond features. Each pond is connected to the next through a constructed bypass channel. The ponds range in size from 0.12 to 0.60 acres, and extend roughly 900 feet upstream of the highway.

Fish and Wildlife Observations

Although no fish were observed in the unnamed spring creek, the landowner stated rainbow trout are stocked in the ponds and brown trout existed in the channel prior to construction of the impoundments. No other aquatic species were observed utilizing the spring creek.

5.2.2.2. Potential Impacts

Widening the highway at this stream crossing will require lengthening the culvert to accommodate fill slopes and embankment widths. Lengthening the culvert and placing fill around the new culvert sections will result in permanent impacts to jurisdictional waters and wetlands of the U.S. both upstream and downstream of the highway.

Downstream of the highway, the channel may need to be reconstructed to accommodate a longer culvert. The current channel turns sharply to the northeast immediately after coming out of the culvert and runs parallel to the highway for approximately 100 feet before turning back to the north. This section of channel and riparian corridor may need to be reconstructed to accommodate the placement of additional fill as necessary to widen the highway.

5.2.2.3. Avoidance and Minimization

The new culvert should be designed as short as possible while meeting design criteria for the upgraded highway to minimize stream channel and wetland impacts.

5.2.2.4. Recommended Conservation Measures

MDT Standard Specifications for Road and Bridge Construction (2006) effectively address the protection of environmental resources. The following recommended measures are in addition to the Standard Specifications.

- Temporary erosion control should be installed in accordance with current BMPs along the newly constructed bridge approaches to prevent sediment from reaching the stream channel and riparian fringe.
- If possible, the stream bed and banks should remain undisturbed to prevent sediment delivery downstream.
- Heavy equipment operation in the active channel should be minimized to reduce turbidity and the potential for fuel spills into the creek.
- Removal of riparian and streamside vegetation should be kept to a minimum to reduce bank erosion.
- Manage existing swallow nests in accordance with the MBTA.
- If stream channel reconstruction is required downstream of the highway, the new channel should be constructed in the dry prior to running water through it to reduce turbidity and discharge of sediment to the stream.
- Install any temporary road crossing to adequately span the active channel and associated wetland fringe.

5.2.2.5. Permitting Required

Lengthening the culvert and reconstructing the stream channel will require obtaining a 404 permit from the U.S. Army Corps of Engineers, an SPA 124 permit for altering the bed and banks of a stream channel, and potentially a DEQ 318 permit for temporary increases in turbidity. The entire highway improvement project will require a SWPPP permit to address storm water issues during construction.

5.2.2.6. Exemptions

The unnamed spring creek is diverted into an irrigation ditch downstream of Highway 41. This irrigation ditch connects to an MDT mitigation wetland, which discharges to the Beaverhead River. This connectivity establishes the unnamed spring creek as a jurisdictional waterway, and is therefore not exempt from permitting under the Clean Water Act, Montana Stream Protection Act, or Montana 310 law.

5.2.2.7. Baseline Stream Factors

The following baseline stream factors were derived for the Unnamed Spring Creek as per the 2013 Montana Stream Mitigation Procedures.

Unnamed Spring Creek Baseline Stream Factors	
Stream Type	Perennial
Stream Order	1st Order
Stream Status	Not high resource value
Existing Condition	Impaired
Duration	Permanent
Dominant Impact	Pipe
Collective Impact	0.00050 x 150' = 0.075*

*Assumes 50 feet of channel will be affected by lengthening the culvert and an additional 100 feet of channel will be reconstructed downstream of highway.

5.2.2.8. Credit Factors

Riparian Enhancement

The existing riparian corridor is a thin band of shallow-rooted pasture grasses which offer little cover and shade for aquatic habitat. Opportunities for riparian enhancements include:

- establishing a riparian buffer adjacent to the channel;
- installing woody riparian vegetation along the stream banks to improve shade and cover for aquatic species;
- installing deep-rooted wetland species along the immediate stream banks;
- reduce undesirable vegetation and weeds.

Stream Channel Restoration

The existing channel downstream of the highway is channelized, resulting in over-simplified habitat. Opportunities for stream channel restoration include:

- Reconstructing the stream channel to a natural pattern and profile;
- Restoring the channel to its historic configuration to the west of the existing channel.

5.2.3. ***Beaverhead River***

5.2.3.1. Site Description

The Beaverhead River crosses the project reach at approximately RM 14.6 on Highway 41 (photograph in Appendix C). The Beaverhead River Bridge at this location is immediately adjacent to Beaverhead Rock, a prominent limestone cliff and landmark made famous by the Lewis and Clark expedition. The bridge crosses the Beaverhead River at the apex of a large meander bend in the river.

Hydrology

Discharge in the Beaverhead River is regulated by the Clark Canyon Dam, completed in 1964 and approximately 35 miles upriver from the project site. The regulated nature of the Beaverhead below Clark Canyon Dam is reflected in dam-releases, which provide irrigation water throughout the summer months to several large diversions. The Clark Canyon dam also provides flood control downstream, therefore the Beaverhead River does not exhibit a natural flood regime. The regulated nature of the

river has caused vegetation to encroach upon the channel in several locations, including just upstream of the Highway 41 bridge.

Channel Alignment

Upstream of the Highway 41 Bridge, the Beaverhead River has been modified from its historic channel alignment. A historic road grade was constructed, spanning the width of the valley, and creating a floodplain constriction approximately 0.5 miles upstream of the existing bridge. Pieces of a former bridge crossing remain, including piers and concrete footers (photograph in Appendix C). Downstream from this historic road grade, the river has been channelized against the bluff on the south side of the floodplain for approximately 1,800 feet before meandering back to the north and flowing beneath the highway bridge. Downstream of the bridge, the river exhibits a natural, sinuous meander pattern across an extensive floodplain.

Habitat Components

The existing bridge crosses the river near the apex of a meander bend that sweeps more than 180 degrees from a northern to a southern flow direction. A lengthy, deep pool extends from approximately 230 feet upstream of the bridge to approximately 350 feet downstream of the bridge. Riffle and run habitats also exist within 300 feet (upstream) of the bridge, offering habitat for aquatic insect production. A drain ditch enters the Beaverhead River 200 feet upstream of the bridge, and offers backwater habitat for juvenile fish (photograph in Appendix C).

Riparian Corridor

The riparian corridor within 300 feet upstream and downstream of the bridge is largely intact and functioning properly. The corridor mainly consists of wetland sedges and rushes immediately adjacent to the channel, with dense stands of willows and grasses spread across the floodplain. Willow growth along the channel banks provides some degree of cover and shade along the immediate bank line, and contributes to instream woody habitat (photograph in Appendix C).

Observations of the riparian corridor greater than 500 feet upstream of the bridge indicated reduced function, as much of the corridor has been removed or converted to pasture grasses. Riparian shrubs along the left (north) bank of the channelized section of the river range from sparse to non-existent for over 1,000 feet (photograph in Appendix C). Vegetation along the south bank includes a thin band of riparian shrubs and grasses, which separate the river from a pasture used for grass and hay production.

Observations of the riparian corridor greater than 1,000 feet downstream of the bridge indicate some woody shrub removal and conversion to irrigated hay fields. An irrigated hay field runs adjacent to the river for approximately 1,500 feet. This reach contains no riparian buffer between the irrigated hay field and the river channel (photograph in Appendix C).

Channel Restrictions/Impairments

The river has been channelized from its former alignment for approximately 1,800 feet upstream of the Beaverhead River Bridge. Riprap has been placed along 370 feet of

the left (north) bank to protect the adjacent hay field from erosion. Riprap has been placed along 225 feet of the north bank upstream and downstream of the Highway 41 Bridge to maintain lateral river stability.

Downstream of the bridge, removal of woody riparian vegetation along the south bank and irrigation practices are contributing to lateral instability and sediment inputs to the channel. Flood irrigation is saturating a high, steep bank along the right (south) bank causing the bank to slough into the river channel (photograph in Appendix C). The bank has no riparian buffer or deep binding roots to maintain stability and will continue to erode sediments into the river indefinitely. Short (10-25') segments of the channel have been riprapped along the right bank to protect a pump intake and to prevent further lateral erosion.

Fish and Wildlife Observations

Rainbow trout, brown trout, common carp, and muskrat were observed within the river immediately upstream and downstream of the Highway 41 Bridge. Avian species observed included swallows, western kingbird, common snipe, golden eagle, redwing blackbird, mallard duck, sandhill crane, pheasant, and magpie. Several dozen (~50) swallow (barn/cliff) nests were observed attached to this bridge during the field survey.

5.2.3.2. Potential Impacts

The location of the existing bridge in the apex of the meander bend and tight curvature of radius through this reach limits the opportunity for realignment of this river crossing. If minor realignment of the bridge crossing is necessary, a slight shift west (upstream) may result in less impact to the stream and associated wetlands. Widening the highway at this river crossing will require placing abutments and piers and placing fill along the wider road grade. It may be necessary to place fill materials within the ordinary high water mark of the river, particularly for bridge supports. Fill materials along the road grade may be placed within the riparian and wetland corridor of the river; therefore, mitigation for these activities may be required.

5.2.3.3. Avoidance and Minimization

In order to minimize impacts to stream, riparian, and wetland features, the new bridge should be designed with the maximum practical span in order to reduce riparian area impacts.

5.2.3.4. Recommended Conservation Measures

MDT Standard Specifications for Road and Bridge Construction (2006) effectively address the protection of environmental resources. The following recommended measures are in addition to the Standard Specifications.

- Temporary erosion control should be installed in accordance with current BMPs along the newly constructed bridge approaches to prevent sediment from reaching the stream channel and riparian fringe.
- If possible, the stream bed and banks should remain undisturbed to prevent sediment delivery downstream.

- If the bridge realignment requires unavoidable bank protection measures, a coffer dam should be constructed to dewater the bank and reduce the potential for excessive sediment production.
- Realigning the bridge to the west as opposed to east may have reduced impacts to the north bank, as the bank to the west of the bridge has previously been hardened with riprap for approximately 150'. Riprap protection extends approximately 60' downstream of the bridge, and would need to be extended further to accommodate a more eastern alignment.
- Install any temporary road crossings to adequately span active channel.
- All permanent structures should have a minimal span of existing structure.
- Heavy equipment operation in the active channel should be minimized to reduce turbidity and the potential for fuel spills into the creek.
- Removal of riparian and streamside vegetation should be kept to a minimum to reduce bank erosion.
- Manage existing swallow nests in accordance with the MBTA.
- The eroding bank should be evaluated to determine if additional protection is necessary to protect the new bridge from vertical channel adjustments.

5.2.3.5. Permitting Required

Placement of fill materials within the ordinary high water mark of the Beaverhead River to support a new bridge will require obtaining a 404 permit from the U.S. Army Corps of Engineers, a SPA 124 permit for altering the bed and banks of a stream channel, and potentially a DEQ 318 permit for temporary increases in turbidity. The entire highway improvement project will require a SWPPP permit to address storm water issues during construction.

5.2.3.6. Exemptions

The Beaverhead River is a jurisdictional waterway, and is therefore not exempt from permitting requirements under the Clean Water Act, Montana Stream Protection Act, or Montana 310 law. This reach of the Beaverhead River has not undergone flood mapping by FEMA; therefore no county floodplain permit will be required to modify the highway bridge.

5.2.3.7. Baseline Stream Factors

The following baseline stream factors were derived for the Beaverhead River as per the 2013 Montana Stream Mitigation Procedures.

Beaverhead River Baseline Stream Factors	
Stream Type	Perennial
Stream Order	7th Order
Stream Status	Not high resource value
Existing Condition	Somewhat Impaired
Duration	Permanent
Dominant Impact	Fill
Collective Impact	0.00050 x 100' = 0.05*

*Assumes 100' of river and riparian corridor will be affected by widening the bridge.

5.2.3.8. Credit Factors

Riparian Enhancement

The existing riparian corridor within 500 feet of the existing bridge is in good condition and functioning well. Beyond this distance, the riparian corridor could be improved by:

- establishing a riparian buffer between the river and agricultural operations
- re-establish woody vegetation along banks that currently exhibit sparse or non-existent woody coverage

Stream Channel Restoration

The size of the Beaverhead River creates challenges for large scale restoration of meander pattern and profile components. Stream restoration opportunities in the vicinity of the Beaverhead River Bridge include:

- removing 370 feet of riprap along the north bank and replacing with bioengineered bank stabilizing materials
- removing bridge piers and concrete abutment materials from the former river crossing 0.5 miles upstream of the existing bridge
- revise flood irrigation practices to prevent saturation of the river bank and reduce sediment delivery to the river

5.2.4. ***General Aquatic Species***

5.2.4.1. Species Description and Distribution

The Montana Fisheries Information System (MFISH) database documents fisheries data collected on the Beaverhead River and Stone Creek by Montana Fish, Wildlife and Parks biologists and other fisheries investigators. The Beaverhead River is stationed, beginning at river mile 0.0 at its mouth near Twin Bridges and ending at river mile 73.4 at the Clark Canyon Dam. The Beaverhead River Bridge on Highway 41 crosses the river at river mile 24.7. Stone Creek is stationed with river mile 0.0 at its mouth and ending at river mile 13.4 at its headwaters in the Ruby Mountains. Stone Creek crosses beneath Highway 41 at river mile 0.4. Table 6 includes species potentially utilizing the Beaverhead River and Stone Creek in the vicinity of the Highway 41 crossings, based on current MFISH data.

Table 6. Fish species documented in the project area.

Waterbody	Species Common Name	Species Scientific Name	River Miles	Abundance
Beaverhead River	Arctic grayling*	Thyllamus Arcticus	0 - 39	Rare
Beaverhead River	Westslope cutthroat trout**	*Oncorhynchus clarkii lewisi*	35.6 – 38.7	N/A***
Beaverhead River	Brook trout	*Salvelinus fontinalis*	0 – 65.2	Rare
Beaverhead River	Brown trout	*Salmo trutta*	0 – 63.1	Abundant
Beaverhead River	Rainbow trout	*Oncorhynchus mykiss*	0 – 63.1	Rare
Beaverhead River	Burbot	*Lota lota*	0 – 63.1	Rare
Beaverhead River	Common carp	*Cyprinus carpio*	0 – 63.1	Rare
Beaverhead River	Longnose dace	*Rhinichthys cataractae*	0 – 63.1	Abundant
Beaverhead River	Longnose sucker	*Catostomus catostomus*	0 – 63.1	Common
Beaverhead River	Mottled sculpin	*Cottus bairdii*	0 – 63.1	Abundant
Beaverhead River	Mountain sucker	*Catostomus platyrhynchus*	0 – 63.1	Rare
Beaverhead River	White sucker	*Catostomus commersonii*	0 – 60.3	Abundant
Beaverhead River	Mountain whitefish	*Prosopium williamsoni*	0 – 63.1	Abundant
Stone Creek	Westslope cutthroat trout	*Oncorhynchus clarkii lewisi*	0 – 1 8.4 – 13.4	Abundant

* Federally listed Candidate for ESA listing.

**Westslope cutthroad trout is a state species of concern (S2).

*** Two Westslope cutthroat trout were documented in 2012 in the Anderson Section of Beaverhead River between river mile 35.6 and 38.7 (approx. 11 miles upstream of Hwy 41 Bridge). No abundance records provided for Westslope cutthroat trout in MFISH database.

Although not specified in the MFISH database, brown trout, brook trout, white suckers, and mottled sculpin have been sampled by Montana Fish, Wildlife, and Parks in lower Stone Creek near the confluence with the Beaverhead River (email from FWP biologist Matt Jaeger, 9/6/13). FWP suggests this fish assemblage is representative in lower Stone Creek from the confluence with the Beaverhead River through the wetted reach of Stone Creek upstream of Highway 41. Stone Creek goes subsurface somewhere upstream of Highway 41, and remains dry year round for several miles. FWP has documented an abundance of pure Westslope cutthroat trout above the confluence of Stone Creek and Winnipeg Creek, which is approximately 10 miles upstream of the Highway 41 Bridge. According to FWP, this dry channel barrier likely prevents Westslope cutthroat trout population from extending their range with any regularity downstream to the reach of Stone Creek in the vicinity of the Highway 41 Bridge.

No fisheries information exists for the unnamed spring creek crossing Highway 41 between mile markers 12 and 13. Landowners operating the Five Rivers Lodge just south of the highway currently stock these ponds with rainbow trout, and suggested brown trout were present in the creek prior to constructing the ponds. No other aquatic species are known to exist in this stream.

Three additional fish species observed utilizing a warm spring and drainage ditch near the base of Beaverhead Rock include black mollys (*Poecelia sp.*), mosquitofish (*Gambusina affinis*), and variable platyfish (*Xiphophorus variatus) (L. Urban, pers. comment).* A black molly was potentially observed in the drainage ditch entering the

Beaverhead River approximately 200 feet upstream of the Highway 41 Bridge during the wetland delineation performed for this project area. Fish in the molly family are live-bearers, can survive in areas of low oxygen content, and are found most often in the tropical fish aquarium trade (MNHP field guide website).

5.2.4.2. Habitat Requirements

Species considered abundant within the vicinity of the Highway 41 Bridge over the Beaverhead River include brown trout, longnose dace, mottled sculpin, white sucker, and mountain whitefish. Two species of concern may inhabit the project area, including Westslope cutthroat trout and Arctic grayling. The following habitat descriptions of these species are from the Montana Natural Heritage Program Field Guide:

Brown Trout
Valley portions of larger rivers where gradients are low and summer temperatures range from 60-70 degrees F. Brown trout are also found in reservoirs and lakes at similar elevation with suitable spawning tributaries.

Longnose Dace
Habitat preferences are variable. Found in lakes, streams, springs. Preferred habitat includes riffles with rocky substrates.

Mountain Whitefish
Habitat preference includes medium to large cold mountain streams, and may also be found in lakes and reservoirs. Whitefish normally spawn in stream riffles over gravel or small rubble but have been seen spawning along lake shorelines.

White Sucker
Habitat preferences are extremely varied. Present in both lakes and streams under a wide variety of considerations, but avoids rapid current. White suckers reach maximum abundance in man-made impoundments and spawn over gravel or rocky shoals.

Westslope cutthroat trout
Westslope cutthroat trout also require cold water, although it has proven elusive to define exact temperature requirements or tolerances. Likewise, cutthroat trout tend to thrive in streams with more pool habitat and cover than uniform, simple habitat. Juvenile cutthroat trout overwinter in the interstitial spaces of large stream substrate. Adult cutthroat trout need deep, slow moving pools that do not fill with anchor ice in order to survive the winter.

Arctic grayling
Arctic grayling are obligate cool- or cold-water species. Native to drainages of the Arctic Ocean, Hudson Bay and northern Pacific Ocean in North American and Asia, two distinct populations historically inhabited waters in Michigan and Montana. The Michigan population is now extinct. Arctic grayling are still present in southwestern Montana. Individual fish can range widely, moving tens of miles on a seasonal or annual basis between spawning, rearing, and sheltering habitats.

5.2.4.3. Potential to Occur in Project Area

Based on the abundance records indicated in the MFISH database, aquatic species likely to occur in the Beaverhead River portion project area include brown trout, longnose dace, mottled sculpin, white sucker, and mountain whitefish. In addition to this list, several dozen common carp were observed in the Beaverhead River at the Highway 41 Bridge and in a deep pool 0.5 miles upstream of the bridge.

Westslope cutthroat trout and Arctic grayling have been documented within approximately 11 miles of the Beaverhead River Bridge, but in very low numbers (MFISH database). Habitat requirements for cutthroat trout and grayling include relatively cold water; however the thermal regime of the Beaverhead River in this area supports a species assemblage more tolerant of warmer water, such as brown trout, carp, and suckers. Although not impossible, it is unlikely Westslope cutthroat trout and Arctic grayling occur in the Beaverhead River within the project area based on the MFISH records documenting the rarity of these two species and existing habitat identified within the study area.

Westslope cutthroat trout is the only fish species currently documented in Stone Creek. Although MFISH records identify Westslope cutthroat occurrences in the lower mile of Stone Creek, sampling efforts since 1998 in lower Stone Creek have failed to document the presence of Westslope cutthroat trout in the lower, wetted reaches of the creek. Isolated Westslope cutthroat populations have been identified several miles upstream of Highway 41, and are upstream of a permanently dewatered segment of Stone Creek. Several trout were visually observed in Stone Creek during the June, 2013 site assessment, although species identification was difficult.

5.2.4.4. Potential Impacts

<u>Stone Creek</u>

Westslope cutthroat trout populations should not be impacted as a result of widening the Stone Creek Bridge, as long as the grade control feature immediately downstream of the existing bridge is maintained and adequate sediment and erosion control measures are effectively taken during project construction. The grade control feature downstream of the bridge should be maintained to prevent it from being flanked by Stone Creek and a head cut continuing upstream. Further head cutting would destabilize the vertical elevation of the channel causing significant sediment delivery downstream and potential destabilization of the bridge structure.

<u>Unnamed Spring Creek</u>

Lengthening the culvert will slightly reduce aquatic habitat in the unnamed spring creek by permanently placing it in a culvert. The stream channel downstream of the highway runs parallel to the existing highway embankment, and will need to be reconstructed if a flatter highway embankment extends further north than the existing embankment; however, approximately 100 feet of the creek will need to be reconstructed if the new embankment slope results in obliteration of the existing alignment parallel to the highway. Placement of fill upstream of the highway may encroach upon the adjacent pond, which lies within 25 feet of the existing road embankment.

Beaverhead River

The final plan to upgrade the bridge will likely include a new alignment over the Beaverhead River. The following assumptions were made to anticipate potential temporary and permanent impacts of a new bridge alignment:

- The new bridge will span the active channel and will not require installation of piers or abutments within the OHWM.
- The new alignment will require placing riprap protection around the abutments, portions of which will need to be placed within the OHWM on the north bank of the Beaverhead River.
- Placement of fill material will be necessary to construct approaches to the new, wider bridge alignment.

Protection of the north bank abutment will likely require placing fill materials (riprap) within the active channel to prevent lateral migration of the river to the north. Riprap currently exists along the north bank upstream of the existing bridge for approximately 150 feet and downstream of the bridge approximately 60 feet. If bank armoring measures are necessary beyond that already installed along the north bank, installation of this material will necessitate constructing a temporary coffer dam in the active river channel to dewater the north bank and prevent excessive increases in turbidity. Placement of fill material to construct any realigned bridge approaches will have wetland impacts, which are discussed in Section 8.

Montana FWP will not impose timing restrictions for bridge construction activities on the Beaverhead River (email from M. Jaeger 10/9/13). However, FWP will likely stipulate the bridge be free-spanning, and designed with abutments that do not encroach upon the stream, reducing the potential for sediment production during construction.

5.2.4.5. Avoidance and Minimization

If possible, any new bridge abutments and piers constructed for either the Beaverhead River or Stone Creek bridges should be designed to remain out of the active river channel to maintain as much natural stream and riverine habitat as possible. Although it may be necessary to install rock armor along the new abutments to protect bridge infrastructure, the length of armored banks should be minimized to maintain as much natural bank configuration as possible while maintaining lateral bank stability, and should not encroach into the active channel. Aligning the Beaverhead River further to the west may result in reduced permanent impacts to the north bank of the river as opposed to a more eastern alignment. Riprap has already been placed on the north bank for approximately 150’ west of the bridge, and may remain as part of any necessary bridge abutment protection. Riprap has also been placed downstream (east) of the existing bridge, but extends approximately 60’ before tying into the native floodplain elevation. Aligning the new bridge further east would likely result in the need to armor additional bank length than is currently protected by riprap.

Ponds created on the unnamed spring creek extend to within 25 feet of the road embankment to the north of Highway 41. Placement of road fill materials along this

segment should attempt to avoid filling in the pond to reduce encroachment upon fringe wetlands and to prevent destabilization of the embankment.

5.2.4.6. Recommended Conservation Measures

- Any stream bank armoring designed to protect bridges from stream and river migration should be kept to the minimum length necessary.
- The new bridges should be designed to avoid placing artificial materials such as concrete abutments, riprap, and piers in the active channel if possible.
- If placement of artificial materials is necessary within the active channel, a temporary coffer dam should be installed to dewater the bank to prevent excessive turbidity.
- Placement of fill materials adjacent to the bridge and approaches should be minimized to protect riparian and wetland habitats adjacent to the river channel.
- Fill materials adjacent to the channel, including riprap should be vegetated to maintain shade and cover along the affected river banks.
- If a portion of the unnamed spring creek must be filled to accommodate a wider road, the equivalent length of channel should be reconstructed to replace any aquatic habitat lost.
- Realigning the Beaverhead River Bridge to the east will likely require additional bank protection measures and permanent impacts as opposed to realigning the bridge to the west. This is due to the presence of existing riprap along the north bank extending approximately 150’ upstream of the existing bridge as opposed to only 60’ downstream of the bridge.

6.0 SENSITIVE SPECIES OF SPECIAL CONCERN

Montana employs a standardized ranking system to denote global (range-wide) and state status (MTNHP 2013). The MTNHP assigns numeric ranks ranging from 1 (highest risk, greatest concern) to 5 (demonstrably secure) reflecting the relative degree of risk to the species’ viability, based upon available information. The factors considered in assigning ranks include the number, size and quality of known occurrences or populations, distribution, trends (if known), intrinsic vulnerability, habitat specificity, and definable threats (MTNHP 2013). The qualifier “B” appended to the state rank refers to the breeding population of the species in Montana and signifies that the species is at risk during breeding season, but common in the winter.

In 2005, Montana Fish, Wildlife, and Parks (FWP) completed Montana’s Comprehensive Fish and Wildlife Conservation Strategy. Under this conservation strategy, individual animal species were assigned levels of conservation need ranging from Tier I (greatest conservation need) to Tier IV (species that are non-native, incidental, or very common in adjacent states).

The Montana Native Plant Society (MNPS) initiated a process in 2006 to evaluate threats impacting Montana’s plant species of concern and develop a ranking system based on the impacts of the identified threats to the species’ viability in the state (MTNHP 2013). The resulting threat ranking system ranges from Category 1 (highly threatened) to Category 4 (assessment not possible due to insufficient data).

The ESA administered by the USFWS uses the following designations for plant and animal species of concern: listed threatened (LT), candidate (C), and recovered, delisted, and being monitored (DM) (MTNHP 2013). This list is not all-inclusive. It includes only the status rankings of the species of concern identified for this project. Three additional designations apply specifically to bald and golden eagles: Bald and Golden Eagle Protection Act of 1940 (BGEPA), Migratory Bird Treaty Act (MBTA), and Birds of Conservation Concern 2008 (BCC).

The U.S. Forest Service (USFS) sensitive species are defined as those on USFS lands for which population viability is a concern as evidenced by a significant downward trend in population or a significant downward trend in habitat capacity (MTNHP 2013). The USFS uses the designations of Endangered (ESA), Threatened (ESA), or Sensitive where listed as a sensitive species by the USFS Northern Region Regional Forester.

The Bureau of Land Management (BLM) sensitive species are defined as those that normally occur on Bureau administered lands for which BLM has the capability to significantly affect the conservation status through management (MTNHP 2013). The BLM designations are Sensitive for species listed as sensitive on BLM lands and Special Status for species listed as endangered or threatened under the ESA.

6.1. Methods

A data request was submitted to the MTNHP to determine if any species of concern are known to occur in or near the project area. The materials provided by MTNHP were the result of a search of the Natural Heritage database for species of concern that occur in an area defined by the requested township, range and sections with an additional one-mile buffer surrounding the requested area. The full Species of Concern data report received from MTNHP is provided in Appendix F. The MTNHP online database was also searched based on Township and Range geographical locations prior to the field visit to determine species that may be present in Madison and/or Beaverhead County. Four special status plant species, eight special status terrestrial species, and two special status aquatic species were documented within the project area and buffer zone and are listed in Table 7.

A Confluence biologist conducted site surveys between June 10th and 13th, June 26th and 27th, and July 15th, 2013. The field survey included investigations for rare and sensitive plants, rare and sensitive aquatic and terrestrial animal species, and assessment and mapping of habitat within the study area. The aquatic and terrestrial surveys were conducted on foot by a biologist looking for animal sign and assessing habitats. Both sides of the highway along the ±7.2-mile study area and ±0.5-mile upstream and downstream of the Beaverhead River and Stone Creek were covered.

Table 7. Species of special concern in the vicinity of the Stone Creek – North project area.

Common Name Scientific Name	Status*	Habitat Requirements	Likelihood to Occur in Project Area**	Potential for Impacts
Hoary Bat *Lasiurus cinereus*	Global: G5; MTNHP: S3; FWP Tier 2	During the summer, Hoary Bats occupy forested areas, forage over water sources and along riparian corridors	Low - Incidental occurrence, potential foraging in the summer.	Minimal to none
Great Basin Pocket Mouse *Perognathus parvus*	Global: G5; MTNHP: S3; FWP Tier 1; USFS: Sensitive BLM: Sensitive	Arid and sparsely vegetated grassland-shrubland with sandy soils	Low - Unsuitable habitat due to lack of sagebrush.	Minimal to none.
Great Blue Heron *Ardea herodias*	Global: G5; MTNHP: S3; FWP Tier 3	Wetlands in both urban and wilderness settings, nesting colonies in cottonwoods along rivers and lakes	Low - Incidental occurrence, potential foraging area.	Minimal to none
Bald Eagle *Haliaeetus leucocephalus*	Global: G5; MTNHP: S4; FWP Tier 1; USFS: Sensitive; BLM: Sensitive; USFWS: DM, BGEPA, MBTA, BCC	Riparian and lacustrine habitats (forested areas along rivers and lakes), major waterbodies, wetlands, spring spawing streams, ungulate winter ranges and open water	Low - Incidental occurrence, potential foraging areas for small mammals and birds.	Minimal to none
Golden Eagle *Aquila chrysaetos*	Global: G5; MTNHP: S3; FWP Tier 2; BLM: Sensitive; USFWS: BGEPA, MBTA, BCC	Nest on cliffs and in large trees, including power poles; hunt over prairie and open woodlands	High - Cliff line along west side of Beaverhead River is potential nesting site and valley bottom is potential foraging area.	Low
Long-billed Curlew *Numenius americanus*	Global: G5; MTNHP: S3B; FWP Tier 1; BLM: Sensitive	Prairies and grassy meadows, generally near water, nests in dry prairies and moist meadows	Low - Incidental occurrence, potential foraging in the wetlands.	Minimal to none
Sage Thrasher *Oreoscoptes montanus*	Global: G5; MTNHP: S3B; FWP Tier 3; BLM: Sensitive	Sagebrush obligate, abundance is generally positively correlated with the amount of sage cover	Low - Unsuitable habitat due to lack of sagebrush.	Minimal to none
Brewer's Sparrow *Spizella breweri*	Global: G5; MTNHP: S3B; FWP Tier 2; BLM: Sensitive	Sagebrush areas, nesting in sagebrush averaging 16-inches high	Low - Unsuitable habitat due to lack of sagebrush.	Minimal to none
Westslope Cutthroat Trout *Oncorhynchus clarkii lewisi*	Global: G4T3; MTNHP: S2; FWP Tier 1; USFS: Sensitive; BLM: Sensitive	Spawning and rearing in cold, nutrient poor streams, thrives in streams with adequate pool habitat and cover	High - This species has been documented in Stone Creek.	Low
Arctic Grayling *Thymallus arcticus*	Global: G5; MTNHP: S1; FWP Tier 1; USFS: Sensitive; BLM: Sensitive; USFWS: C	Found primarily in small, cold, clear lakes with tributaries suitable for spawning	Low - Beaverhead River is unsuitable due to seasonal temperatures, not documented in Stone Creek.	Minimal to none
Annual Indian Paintbrush *Castilleja exilis*	Global: G5; MTNHP: S2; MNPS Category 2; BLM: Sensitive	Moist alkaline meadows in the valley zone	Low - Not observed during field survey, marginal habitat	Minimal to none
Mealy Primrose *Primula incana*	Global: G4G5; MTNHP: S3; MNPS Category 2; USFS: Sensitive; BLM: Sensitive	Found in saturated, often calcareous wetlands	Low - Not observed during field survey, marginal habitat	Minimal to none
Beaked Spikerush *Eleocharis rostellata*	Global: G5; MTNHP: S3; MNPS Category 3; USFS: Sensitive; BLM: Sensitive	Wet, often alkaline soils, associated with warm springs or fens in the valley and foothills zones	Known - Population noted along irrigation canal near RP 15.3	Moderate
Ute Lady's-tresses *Spiranthes diluvialis*	Global: G2G3; MTNHP: S1S2; MNPS Category 2; USFWS: LT	Alkaline wetlands, swales and old, meander channels often on the edge of the wetland or in areas that are dry by mid-summer	Low - Not observed during field survey, marginal habitat	Minimal to none

*Definitions of Status:
MTNHP S1: at high risk; S1S2: between at high risk and at risk; S2: at risk; S3: potentially at risk; S3B: potentially at risk during breeding season; S4: apparently secure, though rare.
USFWS DM: recovered, delisted, and being monitored; C: canidate; LT: listed threatened; BGEPA: The Bald and Golden Eagle Protection Act; MBTA: The Migratory Bird Treaty Act; BCC: Birds of Conservation Concern.
**Definitions of Likelihood to Occur:
High: MTNHP database or other documents record the known occurrence of species in the vicinity of the project or the presence of suitable habitat conditions and suitable microhabitat conditions.
Moderate: MTNHP or other documents record the known occurrence of species in the vicinity of the project or the presence of suitable habitat conditions, but suitable microhabitat conditions are not known to exist.
Low: MTNHP or other documents record the known occurrence of species in the vicinity of the project; suitable habitat conditions are of poor quality.
None: MTNHP or other documents do not record the known occurrence of species in the vicinity of the project; suitable habitat conditions do not occur in any condition.

6.1. Results

6.1.1. *Plant Species*

The MTNHP database search documented four special-status plant species within a 1 mile buffer of the proposed project area: Annual Indian Paintbrush, Mealy Primrose, Beaked Spikerush, and Ute Ladies' Tresses. The following sections contain information which was obtained from the MTNHP Field Guide (2013). Ute Ladies' Tresses will be discussed under Section 6.0 Threatened and Endangered Species Biological Assessment.

6.1.1.1. Annual Indian Paintbrush

Species Description and Distribution

Annual Indian Paintbrush is an annual with erect, unbranched stems that are 30-80 cm high. The alternate, narrowly lance-shaped leaves, 3-8 cm long, have entire margins. Foliage is glandular-hairy. The stalkless flowers arise from the axils of the reduced upper leaves (bracts) in a spike-like inflorescence at the top of the stem. The upper bracts have red tips. The yellowish, tubular corolla, 15-25 mm long, tapers to a galea above that surpasses the 3 small lobes below. The tubular calyx, 15-20 mm long, almost completely contains the corolla and is cleft into 4 pointed lobes. The fruit is a capsule with many tiny seeds. Flowering occurs in July through August.

Annual Indian Paintbrush is found from Washington and Montana south to California, Arizona, and New Mexico. In Montana, the MTNHP has primarily documented on private lands in southwest Montana (Figure 6). This figure also indicates recent (0-5yr) observations at relatively high densities within the region of the study area.

Habitat Requirements

Annual Indian Paintbrush grows in moist alkaline meadows in the valley zone.

Potential to Occur in Project Area

This species was not observed during the field survey (June/July). However, it should be noted that this species typically blooms during the latter part of the growing season, with peak observations of this species occurring in August (Figure 6). With the presence of suitable habitat for this species occurring between RP 14.6 and 15.4, it is recommend that a MDT Biologist or other qualified professional conduct a plant survey for this species during the appropriate time of the year prior to construction.

Potential Impacts

No impacts are expected to this species because this species is not likely to be present.

Avoidance and Minimization

No avoidance or minimization measures are necessary for this species.

Recommended Conservation Measures

No conservation measures are recommended since no impacts are expected.

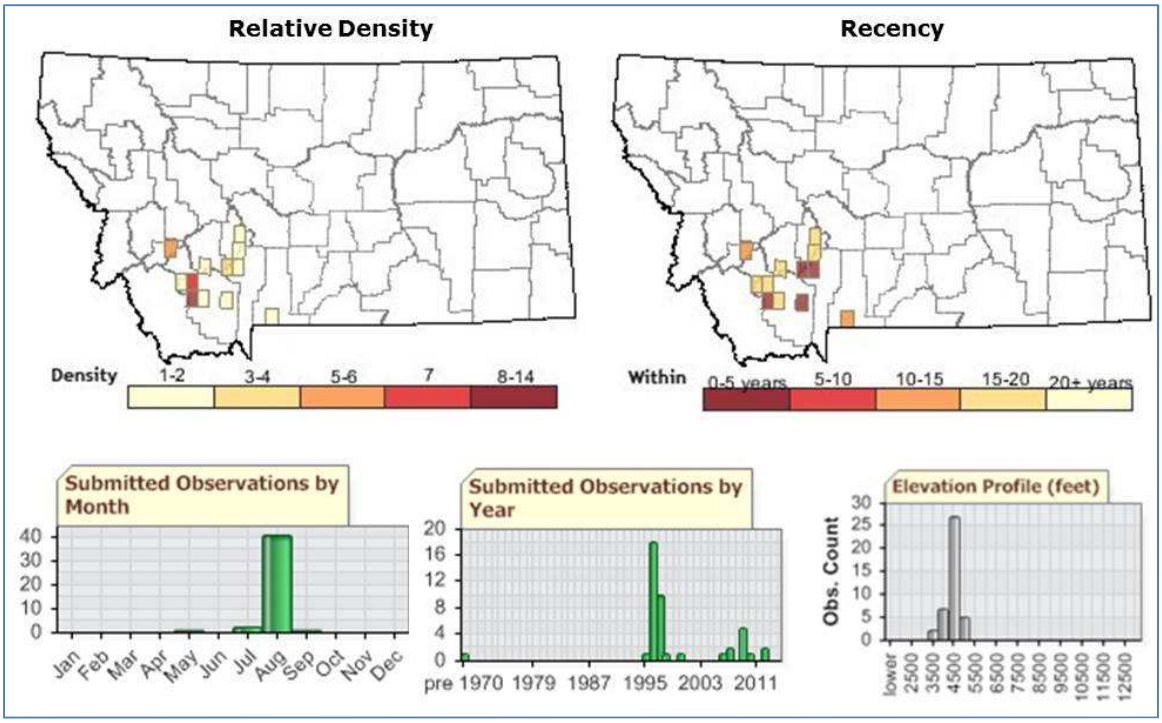


Figure 6. Summary of observations submitted for Annual Indian Paintbrush (MTNHP).

6.1.1.2. Mealy Primrose

Species Description and Distribution

Mealy Primrose is slender, tall, and heavily farinose, or occasionally farinose. It rises up to 46 cm high and leaves are elliptic or oblanceolate, including the petioles, which are up to 6 cm long. Blades are 0.3 – 1.6 cm wide with denticulate margins and gradually narrow into a broadly winged petiole. The involucral bracts are 0.5-1 cm long, oblong, densely covered with white farina, flat above and saccate or gibbous at the base. The umbels are capitates, 7-19 flowered, and the pedicels are short and 0.3-0.9 cm long. Flowers are homostylous. The calyx is green, heavily farinose, cylindrical, obscurely ribbed, and 0.4-0.7 cm long; it is divided up to one third its length by lanceolate teeth that are covered with capitates 3-4 celled glands. The corolla is lavender with a yellow throat. The limb is 0.4-0.8 cm wide, emarginated, and is a tube that is equal to or slightly longer than the calyx. Stamens are ca. 1 mm long and located in the upper portion of the corolla tube. The stigma is capitates and located adjacent to the anthers. The capsule is cylindrical to slightly elliptical, 0.2-0.3 cm wide, and 1.5-2 times the length of the calyx. Seeds are brown, reticulate, ca. 0.2 mm long. Flowering occurs in May to June.

Mealy Primrose is found from Utah and Colorado north to Alaska and east to Quebec. In Montana, the Mealy Primrose is rare and is known only in a few dozen extant occurrences, primarily in the southwest corner of the state (Figure 7).

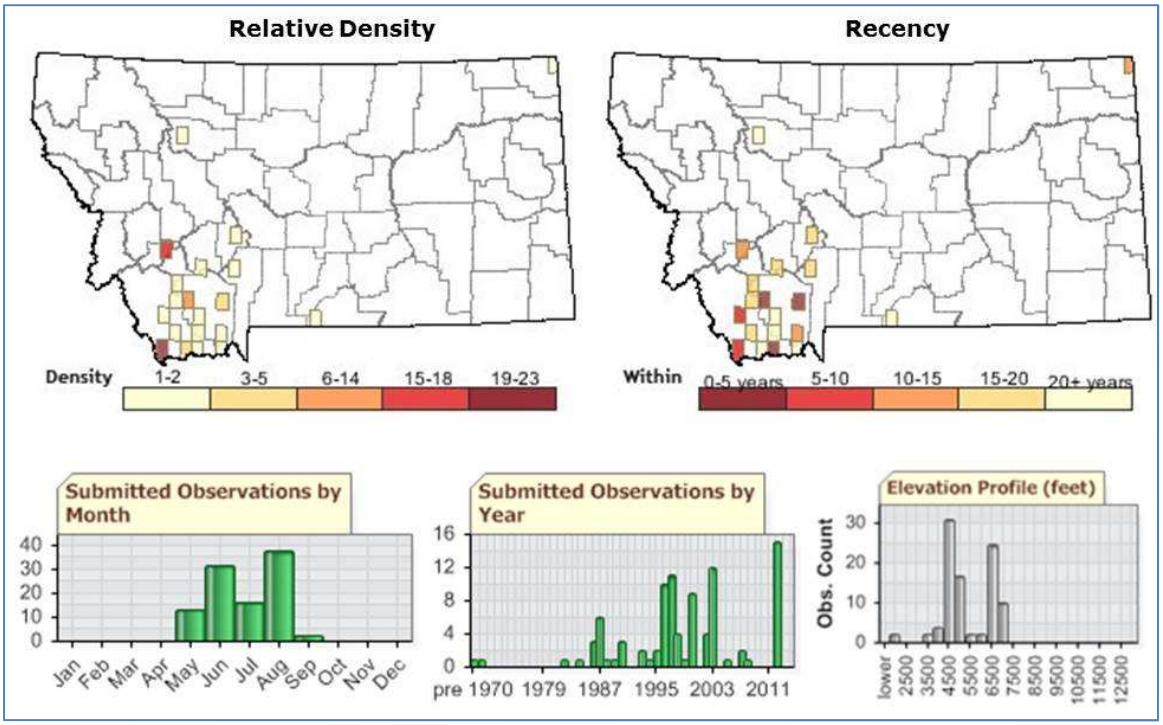


Figure 7. Summary of observations submitted for Mealy Primrose (MTNHP).

Habitat Requirements

Mealy Primrose grows in saturated, often calcareous wetlands with relatively stable water tables. Mealy Primrose is often found growing on the sides of hummocks where the density of overtopping vegetation is reduced.

Potential to Occur in Project Area

A small area of potentially suitable habitat is present along the irrigation canal to the east of the highway just north of the Beaverhead River. MTNHP has documented observations of this species throughout the growing season (Figure 7), peaking in both June and August with the latter observations likely of the leaves following flowering. This species was not observed during the field survey (June/July).

Potential Impacts

No impacts are expected to this species because this species is not likely to be present.

Avoidance and Minimization

No avoidance or minimization measures are necessary for this species.

Recommended Conservation Measures

No avoidance or minimization measures are necessary for this species.

6.1.1.3. Beaked Spikerush

Species Description and Distribution

Beaked Spikerush is a caespitose perennial. Stems are 10-80 cm, tufted, erect or arching, rooting at the tip and forming new plants. Spikelets are 4-10 mm long with few

to many flowers. Scales are 2-6 mm long, brown to purple with broad hyaline margins, rounded and the lowest empty. Flowers are bristles ca. 6, mostly equaling the achene, stigmas 3. Achenes are green-grayish, smooth, obovoid, ca. 2 mm long with a conical tubercle confluent with the body. Flowering occurs in July with mature fruit in July-August.

Beaked Spikerush is found from British Columbia to Nova Scotia south through most of the U.S. to Mexico. In Montana, Beaked Spikerush is known in over a dozen extant sites and a few historical locations (Figure 8).

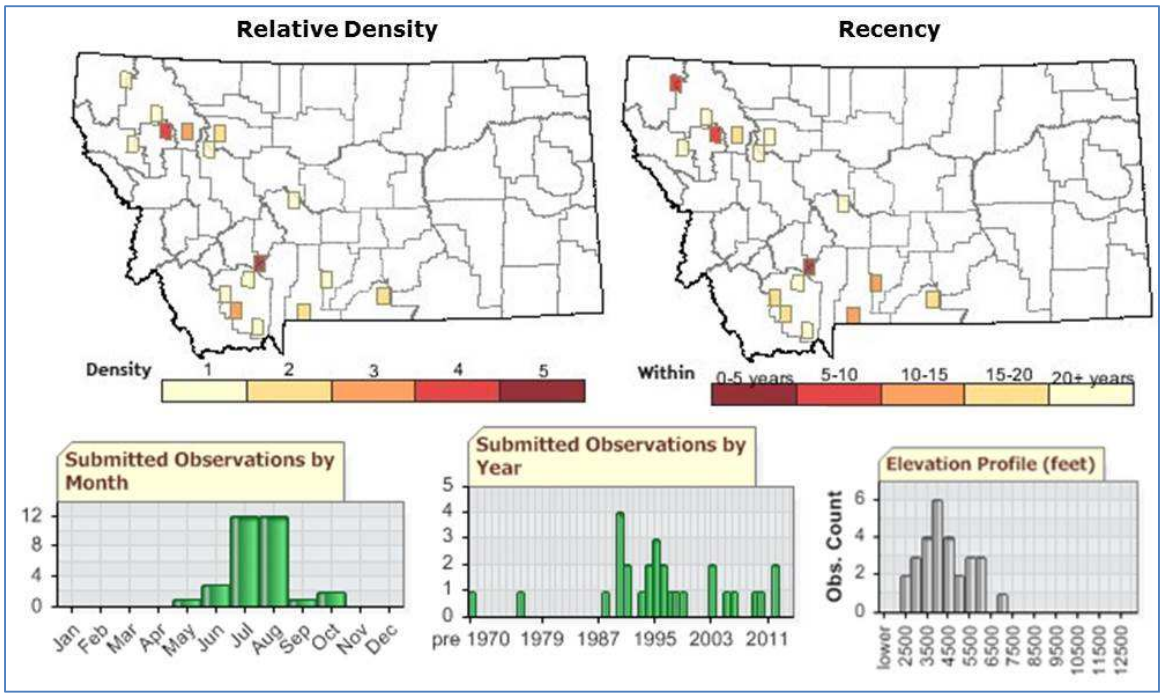


Figure 8. Summary of observations submitted for Beaked Spikerush (MTNHP).

Habitat Requirements

Beaked Spikerush grows in wet, often alkaline soils, associated with warm springs or fens in the valley and foothills zones.

Potential to Occur in Project Area

Beaked Spikerush was identified along the eastern margins of the study area near RM 15.2 (see Photos 50 and 51 in Appendix C). This species was identified in an alkaline wetland area supported by irrigation diversion and shallow groundwater. The location of the identified beaked spikerush community is shown in Figure 9.

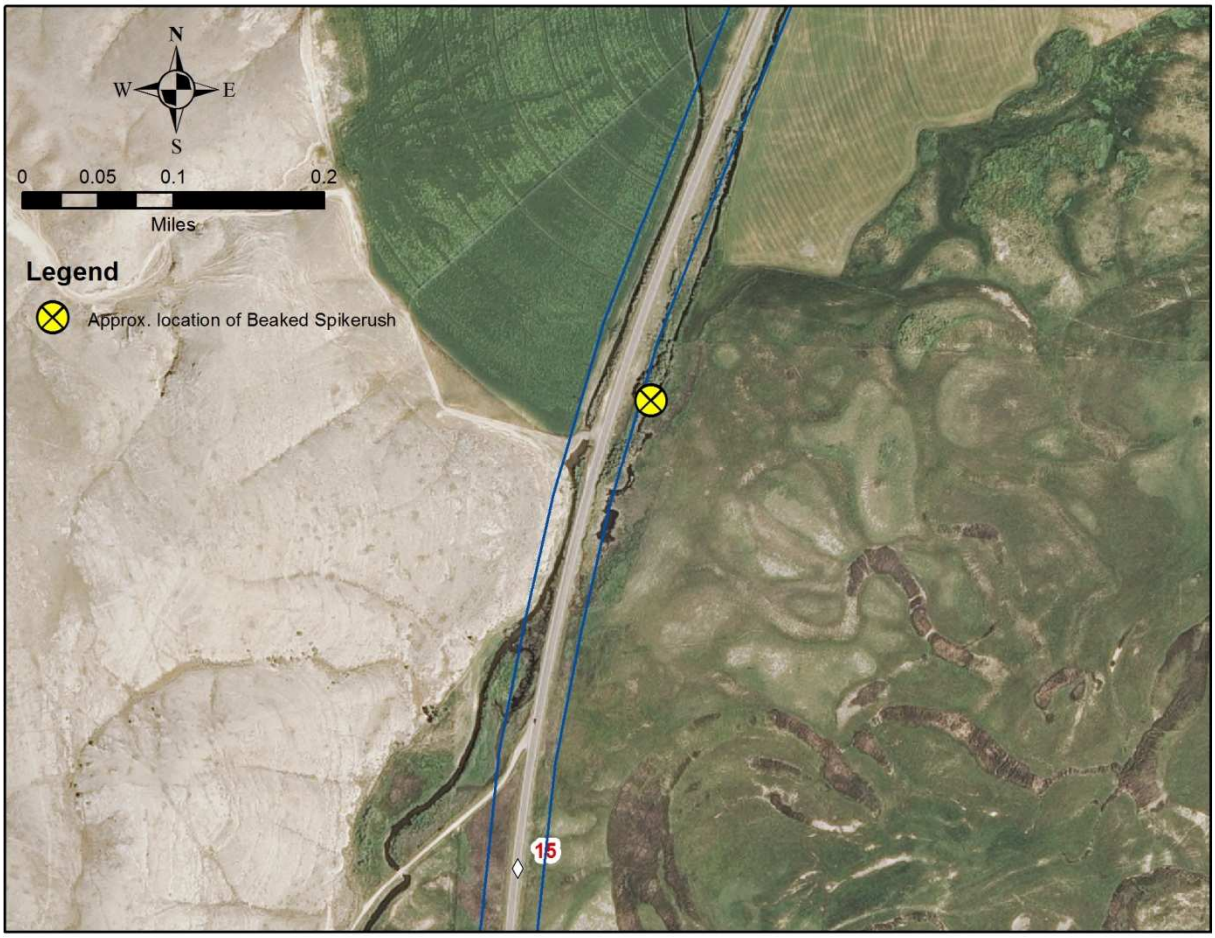


Figure 9. Approximate location of beaked spikerush identified during field survey.

Potential Impacts

Beaked Spikerush is vulnerable to hydrologic alteration and development. Modifications to the amount and/or location of water diverted through a culvert under Highway 41 (~RM 15.25) would alter localized hydrology within the area identified as known beaked spikerush habitat.

Avoidance and Minimization

To avoid impact to known beaked spikerush habitat, the wetland area to the east of Highway 41 between RM.15.22 and 15.35 should be protected during construction. Temporary erosion control measures should be installed to protect wetlands from runoff while disturbed, exposed soils are present during and following construction. The area to be protected should be marked with construction/snow fencing or other means to clearly demarcate the area during construction. The area should be shown as a "Do Not Disturb" area on the plan set. Replacement of the culvert at the same invert elevation and avoidance of the irrigation diversion to the west of the highway would minimize hydrologic alteration.

Recommended Conservation Measures

In addition to the MDT Standard Specifications for Road and Bridge Construction (MDT 2006), the following conservation measures are recommended:

- Periodic reconnaissance of the *Eleocharis* community located in the wetlands between RM 15.22 and 15.35 to monitor the distribution of beaked spikerush.
- Avoid disturbance to the existing wetlands in above-referenced location.
- Consider alignment shifts or slope modifications to the road in this area to avoid impacts to the wetland and/or the identified spikerush population.
- Maintain hydrology through irrigation canal.

6.1.2. ***Terrestrial Species***

The MTNHP data request results identified eight special-status terrestrial species within a 1 mile buffer of the proposed project area: Hoary Bat, Great Basin Pocket Mouse, Great Blue Heron, Bald Eagle, Golden Eagle, Long-billed Curlew, Sage Thrasher, and Brewer's Sparrow. The following sections contain information which was obtained from the MTNHP Field Guide (2013).

6.1.2.1. Hoary Bat

Species Description and Distribution

The Hoary Bat is a large lasurine (20 to 35 g) with long pointed wings and heavily-furred interfemoral membrane. Pelage overall is frosted or hoary (mixed brownish and grayish with white-tipped hairs, wrist and shoulder patches whitish), yellowish on the throat, forearm length about 46 to 55 mm. Ears are short and rounded, rimmed in dark brown or black, tragus short and broad. It has large teeth.

Hoary Bats are found throughout the U.S. In Montana, this species is distributed state-wide (Figure 10). Recent (0-5yr) observations have been recorded across the state, with an area of relatively high densities noted in the vicinity of this project.

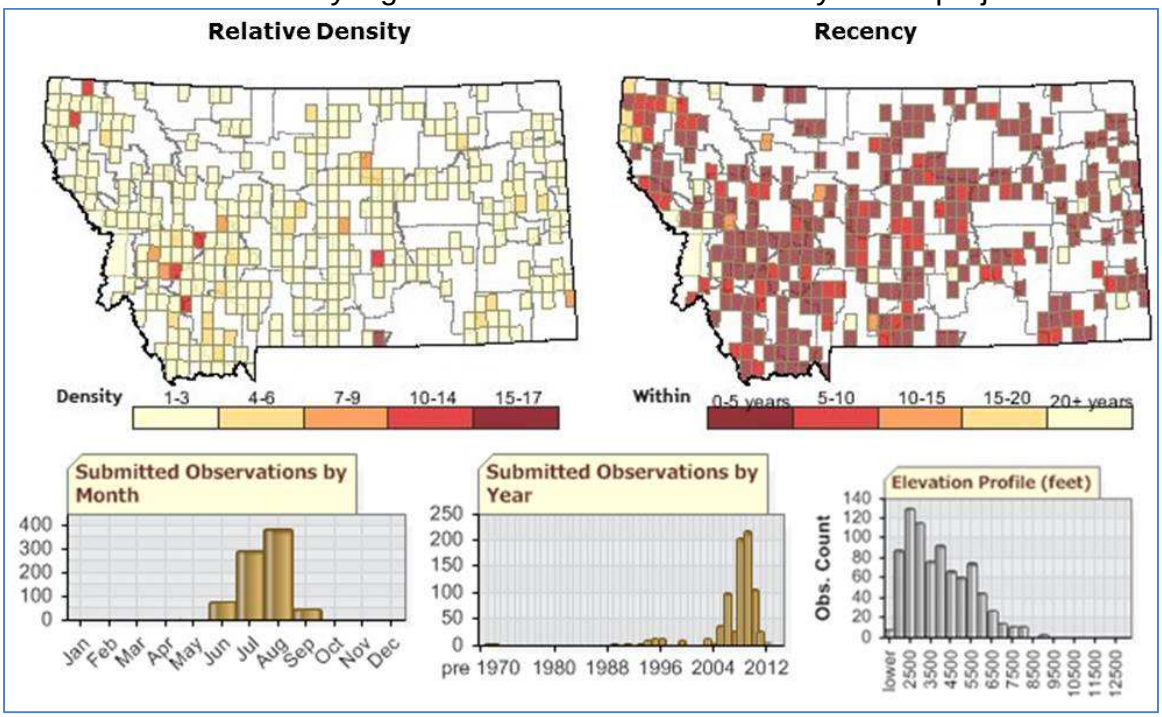


Figure 10. Summary of observations submitted for Hoary Bat (MTNHP).

Habitat Requirements

Hoary Bat is migratory and only a summer resident in Montana, with records from early June through September (Figure 10). Normal arrival and departure dates are uncertain. During the summer, Hoary Bats occupy forested areas over a broad elevation range (1900 to 9100 ft). They are often captured foraging over water sources embedded within forested terrain, both conifer and hardwood, as well as along riparian corridors. The Hoary Bat is vulnerable to collisions with barbed wire and wind turbines.

Hoary Bats roost primarily in trees but are reported infrequently in caves, squirrel nests, and clinging to the sides of buildings. Most day roosts are 3 to 5 m above the ground.

Potential to Occur in Project Area

The only trees identified within the study area included one medium-sized chokecherry (DBH ~5in.) along the Beaverhead River and a couple of mature cottonwoods planted at an entrance to a driveway near RM 9.6. This species occurrence in the project area is likely limited to incidental occurrence for foraging during the summer.

Potential Impacts

No impacts are expected to this species due to the lack of suitable roosting habitat within the areas of potential impact.

Avoidance and Minimization

No avoidance or minimization measures are necessary for this species.

Recommended Conservation Measures

No conservation measures are recommended since no impacts are expected.

6.1.2.2. Great Basin Pocket Mouse

Species Description and Distribution

The Great Basin Pocket Mouse is the largest member of the genus Perognathus. Its tail length is 110 to 120% of head and body length, and distinctly bicolored. The hind legs are elongated, but not to the extent observed in bipedal heteromyids such as kangaroo rats. They have external, fur-lined cheek pouches, hence the name pocket mouse. The dorsal pelage is pinkish-buff or ocherous-buff overlain with black hairs; the belly is white to buffy. On the skull, the auditory bullae are not greatly inflated but meet or nearly meet anteriorly and the nasal septum is perforated (connecting right and left infraorbital canals). There are 20 teeth in the skull; the upper incisors are grooved and the molars are hypsodont (high-crowned and fully covered in enamel).

The Great Basin Pocket Mouse is known to occur within the southwest corner of Montana (Figure 11). No recent observations have been recorded for this species within the vicinity of the study area.

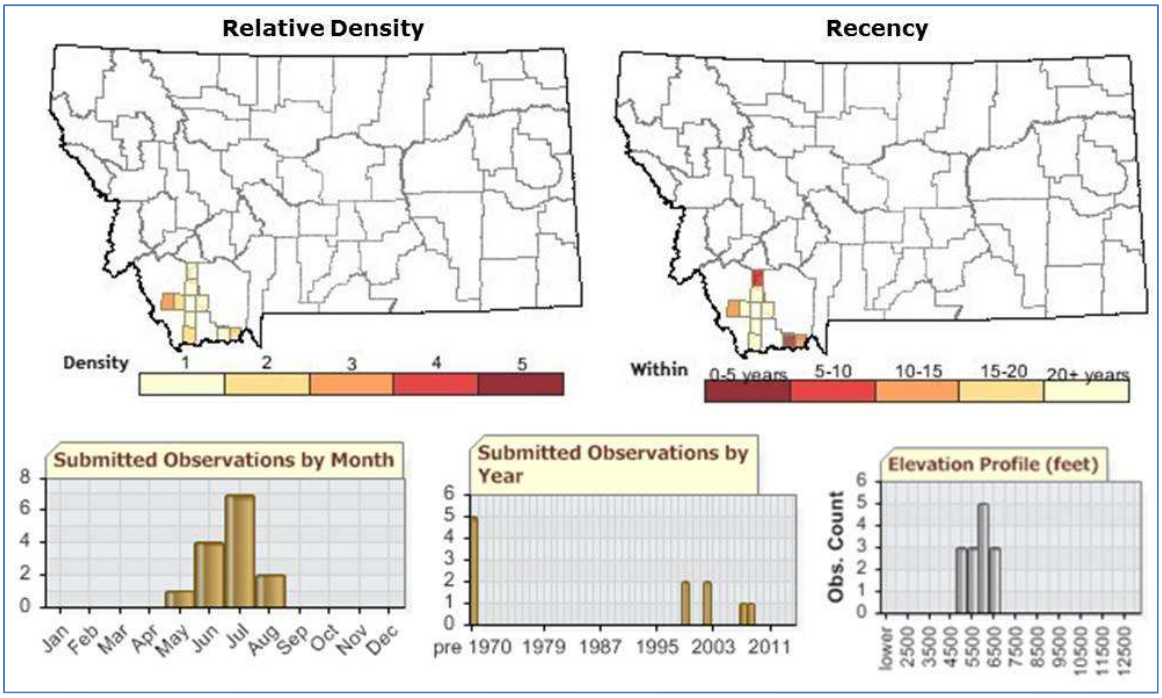


Figure 11. Summary of observations submitted for Great Basin Pocket Mouse (MTNHP).

Habitat Requirements

The Great Basin Pocket Mouse is non-migratory. Occupied habitats in Montana are arid and sometimes sparsely vegetated. They include grassland-shrubland with less than 40% cover, stabilized sandhills, and landscapes with sandy soils, more than 28% sagebrush cover, and 0.3 to 2.0 meters shrub height. They usually are found in habitats with light-textured, deep soils, and sometimes in shrublands among rocks. Adults sleep and rear young in underground burrows.

Potential to Occur in Project Area

The project area is well vegetated with few shrubs and very limited sagebrush cover. It is unlikely that this species occurs within the project area. This species was not observed during the 2013 field survey efforts.

Potential Impacts

No impacts are expected to this species due to the unlikelihood of occurrence within the project area. If the Great Basin Pocket Mouse does exist within potential areas of impact, suitable habitat directly adjacent to the project area would provide a refugium during construction activity.

Avoidance and Minimization

No avoidance or minimization measures are necessary for this species.

Recommended Conservation Measures

No conservation measures are recommended as no impacts to this species are expected.

6.1.2.3. Great Blue Heron

Species Description and Distribution

The Great Blue Heron is the largest heron in North America, 60 cm tall, 97 to 135 cm long, and 2.1 to 2.5 kg mass. Its wings are long and rounded, its bill is long and tapered, and it has a short tail. The Great Blue Heron is gray on its upper parts and its fore-neck is streaked with white, black, and rust-brown. Its bill is yellowish and legs are brownish or greenish. Adults have long occipital plumes. In flight, the Great Blue Heron folds its neck in an "S" shape and extends legs along the body axis; wing beats are deep and slow.

Great Blue Herons breed from southern Alaska southeast across central Canada to Nova Scotia and south to Guatemala, Belize, and the Galapagos Islands. They winter in most of the breeding range (being absent in the interior of Canada and in the northern Great Plains) and throughout Central America to Venezuela and Colombia. Great Blue Herons are fairly common to common permanent resident in Montana, with more than 100 nesting colonies scattered across the state. The highest nesting densities are in cottonwood floodplain forests in the Flathead, Bitterroot, Beaverhead, upper Missouri, middle Yellowstone, Tongue, and Bighorn valleys (Figure 12).

Habitat Requirements

Great Blue Herons are equally at home in urban wetlands and wilderness settings. Most Montana nesting colonies are in cottonwoods along major rivers and lakes; a smaller number occur in riparian ponderosa pines and on islands in prairie wetlands. Nesting trees are the largest available. Great Blue Herons build bulky stick nests high in the trees when nesting near the shores of rivers and lakes and on the ground or in low shrubs when nesting on treeless islands.

Potential to Occur in Project Area

There are no suitable trees within the project area for nesting. This species occurrence within the project area is likely limited to incidental occurrence for hunting.

Potential Impacts

No impacts are expected to this species as a result of this project due to the presence of suitable, incidental hunting and resting areas throughout the Beaverhead River corridor.

Avoidance and Minimization

No avoidance or minimization measures are necessary for this species.

Recommended Conservation Measures

No conservation measures are recommended since no impacts are expected.

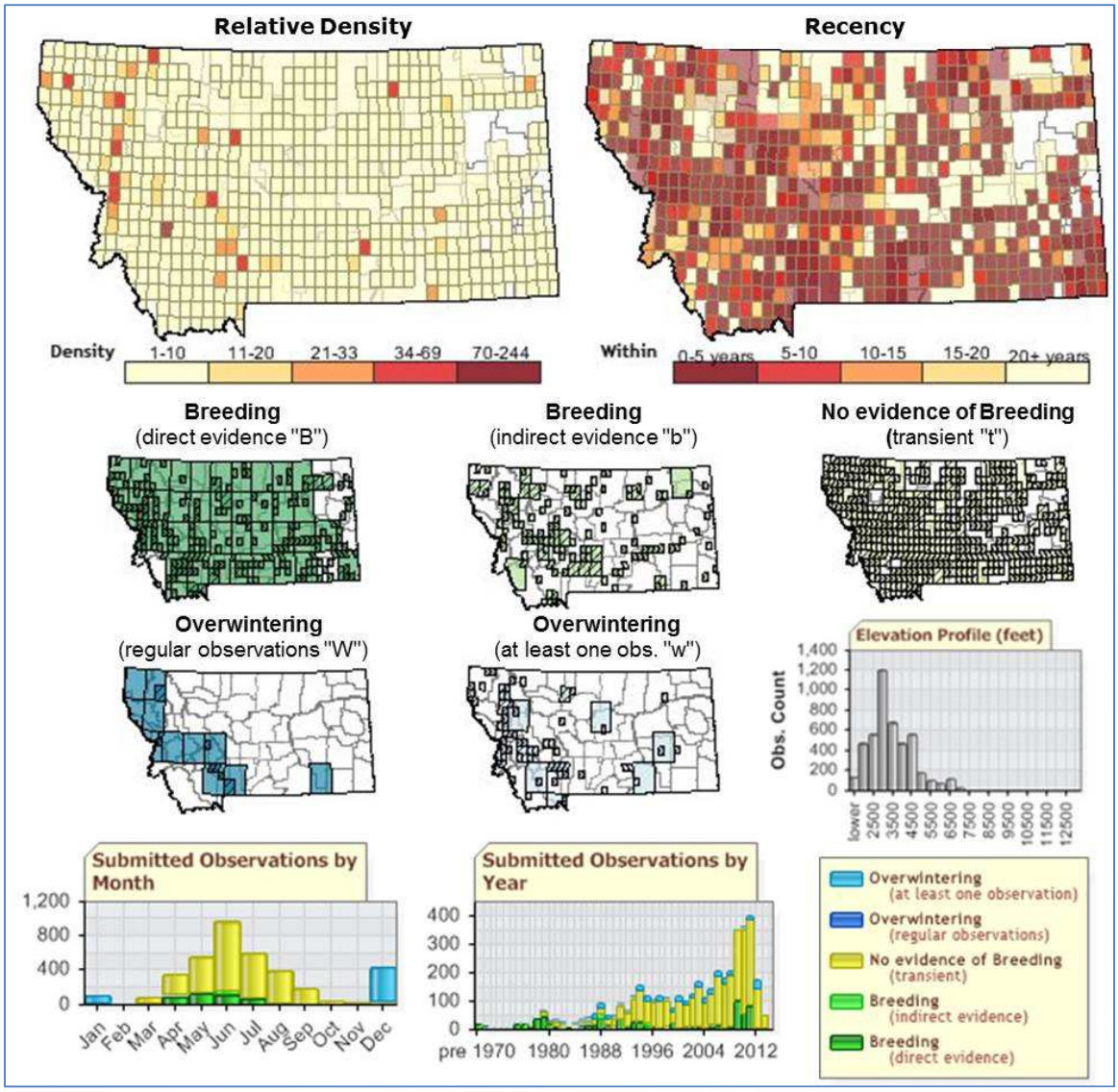


Figure 12. Summary of observations submitted for Great Blue Heron (MTNHP).

6.1.2.4. Bald Eagle

Species Description and Distribution

With a white head and tail contrasting with a dark brown body and wings, the adult plumage of the Bald Eagle, attained at approximately 5 years of age, is unmistakable. In addition to the obvious white head and tail, other distinguishing features include the yellow bill, cere, iris, legs and feet. The Bald Eagle ranges in total length from 2.3 to 3.1 ft with an average wingspan of 5.5 to 8.0 ft. It has a body mass ranging from 6.6 to 13.9 lb. The plumage of the juvenile birds is much less distinct, being dark brown overall. The head, body, wings, and tail are dark brown with limited mottling on the underside of the wings and on the belly. While the legs and feet of the young bird are yellow like those of adults, the bill and cere are dark gray and the iris is dark brown.

Western Montana, Idaho, and northern California are the only areas in the continental US to provide habitat for a permanent resident population. This species has been documented throughout Montana with recent observations throughout the state and study area (Figure 13).

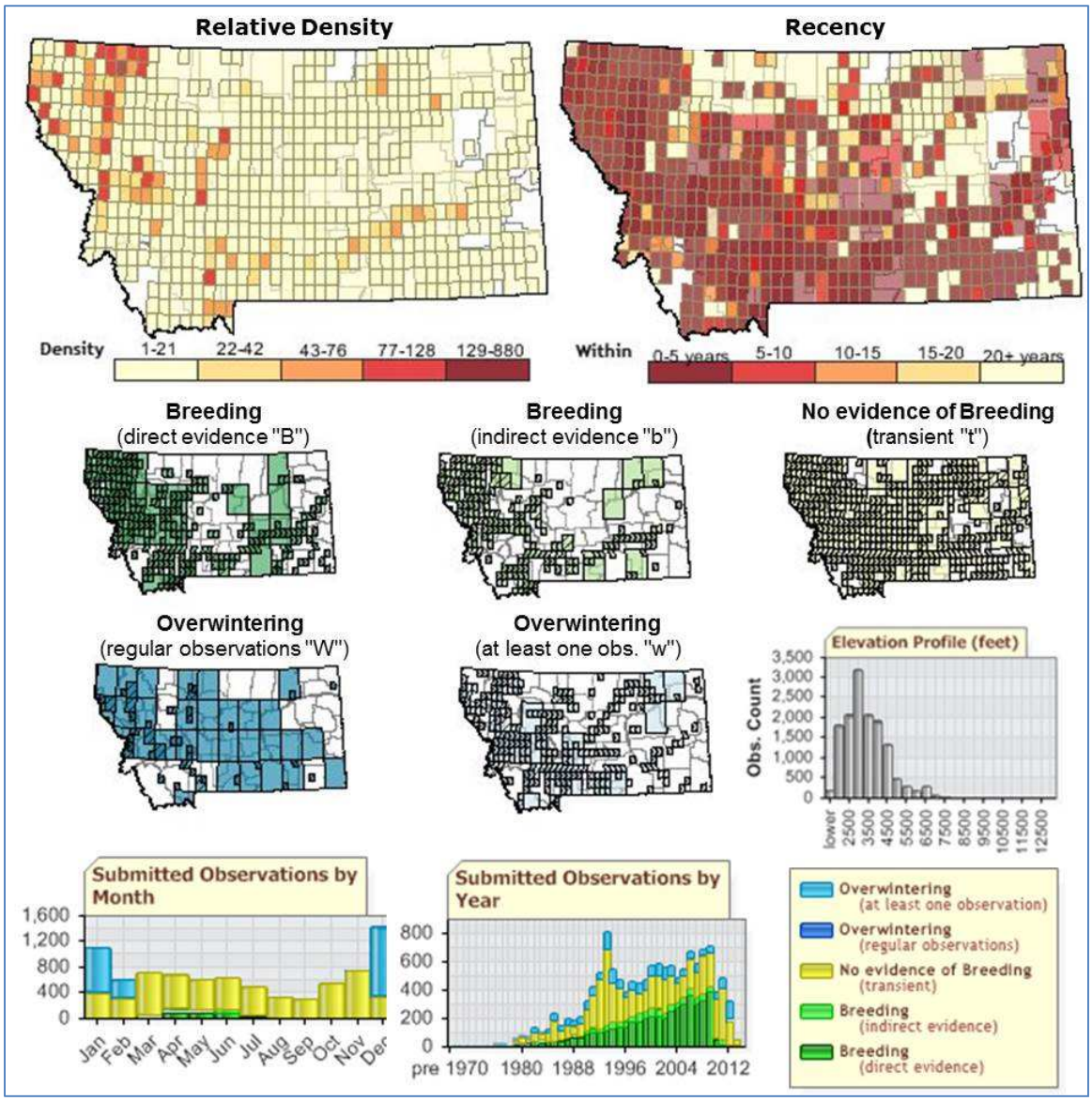


Figure 13. Summary of observations submitted for Bald Eagle (MTNHP).

Habitat Requirements

The bald eagle resides in the forested, mountainous areas of western Montana. Individuals from more northerly latitudes either winter in Montana or migrate through the state to more southerly locations. Residents generally remain in the vicinity of their breeding areas throughout the year. Some move to more temperate weather at lower elevations or to areas with higher concentrations of food. This is especially true of individuals that nest at higher elevations. Migrating bald eagles may be evident in autumn along the north-south mountain chains that exhibit an abundance of food

sources. Numerous eagles have been observed migrating over Rogers Pass and the Bridger Mountains. Large concentrations of eagles have formerly been reported feeding on spawning kokanee (*Oncorhynchus nerka*) in Glacier National Park and at Canyon Ferry Reservoir, north of Helena.

In Montana and elsewhere, the bald eagle inhabits riparian and lacustrine habitats in the forested areas along rivers and lakes, especially during the breeding season. Important year-round habitats include wetlands, major water bodies, spring spawning streams, ungulate winter ranges and open water areas. Wintering habitat may include upland sites. Nesting sites are typically located in the tallest, oldest, large diameter trees within the larger forested areas near large lakes and rivers. Nesting site selection is dependent upon maximum local food availability and minimum disturbance from human activity.

The bald eagle breeds at approximately 5 to 6 years of age. Breeding dates in Montana range from March to July. Nest building, courtship and egg-laying usually begin in early February and last until May (Montana Bald Eagle Working Group (MBEWG 2010). Incubation occurs from the beginning of February through the end of May when eagles are most vulnerable to disturbance (MBEWG 1994). The clutch usually consists of two eggs although it may range from one to three. First flight occurs at 10 to 12.5 weeks. The young are cared for by the adults who may remain around the nest for several weeks after fledging (MTNHP 2003).

The majority of the bald eagle diet is comprised of fish. Important prey include waterfowl, salmonids, suckers, whitefish, carrion and small mammals and birds. The most common nest trees are ponderosa pine, Douglas fir and cottonwood.

Potential to Occur in Project Area

There is a lack of large trees within the project area suitable for bald eagle nesting. Two bald eagle nest have been documented by MTNHP along the Beaverhead River upstream of the Highway 41 bridge. The presence of these nest were not documented during the 2013 field survey. These nests are located just over 1-mile of the study area boundary. This species occurrence within the project area is likely limited to incidental occurrence for hunting.

Potential Impacts

No impacts are expected to this species because the project area does not contain suitable habitat for nesting, therefore this species is not likely to be present.

Avoidance and Minimization

No impacts are expected to this species because the project area does not contain suitable bald eagle nesting habitat. Incidental use of the project area by this bird will likely be avoided during active construction.

Recommended Conservation Measures

No conservation measures are recommended since no impacts are expected.

6.1.2.5. Golden Eagle

Species Description and Distribution

Adult Golden Eagles are brown overall, with gold on their head and neck feathers, and light brown bands in the tail. Immature birds have white patches on the wings and white at the base of the tail feathers. Golden Eagles often soar with their wings held nearly flat, but slightly upturned. The legs are heavily feathered down to the tops of the toes. Golden Eagles range in length from 33 to 38 inches, and have a wingspan of 6-1/2 to 7-1/2 feet.

Golden Eagles breed throughout western North America from the Arctic to central Mexico; some breeding also occurs in northern Ontario and Labrador, and on the Gaspe Peninsula of southeastern Quebec. Northern birds (north of southern British Columbia, Alberta, and Saskatchewan) move south in the non-breeding season. Golden Eagles have been documented across Montana (Figure 14). Breeding evidence and permanent residents in Montana of this species have been documented.

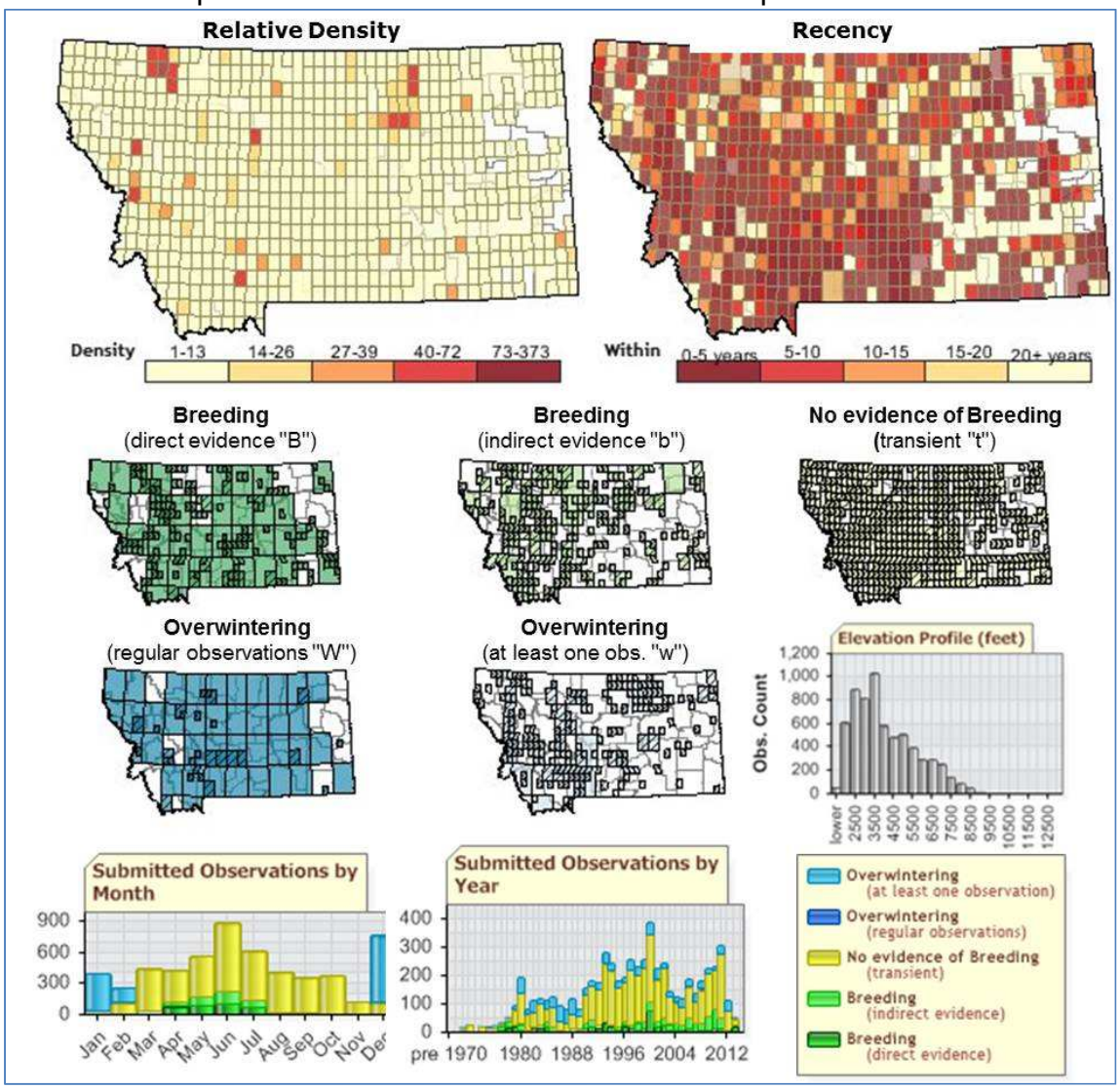


Figure 14. Summary of observations submitted for Golden Eagle (MTNHP).

Habitat Requirements

Golden Eagles nest on cliffs and in large trees (occasionally on power poles), and hunt over prairie and open woodlands. In the Livingston area 62% of 92 nests were on cliffs, 29% in Douglas-fir, and 2-3% each in ponderosa pine, cottonwood, snags, and on the ground. About 70% of cliff nests were oriented to the south or east, most nests were found between 4,000 and 6,000 ft elevation, and sites were associated with sagebrush/grassland hunting areas.

Golden Eagles first breed when four to five years old. The same pair often uses the same nest year after year with nests sometimes over six feet in diameter. One to three eggs are laid in March or April and incubation lasts about 45 days. The eaglets fly in June or July when about 10 weeks old. Nesting density varies year to year from 55 to 105 square miles/pair. Some cliff nest sites are used for many decades, maybe even centuries. Golden Eagles move to higher elevations after leaving the nest.

In Montana, Golden Eagles eat primarily jackrabbits, ground squirrels, and carrion. They occasionally prey on deer and Pronghorn (mostly fawns), waterfowl, grouse, weasels, skunks, and other animals. Golden Eagles sometimes prey on livestock, especially lambs. Golden Eagles can carry no more than about seven pounds while flying.

Potential to Occur in Project Area

The cliff line along the west side of the Beaverhead River provides potential nesting habitat while the valley bottom provides potential hunting areas for small mammals and birds. The MTNHP indicate the presence of Golden Eagles at Beaverhead Rock, approximately 0.3-miles from the Highway 41 project corridor as recent as 2011. No Golden Eagles (individuals or nest) were identified within the study area during the 2013 field surveys. However, there is a high likelihood that if an active Golden Eagle nest is not currently present, a returning fledgling would find suitable habitat for establishing a nest in this area. It is recommended that a MDT Biologist or other qualified professional conduct periodic surveys prior to construction to determine if Golden Eagle nests are established on Beaverhead Rock. If any nests are documented within 2-3 miles of this highway project, compliance with State regulations and the Bald and Golden Eagle Protection Act may be required.

Potential Impacts

Golden eagles are sensitive to disturbance. About 85% of golden eagle nest losses are attributed to human disturbance.

Avoidance and Minimization

The Draft Montana Golden Eagle Management Guidelines (Montana Golden Eagle Working Group, 2011) recommend a one-half (½) mile buffer around a nesting site for any disturbance. No documented nesting sites are within ½-mile of the project area, but the Beaverhead Rock cliff line with potential habitat is within ½-mile of the highway. If a golden eagle nest is identified within ½-mile of the project area prior to the start of construction activity then seasonal work restrictions would be applicable and typically span from approximately February 1 through August 15th. It should be noted that the

Draft Montana Golden Eagle Management Guidelines are under revision and the distances and restrictions may change as a result any revisions to this document.

Recommended Conservation Measures

The following measures are recommended to ensure that potential impacts to golden eagles from construction activities are minimized.

- The current and ongoing nesting status of golden eagles in the project area should be confirmed prior to construction/disturbance activity through coordination with MFWP, USFWS, and MDT biologists. Appropriate specific and temporal construction restrictions may be warranted if nesting is detected.
- The location of construction activities, such as off-site staging, borrow/gravel source, equipment and supply storage, are determined by the construction contractor. The contractor is responsible for compliance with all laws and activities encompassing these tasks. The MDT will recommend that the contractor contact and coordinate these efforts with the USFWS to avoid or minimize impacts to golden eagles.

6.1.2.6. Long-billed Curlew

Species Description and Distribution

The long-billed curlew is the largest nesting sandpiper in North America. It is 50-65 cm long, 62-90 cm across the wing and weighs 490-950 g. Its disproportionally long bill measures 11.3-21.9 cm. Adults have a very long bill curved downwards, a long neck, and small head. The neck and underparts are a light cinnamon, while the crown is streaked with brown.

Long-billed curlews have been documented across Montana by the MTNHP (Figure 15). The MTNHP have no documented overwintering occurrences of this species in Montana. Long-billed curlews typically migrate northward from wintering grounds in March and April. Eggs are reported during the last two weeks of May and into mid-June. Then they depart from mid-July to September, with peaks in early August.

Habitat Requirements

Long-billed curlews live in herbaceous wetland and riparian areas. Breeding occurs in prairies and grassy meadows, generally near water. Nests are in dry prairies and moist meadows. Nests are on the ground usually in flat areas with short grass, often near rock or other conspicuous objects. During migration and winter, long-billed curlews can be found on beaches and mudflats.

Long-billed curlews are fairly opportunistic and feed on various insects and some berries. During migration they also feed on crayfishes, crabs, snails, and toads.

Potential to Occur in Project Area

Long-billed curlews were not identified within the project area during the field survey. Suitable nesting habitat for long-billed curlews is very limited along the Stone Creek – North project area. This species occurrence within the project area is likely limited to incidental occurrence for foraging in the wetlands along the Beaverhead River.

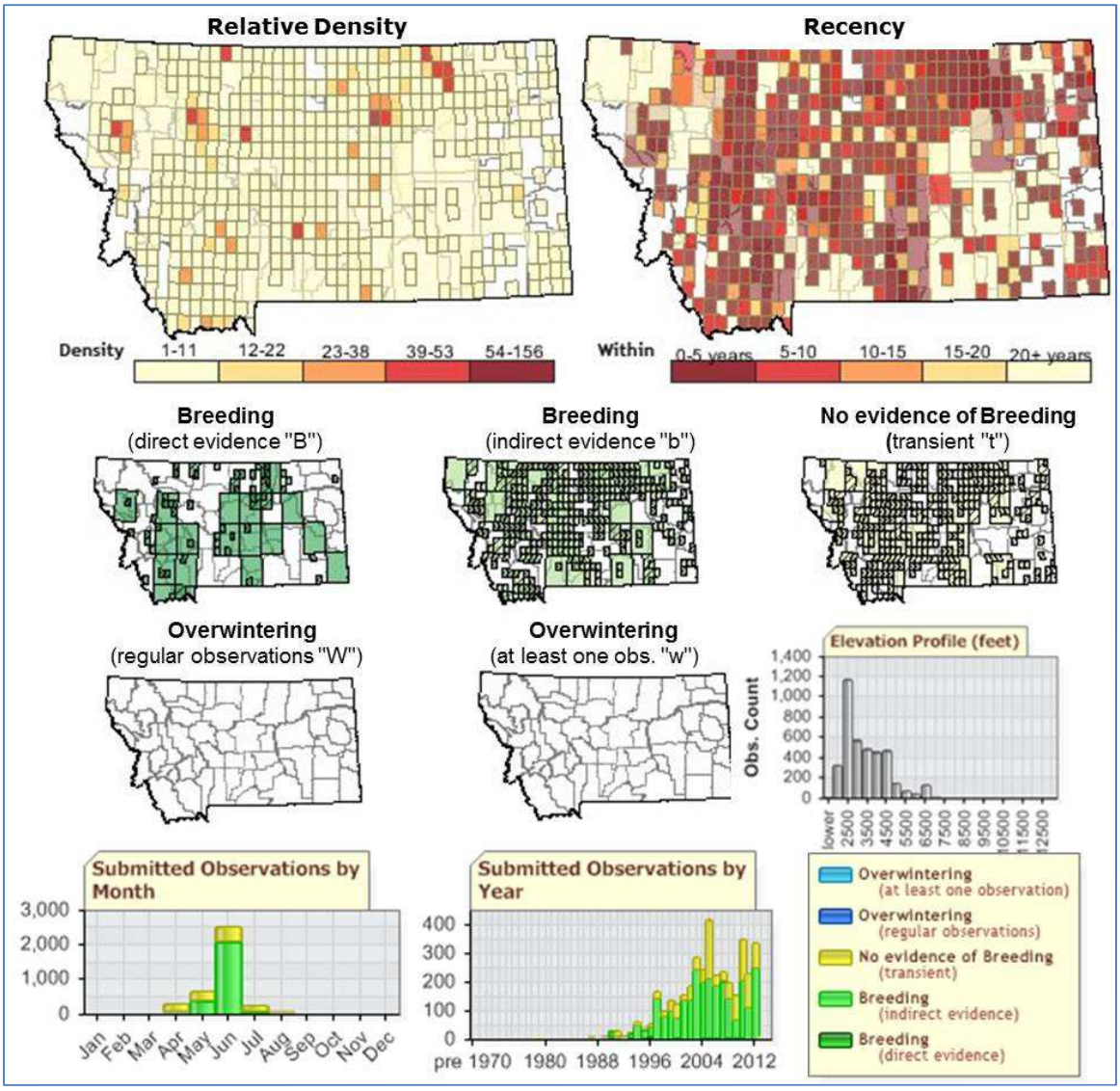


Figure 15. Summary of observations submitted for Long-billed curlews (MTNHP).

Potential Impacts

No impacts are expected because the project area contains very limited suitable habitat for this species. No long-billed curlew nests are known to exist within areas potentially affected by construction activities associated with the Stone Creek - North project.

Avoidance and Minimization

No avoidance or minimization measures are necessary for this species.

Recommended Conservation Measures

No conservation measures are recommended since no impacts are expected.

6.1.2.7. Sage Thrasher

Species Description and Distribution

The Sage Thrasher is unique in being the only thrasher in the genus *Oreoscoptes*. Genetic work indicates this species may be more closely related to the mockingbirds (*Mimus*) than to other thrashers (*Toxostoma*). Its long, melodious, mockingbird-like song, earned it the original name of Mountain Mockingbird. It is the smallest thrasher and is a sagebrush obligate species.

The distribution of this species is dependent upon the presence of appropriate sagebrush habitat. The majority of the population in Montana is found in the southwest, south-central, and south-eastern portions of the state (Figure 16). This thrasher tends to stay in sagebrush plains and shrublands during migration. It will rarely visit areas of human habitation. Spring migration generally occurs from April 25 to May 15, with fall migration from July 30 to August 15.

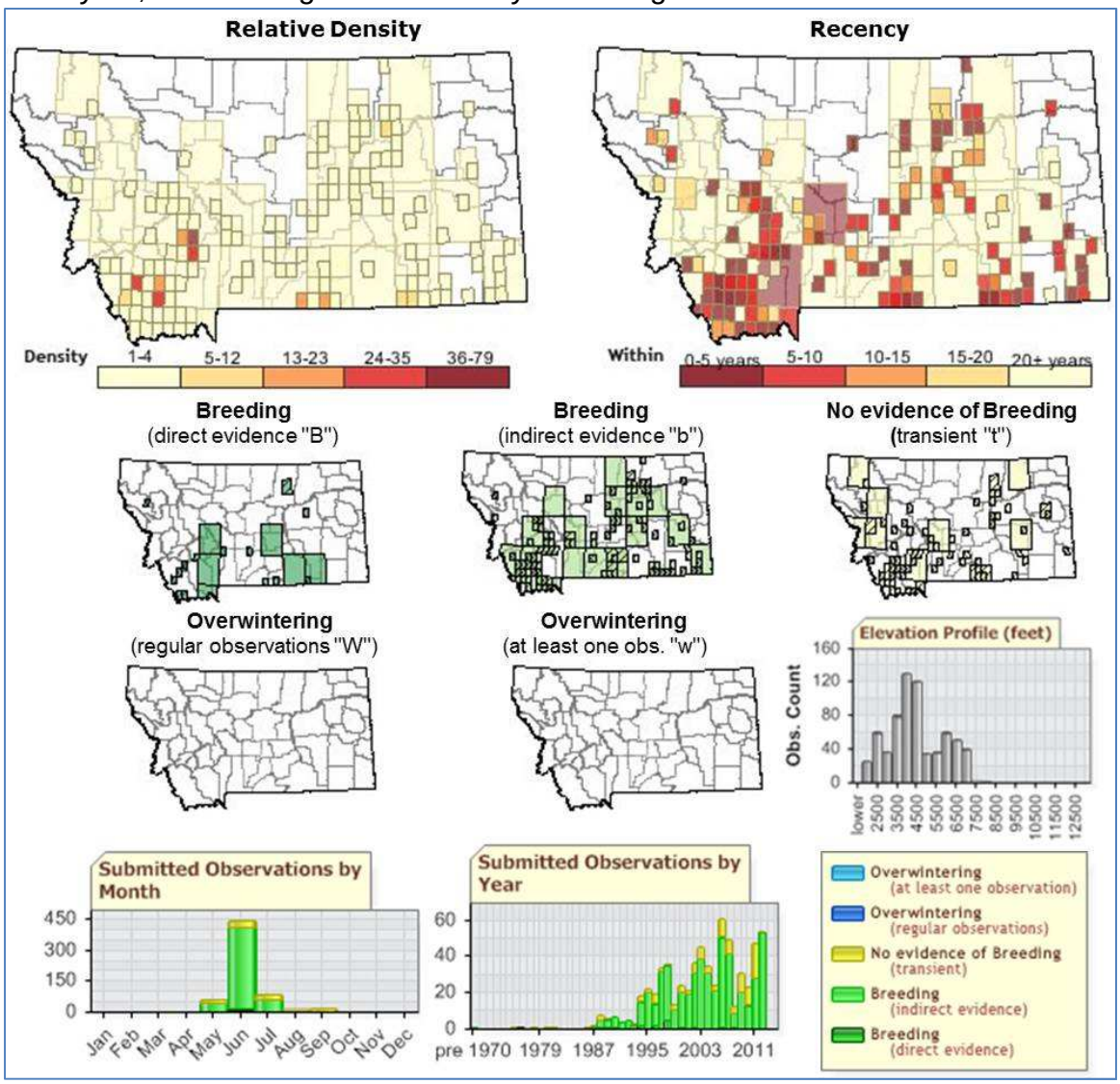


Figure 16. Summary of observations submitted for Sage Thrasher (MTNHP).

Habitat Requirements

The species is considered a sagebrush obligate in Montana (it is known to use black greasewood in Utah and Nevada and bitterbrush in Washington). The abundance of Sage Thrasher is generally positively correlated with the amount of sage cover and negatively correlated with grass cover.

Nesting occurs soon after arrival to the breeding grounds. The nests may be placed on the ground, but are generally built in sagebrush. The bulky nests are cup-shaped and are constructed of twigs, forbs, and grass. Finer materials are used to line the nest. The 3 to 5 eggs are incubated by the females and males. Both sexes also tend the young. Montana's breeding dates are probably similar to those recorded for Wyoming: as early as May 17 and as late as mid-July.

Sage Thrashers eat insects, other arthropods, and some plant materials make up the bulk of their breeding season diet. Small fruit (berries) may also be consumed if available. This species generally forages on the ground.

Potential to Occur in Project Area

Sagebrush cover within the project area is limited. Because there is minimal suitable nesting habitat and persistent vehicular traffic in the project area, this species may incidentally occur within the project area but is not expected to experience nesting and/or breeding disturbance as a result of construction activity.

Potential Impacts

Aside from incidental use, this species is not likely to be present within the project area. No impacts are expected to this species as a result of the Stone Creek – North project.

Avoidance and Minimization

No avoidance or minimization measures are necessary for this species.

Recommended Conservation Measures

No conservation measures are recommended since no impacts are expected.

6.1.2.8. Brewer's Sparrow

Species Description and Distribution

Brewer's Sparrow has a finely streaked brown crown. The median crown-stripe is frequently absent, but sometimes an indistinct one is present. Brewer's Sparrow has pale gray supercilia, unmarked lores, and bold, complete white eye-ring. The auricular is brown, softly outlined with black and bordered below by grayish white submustachial stripe. A black malar streak is thin and often indistinct. Its underparts are dull white, with grayish flanks. In adults, its breast is unstreaked, although sometimes flanks are streaked. Its back and rump are brown with the latter streaked with black.

Brewer's Sparrow live in sagebrush areas in central Montana where an average of 37 breeding pairs were found per 100 acres. In the Bozeman area, normal migration periods are from May 15 to 25 and in mid-August. Recent evidence of this species has been documented across Montana by the MTNHP (Figure 17).

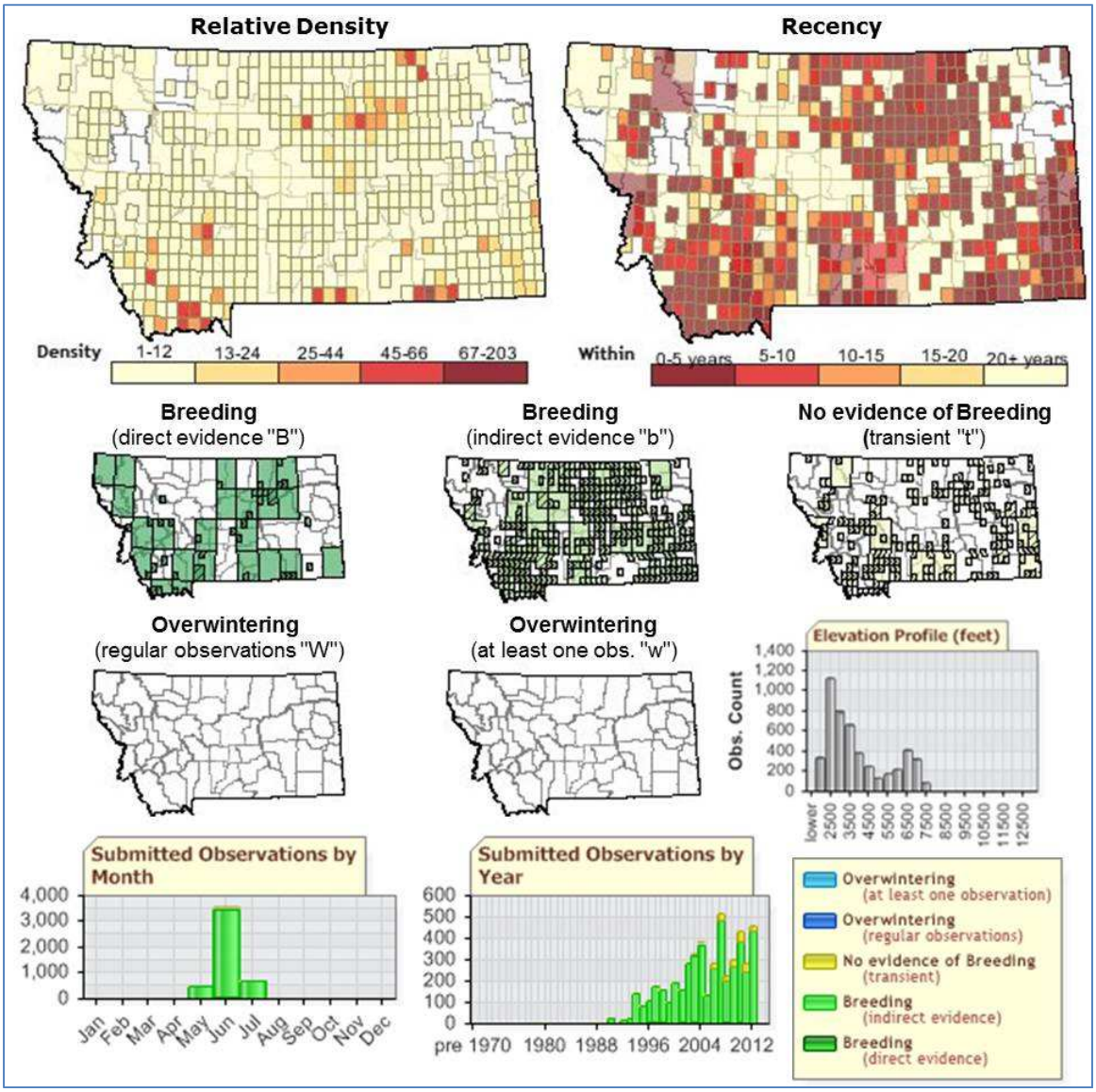


Figure 17. Summary of observations submitted for Brewer's Sparrows (MTNHP).

Habitat Requirements

Brewer's Sparrows nest in sagebrush averaging 16-inches high. The cover (concealment) for the nest provided by sagebrush is very important. In central Montana, 74% of nests were found between 6 to 8 inches above the ground in big sagebrush plants. The average clutch size was 3.26. Statewide, the species nests from mid-June to mid-July.

Brewer's Sparrows eat primarily grasshoppers, leaf beetles and snout beetles. They also eat grass seeds. Chemical pesticide spraying has led to a greater dependence on plants.

Potential to Occur in Project Area
There is limited sagebrush cover within the project area. Because there is no suitable nesting habitat in the project area, this species is not likely to occur within the project area with the exception of incidental fly-overs or foraging.

Potential Impacts
No impacts are expected to this species due to the lack of suitable habitat within the study area.

Avoidance and Minimization
No avoidance or minimization measures are necessary for this species.

Recommended Conservation Measures
No conservation measures are recommended since no impacts are expected.

6.1.3. ***Aquatic Species***

The MTNHP data request results identified two special-status aquatic species within a 1 mile buffer of the proposed project area: Westslope cutthroat trout and Arctic grayling. Westslope cutthroat is a species of concern and is discussed here. Arctic grayling is listed under the ESA as a Threatened species, and is discussed in Section 6.0. The following sections contain information which was obtained from the MTNHP Field Guide (2013).

6.1.3.1. Westslope Cutthroat Trout

Species Description and Distribution
The Westslope cutthroat trout is one of two subspecies of native cutthroat found in Montana. Together they have been designated as Montana's state fish. The Westslope cutthroat's historical range included Montana west of the Continental Divide and the upper Missouri River drainage. The range has been seriously reduced by hybridization with rainbow and/or Yellowstone cutthroat, and habitat loss and degradation.

Westslope cutthroat is a trout with few, small, nonrounded spots, on the anterior body below the lateral line. Coloration varies, but generally is silver with yellowish hints, though bright yellow, orange, and especially red colors can be expressed to a much greater extent than on coastal or Yellowstone cutthroat.

Habitat Requirements
Westslope cutthroat are common in both headwaters lake and stream environments. They feed primarily on aquatic insect life and zooplankton. Westslope cutthroat spawn in the spring. Spawning and rearing streams tend to be cold and nutrient poor and the trout seek out gravel substrate in riffles and pool crests for spawning habitat. Additional habitat requirements are described in Section 4.2.4.1.

Potential to Occur in Project Area
FWP suggests this fish assemblage in lower Stone Creek from the confluence with the Beaverhead River through the wetted reach of Stone Creek upstream of Highway 41

includes brown trout, brook trout, white suckers, and mottled sculpin (email from M. Jaeger, 2013). Stone Creek goes subsurface somewhere upstream of Highway 41, and remains dry year round for several miles. FWP has documented an abundance of pure Westslope cutthroat trout above the confluence of Stone Creek and Winnipeg Creek, which is approximately 10 miles upstream of the Highway 41 Bridge and upstream of the permanently dewatered section of Stone Creek. According to FWP, this dry channel barrier likely prevents Westslope cutthroat trout population from extending their range with any regularity downstream to the reach of Stone Creek in the vicinity of the Highway 41 Bridge.

Potential Impacts
Potential impacts were listed in Section 5.2.4.3.

Avoidance and Minimization
Recommended avoidance or minimization measures were listed in Section 5.2.4.4.

Recommended Conservation Measures
Recommended conservation measures were listed in Section 5.2.4.5.

7.0 THREATENED AND ENDANGERED SPECIES BIOLOGICAL ASSESSMENT

7.1. Introduction

The USFWS lists plant and animal species in Montana that are threatened and endangered including species that are proposed for listing (USFWS July, 2013). Activities conducted, sponsored, or funded by federal agencies must be reviewed for their effects on species federally listed or proposed for listing as threatened or endangered under Section 7 of the ESA. Based on the USFWS list for Beaverhead and Madison Counties, Montana, the MTNHP database search, and the range and habitat descriptions found in the literature, the following threatened species were considered with respect to the proposed project:

7.2. Methods

In order to determine which federally listed species may occur in the project vicinity, Confluence requested from MTNHP a report of the presence of such species within one mile of the Public Land Survey sections that encompass the project area, and used the MTNHP Tracker web site to search for generalized observations of those species outside of that near project vicinity. Confluence also requested a determination of the presence of sensitive species from the USFWS, along with their recommendations regarding mitigation and conservation practices that may be applicable to sensitive species that may exist in the vicinity of the project site. The full Species of Concern data report received from MTNHP is provided in Appendix F and the letter of USFWS response is provided in Appendix E.

Supplemental information regarding the natural history, status and distribution of T&E species was obtained from the Montana Field Guide website (MTNHP 2013b) and the NatureServe Explorer online encyclopedia (NatureServe 2013).

Table 8. Federally Listed Species in Beaverhead and Madison Co, MT.

Common Name Scientific Name	USFWS Status*	Last Observed in Project Vicinity**	Habitat Requirements	Potential to Occur in Project Area
Ute Ladies' Tresses *Spiranthes diluvialis*	LT	1996	Alkaline wetlands, swales and old, meander channels often on the edge of the wetland or in areas that are dry by mid-summer	Minimal.
Canada Lynx *Lync canadensis*	LT	NA	Generally occur in subalpine forests in stands composed of pure lodgepole pine but also mixed stands of subalpine fire, lodgepole pine, Douglas-fir, grand fir, western larch and hardwoods	Minimal to none.
Grizzly Bear *Ursus arctos horribilis*	LT	NA	Use primarily meadows, seeps, riparian zones, mixed shrub fields, closed timber, open timber, sidehill parks, snow chutes, and alpine slabrock habitats	Minimal to none.
Greater Sage-Grouse *Centrocercus urophasianus*	C	NA	Foothills, plains, and mountain slopes where sagebrush is present, riparian and wet meadows	Minimal to none.
Sprague's Pipit *Anthus spragueii*	C	NA	The Sprague's Pipit prefers native, medium to intermidiate height prairie; utilize and breed in alkaline meadows and around the edges of alkaline lakes.	Minimal to none.
Arctic Grayling *Thymallus arcticus*	C	2002	Found primarily in small, cold, clear lakes with tributaries suitable for spawning	Minimal to none.
Wolverine *Gulo gulo luscus*	P	NA	Alpine tundra, boreal and mountain forest, large roadless wilderness areas, medium to scattered timber	Minimal to none.
Whitebark Pine *Pinus albicaulis*	C	NA	Subalpine and krummholtz habitats in most mountain ranges of western and central Montana	None.

*LT=Listed Threatened; C=Candidate; P=Proposed **NA = Not Applicable - species has no recorded occurrence w/in near vicinity of project area. 2002 observsations of Arctic Grayling were of an introduced population that failed.

7.3. Results

7.3.1. *Ute Ladies' Tresses (LT)*

Ute Ladies' Tresses (*Spiranthes diluvialis)* is a perennial orchid with usually 1 stem that is 20-50 cm tall and arising from tuberously thickened roots. Its narrow leaves are 1 cm wide, can reach 28 cm long, are longest at their base, and persist during flowering. The inflorescence consists of few to many white or ivory flowers clustered in a spike of 3-rank spirals at the top of the stem. The sepals and petals are ascending or perpendicular to the stem. The lateral sepals often spread abruptly from the base of the

flower, and sepals are free or only slightly connate at the base. The lip petal is somewhat constricted at the median. Flowering occurs in August – early September.

7.3.1.1. Status and Distribution

Ute Ladies' Tresses was listed as a Threatened Species in 1992 by the USFWS, and is ranked S1S2 (vulnerable to highly vulnerable to extirpation) in Montana and G2G3 (potentially at risk or at risk for extirpation) globally.

Ute Ladies' Tresses is found in four general areas of the interior western United States. In Montana it is found in the southwest near the base of the east slope of the Rocky Mountains and intermontane valleys (Figure 18). Ute Ladies' Tresses are known in the Missouri, Jefferson, Beaverhead, Ruby and Madison River drainages, and specifically in those portions of the Beaverhead drainage that encompass this project

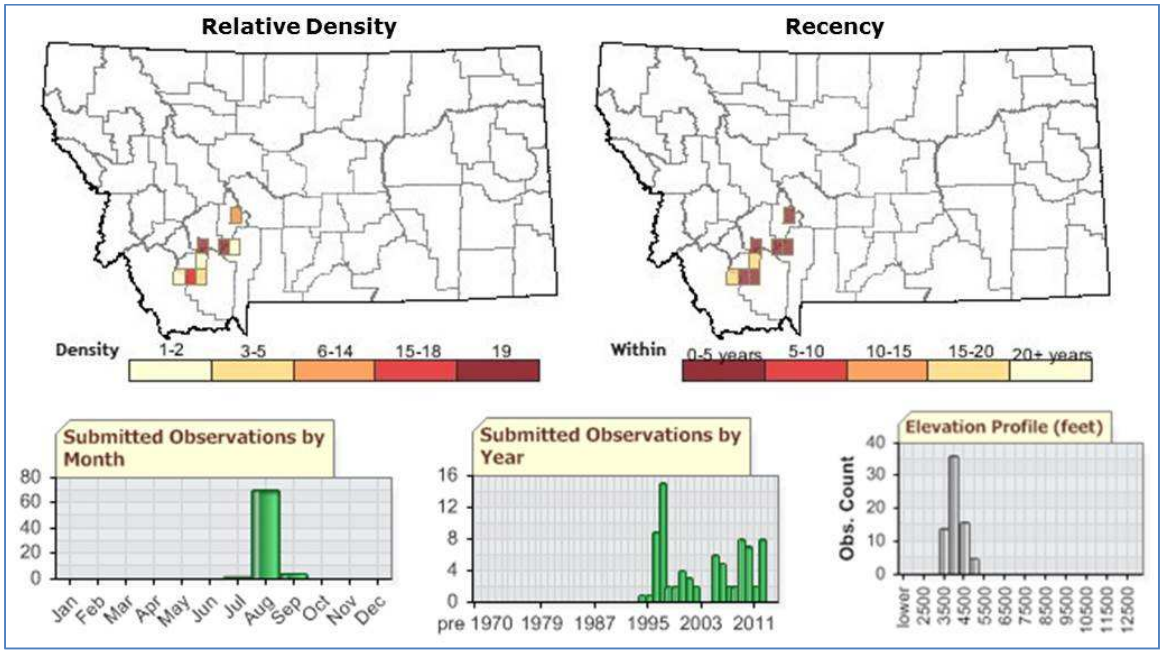


Figure 18. Summary of observations submitted for Ute Ladies' Tresses (MTNHP).

7.3.1.2. Life History and Habitat Requirements

Ute Ladies' Tresses grow in alkaline wetlands, swales, and old meander channels often on the edge of the wetland or in areas that are dry by mid-summer. Habitat is limited to areas within major river drainages. In areas that are ungrazed, Spiranthes may occur among taller, relatively dense herbaceous vegetation making detection difficult.

7.3.1.3. Reasons for Decline

In Montana, Ute Ladies' Tresses is ranked S1S2 due to extremely limited population numbers. It is known from only a handful of occurrences in southwest and south-central Montana in the Missouri, Jefferson, Beaverhead, Ruby and Madison River drainages. *S. diluvialis* is restricted in area by specific hydrologic requirements. Many populations have less than 100 individuals, though a couple have over 500 plants.

Sites are susceptible to hydrologic changes and weed invasion. Large areas of habitat have been converted to agricultural uses. Livestock grazing is also a common use of these habitats. Two populations occur along highway right-of-ways. Most populations occur on private lands and only one occurrence is currently provided some potential protection or management for its conservation value (MTNHP 2013b).

7.3.1.4. Environmental Baseline / Occurrence in the Project Area

A limited extent of suitable habitat for this species occurs within the project area. The wetland areas along the Beaverhead River and north of the river with shallow, seasonal groundwater were specifically investigated for the presence of this species. It should be noted the field surveys were conducted outside the typical bloom period for the Ute Ladies' Tresses. This may have resulted in potentially overlooking the non-descript foliage of this species if it is present within the project area. In 1996 it was observed in a large wetland area near the Beaverhead River approximately one mile to the east of the project.

7.3.1.5. Effects of the Action / Impacts Analysis

The field surveys were conducted during the early and middle portion of the growing season. As this orchid generally flowers for only a few weeks in the latter part of the growing season, field surveys conducted as part of this analysis would likely not have identified the presence of Ute Ladies' Tresses. It is recommend that a MDT Biologist or other qualified professional conduct a plant survey for this species during the appropriate time of the year prior to construction. Additional survey efforts for Ute Ladies' Tresses within the project should occur during late August to early September and concentrate along the Beaverhead River valley from RP 14.6 to 15.5 and along the irrigation canal to the east of the highway from RP 14.6 to 16.2.

No impacts are expected to this species as this species has no documented occurrence within the project area, and was not identified within the potential footprint of the project during the vegetation inventory performed for this analysis. As noted above, the timing of the field survey may have thwarted detection of the Ute Ladies' Tresses.

7.3.1.6. Recommended Conservation Measures

It is recommended that the MDT Biologist or other qualified biologist investigate the suitable habitat within the project area during the blooming period (mid-August) during project development to document the presence or absence of ULT within the project limits. If the species is located within the project area, additional coordination and consultation with USFWS may be required.

7.3.1.7. Proposed Determination of Effect

Due to the limited availability of suitable habitat and the lack of documented occurrences within the project area, the proposed project will have *no effect* on Ute Ladies' Tresses.

7.3.2. *Fluvial Arctic Grayling (C)*

7.3.2.1. Species Description

The Arctic grayling (*Thymallus arcticus*) is a species native to northern North America. The only populations native to the lower 48 states were in Michigan and Montana, and the Michigan population is now extinct. Consequently, the fluvial or river-dwelling population in the upper Big Hole River is the last remnants of this native Fish of Special Concern. Originally, the fluvial Arctic grayling was widespread throughout the upper Missouri river drainage as far downstream as Great Falls. Lewis and Clark made note of these "new kind of white or silvery trout" in 1805. The lake-dwelling form is fairly common in 30 or more lakes across the western half of the state. These lake fish are genetically, but not visibly, different from our native fluvial grayling.

7.3.2.2. Status and Distribution

On September 8, 2010, the U.S. Fish and Wildlife Service determined that the upper Missouri River basin Distinct Population Segment of Arctic Grayling warrants protection under the Endangered Species Act, making it a Candidate for listing, but that listing the species under the Act is precluded by the need to address other listing actions of a higher priority.

Although fluvial Arctic grayling inhabit the entire Big Hole River, highest densities occur in the vicinity of Wisdom (Figure 19). The majority of spawning occurs near Wisdom in the main stem and several tributaries. Fluvial Arctic grayling are reared in the vicinity of where they hatch; thus, the Wisdom area provides the majority of rearing habitat.

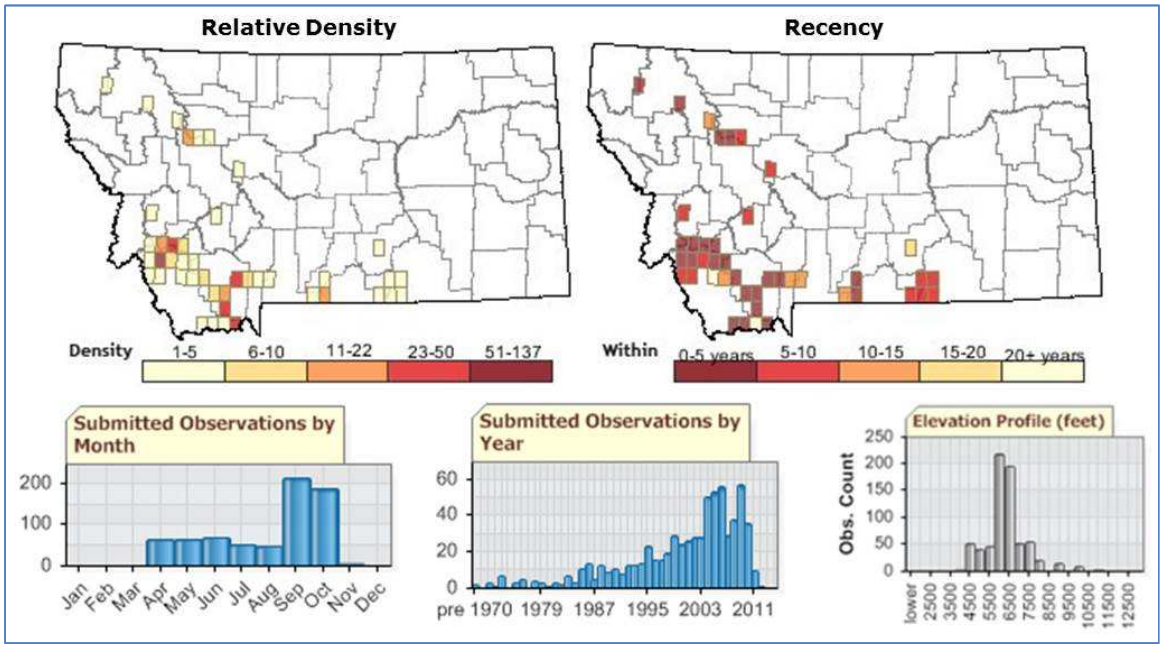


Figure 19. Summary of observations submitted for Arctic grayling (MTNHP).

7.3.2.3. Life History and Habitat Requirements

Arctic grayling are very mobile and they utilize various habitats in multiple places over their life history. They are spring spawners and broadcast their eggs over a gravel bottom in moving streams. They are generalists, eating a variety of aquatic invertebrates. Additional habitat requirements are described in Section 4.2.4.1.

7.3.2.4. Reasons for Decline

Grayling are gullible to the angler's lures and also seem to be easily out-competed by other salmonid species. This probably explains much of their demise from their native range. Water quality and quantity impacts from agricultural practices may also be important factors.

7.3.2.5. Environmental Baseline / Occurrence in the Project Area

Arctic Grayling were stocked in the Beaverhead river approximately 13 river miles downstream of the project area in the late 1990s/early 2000s as part of a reintroduction effort. The MFISH observations of this species recorded by the MTNHP from 1999 to 2002 most likely represent the planted fish. This species has not been observed by regular fish survey efforts in the reintroduction reach since 2002, and the reintroduction effort is considered unsuccessful at establishing a resident population (Jim Magee, personal communication).

Given that the above referenced MFISH records are the only recorded observations of arctic grayling in the vicinity of the project reach, and given that the thermal regime of the Beaverhead River in this area supports a fish species assemblage tolerant of warmer water temperatures and higher nutrient loading that effectively out competes the cold water optimized arctic grayling, it is very unlikely that arctic grayling currently occur in this reach as anything other than a rare incidental transient.

7.3.2.6. Effects of the Action / Impacts Analysis

No effects are anticipated, as the species does not occur in the project area, except perhaps as a rare incidental transient.

7.3.2.7. Recommended Conservation Measures

No conservation measures are necessary for this species.

7.3.2.8. Proposed Determination of Effect

As the species does not occur in the project area, except perhaps as a rare incidental transient, limited project related instream work subject to instream timing restrtictions coordinated with MFWP and USFWS, the project is *not likely to jeopardize the continued existence* of the species.

7.3.3. ***Grizzly Bear (LT)***

7.3.3.1. Species Description

Grizzly Bears (*Ursos arctos*) are large bears with a massive head with a dished facial profile, small, rounded ears, small eyes, short tail and a large, powerful body with a

noticeable hump above the shoulders. The claws on the front feet of adults are about 4 inches long and slightly curved. Grizzly Bears range widely in color and size. The most prevalent coloration of grizzly bears in Montana is medium to dark brown underfur, brown legs, hump and underparts, with light to medium grizzling on the head and back and a light patch behind the front legs. Other forms, lighter or darker with varying levels of grizzled hair patches, occur in lesser numbers. (MTNHP 2013b).

7.3.3.2. Status and Distribution

The grizzly bear is currently listed as a Threatened species under the ESA by the USFWS, and is a candidate for delisting following successful recovery efforts. In Montana, the grizzly bear is ranked an S2S3 species (potentially at risk or at risk for extirpation). Globally the grizzly is more secure, ranking G4 (apparently secure, though it may be quite rare in parts of its range, and/or suspected to be declining) across the balance of its range in the far north of the North American continent.

Within Montana, the range of the grizzly bear is divided among two populations, one in the Northern Continental Divide ecosystem in the northwestern corner of the state, and the other in south central Montana in the forested lands peripheral to Yellowstone National Park (Figure 20).

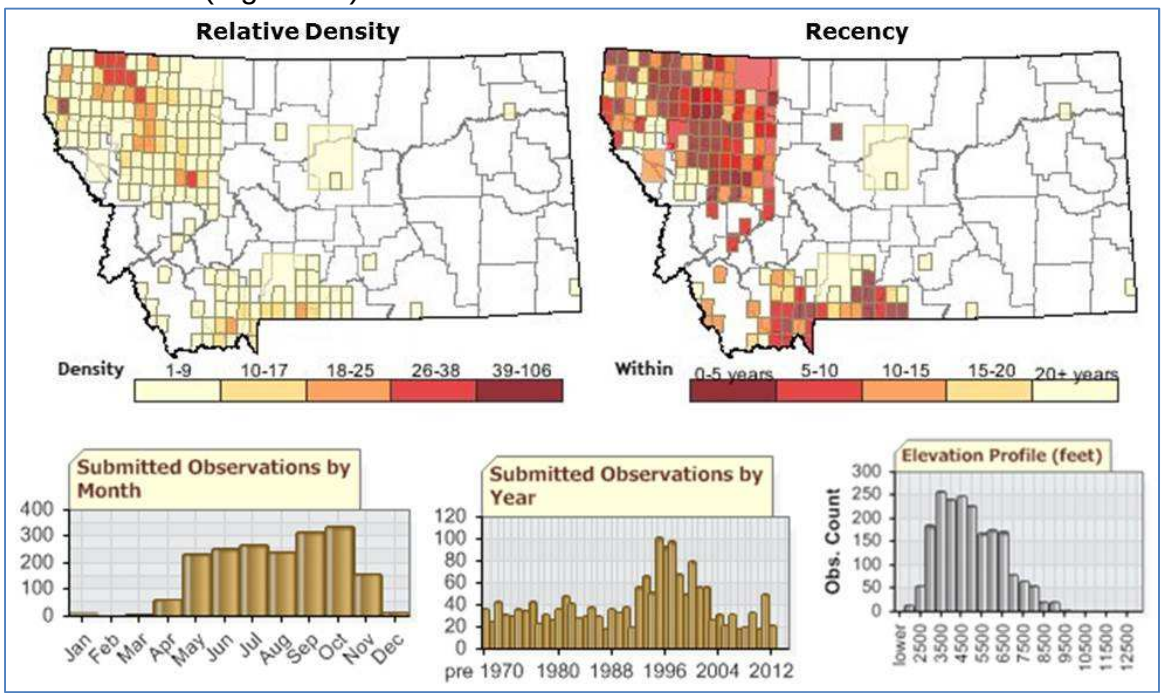


Figure 20. Summary of observations submitted for Grizzly Bear (MTNHP).

7.3.3.3. Life History and Habitat Requirements

In Montana, Grizzly Bears primarily use meadows, seeps, riparian zones, mixed shrub fields, closed timber, open timber, sidehill parks, snow chutes, and alpine slabrock habitats. Habitat use is highly variable between areas, seasons, local populations, and individuals (Servheen 1983, Craighead 1982, Aune 1984). Historically, the Grizzly Bear was primarily a plains species occurring in higher densities throughout most of eastern Montana (MTNHP 2013b).

7.3.3.4. Reasons for Decline

The Grizzly bear's dramatic decline in the western United States over the course of the 20th century was a result of habitat alteration and loss, and direct conflict with humans.

7.3.3.5. Environmental Baseline / Occurrence in the Project Area

The nearest recorded occurrence to the project area was in 1998 in Sweetwater Basin, approximately 15 miles to the southeast of the project location. The nearest recorded occurrence of a grizzly bear to the project area within the last fifteen years was approximately 45 miles to the south east. The current estimated extent of grizzly bear range extends no closer than 25 miles to the project site, therefore grizzly bears are not expected to occur in the project area.

7.3.3.6. Effects of the Action / Impacts Analysis

No effects are anticipated as the grizzly bear does not occur in the project area.

7.3.3.7. Recommended Conservation Measures

No conservation measures are necessary for this species.

7.3.3.8. Proposed Determination of Effect

As the grizzly bear is not expected to occur in the project area due to limited suitable habitat and moderate human development and activity, the project will have *no effect* on the Grizzly bear.

7.3.4. ***Canada Lynx (LT)***

7.3.4.1. Species Description

The Canada Lynx (Lynx Canadensis) is a medium-sized cat (about 22 lbs for males and 17 lbs for females) with silver-gray to grayish-brown upperparts and a white belly and throat. Lynx have long legs and a relatively short, compact body. The total length averages approximately three feet long. A facial ruff surrounds the face except directly beneath the snout. The facial ruff is longest on either side of the snout and has black markings on these longest hairs. The ears are 2.75-3 inches long and have a long, (~1.25") black tuft at the end. The backs of the ears are darker than the rest of the body and have a central white spot. The feet are large and round (4x4 inches) and heavily furred (Foresman 2001). The tail is short and the tip is entirely black (MTNHP 2013b).

7.3.4.2. Status and Distribution

The lynx is currently listed as a Threatened species under the ESA by the USFWS. In Montana, the lynx is ranked an S3 species (potentially at risk for extirpation). Globally the lynx is more secure, ranking G5 (common, widespread, and abundant) across the balance of its range in the far north of the North American continent.

Within Montana, the lynx is found in the mountainous western third of the state (Figure 21). The USFWS has two general areas of designated Canada Lynx Critical habitat within Montana (Unit 3 and Unit 5). Unit 3 includes the Northern Rocky Mountains of northwest Montana (Flathead, Glacier, Granite, Lake, Lewis and Clark, Lincoln,

Missoula, Pondera, Powell and Teton Conties); Unit 5 includes the Greater Yellowstone Area of southwest Montana (Carbon, Gallatin, Park, Stillwater, and Sweetgrass Counties). No Canada Lynx critical habitat has been designated in the vicinity of the project area or within Beaverhead or Madison Counties.

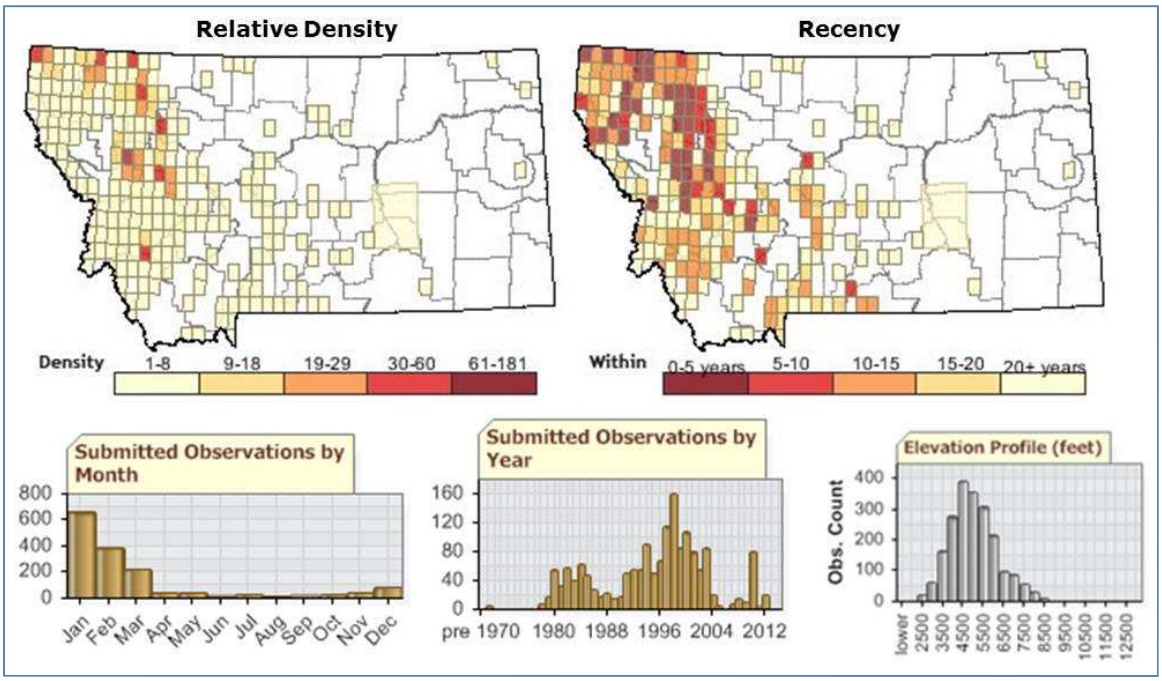


Figure 21. Summary of observations submitted for Canada Lynk (MTNHP).

7.3.4.3. Life History and Habitat Requirements

From the Montana Field Guide (MTNHP 2013b):

> *East of the Continental Divide, the subalpine forests inhabited by Canada Lynx occur at higher elevations (5,400 to 7,800 feet) and are composed mostly of subalpine fir. Secondary habitat is intermixed Englemann spruce and Douglas-fir habitat types where lodgepole pine is a major seral species (Ruediger et al. 2000). Throughout their range, shrub-steppe habitats may provide important linkage habitat between the primary habitat types described above (Reudiger et al. 2000). Typical snow conditions are important factors for Canada Lynx, with occurrence primarily in habitats that also receive relatively uniform and moderately deep snowfall amounts (total annual snowfall of 100 to 127 centimeters) (Kelsall et al. 1977). Within these habitat types, disturbances that create early successional stages such as fire, insect infestations, and timber harvest, provide foraging habitat for lynx by creating forage and cover for Snowshoe Hares, although older forests also provide habitats for Snowshoe Hares and Canada Lynx for longer periods of time than disturbance-created habitats (Ruediger et al. 2000).*
>
> *Canada Lynx avoid large openings but often hunt along edges in areas of dense*

cover (Ruediger et al. 2000). When inactive or birthing, they occupy dens typically in hollow trees, under stumps, or in thick brush. Den sites tend to be in mature or old-growth stands with a high density of logs (Koehler 1990, Koehler and Brittell 1990). These habitats must be near or adjacent to foraging habitat because the hunting range of the female is reduced during this time (Ruediger et al. 2000).

7.3.4.4. Reasons for Decline

While the lynx has a large range in northern North America; declines have occurred in some populations. It is apparently still widespread and relatively abundant in most of historic range, though population data are lacking for many areas. Forest management practices that result in the loss of diverse age structure, fragmentation, roading, urbanization, agriculture, recreational developments, and unnatural fire frequencies have altered suitable habitat in many areas. As a result, many states may have insufficient habitat quality and/or quantity to sustain lynx or their prey. Human access into habitat has increased dramatically over the last few decades contributing to direct and indirect mortality and displacement from suitable habitat. Although legal take is highly restricted, existing regulatory mechanisms may be inadequate to protect small, remnant populations or to conserve habitat. Competition with bobcats and coyotes may be a concern in some areas (NatureServe. 2013).

7.3.4.5. Environmental Baseline / Occurrence in the Project Area

The nearest recorded occurrence to the project area was in 1983, in the mountains approximately 20 miles to the west of the project at an elevation of 7,000 feet. The nearest recorded occurrence of a lynx to the project area within the last fifteen years was approximately 50 miles away to the north east. No suitable habitat occurs within the project area, therefore Canada lynx are not expected to occur in the project area.

7.3.4.6. Effects of the Action / Impacts Analysis

No effects are anticipated as the Canada lynx does not occur in the project area.

7.3.4.7. Recommended Conservation Measures

No conservation measures are necessary for this species.

7.3.4.8. Proposed Determination of Effect

As the Canada lynx does not occur in the project area due to the lack of suitable habitat and the moderate human development and activity, the project will have *no effect* on the Canada lynx.

Designated critical habitat for the Canada lynx does not occur in either Beaverhead or Madison Counties, therefore, the project *will not destroy or adversely modify* Canada lynx proposed or designated critical habitat

7.3.5. ***Wolverine (P)***

7.3.5.1. Species Description

The Wolverine (*Gulo gulo*) is a bear-like weasel with massive limbs and long, dense, dark brown fur, paler on the head, with two broad yellowish stripes extending from the shoulders and joining on the rump. Variable white or yellowish markings are often present on the throat and chest. The tail is bushy. The feet are relatively large (2.5 to 4.5 inches total length) with robust claws. Wolverines weigh between 15 and 70 pounds and range from 3 to 3.5 feet in length.

7.3.5.2. Status and Distribution

The wolverine is currently Proposed for listing as Threatened under the ESA, having been proposed for such listing by the USFWS in February 2013. In Montana, the wolverine is ranked an S3 species (potentially at risk for extirpation). Globally the wolverine is more secure, ranking G4 (apparently secure, though it may be quite rare in parts of its range, and/or suspected to be declining) across the balance of its range in the far north of the North American continent.

Within Montana, the wolverine is found in the mountainous western third of the state (Figure 22). No recent sightings have been documented within the vicinity of the Stone Creek – North project (MTNHP).

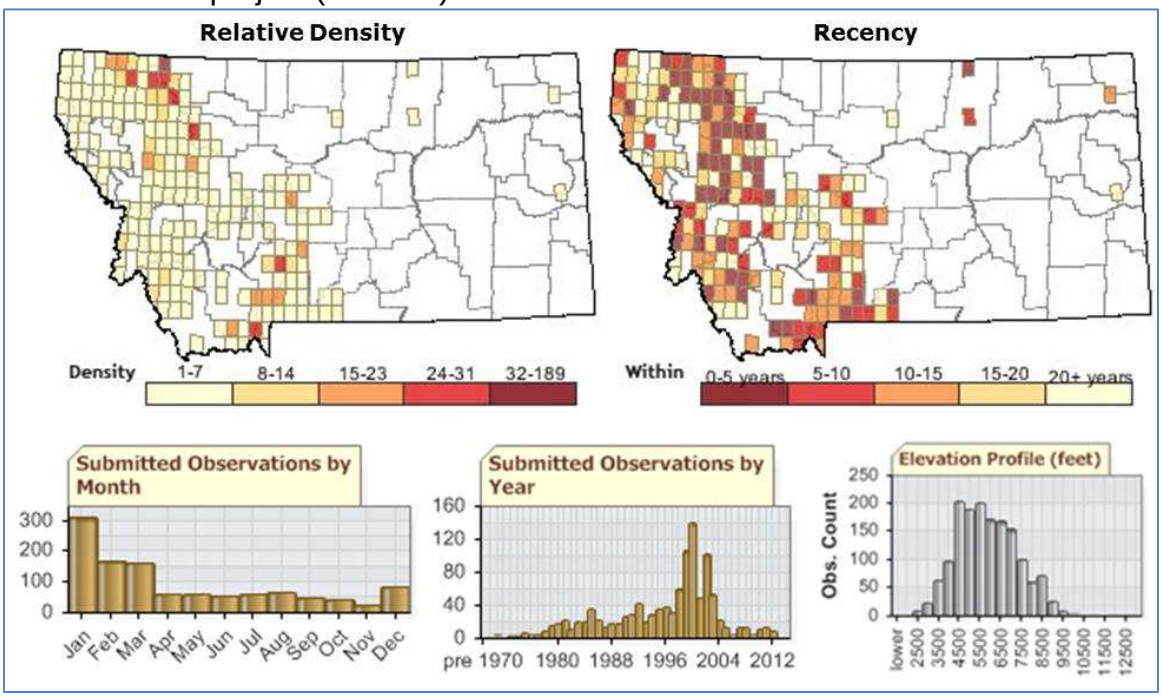


Figure 22. Summary of observations submitted for Wolverine (MTNHP).

7.3.5.3. Life History and Habitat Requirements

Wolverines are limited to alpine tundra, and boreal and mountain forests (primarily coniferous) in the western mountains, especially large wilderness areas. However, dispersing individuals have been found far outside of usual habitats. They are usually in areas with snow on the ground in winter. Riparian areas may be important winter

habitat. When inactive, Wolverines occupy dens in caves, rock crevices, under fallen trees, in thickets, or similar sites. Wolverines are primarily terrestrial but may climb trees (MTNHP 2013b).

7.3.5.4. Reasons for Decline

Decline may have been due primarily to fur trapping. Habitat has been degraded through timber harvesting, ski area construction, road construction, and general human disturbance (Biosystems Analysis 1989). There are conflicts with backcountry trappers (NatureServe. 2013).

7.3.5.5. Environmental Baseline / Occurrence in the Project Area

The nearest recorded occurrence to the project area was in 1957, in Lauren Canyon in the mountains approximately 13 miles to the east of the project at an elevation of 7,100 feet. The nearest recorded occurrence of a wolverine to the project area within the last fifteen years was in 2010, approximately 23 miles away to the west near Barb Lake (MTNHP 2013b). Although the project site lies within the current range of the wolverine, the low elevation, lack of boreal forest, and presence of the existing highway within the project site renders the project area to be unsuitable habitat, therefore wolverine are not expected to occur in the project area except as very rare incidental transients.

7.3.5.6. Effects of the Action / Impacts Analysis

Effects on wolverine would only occur in the extremely unlikely circumstance that a wolverine would be transiting the unsuitable habitat of the project area enroute to more suitable habitat higher in elevation. It is highly unlikely that the project would affect a transient wolverine.

7.3.5.7. Recommended Conservation Measures

No conservation measures are necessary for this species.

7.3.5.8. Proposed Determination of Effect

As the wolverine does not normally occur in the project area due to the lack of suitable habitat and the moderate human development and activity, and may only rarely occur as a transient between more suitable habitat higher in elevation, the project *will not jeopardize the continued existence* of the species.

7.3.6. ***Greater Sage Grouse (C)***

7.3.6.1. Species Description

Greater sage-grouse (*Centrocercus urophasianus*) is the largest of Montana's grouse. Both sexes have relatively long, pointed tails, feathered legs, and mottled gray-brown, buff, and black plumage. Males have a blackish-brown throat patch and an inconspicuous yellow eye comb. Both sexes have blackish bellies which contrast sharply with white under-wing coverts when the birds are in flight. Females appear to dip from side to side while flying. Adult males range from 26 to 30 inches in length and

average 4 to 7 pounds in weight; adult females range from 19 to 23 inches in length and 2.5 to 3.5 pounds in weight (MTNHP 2013b).

7.3.6.2. Status and Distribution

In 2010, the US Fish and Wildlife Service concluded that the greater sage-grouse warrants protection under the Endangered Species Act. However, the Service has determined that proposing the species for protection is precluded by the need to take action on other species facing more immediate and severe extinction threats.
As a result, the greater sage-grouse has been placed on the list of species that are candidates for Endangered Species Act Protection. The Service will review the status of the species annually, as it does with all candidate species, and will propose the species for protection when funding and workload priorities for other listing actions allow.

Within Montana, the greater sage-grouse is ranked as an S2 species (at risk because of very limited and/or potentially declining population numbers, range and/or habitat, making it vulnerable to global extinction or extirpation in the state) though it fares somewhat better across the balance of its range in the western United States and the extreme southern portions of western Canada, achieving a global ranking of G3G4 (potentially at risk for extirpation to apparently secure).

In Montana, the greater sage grouse is found in low numbers across most regions of the state, being absent only in the northwest mountains and the extreme north eastern corner of the state (Figure 23). The highest populations of sage-grouse in Montana are found in the southwest mountains and the central northern plains. The primary local factor in the distribution of the greater sage-grouse is the presence of suitable sagebrush rangeland, as they cannot survive outside of that habitat.

7.3.6.1. Life History and Habitat Requirements

Sagebrush is the obligate habitat of the greater sage-grouse. They use 6 to 18 inch high sagebrush covered benches in June to July; move to alfalfa fields or greasewood bottoms when forbs on the benches dry out; and move back to sagebrush in late August to early September (MTNHP 2013b).

7.3.6.2. Reasons for Decline

Greater Sage Grouse were once widespread and abundant and were historically found in 16 western states and three Canadian provinces. Sagebrush conversion to agriculture, heavy livestock grazing, eradication of sagebrush with herbicides and burning, and continued development and fragmentation of sagebrush rangelands have dramatically reduced populations and eliminated the grouse from many parts of its former range (NatureServe 2013).

7.3.6.1. Environmental Baseline / Occurrence in the Project Area

No sage-grouse observations have been recorded within a minimum of five miles from the project area. Several recent observations have been recorded within 25 miles to

the south of the project area. The project area appears to be outside the current distribution of the sage grouse.

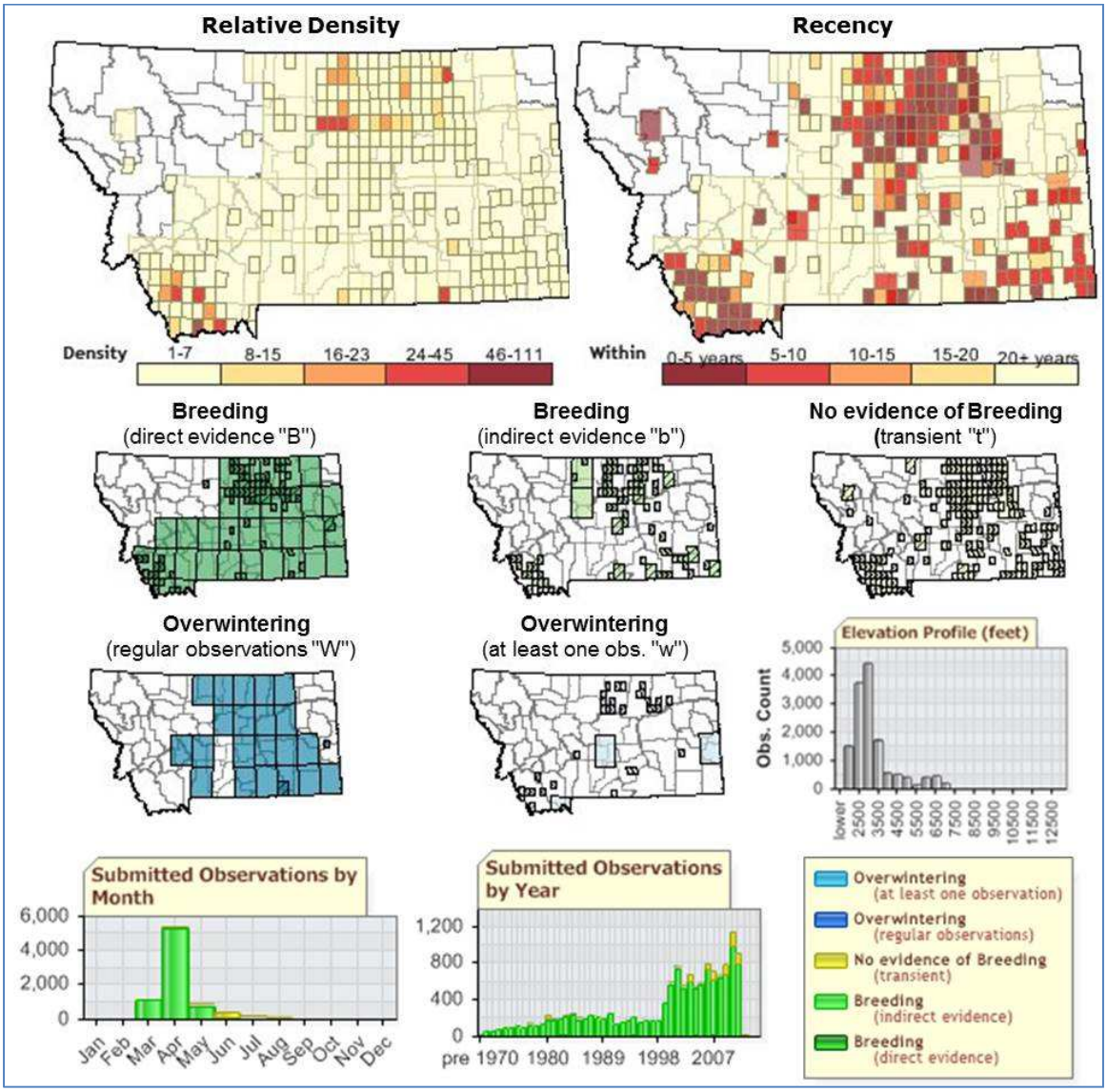


Figure 23. Summary of observations submitted for Greater Sage Grouse (MTNHP).

7.3.6.2. Effects of the Action / Impacts Analysis

Although some suitable habitat is present within the project area (big sagebrush, alfalfa fields and greasewood bottoms) the presence of the existing highway renders this habitat undesirable to sage grouse. As sage-grouse have not been observed within five miles of the project area, sage-grouse were not observed during the field visit, and given that more suitable and desirable habitat exists outside of the project area, it is unlikely that sage-grouse make other than rare, incidental use of this area. The proposed action will have negligible effect on sage-grouse.

7.3.6.3. Recommended Conservation Measures

No conservation measures are necessary for this species.

7.3.6.4. Proposed Determination of Effect

As no documented observations of Greater sage-grouse have occurred in recent history within miles of the project area, suitable habitat is limited within the project area, and lands adjacent to the project area are subject to moderate human occupancy and agricultural manipulation, the project *will not jeopardize the continued existence* of the species.

7.3.7. ***Sprague's Pipit (C)***

7.3.7.1. Species Description

The adult Sprague's Pipit (*Anthus spragueii*) is a pale, slender, sparrow-sized bird with white outer tail feathers, a thin bill, pale legs, and a heavily streaked back. Adults reach a length of 6.5 inches, with a wingspan of 10 inches, and a weight of 23.7 to 24.0 grams. The sexes are alike. The sides of the head and indistinct buffy eye-rings are pale. (MTNHP 2013b).

7.3.7.2. Status and Distribution

In 2010 The U.S. Fish and Wildlife Service reviewed the conservation status of Sprague's Pipit to determine whether the species warrants protection under the Endangered Species Act. The status review found that listing Sprague's Pipit as threatened or endangered is warranted, but that listing the species at this time is precluded by the need to complete other listing actions of a higher priority. As a result, the greater sage-grouse has been placed on the list of species that are candidates for Endangered Species Act Protection.

Sprague's Pipit is a migratory songbird whose known range in Montana includes the eastern two thirds of the state, where its preferred habitat (large expanses of native grassland) is found (Figure 24).

7.3.7.3. Life History and Habitat Requirements

An endemic grassland bird, the Sprague's Pipit prefers native, medium to intermediate height prairie (Casey 2000) and in a short grass prairie landscape, can often be found in areas with taller grasses (Samson and Knopf 1996). The Sprague's Pipit is significantly more abundant in native prairie than in exotic vegetation (Dechant et al. 2001). Dechant (2001) also notes that the species has been shown to be area sensitive, requiring relatively large areas of appropriate habitat; the minimum area requirement in a Saskatchewan study was 470 acres (MTNHP 2013b).

7.3.7.4. Reasons for Decline

Although population trends in Montana appear to be relatively stable in recent years, populations have been in decline over the long run and the species faces threats from covertype conversion, overgrazing, exotic plant invasions, altered fire regimes, and mowing prior to fledging of young (MTNHP 2013b).

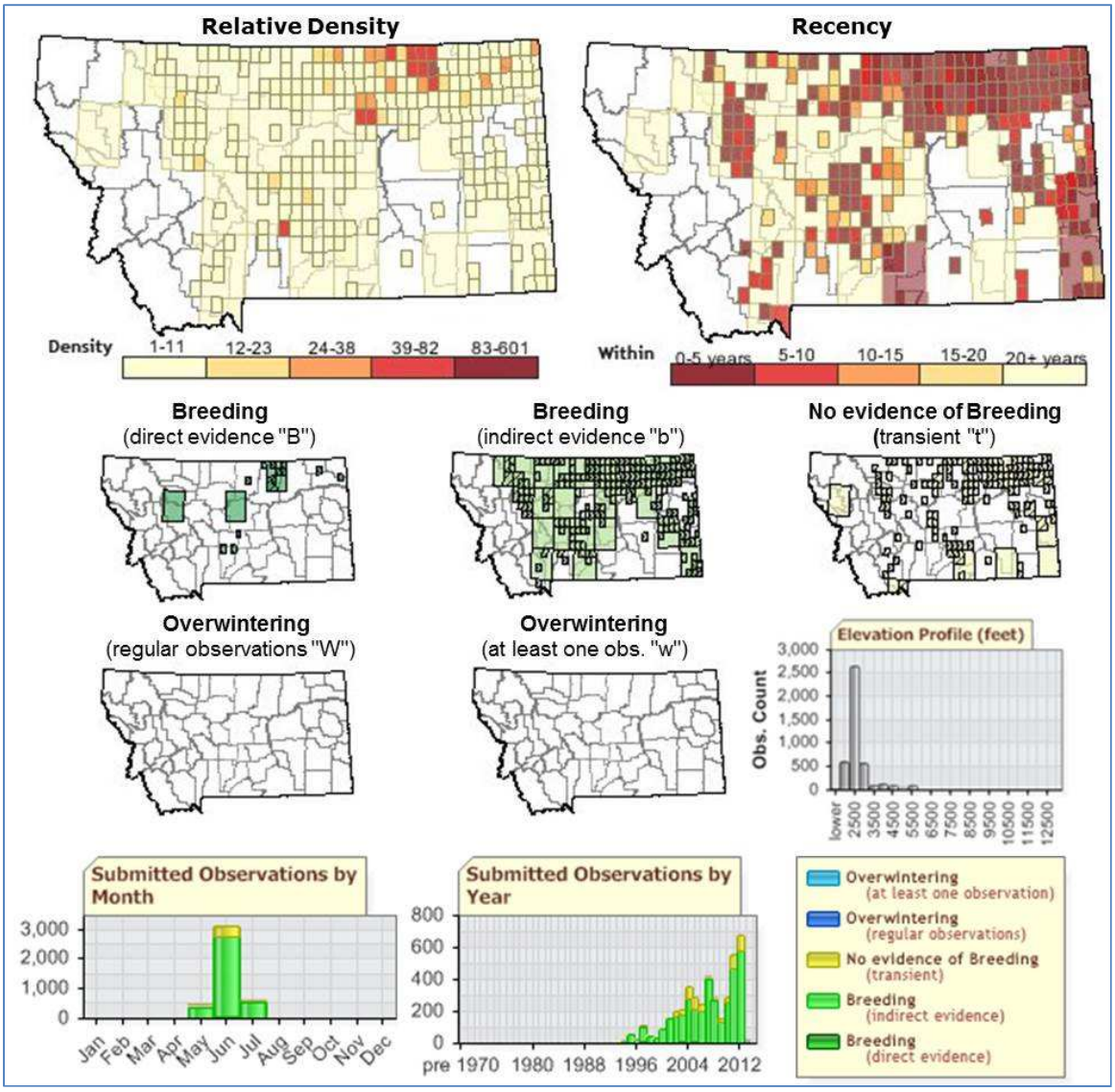


Figure 24. Summary of observations submitted for Sprague's Pipit (MTNHP).

7.3.7.5. Environmental Baseline / Occurrence in the Project Area

No observation of Sprague's pipit has been recorded within 25 miles of the project site, and this species was not observed during any of the field visits. The species is not known to overwinter in Montana, and its known breeding range in the state lies north of the Yellowstone River. A few observations of this bird in the eastern half of Madison county, near Ennis, have been documented (MTNHP). Aside from irregular incidental occurrence of migrating Sprague's Pipit, this species is not expected to occur in the project area due to a lack of suitable habitat and general landuse (agriculture) in the vicinity of the project.

7.3.7.6. Effects of the Action / Impacts Analysis

No effects are anticipated as the Sprague's pipit does not occur in the project area.

7.3.7.7. Recommended Conservation Measures

No conservation measures are necessary for this species.

7.3.7.8. Proposed Determination of Effect

As the Sprague's pipit is not expected to occur in the project area due to limited suitable habitat within the project area, and lands adjacent to the project area are subject to moderate human occupancy and agricultural manipulation, the project *will not jeopardize the continued existence* of the species.

7.3.8. ***Whitebark Pine (C)***

7.3.8.1. Species Description

Whitebark pine (*Pinus albicaulis*) is a small tree (to 25 m tall) with ascending branches and a rounded or flat-topped crown. Bark is smooth, light gray. Leaves are yellow-green, 2–6 cm long, 5 per fascicle. Seed cones ovoid, 4–8 cm long, remaining on the tree and closed until opened and/or dislodged by squirrels or birds (MTNHP 2013b).

7.3.8.2. Status and Distribution

Whitebark pine has been listed as a Candidate species for Threatened and Endangered status under the Endangered Species Act by the USFWS. Whitebark pine is a common component of subalpine forests and a dominant species of treeline and krummholtz habitats. It occurs in almost all major mountain ranges of western and central Montana (MTNHP 2013b).

7.3.8.3. Life History and Habitat Requirements

Whitebark pine is found in subalpine forests and treeline and krummholtz habitats.

7.3.8.4. Reasons for Decline

Populations of Whitebark pine in Montana and across most of western North America have been severely impacted by past mountain pine beetle outbreaks and by the introduced pathogen, white pine blister rust. The results of which have been major declines in Whitebark pine populations across large areas of its range. Additionally, negative impacts associated with encroachment and increased competition from other trees, primarily subalpine fir have occurred as a result of fire suppression in subalpine habitats (MTNHP 2013b).

7.3.8.5. Environmental Baseline / Occurrence in the Project Area

The lower elevation grassland and riparian habitat of the project area is hostile to Whitebark pine. Observations of Whitebark pine are limited to the high mountain areas of Beaverhead and Madison counties. Whitebark pine does not occur in the project area.

7.3.8.6. Effects of the Action / Impacts Analysis

No effects are anticipated as Whitebark pine does not occur in the project area.

7.3.8.7. Recommended Conservation Measures

No conservation measures are necessary for this species.

7.3.8.8. Proposed Determination of Effect

As Whitebark pine does not occur in the project area due to the lack of suitable habitat, the project *will not jeopardize the continued existence* of the species.

8.0 WETLANDS

8.1. Introduction

The project area was reviewed between June 10 and 13, 2013, to determine the location of Waters of the US including wetlands and other special aquatic sites. Twenty-six wetland determination data points were established in potential wetland areas to assess the presence of hydrophytic species, hydric soil, and wetland hydrology. The location of wetland determination data points and the surveyed wetland boundaries are shown in Appendix A. Wetland determination data forms are included in Appendix B. Photographs taken at each wetland determination data point are shown in Appendix C. Completed Montana Wetland Assessment Method (MWAM) functional assessment forms (Berglund and McEldowney 2008) of wetlands identified within the project area are located in Appendix D.

8.2. Wetland Delineation Methods

Waters of the U.S. including special aquatic sites and jurisdictional wetlands were delineated in accordance with criteria established in the 1987 Corps of Engineers Wetland Delineation Manual (1987 Manual) using protocols detailed in The Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, Coast Region, Version 2.0 (WTI 91-2, 1991, ERDC/EL TR-10-1). Confluence conducted the field delineation between June 10 and 13, 2013. All wetlands identified onsite were assigned a hydrogeomorphic (HGM) wetland class in accordance with the guidance prepared by the Natural Resource Conservation Service (2008), and classified to the subclass level (with water regime modifier) using the wetland and deepwater habitat classification system developed by the U.S. Fish and Wildlife Service (Cowardin 1979). The boundaries of wetlands identified during the field investigation were mapped using a survey-grade GPS unit differentiated against an established base station. All wetlands mapped within the project area were assigned a jurisdictional status using best professional judgment and CWA jurisdiction guidance issued by the U.S. Environmental Protection Agency (USEPA) following the U.S. Supreme Court's decision in *Rapanos v. United Stated* and *Carabell v. United States* (U.S. Environmental Protection Agency 2008). **All jurisdictional determinations presented in this report are preliminary and subject to verification by USACE and USEPA.**

Confluence determined the wetland boundary in the field based on changes in plant communities and/or hydrology, and changes in soil characteristics. Topographic relief boundaries within the subject properties were also examined and cross referenced with soil and vegetatation communities as supportive information for this wetland

delineation. The vegetation composition, soil characteristics and hydrology were assessed at likely wetland and adjacent upland locations. If all three parameters met the criteria, the area was designated as wetland and mapped by the vegetation community type. If any one of the parameters did not exhibit positive wetland indicators, Confluence determined the area to be upland. The National Wetlands Inventory maps developed by the US Fish and Wildlife Service were cross-referenced during the field survey and used as supplemental information to support the presence or absence of wetlands across the site.

8.2.1. *Hydrophytic Vegetation*

Plants must be physiologically or morphologically adapted for life under saturated or anaerobic soil conditions to grow in wetlands. The USACE and the U.S. Fish and Wildlife Service (USFWS) have investigated the probability of occurrence of individual plant species in wetlands. Based on this investigation the USFWS developed an extensive list of plant species categorized as obligate (OBL), facultative wetland (FACW), facultative upland (FACU), or upland (UPL) (USFWS 1988 and 1993). The National Wetland Plant List (NWPL) was updated in 2012 in an effort led by the USACE. The 2012 NWPL was employed for this delineation. Species with an indicator status of OBL, FACW or FAC are considered wetland species. According to USACE methods, a sample point is deemed to have wetland vegetation if more than 50% of the number of dominant species present are hydrophytic species, if the prevalence index is ≤3.0, or if morphological adaptations are observed during the field survey. In general, wetland boundaries on the site were delineated based on the distribution and relative dominance of wetland species along the wetland/upland interface.

8.2.2. *Hydric Soil*

The Natural Resource Conservation Service (NRCS) defines hydric soils as “soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile” (USDA 1987). The NRCS list of Hydric Soils in the United States (USDA 1987) and the Montana Hydric Soils List (2012) were reviewed to determine whether hydric soils were mapped on the site. The NRCS mapped sixteen separate soil map units within the study area (Figure 2). Four soil units mapped within the study area were found on the Montana Hydric Soils list and cover approximately 28% of the site.

Confluence investigated soils on the site through excavation of a series of 16-inch deep pits along the upland/wetland gradient. The wetland boundary was delineated based on the appearance of hydric soils along this gradient in concert with the appearance of hydrophytic vegetation. The location of 26 soil pit logs from typical upland and wetland locations are shown in Appendix A. Confluence determined the presence or absence of hydric soil using criteria established in the 1987 Manual and 2010 Regional Supplement: Western Mountains, Valleys, Coast. These criteria include certain physical characteristics observable in the field such as high organic content, accumulation of sulfidic material (sulfidic odor), greenish, bluish gray, gley, or dark soil colors (low soil chroma), depleted matrix, and reduction/oxidation features (mottling).

Confluence assessed the presence or absence of sulfidic material by odor, and soil colors and mottling with a Munsell soil color chart (Munsell 2000).

8.2.3. *Wetland Hydrology*

Confluence determined the presence or absence of wetland hydrology using criteria established in the 1987 Manual and 2010 Regional Supplement: Western Mountains, Valleys, Coast. Direct, visual indicators of wetland hydrology include observations of standing water or saturated soil, or evidence of previous water inundation or saturation such as drift lines, sediment deposits or watermarks. Additionally, wetland hydrology is often inferred from soil features such as oxidized rhizospheres, or from the apparent drainage patterns in the assessment area. Confluence examined each sample point for indicators of wetland hydrology. Soil pits excavated during the wetland delineation were used to evaluate groundwater levels within 16 inches of the ground surface. The data were recorded on the Wetland Data Forms (Appendix B).

Technical criteria for wetland hydrology guidelines have been established as "permanent or periodic inundation or soil saturation within 12 inches of the ground surface for a significant period (12.5 percent) of the growing season" (USACE 2010). Systems with continuous inundation or saturation for greater than 12.5 percent of the growing season are considered wetlands. The growing season is defined for purposes of this report as the number of days where there is a 50 percent probability that the minimum daily temperature is greater than or equal to 28 degrees Fahrenheit (Environmental Laboratory 1987). The average length of the growing season, as recorded at the Westby WRCC weather station, is 136 days. Areas defined as wetland would require 17 days of inundation or saturation within 12 inches of the ground surface to meet the hydrology criteria. Wetland hydrology may be supplied by surface water, groundwater, and/or direct precipitation.

8.2.4. *Function and Values Assessment Methods*

Confluence used wetland assessment methods and forms developed by the Montana Department of Transportation (MDT) (Berglund and McEldowney 2008) for the functions and values assessment. The field assessment was conducted at the time of the on-site wetland delineation between June 10 and 13, 2013.

The following functions and values are evaluated by this method:

A. Habitat for federally listed or proposed threatened or endangered plants or animals (T&E species),
B. Habitat for plants or animals rated S1, S2, S3 by the Montana Natural, Heritage Program,
C. General wildlife habitat,
D. General fish/aquatic habitat,
E. Flood attenuation,
F. Long and short-term surface water storage,
G. Sediment/nutrient/toxicant retention and removal,
H. Sediment/shoreline stabilization,

I. Production export/food chain support,
J. Groundwater discharge/recharge,
K. Uniqueness, and
L. Recreation/education potential.

In performing a function and values assessment, a rating of low, moderate, high or NA (not applicable) is applied to each of the twelve functions and values (A-L) with accompanying point scores of 0.1 (lowest) to 1.0 (highest). Functional points are then summed and divided by the possible maximum score (functions and values ranked NA are not included) to yield a percentage score. This percentage is then used in conjunction with other criteria to provide an overall wetland ranking into one of four categories. A Category I ranking is the highest a wetland can receive, followed by Category II, Category III, and Category IV rankings.

8.3. Results

8.3.1. *Description of Delineated Wetlands*

Eighteen data points were located in areas that met the three wetland criteria. Fourteen wetland areas (Table 9), three Waters of the U.S. and two irrigation canals (Table 10) were delineated along the approximate 7.2-mile highway reach and totaled 11.30 acres of aquatic habitat identified within the 100-ft buffer on either side of centerline (Appendix A). The three Waters of the U.S. consist of the Beaverhead River, Stone Creek, an unnamed tributary (WW2). The two irrigation ditches include the Co-op Ditch and Warm Springs Ditch. The Beaverhead River was classified as lower perennial riverine with an unconsolidated bottom of cobble/gravel (R2UB1). Both Stone Creek and the perennial spring creek (WW2) were classified as upper perennial with an unconsolidated bottom of cobble/gravel and mud (R3UB1/3). The streams and river are discussed in detail in Section 4.0. The Co-op Ditch and Warm Springs Ditch flow through the project area north of the Beaverhead River. Both of these ditches eventually discharge back into the Beaverhead River via intricate irrigation network. The majority of wetlands identified along the project corridor are located in the northern quarter of the site and are associated with the Beaverhead River and irrigation networks adjacent to the highway. Table 9 summarizes the HGM and Cowardin classes, associated data points, primary source of wetland hydrology, MWAM assessment ratings and scores, and area. Table 10 provides a description of the waterways identified within the study area.

A large riparian wetland area (**WL-11**) is directly connected to the main stem of the Beaverhead River. This wetland area is located along the lower, active river terrace and subject to periodic flooding and includes a mosaic of palustrine emergent and scrub/shrub habitats. Narrow-leaf willow is the dominant shrub along the periodically scoured floodplain. With distance from the river channel, woods' rose, silver-berry, and choke cherry contribute to community diversity. Creeping meadow-foxtail (*Alopecurus arundicaneus*), sedges, artic rush (*Juncus arcticus*), and Canadian thistle are the dominant species within the understory of the scrub/shrub community and are also prevalent in the emergent communities. Hydrology is directly related to the surface

Table 9. General characteristics of wetlands along the Stone Creek - North project corridor.

Wetland ID	HGM Class	Cowardin Class[1]	Functional Assessment Rating and Score	Primary Source of Wetland Hydrology	Data Points	Approx Reference Post	Extends Outside of Study Area (Yes/No)	Area (ac)	Narrative Description	Nexus Narrative
WL-1	Depressional	PEM1B	III / 43.64%	Hydrology provided by water level within Stone Creek	DP-1w, DP-2u	9.02	Yes	0.04	Approx 5ft wide emergent riparian wetland along Stone Creek.	Emergent riparian wetland adjacent to Stone Creek. Stone Creek diverted into an irrigation ditch, which connects to a canal. This canal flows directly into the Beaverhead River.
WL-2	Depressional	PEM1E	III / 41%	Seasonal surface water in unnamed drainage	DP-3w	10.22	Yes	0.03	2ft wide swale with very narrow wetland buffer	Wetland includes narrow swale through ephemeral drainage. Wetland appears to terminate among down-gradient ranch infrastructure. No direct connection to WUS identified.
WL-3	Depressional	PEM1E	III / 41%	Seasonal surface water in unnamed drainage	DP-4w	11.23	Yes	0.02	Gully below headgate.	Narrow wetland swale through seasonal drainage. Continuous (marginal) wetland habitat persistent though drainage, connects to canal with direct connection to Beaverhead River.
WL-4	Depressional	PEM1E	III / 48%	Perennial surface water in unnamed drainage	None	12.73	Yes	0.13	Narrow wetland margin along unnamed tributary below impoundments	Contiguous wetland habitat to canal that drains into constructed MDT wetland complex, groundwater connection to Beaverhead River.
WL-5	Depressional	PEM1B	IV / 28.75%	Precipitation, runoff	DP-5w	14.34	Yes	0.04	Shallow depression, historically maintained as wetland by irrigation ditch, no longer active. Occasional flooding during high flows.	Shallow depression, historically maintained as wetland by Mailey irrigation ditch, no longer active. Very marginal wetland connection to WUS identified.
WL-6	Depressional	PEM1E	III / 63.64%	Groundwater, occassional flooding from Beaverhead River	None	14.40-14.50	No	0.06	Narrow swale (historic irrigation ditch)	Linear wetland (old irrigation canal?) with connection to WL-7 and Beaverhead River.
WL-7	Depressional	PEM1E/PSS1E	III / 63.64%	Groundwater, occassional flooding from Beaverhead River	None	14.50-14.53	Yes	0.21	River terrace in active floodplain.	Lower river terrace with direct seasonal connection to Beaverhead River; groundwater connection (adjacency).
WL-8	Depressional	PEM2B	No MWAM completed due to isolated, likely non-jurisdictional status	High seasonal groundwater, precipitation, runoff	DP-7u, DP-8w	14.49	No	0.01	Depression with shallow seasonal ground water, along low gradient of adjacent hay field.	Isolated wetland depression with no direct connection to other wetlands or WUS.
WL-9	Depressional	PEM1E	No MWAM completed due to isolated, likely non-jurisdictional status	Groundwater, precipitation	None	14.51	Yes	0.12	Low area within cultivated field, marginal wetland connection to Beaverhead River	Wetland within low-lying area along edge of hay field. Wetland not contiguous with wetland riparian habitat along Beaverhead River; no connection identified.
WL-10	Depressional	PEM1E	No MWAM completed due to isolated, likely non-jurisdictional status	Groundwater, precipitation	DP-9w, DP-11u	14.54	No	0.06	Similar to WL-9, isolated low area along margin of field	Wetland similar to WL-9 within low-lying area along edge of hay field. Wetland not contiguous with wetland riparian habitat along Beaverhead River; no connection identified.
WL-11	Depressional	PEM1E/PSS1E	III / 63.64%	Groundwater, occassional flooding from Beaverhead River	DP-12w, DP-13w, DP-15w	14.57-14.64	Yes	1.97	River terrace in active floodplain.	Riparian wetland located directly along Beaverhead River.
WL-12	Depressional	PEM1E/PSS1E	No MWAM completed due to isolated, likely non-jurisdictional status	Grounwater, precipitation	DP-14w	14.67	No	0.10	Depression with shallow groundwater, surrounded by man-made upland grades.	Isolated wetland depression surrounded by upland, no direct connection identified.
WL-13	Depressional	PEM1E/PSS1E	III / 42.5%	Groundwater, precipitation	None	14.70-14.79	Yes	0.65	Historic ox-bow with high water table	Historic ox-bow with high water table supported by Beaverhead River and the Co-op ditch.
WL-14	Depressional	PEM1B/PSS1B	III / 43.75%	Groundwater, occassional flooding from Beaverhead River	DP-17w	14.89	Yes	0.22	Cattail/willow depression, culvert under road at drain point.	Wetland located in old oxbow, connected to larger wetland outside of study area with direct connection to Beaverhead River.
WL-15	Depressional	PEM1C	III / 53.75%	Groundwater, occassional flooding from Beaverhead River	DP-19w	14.95-15.07	Yes	0.86	Bulrush/cattail community, saturated soil surface.	Connected to a larger wetland complex (historic ox-bows) directly connected to the Co-op Ditch.
WL-16	Depressional/ Riverine	PEM1E/SS1E	III / 60%	Groundwater, precipitation, irrigation diversion	DP-20w	15.06-15.28	Yes	1.22	Common reed veg community, surface water present in lowest depressions.	Wetland directly associated with the Co-op Ditch. Co-op Ditch with irrigation returns directly connected to WUS.
WL-17	Depressional	PEM1E/PSS1E	III / 64.55%	Groundwater, precipitation, influence form irrigation canal	DP-21w	14.95-15.31	Yes	1.73	Wetland complex within hisotic oxbow complex that extends beyond survey area.	Wetland connected to larger wetland complex (abandonded ox-bows) outside of project with contiguous connection to Beaverhead River.
WL-18	Depressional	PEM1E/PSS1E	III / 64.55%	Groundwater, precipitation, irrigation canal	DP-23w, DP-24w, DP-25w, DP-26w	15.46-16.20+	Yes	1.98	Narrow wetland margin along irrigation canal, inundated from backwater/headgate.	Wetland fringe directly associated with the Warm Springs Ditch. WSD with irrigation returns directly connected to WUS.
Total Area								**9.45**		

P - Palustrine; EM - Emergent; 1 - Persistent vegetation; 2 - Nonpersistnet; SS - Scrub/Shrub; 1 - Broad-leaved deciduous; B - Saturated; C - Seasonally Flooded; E - Seasonally Flooded/Saturated

Table 10. Waterways delineated along Stone Creek - North project area.

Waterways ID	Stream/Ditch Name	Watershed	Approx RP	Area (ac)	Narrative Description
WW-1	Stone Creek	Stone Creek - 100200020605	9.06	0.06	Approx. 15ft-wide channel with narrow wetland margin (WL-1)
WW-2	Unnamed Drainage	Beaverhead River - Charlton Slough 1002000207	12.72	0.01	Unnamed perennial channel below 5 Rivers Lodge; online impoundments above (east) highway.
WW-3	Beaverhead River	Beaverhead River - Big Dry Gulch - 100200020705	14.65	0.26	Approx. 60ft-wide channel bordered by palustrine emergent and scrub/shrub riparain wetlands.
IR-1	Co-op Dtich	Beaverhead River - Big Dry Gulch - 100200020705	15.16-15.53	0.83	Co-op Ditch with a diversion on Beaverhead River at Point of Rocks; eventually flows back into river through an intricate irrigation network.
IR-2	Warm Springs Ditch	Beaverhead River - Big Dry Gulch - 100200020705	15.51-16.20+	0.69	Warm Springs Ditch appears to originate from Co-op Ditch; sustained by shallow groundwater. Return flow into Beaverhead River.
Total Area				**1.85**	

water elevation within the river and contributes both periodic inundation and seasonal saturation to these areas. Soils generally qualified as hydric with a depleted matrix (F3) that exhibited redox concentrations within 12 inches of the soil surface.

The wetland **WL-16** was identified along the Co-op Ditch that originates from the Beaverhead River near Beaverhead Rock. This canal flows along the western boundary of the Highway 41 project area for approximately a half mile before exiting the delineation area. The irrigation canal was classified as riverine streambed with intermittent hydrology. Along the margins of the canal, a mosaic of emergent and scrub/shrub habitats are supported. A diversion on this canal flows under Highway 41 and supports the Warm Springs Ditch irrigation network located along the east boundary of the site. The wetland area **WL-18** also includes a mosaic of herbaceous and shrub habitats supported predominantly by water supplied through the Warm Springs Ditch. This canal likely gains groundwater along its upper reach. Several headgates along this waterway backwater surface water and periodically inundates adjacent wetland areas. Herbaceous vegetation common to these wetlands include creeping meadow-foxtail, curly dock, broadleaf cattail, showy milkweed, hard-stem club-rush, black bentgrass, common spike-rush, and American licorice with marginal wetland areas exhibiting higher cover of Kentucky bluegrass and smooth brome. A small population of beaked spikerush was identified within this wetland community. Indicators of wetland hydrology included surface water, high watertable, saturation, drift deposits, sulfuric odor, inundation and saturation visible on aerials, drain patterns, FAC-Neutral test, and geomorphic position. Positive hydric soil indicators included depleted matrix and hydrogen sulfide (A4).

Other delineated wetlands associated (adjacent to) with areas classified as riverine include **WL-1** and **WL-4**. Stone Creek flows through the project area and supports a narrow margin of palustrine emergent wetland (WL-1) along both sides of the channel. The dominant vegetation included creeping meadow-foxtail with a lesser amount of blue water speedwell established in inundated areas along the toe of the banks. A

perennial spring below the 5 Rivers lodge supports on-channel ponds just to the east of the site. These impoundments discharge into a very small channel (UT-3) that flows under Highway 41 through a culvert. Vegetation within this narrow wetland (WL-4) included broadleaf cattail and meadow-foxtail. Surface water flowing through both of these channels supported the localized wetland hydrology for the narrow riparian wetlands. Depleted matrix provided positive indicators of hydric soils along both drainages.

Two other unnamed drainages cross through the project area at RM 10.21 (**WL-2**) and RM 11.24 (**WL-3**). Both of these delineated wetland areas support seasonal wetland hydrology during the early growing season and transition to generally dry conditions during the latter part of the summer. Vegetation included creeping meadow-foxtail, smooth brome, and Kentucky bluegrass. The wetlands were classified as palustrine emergent with persistent vegetation, seasonally flooded/saturated.

The wetland **WL-14** was identified in an historic oxbow of the Beaverhead River and is supported by seasonally high watertables. Vegetation included a discontinuous overstory of narrow-leaf willow with white-stem gooseberry present in the understory. Showy milkweed, Northwest Territory sedge, hard-stem club-rush, broadleaf cattail, stinging nettle, and Canadian thistle were common herbs in this community. A culvert under the highway separates WL-14. The wetland was classified as palustrine emergent and scrub-shrub.

Wetland **WL-15** is a bulrush/cattail community supported by seasonal inundation, a high groundwater table, and occasional flooding from the Beaverhead River. The soils were mucky with redox concentration and classified as redox dark surface (F6) with hydrogen sulfide odor. This area is classified as palustrine emergent with persistent vegetation.

Located in a depression at the intersection of Highway 41 and E Bench Road, **WL-5** is hydrologically supported by precipitation and runoff. The wetland may have historically been supported by discontinued irrigation flow. The hydrophytic vegetation community included Arctic rush, creeping meadow-foxtail, smooth brome, hard-stem club-rush, curly dock, and lamb's-quarters. Positive hydrologic indicators were marginal and included saturation at 12 inches, saturation visible on aerials, and geomorphic position. Soils displayed redoximorphic concentrations between 5 and 14 inches below the surface and qualified as hydric with a depleted matrix. This wetland is connected to a larger wetland complex along the Beaverhead River via very marginal wetland habitat.

Four small, isolated wetland areas lack of connection to adjacent jurisdictional waters. The wetland area **WL-8** is situated along a driveway accessing the highway and is supported by water impounded by the driveway grade. Located in a shallow depression at a lower elevation than the adjacent hay field, positive wetland hydrologic indicators included sparsely vegetated concave surface and geomorphic position. The marginal hydrophytic community included low amounts of lamb's-quarters, tall scouring-rush, herb Sophia, and smooth brome. Soils supported redox concentrations

and qualified as hydric with a depleted matrix. This wetland was classified as palustrine emergent with non-persistent vegetation. Wetland **WL-9** and **WL-10** are located in small depressions along the edge of an active hayfield. These areas were surrounded by upland habitat and did not exhibit any connection to the nearby Beaverhead River riparian area. Wetland area **WL-12** is located around 60 feet from the edge of the Beaverhead River in a depression surrounded by man-made grades associated with a parking area adjoining the highway. Vegetation included a mosaic of shrub (narrow-leaf willow, white-stem gooseberry, and redosier dogwood) and emergent (smooth brome, reed canarygrass) vegetation. Saturation at 10 inches below the surface provided positive wetland hydrology. A depleted matrix provided a positive indicator for hydric soils.

8.3.2. *Wetland Delineation and Functional Assessment Classification*

Numerous, dis-contiguous wetlands were identified within the approximate 176-acre Stone Creek – North project area. MWAM forms (2008) were completed for twelve individual Assessment Areas (AAs). The locations of the AAs are shown in Figure 25. Results of the Functions and Values assessment (2008 MWAM) are provided in Table 11 with completed data forms for each assessment area located in Appendix D.

In general, wetland AAs along the Stone Creek – North project corridor rated as Category III wetlands, averaging 50% of the total possible score. Limitations of the AAs to achieve a greater rating may be principally associated with the high disturbance rating assigned for the general condition of most AAs. Disturbances within the AAs included highway right-of-way maintenance, cultivation, haying, grazing, and hydrologic alteration. Surrounding the AAs, cultivation, grazing, mowing, and high road density were common. Structural diversity was generally low, with only a handful of wetland areas supporting willow stands. The wetland areas adjacent to the highway mostly provided poor habitat for federally listed or proposed T&E plants or animals and MTNHP recognized Species of Concern. One AA (WL-18) contains a small population of beaked spikerush, identified as S3 SOC. The two AAs that included the Beaverhead River provide suspected incidental habitat for Westslope cutthroat trout and Arctic grayling. The great blue heron is suspected to incidentally use some AAs and was noted flying above the Beaverhead River outside the study area. Suitable golden eagle habitat is located around Beaverhead Rock with incidental habitat noted in some AAs close to this area. General wildlife habitat was typically moderate, with common occurrence of wildlife signs and individuals. The proximity to the active highway corridor likely limits wildlife usage. Fish habitat was present within five AAs and averaged a moderate rating when applicable.

One AA, WL-5, rated as a Category IV wetland and reflects the quality of this small, seasonal, roadside depression. The AA WW-3 (west), located between the Beaverhead River and Highway 41, rated as a Category II wetland and achieved high ratings for general fish/aquatic habitat, flood attenuation, short and long term surface water storage, sediment/nutrient/toxicant removal, sediment/shoreline stabilization, production export/food chain support, and groundwater recharge. The AA WW-3

(east), also located along the Beaverhead River, scored just shy of the 65% necessary for Category II rating. Aside from the AAs located directly along the Beaverhead River, recreation/education potential was considered not applicable for the wetland areas delineated along Stone Creek – North.

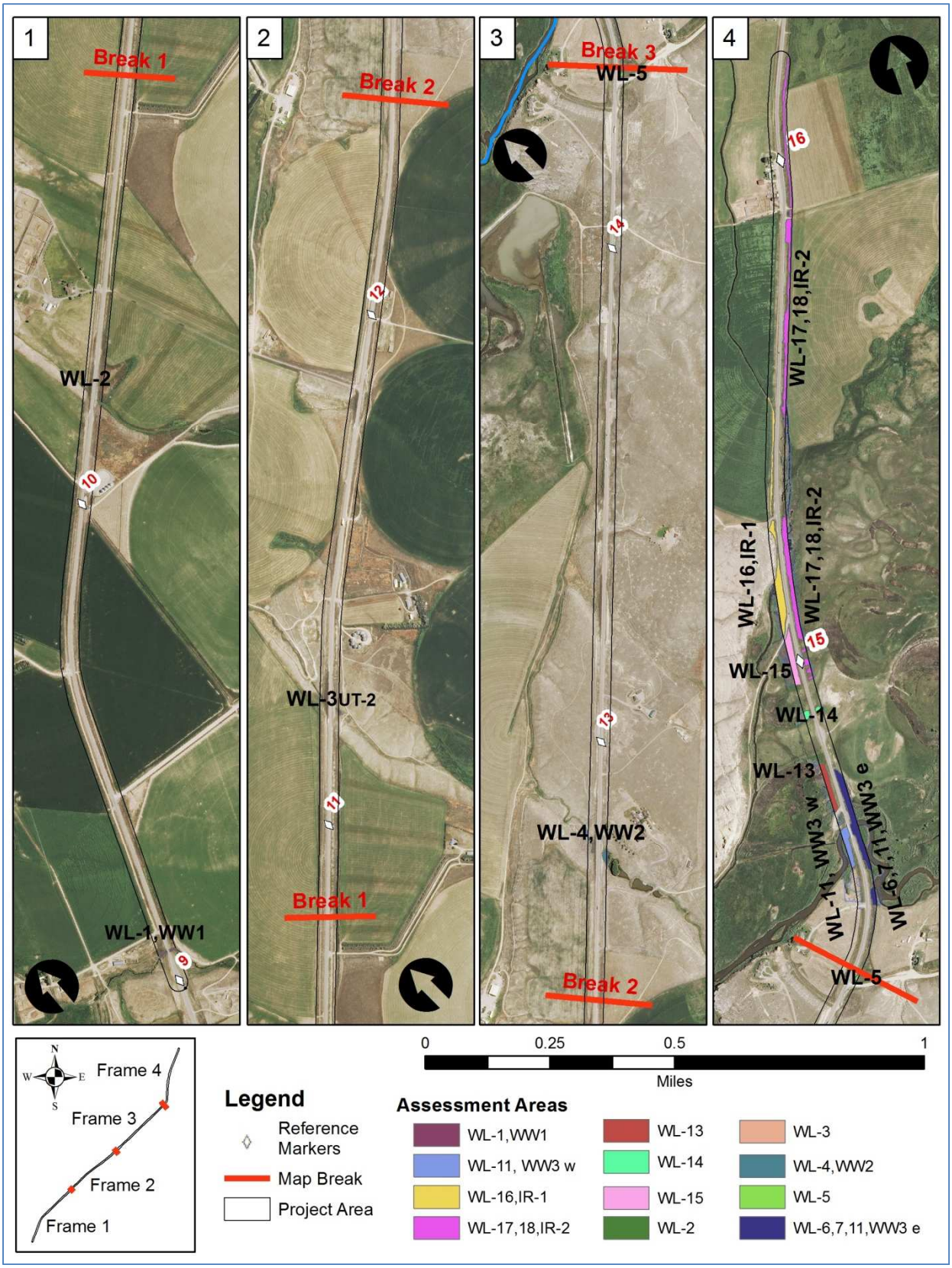


Figure 25. Location of Assessment Areas within the Stone Creek - North project area.

Table 11. Results of MWAM evaluations for Stone Creek - North project wetlands.

	Assessment Areas											
Function and Value Parameters 2008 MDT Montana Wetland Assessment Method	**WW-1**	**WL-2**	**WL-3**	**WW-2**	**WL-5**	**WW-3 (east)**	**WW-3 (west)**	**WL-13**	**WL-14**	**WL-15**	**WL-16**	**WL-18**
Wetlands and Waterways within Assessment Area	WL-1, WW-1	WL-2	WL-3	WL-4, WW-2	WL-5	WL-6, WL-7, WL-11, WW-3	WL-11, WW-3	WL-13	WL-14	WL-15	WL-16, IR-1	WL-17, WL-18, IR-2
Listed/Proposed T&E Species Habitat	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.1)	Low (0.1)	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)
MTNHP Species Habitat	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.1)	Low (0.1)	Low (0.0)	Low (0.1)	Low (0.1)	Low (0.0)	High (0.9)
General Wildlife Habitat	Low (0.3)	Mod (0.5)	Mod (0.5)	Mod (0.5)	Low (0.1)	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)	High (0.9)	Mod (0.7)	Mod (0.5)
General Fish/Aquatic Habitat	Mod (0.5)	NA	NA	NA	NA	High (0.9)	High (0.9)	NA	NA	NA	Mod (0.6)	Mod (0.5)
Flood Attenuation	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)	NA	High (0.8)	High (0.9)	NA	NA	NA	NA	High (1.0)
Short and Long Term Surface Water Storage	Low (0.3)	Low (0.2)	Low (0.2)	Low (0.2)	Low (0.3)	High (0.8)	High (0.8)	Low (0.3)	Low (0.3)	Mod (0.4)	High (0.8)	High (0.8)
Sediment/Nutrient/Toxicant Removal	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)	High (0.9)	High (0.9)	High (0.9)	High (1.0)	High (1.0)	High (1.0)	High (0.9)	Mod (0.5)
Sediment/Shoreline Stabilization	Mod (0.7)	Mod (0.6)	Low (0.2)	High (1.0)	NA	Mod (0.7)	High (1.0)	NA	NA	NA	High (1.0)	High (1.0)
Production Export/Food Chain Support	Mod (0.6)	Mod (0.5)	Mod (0.5)	Mod (0.7)	Low (0.2)	High (0.9)	High (0.9)	Low (0.3)	Mod (0.6)	Mod (0.6)	Mod (0.7)	Mod (0.7)
Groundwater Discharge/Recharge	High (1.0)	High (1.0)	High (1.0)	High (1.0)	Mod (0.7)	High (1.0)	High (1.0)	High (1.0)	Mod (0.7)	High (1.0)	High (1.0)	High (1.0)
Uniqueness	Low (0.2)	Low (0.1)	Low (0.1)	Low (0.2)	Low (0.1)	Low (0.2)	Low (0.2)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.2)
Recreation/Education Potential	NA	NA	NA	NA	NA	Mod (0.1)	Mod (0.1)	NA	NA	NA	NA	NA
Actual Points / Possible Points	**4.8 / 11**	**4.1 / 10**	**4.1 / 10**	**4.8 / 10**	**2.3 / 8**	**6.7 / 8**	**7.4 / 11**	**3.4 / 8**	**3.5 / 8**	**4.3 / 8**	**6.0 / 10**	**7.1 / 11**
% of Possible Score Achieved	**43.6%**	**41.0%**	**41.0%**	**48.0%**	**28.8%**	**63.6%**	**67.3%**	**42.5%**	**44%**	**54%**	**60.0%**	**64.6%**
Overall Category	**III**	**III**	**III**	**III**	**IV**	**III**	**II**	**III**	**III**	**III**	**III**	**III**
Total Acreage of Assessed Wetlands within Site Boundaries (ac)	**0.06**	**0.01**	**0.12**	**0.10**	**0.04**	**0.82**	**0.49**	**0.65**	**0.13**	**0.86**	**1.22**	**1.98**
Functional Units (acreage x actual points)	**0.29**	**0.04**	**0.49**	**0.48**	**0.09**	**5.74**	**3.63**	**2.21**	**0.46**	**3.70**	**7.32**	**14.06**

8.3.3. *Potential Wetland Impacts*

Any realignment or widening of the highway with adjacent wetland habitat will likely result in wetland impact. Minimal impacts to aquatic resources are anticipated from the start of the project at Stone Creek to approximately RM 14.40 where the road drops into the Beaverhead Valley. This reach of highway may include the replacement of the Stone Creek Bridge and culvert replacements at UT-1, UT-2, and UT-3. Existing wetland habitats become a design consideration from RM 14.40 to the northern end of the project. Of this approximate two-mile stretch of Highway 41, wetland habitat is present along one side of the road for 0.77 miles and present along both sides of the highway for 0.73 miles, totaling 1.5 miles of adjacent wetlands along this stretch of highway. The anticipated bridge replacement over the Beaverhead will have minimal impact to the streambed if designed and constructed to span the full width of the river. A slight alignment shift of the highway at the corner between RP 14.4 to 14.6 and over the Beaverhead River will likely impact existing wetlands. Although the overall quantity of wetlands impacted from an alignment shift across the river would probably be equal on either side (due to the symmetry of the delineated wetland boundary in this area, shifting the river crossing to the west may result in less impact to jurisdictional wetlands if the isolated wetland depression just north of the river within the road turnout is determined to be non-jurisdictional. A shift in this direction will also likely have less impact to the Beaverhead floodplain. It is anticipated that unavoidable wetland impacts will occur within the northern quarter of the site. An overlay of the projected footprint of the highway improvements with the surveyed wetland will provide a quantitative assessment of impact acreage.

8.3.4. *Avoidance/Minimization Recommended Conservation Measures*

Much of the wetland area in the northern portion of the project area is located at least twenty feet from the existing road edge. Mindful planning and design through areas with adjacent wetlands will result in minimal impact to aquatic resources. Some degree of wetland impact should be expected between RM 14.4 and the northern end of the project. The following bullets provide general guidance for avoiding and minimizing stream and wetland impacts and recommended conservation measures to protect aquatic resources.

- CWA Section 404, SPA 124, and MDEQ 318 permit conditions must be followed.
- Protect wetland and riparian areas with approved erosion control devices.
- Construction should be conducted when sites are as dry as possible to minimize erosion.
- Construction equipment should be restricted from wetland areas that have not been authorized on the permit and limited to the area needed to complete construction.
- Excavated soils should be stockpiled away from the river and wetland boundaries, and protected with erosion control measures.

- Store hazardous materials including petroleum compounds 100 feet from wetland and riparian areas in an area with spill protection.
- Any stream bank armoring designed to protect bridges from stream and river migration should be kept to the minimum length necessary.
- The new bridges should be designed to avoid placing artificial materials such as concrete abutments, riprap, and piers in the active channel and adjacent wetlands if possible.
- Placement of fill materials adjacent to the bridge and approaches should be minimized to protect riparian and wetland habitats adjacent to the river channel.
- Disturbed wetland and riparian areas should be revegetated with appropriate species using appropriate methods. Remove weed infestations before planting.
- If the Stone Creek – North project includes re-alignment over the Beaverhead River, a slight shift to the west may result in less wetland impact than an equivalent shift to the east.

8.3.5. *Permitting Required*

The 404 permit application will be based on the location and extent of wetland impacts, which will be determined once a grading plan has been finalized.

8.3.6. *Proposed Wetland Mitigation*

Mitigation will depend on the extent of wetland impacts within the study area. The impacts will be determined once the construction limits are finalized. Wetland impacts less than 0.10 acre do not require compensatory mitigation by the USACE. If wetland impacts exceed this threshold compensatory wetland mitigation will be required. The MDT developed the Beaverhead Gateway wetland mitigation site on private property in close proximity to the Stone Creek – North project in 1997 with the goal of creating at least 52 acres of wetland. This site was designed to mitigate for specific wetland functions impacted by MDT roadway projects, including: storm water retention, roadway runoff filtration, sediment and nutrient retention, water quality, groundwater recharge, waterfowl and wildlife habitats and riparian restoration. As of 2006, available credit calculated at the site was 92.7 aquatic habitat acres, well in excess of the original 52-acre goal. If credits from this site are still available, they could be used to satisfy any compensatory mitigation requirements of this project.

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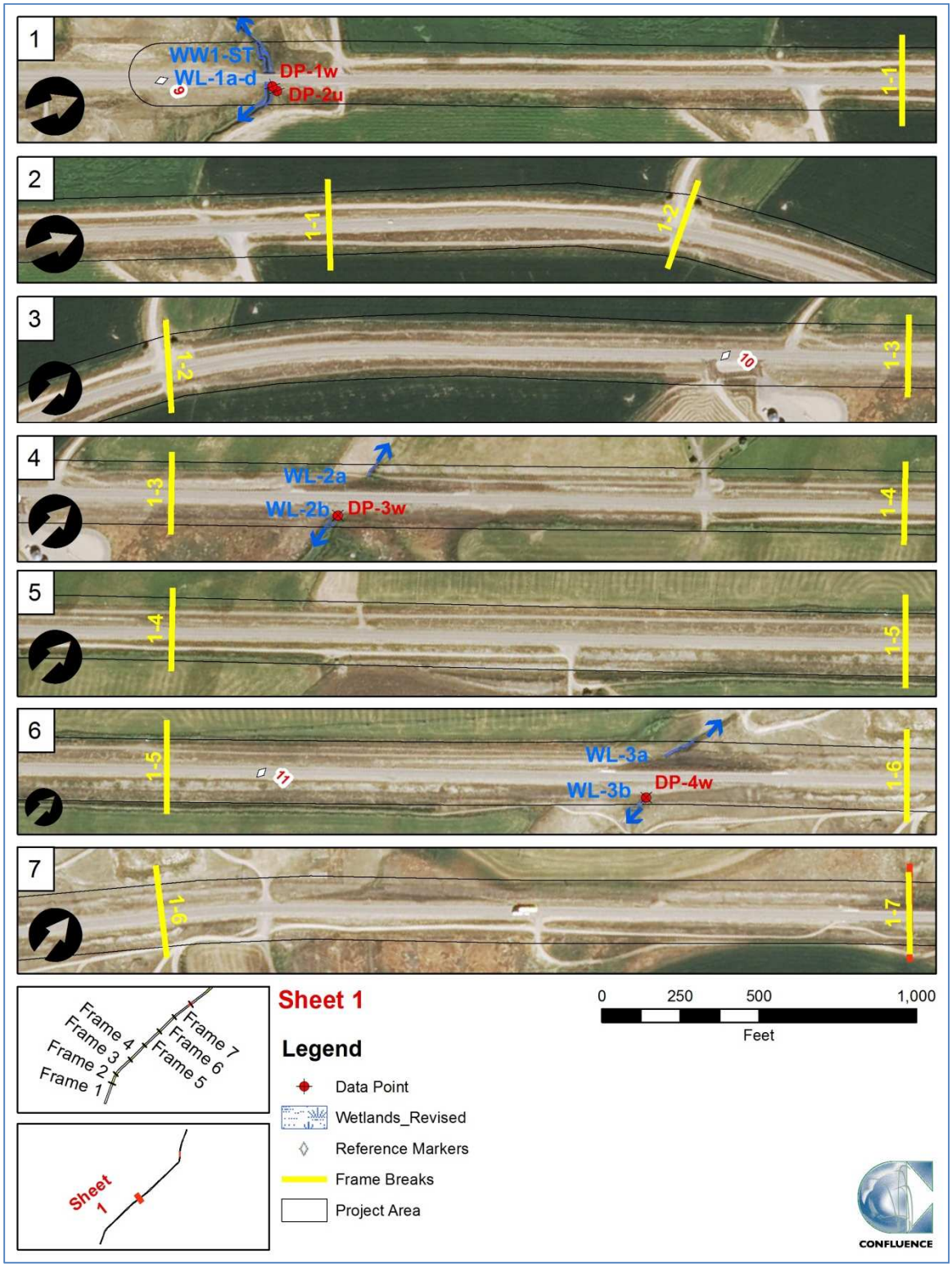
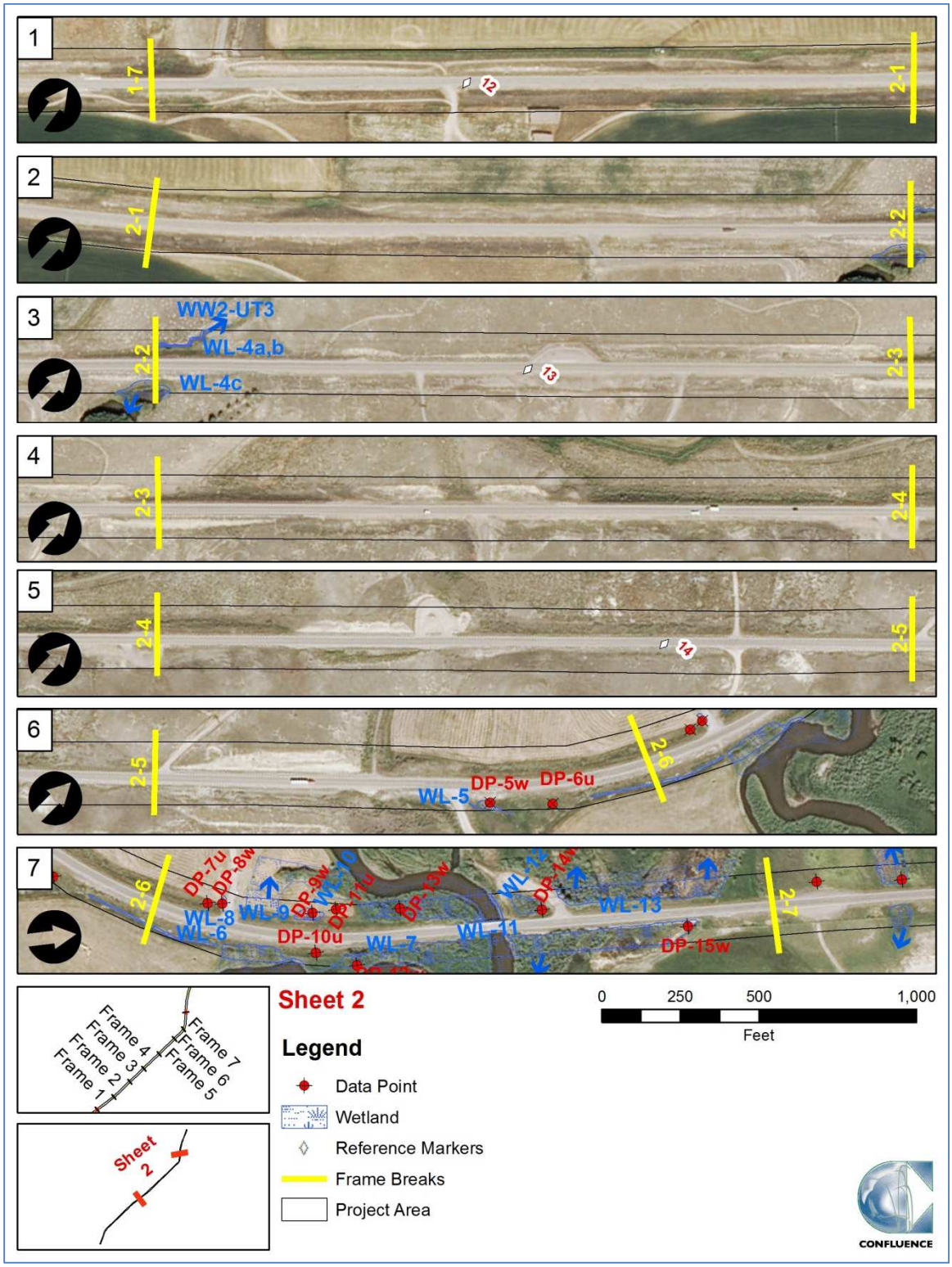
Appendix A

Wetland Maps

MDT Biological Resources Report
Stone Creek – North
Beaverhead and Madison Counties, Montana


1
WW1-ST
WL-1a-d
DP-1w
DP-2u
9
1-1
2
1-1
1-2
3
1-2
10
1-3
4
1-3
WL-2a
WL-2b
DP-3w
1-4
5
1-4
1-5
6
1-5
11
WL-3a
WL-3b
DP-4w
1-6
7
1-6
1-7
Frame 1
Frame 2
Frame 3
Frame 4
Frame 5
Frame 6
Frame 7
Sheet 1
Sheet 1
Legend
Data Point
Wetlands_Revised
Reference Markers
Frame Breaks
Project Area
0
250
500
1,000
Feet
CONFLUENCE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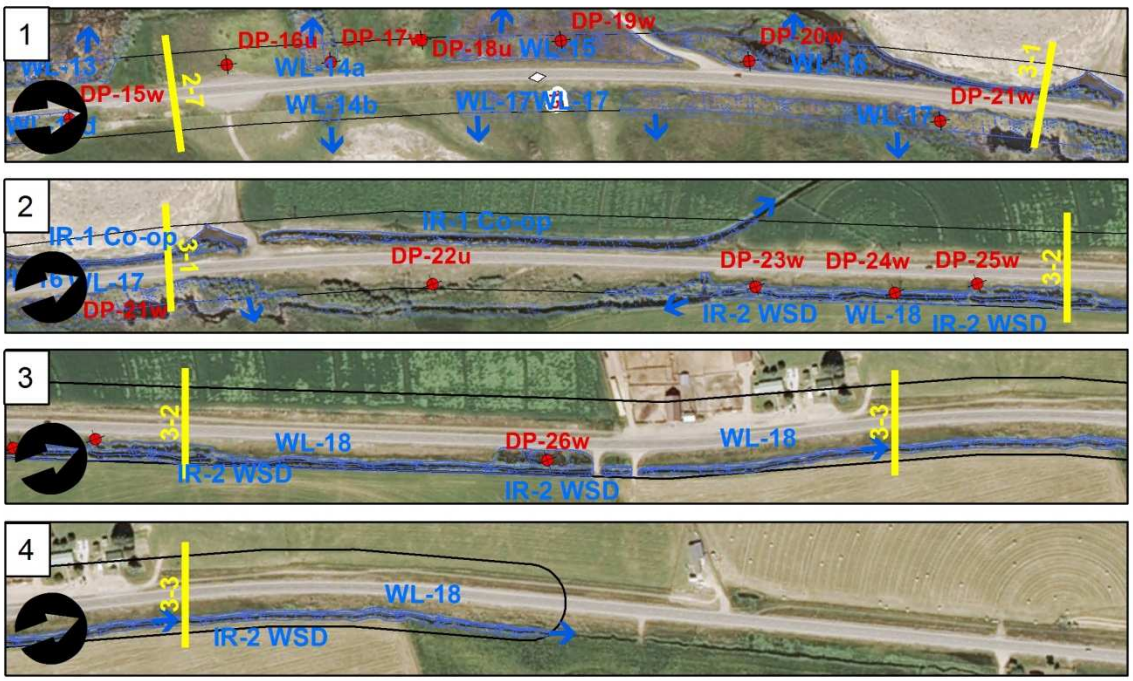
1-7
12
2-1
2
2-1
2-2
3
WW2-UT3
WL-4a,b
WL-4c
2-2
13
2-3
4
2-3
2-4
5
2-4
14
2-5
6
2-5
WL-5
DP-5w
DP-6u
2-6
7
2-6
DP-7u
DP-8w
WL-8
WL-9
WL-6
DP-10u
DP-9w
WL-10
DP-11u
DP-13w
WL-7
WL-11
WL-12
DP-14w
WL-13
DP-15w
2-7
Frame 1
Frame 2
Frame 3
Frame 4
Frame 5
Frame 6
Frame 7
Sheet 2
Sheet 2
Legend
Data Point
Wetland
Reference Markers
Frame Breaks
Project Area
0
250
500
1,000
Feet
CONFLUENCE



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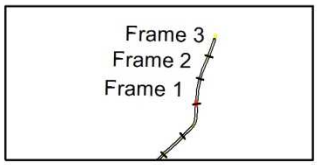
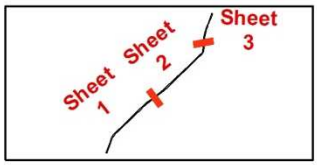




Sheet 3

Legend

- WetlandDPs
- Wetlands_Revised
- Reference Markers
- Frame Breaks
- Project Area

CONFLUENCE

Appendix B

USACE Wetland Determination Data Forms

MDT Wetland Mitigation Monitoring
Stone Creek – North
Beaverhead and Madison Counties, Montana

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/11/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-10u

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.3818716666667 | Long: -112.45301 | Datum: WGS84

Soil Map Unit Name: Havre loam | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:
DP well above water table and river level on abandoned terrace.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Juncus arcticus	20	☑	FACW
2. Equisetum hyemale	5	☐	FACW
3. Bromus inermis	75	☑	FAC
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	75	x 3 =	225
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		275 (B)

Prevalence Index = B/A = 2.75

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-10u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					Clay Loam	
5-12	10YR 4/2	95	10YR 2/2	5	D	M	Clay Loam	
12-16	10YR 5/2	99	10YR 3/4	1	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Soils appear to have been historically hydric, situated approx 6ft above water level in river. Area may receive seasonal groundwater from west side of highway.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No signs of wetland hydrology

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/11/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-11u

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.382225 | Long: -112.452808333333 | Datum: WGS84

Soil Map Unit Name: Havre loam | NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:
DP on upper river terrace, rarely flooded.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Bromus inermis	40	☑	FAC
2. Poa pratensis	30	☑	FAC
3. Agropyron intermedium	10	☐	UPL
4. Alopecurus arundinaceus	15	☐	FAC
5. Equisetum hyemale	5	☐	FACW
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	85	x 3 =	255
FACU species	0	x 4 =	0
UPL species	10	x 5 =	50
Column Totals:	100 (A)		315 (B)

Prevalence Index = B/A = 3.15

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-11u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/4	100					Silt Loam	
2-10	10YR 3/2	95	10YR 2/1	5	C	M	Clay Loam	
10-16	10YR 4/1	95	10YR 4/6	5	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No surface hydro indicator, area may have seasonal shallow groundwater. Minimal wetland hydrology present during growing season.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/11/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-12w

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.382225 | Long: -112.452808333333 | Datum: WGS84

Soil Map Unit Name: Rivra | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
DP on river terrace in active floodplain.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Prunus virginiana	5	☑	FACU
2.	0	☐	
3.	0	☐	
4.	0	☐	
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15ft)			
1. Salix exigua	40	☑	FACW
2. Rosa woodsii	5	☐	FACU
3. Elaeagnus angustifolia	5	☐	FAC
4.	0	☐	
5.	0	☐	
	50	= Total Cover	
Herb Stratum (Plot size: 5ft)			
1. Alopecurus arundinaceus	60	☑	FAC
2. Carex sp.	5	☐	NL
3. Cirsium arvense	5	☐	FAC
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	70	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.6667 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	70	x 3 =	210
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	120 (A)		330 (B)

Prevalence Index = B/A = 2.75

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-12w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	95	10YR 4/6	5	C	M	Sandy Loam	
8-14	10YR 3/2	95	10YR 4/4	5	C	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Soils with occasional deposition from river.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☑ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/11/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-13w

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.3826333333333 | Long: -112.453468333333 | Datum: WGS84

Soil Map Unit Name: Havre loam | NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:
DP along lower river terrace with periodic overbank flows and high water table during spring.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft)			
1. Salix exigua	30	☑	FACW
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	30 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Alopecurus arundinaceus	95	☑	FAC
2. Juncus arcticus	5	☐	FACW
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	95	x 3 =	285
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	130 (A)		355 (B)

Prevalence Index = B/A = 2.73077

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-13w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					Clay Loam	
5-10	10YR 4/2	95	10YR 4/4	5	C	M	Clay	
10-16	10YR 5/1	95	7.5YR 4/6	5	C	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Soils moist at 16in., seasonal high water table.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/11/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-14w

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Lowland | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.3838683333333 | Long: -112.4533 | Datum: WGS84

Soil Map Unit Name: Rivra | NWI classification: PSS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
DP in depression with shallow groundwater, surrounded by man-made upland grades.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft)			
1. Salix exigua	35	☑	FACW
2. Ribes inerme	10	☐	FAC
3. Cornus alba	10	☐	UPL
4.	0	☐	
5.	0	☐	
	55 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Phalaris arundinacea	90	☑	FACW
2. Bromus inermis	5	☐	FAC
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	95 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	125	x 2 =	250
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	10	x 5 =	50
Column Totals:	150 (A)		345 (B)

Prevalence Index = B/A = 2.3

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-14w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/4	100					Clay Loam	
8-16	10YR 5/2	95	10YR 4/6	5	C	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 10

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Closed depression with shallow groundwater.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/11/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-15w

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.3913116666667 | Long: -112.452183333333 | Datum: WGS84

Soil Map Unit Name: Rivra, cool-Fluvaquents complex | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
DP in emergent wetland, not mapped as wetland by NWI.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Alopecurus pratensis	60	☑	FAC
2. Ranunculus cymbalaria	5	☐	OBL
3. Eleocharis palustris	5	☐	OBL
4. Polygonum sp.	2	☐	NL
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	72 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	70 (A)		190 (B)

Prevalence Index = B/A = 2.71429

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-15w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Silty Clay	
6-13	N 4/	95	10YR 3/4	5	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☑ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 12

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Beaverhead Co | Sampling Date: 6/12/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-16u

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Lowland | Local relief (concave, convex, none): flat | Slope (%): 1.74

Subregion (LRR): LRR E | Lat: 45.3862733333333 | Long: -112.453295 | Datum: WGS84

Soil Map Unit Name: Villy silty clay loam | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:
DP along slight, subtle rise in topo. Although hydrophytic community indicated, veg com is smooth brome, greasewood, & basin wild rye.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Bromus inermis	90	☑	FAC
2. Cirsium arvense	5	☐	FAC
3. Asclepias speciosa	5	☐	FAC
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:
Adjacent species in same community indicitive of upland community.

SOIL

Sampling Point: DP-16u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					Loam	
5-12	10YR 4/2	100					Silty Clay Loam	
12-16	10YR 6/1	95	10YR 6/2	5	C	M	Sandy Loam	Very faint redox at 14in.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ **No** ☑

Remarks:

Redox below 12in.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ **No** ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Infrequent and short duration high water table, no signs of surface hydro.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/12/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-17w

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.3870166666667 | Long: -112.453295 | Datum: WGS84

Soil Map Unit Name: Villy silty clay loam | NWI classification: PSS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
DP in cattail/willow depression, culvert under road at drain point.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft)			
1. Ribes inerme	5	☐	FAC
2. Salix exigua	45	☑	FACW
3.	0	☐	
4.	0	☐	
5.	0	☐	
	50 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Asclepias speciosa	5	☐	FAC
2. Carex utriculata	45	☑	OBL
3. Schoenoplectus acutus	5	☐	OBL
4. Cirsium arvense	5	☐	FAC
5. Urtica dioica	1	☐	FAC
6. Typha latifolia	40	☑	OBL
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	101 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	45	x 2 =	90
FAC species	16	x 3 =	48
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	151 (A)		228 (B)

Prevalence Index = B/A = 1.50993

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-17w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					Clay Loam	
10-16	10YR 4/2	95	10YR 3/3	5	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☑ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 12

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/12/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-18u

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Valley bottom | Local relief (concave, convex, none): convex | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.3876816666667 | Long: -112.453533333333 | Datum: WGS84

Soil Map Unit Name: Villy silty clay loam | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:
DP in upland on slight rise above adjacent wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft)			
1. Sarcobatus vermiculatus	25	☑	FACU
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	25 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Cardaria draba	25	☑	UPL
2. Poa pratensis	20	☑	FAC
3. Bromus inermis	40	☑	FAC
4. Glycyrrhiza lepidota	10	☐	FAC
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	95 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.5 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	70	x 3 =	210
FACU species	25	x 4 =	100
UPL species	25	x 5 =	125
Column Totals:	120 (A)		435 (B)

Prevalence Index = B/A = 3.625

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: DP-18u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/3	100					Clay Loam	
6-12	10YR 4/3	100					Clay	
12-16	10YR 4/2	100					Clay	No redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No surface hydro indicators

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/13/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-19w

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Valley bottom | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.3886633333333 | Long: -112.45332 | Datum: WGS84

Soil Map Unit Name: Villy silty clay loam | NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
DP in bulrush/cattail com, saturated soil surface.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Schoenoplectus acutus	80	☑	OBL
2. Typha latifolia	20	☑	OBL
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		100 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-19w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	97	10YR 3/4	3	C	M	Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☑ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☑ No ☐ Depth (inches): 3

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/11/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-1w

Investigator(s): B Sandefur | Section, Township, Range: S 12 T 6S R 8W

Landform (hillslope, terrace, etc.): Shoreline | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.32306 | Long: -112.526928333333 | Datum: WGS84

Soil Map Unit Name: Havre-Glendive complex | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
DP in approx 5ft wide emergent riparian wetland along Stone Creek.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Alopecurus arundinaceus	90	☑	FAC
2. Veronica anagallis-aquatica	5	☐	OBL
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	95 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	0	x 2 =	0
FAC species	90	x 3 =	270
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		275 (B)

Prevalence Index = B/A = 2.89474

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-1w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100					Clay Loam	
4-12	10YR 3/1	97	10YR 4/6	3	C	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Soil rocky at 12in

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☑ No ☐ Depth (inches): 2

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/13/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-20w

Investigator(s): B Sandefur | Section, Township, Range: S T R

Landform (hillslope, terrace, etc.): Valley bottom | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.3899916666667 | Long: -112.452951666667 | Datum: WGS84

Soil Map Unit Name: Villy silty clay loam | NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:
DP in common reed veg community, surface water present in lowest depressions.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Phragmites australis	95	☑	FACW
2. Schoenoplectus acutus	5	☐	OBL
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	95	x 2 =	190
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		195 (B)

Prevalence Index = B/A = 1.95

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-20w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	97	10YR 3/4	3	C	PL	Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☑ No ☐ Depth (inches): 3

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/13/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-21w

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.3913116666667 | Long: -112.452183333333 | Datum: WGS84

Soil Map Unit Name: Villy silty clay loam | NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
DP in emergent wetland dominated by eleocharis community.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Agrostis gigantea	5	☐	FAC
2. Eleocharis palustris	90	☑	OBL
3. Schoenoplectus acutus	3	☐	OBL
4. Epilobium ciliatum	2	☐	FACW
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	93	x 1 =	93
FACW species	2	x 2 =	4
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		112 (B)

Prevalence Index = B/A = 1.12

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-21w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 2

Water Table Present? Yes ☑ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/13/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-22u

Investigator(s): B Sandefur | Section, Township, Range: S 15 T 5S R 7W

Landform (hillslope, terrace, etc.): Valley bottom | Local relief (concave, convex, none): flat | Slope (%): 36.3

Subregion (LRR): LRR E | Lat: 45.3937816666667 | Long: -112.451185 | Datum: WGS84

Soil Map Unit Name: Villy silty clay loam | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:
DP in scrub/shrub upland outside direct influence of irrigation canal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft)			
1. Salix exigua	70	☑	FACW
2. Sarcobatus vermiculatus	10	☐	FACU
3.	0	☐	
4.	0	☐	
5.	0	☐	
	80 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Cardaria draba	25	☑	UPL
2. Bromus inermis	30	☑	FAC
3. Poa pratensis	30	☑	FAC
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	85 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	60	x 3 =	180
FACU species	10	x 4 =	40
UPL species	25	x 5 =	125
Column Totals:	165 (A)		485 (B)

Prevalence Index = B/A = 2.93939

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-22u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100					Clay Loam	
6-12	10YR 4/3	100					Clay Loam	
12-17	10YR 4/2	100					Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ **No** ☑

Remarks:

Ca accumulation below 12in., no redox in upper 12in of soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ **No** ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No surface hydro indicator, water table ~4ft below surface

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/13/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-23w

Investigator(s): B Sandefur | Section, Township, Range: S 15 T 5S R 7W

Landform (hillslope, terrace, etc.): Shoreline | Local relief (concave, convex, none): flat | Slope (%): 36.3

Subregion (LRR): LRR E | Lat: 45.3960033333333 | Long: -112.450288333333 | Datum: WGS84

Soil Map Unit Name: Villy silty clay loam | NWI classification: PSS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
DP in scrub/shrub wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15ft)			
1. Salix exigua	85	☑	FACW
2. Rosa multiflora	10	☐	FACU
3.	0	☐	
4.	0	☐	
5.	0	☐	
	95 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Bromus inermis	20	☑	FAC
2. Poa pratensis	15	☑	FAC
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	35 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	85	x 2 =	170
FAC species	35	x 3 =	105
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	130 (A)		315 (B)

Prevalence Index = B/A = 2.42308

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-23w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	95	10YR 4/6	5	C	M	Clay Loam	
6-12	10YR 4/2	95	10YR 4/6	5	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/13/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-24w

Investigator(s): B Sandefur | Section, Township, Range: S 15 T 5S R 7W

Landform (hillslope, terrace, etc.): Shoreline | Local relief (concave, convex, none): flat | Slope (%): 36.3

Subregion (LRR): LRR E | Lat: 45.3969166666667 | Long: -112.44987 | Datum: WGS84

Soil Map Unit Name: Havre loam | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:
DP in narrow wetland margin along irrigation ditch.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Asclepias speciosa	5	☐	FAC
2. Alopecurus arundinaceus	65	☑	FAC
3. Scirpus microcarpus	5	☐	OBL
4. Eleocharis palustris	5	☐	OBL
5. Glycyrrhiza lepidota	2	☐	FAC
6. Poa pratensis	20	☐	FAC
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	102 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	0	x 2 =	0
FAC species	92	x 3 =	276
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	102 (A)		286 (B)

Prevalence Index = B/A = 2.80392

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-24w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					Clay Loam	
5-12	10YR 4/2	95	10YR 4/4	5	C	M	Clay	
12-16	10YR 4/1	95	10YR 4/4	5	D	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 12

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydro strictly from irrigation canal

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/13/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-25w

Investigator(s): B Sandefur | Section, Township, Range: S 15 T 5S R 7W

Landform (hillslope, terrace, etc.): Valley bottom | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.3975 | Long: -112.449598333333 | Datum: WGS84

Soil Map Unit Name: Havre loam | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
DP at head of wetland, small berm controls any further upgradient inundation.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Poa pratensis	20	☑	FAC
2. Typha latifolia	45	☑	OBL
3. Alopecurus arundinaceus	10	☐	FAC
4. Asclepias speciosa	2	☐	FAC
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	77 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	45	x 1 =	45
FACW species	0	x 2 =	0
FAC species	32	x 3 =	96
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	77 (A)		141 (B)

Prevalence Index = B/A = 1.83117

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-25w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/2	95	10YR 3/4	5	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Soil sampled in water, depth to 10in

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☑ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Hydro from adj irr dirch, headgates control inundation/sat in wetland.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/13/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-26w

Investigator(s): B Sandefur | Section, Township, Range: S 15 T 5S R 7W

Landform (hillslope, terrace, etc.): Valley bottom | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.400525 | Long: -112.447993333333 | Datum: WGS84

Soil Map Unit Name: Havre loam | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
DP along irrigation canal, inundated from backwater/headgate.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Rumex crispus	15	☐	FAC
2. Alopecurus arundinaceus	40	☑	FAC
3. Plantago major	5	☐	FAC
4. Poa pratensis	25	☑	FAC
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	85 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	85	x 3 =	255
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	85 (A)		255 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-26w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	97	10YR 3/4	3	C	M	Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 2

Water Table Present? Yes ☑ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/10/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-2u

Investigator(s): B Sandefur | Section, Township, Range: S 12 T 6S R 8W

Landform (hillslope, terrace, etc.): Lowland | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.3230233333333 | Long: -112.52683 | Datum: WGS84

Soil Map Unit Name: Havre-Glendive complex | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:
DP approx 20ft from Stone Creek in upland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Ambrosia sp.	80	☑	NL
2. Sisymbrium altissimum	5	☐	FACU
3. Bassia scoparia	5	☐	FAC
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	90 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	10 (A)		35 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: DP-2u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/4	100					Silt Loam	
6-14	10YR 5/3	100					Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No redox in upper 14in.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Outside influence of Stone Creek water table, potentially with occasional flooding of very short duration.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Beaverhead | Sampling Date: 6/10/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-3w

Investigator(s): B Sandefur | Section, Township, Range: S 6 T 6S R 7W

Landform (hillslope, terrace, etc.): Gulch or Gully | Local relief (concave, convex, none): concave | Slope (%): 1.74

Subregion (LRR): LRR E | Lat: 45.3369216666667 | Long: -112.515448333333 | Datum: WGS84

Soil Map Unit Name: Kalsted-Scravo, stony Cabbart complex | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
DP in 2ft wide swale with very narrow wetland buffer.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Alopecurus arundinaceus	100	☑	FAC
2. Ranunculus sp.	1	☐	NL
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	101 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-3w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/3	100					Sandy Loam	
7-14	10YR 6/2	97	10YR 4/4	3	C	M	Sandy Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☑ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Beaverhead Co | Sampling Date: 6/10/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-4w

Investigator(s): B Sandefur | Section, Township, Range: S 6 T 6S R 7W

Landform (hillslope, terrace, etc.): Gulch or Gully | Local relief (concave, convex, none): concave | Slope (%): 1.74

Subregion (LRR): LRR E | Lat: 45.348135 | Long: -112.500255 | Datum: WGS84

Soil Map Unit Name: Crago-Scravo complex | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
DP in gully below headgate.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Poa pratensis	10	☐	FAC
2. Alopecurus arundinaceus	90	☑	FAC
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-4w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					Loam	
2-10	10YR 5/2	97	10YR 4/4	3	C	M	Clay Loam	
10-16	10YR 6/2	95	10YR 4/6	5	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☑ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☑ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Gully dry during investigation.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/11/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-5w

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Lowland | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.379255 | Long: -112.454751666667 | Datum: WGS84

Soil Map Unit Name: Havre loam | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
DP in shallow depression, historically maintained as wetland by irrigation ditch, no longer active. Occasional flooding during high flows.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Juncus arcticus	5	☐	FACW
2. Alopecurus arundinaceus	45	☑	FAC
3. Bromus inermis	35	☑	FAC
4. Schoenoplectus acutus	10	☐	OBL
5. Rumex crispus	3	☐	FAC
6. Chenopodium album	2	☐	FACU
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	5	x 2 =	10
FAC species	83	x 3 =	249
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	100 (A)		277 (B)

Prevalence Index = B/A = 2.77

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-5w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					Clay Loam	
5-14	10YR 5/2	95	10YR 4/6	5	C	M	Silty Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Soil gleyed below 14in

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 12

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No surface hydro, area with shallow groundwater.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/11/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-6u

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Lowland | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.3796466666667 | Long: -112.454215 | Datum: WGS84

Soil Map Unit Name: Havre loam | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:
DP on slight rise above adjacent wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Bromus inermis	65	☑	FAC
2. Poa pratensis	25	☑	FAC
3. Vicia sativa	5	☐	UPL
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	95 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	90	x 3 =	270
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	95 (A)		295 (B)

Prevalence Index = B/A = 3.10526

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-6u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3	100					Silty Clay	
2-8	10YR 3/2	100					Clay	
8-14	10YR 4/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Redox below 14in, none with 12in of soil surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No direct hydro souce, groundwater table appear to be around 5ft below surface based on adjacent topographic evidence.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/11/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-7u

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Shoreline | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.3810366666667 | Long: -112.453713333333 | Datum: WGS84

Soil Map Unit Name: Havre loam | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:
DP at edge of bluegrass/brome hay field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Bromus inermis	70	☑	FAC
2. Poa pratensis	20	☐	FAC
3. Equisetum hyemale	3	☐	FACW
4. Juncus arcticus	10	☐	FACW
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	103 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	13	x 2 =	26
FAC species	90	x 3 =	270
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	103 (A)		296 (B)

Prevalence Index = B/A = 2.87379

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-7u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	95	7.5YR 5/1	5	D	M	Clay Loam	
6-14	10YR 4/2	95	10YR 5/1	5	D	M	Sandy Clay	
14-18	10YR 3/2	97	10YR 4/6	3	C	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Redox below 14in in sand layer, calcium deposits light color in darker matrix

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area sub-irrigated with groundwater table within 4ft.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/13/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-8w

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Shoreline | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.38113 | Long: -112.453635 | Datum: WGS84

Soil Map Unit Name: Havre loam | NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
DP in depression with shallow seasonal ground water, along low gradient of adjacent hay field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Chenopodium album	5	☑	FACU
2. Equisetum hyemale	3	☑	FACW
3. Descurainia sophia	3	☑	UPL
4. Bromus inermis	5	☑	FAC
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	16 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 85

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.5 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	3	x 2 =	6
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	3	x 5 =	15
Column Totals:	11 (A)		41 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-8w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					Silty Clay	
5-8	10YR 4/1	95	10YR 4/4	5	C	M	Clay	
8-14	10YR 5/2	95	10YR 4/6	5	C	M	Sandy Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Stone Creek - North | City/County: Madison Co | Sampling Date: 6/11/2013

Applicant/Owner: MDT | State: MT | Sampling Point: DP-9w

Investigator(s): B Sandefur | Section, Township, Range: S 22 T 5S R 7W

Landform (hillslope, terrace, etc.): Lowland | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR E | Lat: 45.3818716666667 | Long: -112.453501666667 | Datum: WGS84

Soil Map Unit Name: Havre loam | NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
DP in small depression with seasonal shallow ground water.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5ft)			
1. Juncus arcticus	20	☑	FACW
2. Alopecurus arundinaceus	25	☑	FAC
3. Agrostis gigantea	5	☐	FAC
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	50 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	50 (A)		130 (B)

Prevalence Index = B/A = 2.6

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-9w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/3	100					Silt Loam	
2-5	10YR 3/2	95	10YR 2/1	5	D	M	Clay Loam	
5-12	10YR 4/1	95	10YR 4/6	5	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C

Photographs of Wetlands and Relevant Sites

MDT Wetland Mitigation Monitoring
Stone Creek – North
Beaverhead and Madison Counties, Montana

Photo 1
Desc: Stone Creek crossing at Highway 41.

Photo 2
Desc: Grade control and eroding bank downstream of Hwy 41.

Photo 3
Desc: Narrow riparian zone along Stone Creek upstream of Hwy 41.

Photo 4
Desc: Short reach with willow cover on Stone Creek.

Photo 5
Desc: Culvert on Stone Creek upstream of Hwy 41.

Photo 6
Desc: Check structure, pump, and culvert on Stone Creek.

Photo 7
Desc: Unnamed spring creek culvert beneath Hwy 41.

Photo 8
Desc: Impoundments on unnamed spring creek upstream of Hwy 41.

Photo 9
Desc: Impoundment #2 on unnamed spring creek.

Photo 10
Desc: Unnamed spring riparian corridor downstream of Hwy 41.

Photo 11
Desc: Narrow riparian corridor and channelized reach downstream of Hwy 41.

Photo 12
Desc: Hwy 41 bridge over Beaverhead River.

Photo 13
Desc: Concrete and steel abutments and piers from former river crossing.

Photo 14
Desc: Drain ditch entering Beaverhead River.

Photo 15
Desc: Vegetated riparian corridor adjacent to Hwy 41 Bridge.

Photo 16
Desc: Riprap along left bank of Beaverhead River.

Photo 17
Desc: Riparian vegetation clearing downstream of Hwy 41.

Photo 18
Desc: Bank sloughing on Beaverhead River downstream of Hwy 41.

Photo 19 **Bearing:** E **Location:** ~RM 14.8
Desc: Wetland determination data point BH-1w.

Photo 20 **Bearing:** SW **Location:** ~RM 14.8
Desc: Wetland determination data point BH-1u.

Photo 21 **Bearing:** W **Location:** ~RM 15.0
Desc: Wetland determination data point BH-2w.

Photo 22 **Bearing:** SE **Location:** ~RM 15.0
Desc: Wetland determination data point BH-2u.

Photo 23 **Bearing:** W **Location:** ~RM 15.1
Desc: Wetland determination data point BH-3w.

Photo 24 **Bearing:** SE **Location:** ~RM 15.9
Desc: Wetland determination data point BH-4w.

Photo 25 **Bearing:** N **Location:** ~RM 15.7
Desc: Wetland determination data point BH-5w.

Photo 26 **Bearing:** SE **Location:** ~RM 15.6
Desc: Wetland determination data point BH-6w.

Photo 27 **Bearing:** E **Location:** ~RM 15.5
Desc: Wetland determination data point BH-7w.

Photo 28 **Bearing:** NE **Location:** ~RP 15.4
Desc: Wetland determination data point BH-7u.

Photo 29 **Bearing:** SW **Location:** ~RM 15.2
Desc: Wetland determination data point BH-8w.

Photo 30 **Bearing:** NW **Location:** ~RM 14.8
Desc: Wetland determination data point BH-9w.

Photo 31 **Bearing:** W **Location:** ~RM 14.7
Desc: Wetland determination data point BH-10w.

Photo 32 **Bearing:** E **Location:** ~RM 14.5
Desc: Wetland determination data point BH-11w.

Photo 33 **Bearing:** S **Location:** ~RM 14.5
Desc: Wetland determination data point BH-11u.

Photo 34 **Bearing:** SW **Location:** ~RM 14.4
Desc: Wetland determination data point BH-12w.

Photo 35 **Bearing:** S **Location:** ~RM 14.4
Desc: Wetland determination data point BH-12u.

Photo 36 **Bearing:** E **Location:** ~RM 14.6
Desc: Wetland determination data point BH-13w.

Photo 37 **Bearing:** NE **Location:** ~RM 14.6
Desc: Wetland determination data point BH-13u.

Photo 38 **Bearing:** SE **Location:** ~RM 14.6
Desc: Wetland determination data point BH-14w.

Photo 39 **Bearing:** N **Location:** ~RM 14.6
Desc: Wetland determination data point BH-14u.

Photo 40 **Bearing:** N **Location:** ~RM 14.5
Desc: Wetland determination data point BH-15w.

Photo 41 **Bearing:** SE **Location:** ~RM 10.2
Desc: Wetland determination data point UT-1w.

Photo 42 **Bearing:** SE **Location:** ~RM 11.2
Desc: Wetland determination data point UT-2w.

Photo 43 **Bearing:** SW **Location:** ~RM 9.0
Desc: Wetland determination data point ST-1w.

Photo 44 **Bearing:** SW **Location:** ~RM 9.0
Desc: Wetland determination data point ST-1u.

Photo 45 **Bearing:** SW **Location:** RM 13.7
Desc: High wildlife-vehicle collision area deemed unsuitable for potential wildlife underpass based on topography.

Photo 46 **Bearing:** S **Location:** ~RM 15.5
Desc: High wildlife-vehicle collision area deemed unsuitable for potential wildlife underpass based on hydrology.

Photo 47 **Bearing:** N **Location:** RM 11.2
Desc: Most suitable location for a potential wildlife underpass identified at UT-2.

Photo 48 **Bearing:** N **Location:** RM 10.2
Desc: Potential wildlife underpass location at UT-1.

Photo 49 **Bearing:** W **Location:** RM 9.02
Desc: Potential location for wildlife underpass, could be incorporated into Stone Creek Bridge design.

Photo 50 **Bearing:** W **Location:** ~RM 15.2
Desc: Beaked spikerush population identified along study area boundary in irrigation canal.

Photo 51 **Bearing:** S **Location:** ~RM 15.2
Desc: Beaked spikerush population identified along study area boundary in irrigation canal.

Appendix D

2008 MDT Montana Wetland Assessment Forms

MDT Biological Resources Report
Stone Creek – North
Beaverhead and Madison Counties, Montana

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Stone Creek - North **2. MDT project#** STPP49-1(25)9 **Control#** 7931000

3. Evaluation Date 6/13/2013 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** WL-13

6. Wetland Location(s): **T** 5S **R** 7W **Sec1** 22 **T** **R** **Sec2**

Approx Stationing or Mileposts RP 14.72

Watershed 10020002 **Watershed/County** Beaverhead River, Madison Co. Upper Missouri

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 0.65

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☑ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 0.65

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☐ **Mitigation Wetlands: post construction**

☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Depressional	Emergent Wetland		Seasonal/Intermittant	50
Depressional	Scrub-Shrub Wetland		Seasonal/Intermittant	50

11. Estimated Relative Abundance Common

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is <=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <=15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc)

Adjacent to highway, AA did not appear grazed or impaired

ii. Prominent noxious, aquatic nuisance, other exotic species:

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

AA in historic ox bow with seasonal hydrology. Surrounding land uses include highway corridor and ag.

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments: Scrub-shrub, emergent

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L

Sources for documented use USFWS T&E list by county

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ○ D ○ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use MTNHP SOC report

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence):

Moderate

Substantial (based on any of the following [check]):

- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- ☐ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☑ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 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 (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Low
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☑ **NA** here and proceed to 14E.)

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity ***or*** *is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support,* ***or*** *do aquatic nuisance plant or animal species (see* ***Appendix E****) occur in fish habitat?* **Y** ◯ **N** ◉ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating**

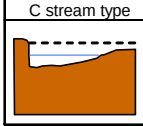
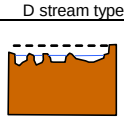
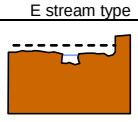
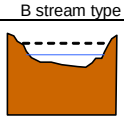
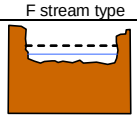
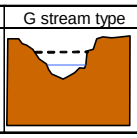
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

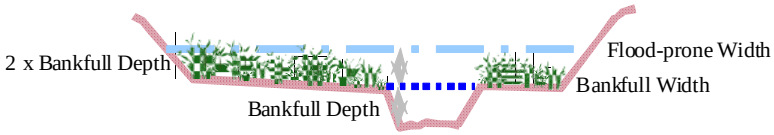
iii. Final Score and Rating: 0 NA **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☑ **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodrpone width / **Bankfull width** = **Entrenchment ratio**

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? **Y** ◯ **N** ◉

Comments:

14F. Short and Long Term Surface Water Storage: (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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, click ☑ **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of ≥6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ○ **N** ◉ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .3L

Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☑ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☐ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☑ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ○ **N** ◉ (if 'Yes' continue with the evaluation; if 'No' then click ☑ **NA** here and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ☐ Educational/scientific study; ☐ Consumptive rec.; ☐ Non-consumptive rec.; ☐ Other

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): WL-13

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	☐
B. MT Natural Heritage Program Species Habitat	L	0	1	0	☐
C. General Wildlife Habitat	M	.5	1	0.325	☐
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	NA	0	0	0	☐
F. Short and Long Term Surface Water Storage	L	.3	1	0.195	☐
G. Sediment/Nutrient/Toxicant Removal	H	1	1	0.65	☐
H. Sediment/Shoreline Stabilization	NA	0	0	0	☐
I. Production Export/Food Chain Support	L	.3	1	0.195	☐
J. Groundwater Discharge/Recharge	H	1	1	0.65	☐
K. Uniqueness	L	.3	1	0.195	☐
L. Recreation/Education Potential (bonus points)	NA	0	NA	0	☐
Totals:		3.4	8	2.21	
Percent of Possible Score			**42.5** %		

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

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

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

☑

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

OVERALL ANALYSIS AREA RATING:
(check appropriate category based on the criteria outlined above)

I	II	III	IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Stone Creek - North **2. MDT project#** STPP49-1(25)9 **Control#** 7931000

3. Evaluation Date 6/11/2013 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** WL-14

6. Wetland Location(s): **T** 5S **R** 7W **Sec1** 22 **T** **R** **Sec2**

Approx Stationing or Mileposts RP 14.90

Watershed 10020002 **Watershed/County** Beaverhead River, Madison Co. Upper Missouri

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 0.13

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☑ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 0.13

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☐ **Mitigation Wetlands: post construction**

☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Depressional	Emergent Wetland		Seasonal/Intermittant	50
Depressional	Scrub-Shrub Wetland		Seasonal/Intermittant	50

11. Estimated Relative Abundance Common

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is <=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <=15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc)

Adjacent to Highway 41

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

AA in historic ox bow in highway right-of-way, grazing to west of AA.

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments: Both emergent and shrub habitats present

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L

Sources for documented use USFWS T&E list by county

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ○ D ◉ S Golden Eagle

No usable habitat ☐ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use MTNHP SOC report

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence):

Moderate

Substantial (based on any of the following [check]):

- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- ☑ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☐ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 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 (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Low
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☑ **NA** here and proceed to 14E.)

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
*a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity **or** is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, **or** do aquatic nuisance plant or animal species (see **Appendix E**) occur in fish habitat?* **Y** ◯ **N** ◉ *If yes, reduce score in **i** above by 0.1:* **Modified Rating**

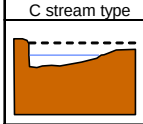
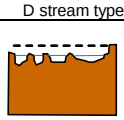
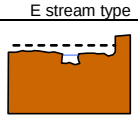
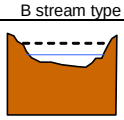
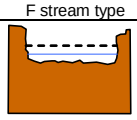
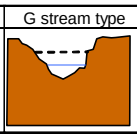
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in **i** or **iia** above:*
Modifed Rating

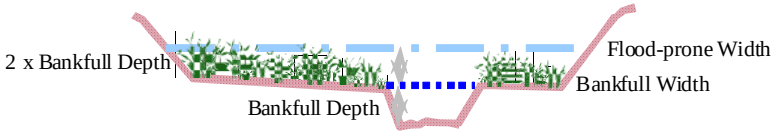
iii. Final Score and Rating: 0 NA **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☑ **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodrpone width / **Bankfull width** = **Entrenchment ratio**

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? **Y** ◯ **N** ◉

Comments:

14F. Short and Long Term Surface Water Storage: (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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, click ☑ **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of ≥6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ◉ **N** ○ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .6M

Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☐ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☑ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ◯ **N** ◉ (if 'Yes' continue with the evaluation; if 'No' then click ☑ **NA** here and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ☐ Educational/scientific study; ☐ Consumptive rec.; ☐ Non-consumptive rec.; ☐ Other

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): WL-14

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	☐
B. MT Natural Heritage Program Species Habitat	L	.1	1	0.013	☐
C. General Wildlife Habitat	M	.5	1	0.065	☑
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	NA	0	0	0	☐
F. Short and Long Term Surface Water Storage	L	.3	1	0.039	☐
G. Sediment/Nutrient/Toxicant Removal	H	1	1	0.13	☑
H. Sediment/Shoreline Stabilization	NA	0	0	0	☐
I. Production Export/Food Chain Support	M	.6	1	0.078	☑
J. Groundwater Discharge/Recharge	M	.7	1	0.091	☑
K. Uniqueness	L	.3	1	0.039	☐
L. Recreation/Education Potential (bonus points)	NA	0	NA	0	☐
Totals:		3.5	8	0.455	
Percent of Possible Score			**43.75** %		

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

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

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

☑

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

OVERALL ANALYSIS AREA RATING:
(check appropriate category based on the criteria outlined above)

I	II	III	IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Stone Creek - North **2. MDT project#** STPP49-1(25)9 **Control#** 7931000

3. Evaluation Date 6/11/2013 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** WL-15

6. Wetland Location(s): **T** 5S **R** 7W **Sec1** 22 **T** **R** **Sec2**

Approx Stationing or Mileposts RP 15.0

Watershed 10020002 **Watershed/County** Beaverhead River, Madison Co. Upper Missouri

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 0.86

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☑ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 0.86

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☐ **Mitigation Wetlands: post construction**

☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Depressional	Emergent Wetland		Permanent/Perennial	20
Depressional	Emergent Wetland		Seasonal/Intermittant	80

11. Estimated Relative Abundance Common

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is <=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <=15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc)

AA located within highway right-of-way

ii. Prominent noxious, aquatic nuisance, other exotic species:

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

Undisturbed wetland vegetation community adjacent to Highway 41

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments:

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L

Sources for documented use USFWS T&E list by county

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ○ D ◉ S Golden Eagle

No usable habitat ☐ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use MTNHP SOC report

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence): Moderate

Substantial (based on any of the following [check]):

- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- ☐ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☑ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 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 (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Low
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☑ **NA** here and proceed to 14E.)

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity ***or*** *is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support,* ***or*** *do aquatic nuisance plant or animal species (see* ***Appendix E****) occur in fish habitat?* **Y** ◯ **N** ◉ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating**

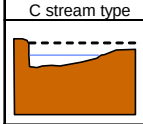
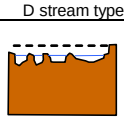
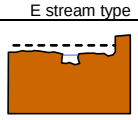
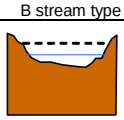
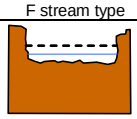
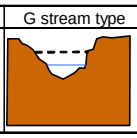
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

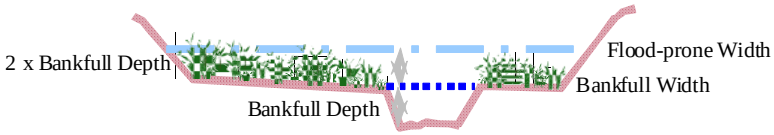
iii. Final Score and Rating: 0 NA **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☑ **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodrpone width / **Bankfull width** = **Entrenchment ratio**

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? **Y** ◯ **N** ◉

Comments:

14F. Short and Long Term Surface Water Storage: (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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, click ☑ **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of ≥6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ○ **N** ◉ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .6M

Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☑ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☐ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ○ **N** ◉ (if 'Yes' continue with the evaluation; if 'No' then click ☑ **NA** here and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ☐ Educational/scientific study; ☐ Consumptive rec.; ☐ Non-consumptive rec.; ☐ Other

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): WL-15

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	☐
B. MT Natural Heritage Program Species Habitat	L	.1	1	0.086	☐
C. General Wildlife Habitat	H	.9	1	0.774	☑
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	NA	0	0	0	☐
F. Short and Long Term Surface Water Storage	M	.4	1	0.344	☑
G. Sediment/Nutrient/Toxicant Removal	H	1	1	0.86	☑
H. Sediment/Shoreline Stabilization	NA	0	0	0	☐
I. Production Export/Food Chain Support	M	.6	1	0.516	☑
J. Groundwater Discharge/Recharge	H	1	1	0.86	☐
K. Uniqueness	L	.3	1	0.258	☐
L. Recreation/Education Potential (bonus points)	NA	0	NA	0	☐
Totals:		4.3	8	3.698	
Percent of Possible Score			**53.75** %		

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

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

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

☑

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

OVERALL ANALYSIS AREA RATING:
(check appropriate category based on the criteria outlined above)

I	II	III	IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Stone Creek - North **2. MDT project#** STPP49-1(25)9 **Control#** 7931000

3. Evaluation Date 6/11/2013 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** WL-16, IR-1

6. Wetland Location(s): **T** 5S **R** 7W **Sec1** 22 **T** 5S **R** 7W **Sec2** 15

Approx Stationing or Mileposts RP 15.20

Watershed 10020002 **Watershed/County** Beaverhead River, Madison Co. Upper Missouri

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 1.22

Purpose of Evaluation

- [x] **Wetlands potentially affected by MDT project**
- [ ] **Mitigation Wetlands: pre-construction**
- [ ] **Mitigation Wetlands: post construction**
- [ ] **Other**

How assessed: Measured e.g. by GPS

9. Assesssment area (AA) size (acres) 1.22

How assessed: Measured e.g. by GPS

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Riverine	Unconsolidated Bottom		Permanent/Perennial	20
Depressional	Emergent Wetland		Seasonal/Intermittant	40
Depressional	Scrub-Shrub Wetland		Seasonal/Intermittant	40

11. Estimated Relative Abundance Common

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is <=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <=15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc)

AA includes constructed irrigation canal, within 50ft of Highway 41

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

Hydrology from irrigation diversion into canal with adjacent emergent and shrub habitats, agriculture (wheat fields) adjacent to ditch

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments:

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L

Sources for documented use USFWS T&E list by county

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use MTNHP SOC report

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence): Moderate

Substantial (based on any of the following [check]):

- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- ☐ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☑ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 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 (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Low
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☐ **NA** here and proceed to 14E.) Cold Water

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity ***or*** *is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support,* ***or*** *do aquatic nuisance plant or animal species (see* ***Appendix E****) occur in fish habitat?* **Y** ◯ **N** ◉ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating** .6M

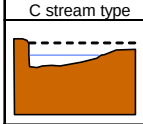
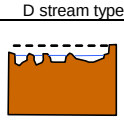
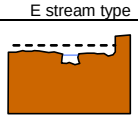
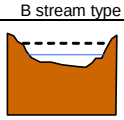
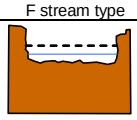
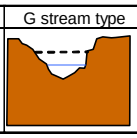
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating .6M

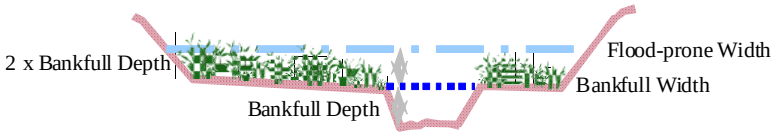
iii. Final Score and Rating: .6 M **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☑ **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodrpone width / **Bankfull width** = **Entrenchment ratio**

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? **Y** ◯ **N** ◉

Comments: Flow controlled by headgate

14F. Short and Long Term Surface Water Storage: (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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, click ☐ **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of ≥6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ○ **N** ◉ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .7M

Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☐ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☑ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ○ **N** ◉ (if 'Yes' continue with the evaluation; if 'No' then click ☑ **NA** here and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ☐ Educational/scientific study; ☐ Consumptive rec.; ☐ Non-consumptive rec.; ☐ Other

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): WL-16, IR-1

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	☐
B. MT Natural Heritage Program Species Habitat	L	0	1	0	☐
C. General Wildlife Habitat	M	.7	1	0.854	☑
D. General Fish Habitat	M	.6	1	0.732	☑
E. Flood Attenuation	NA	0	0	0	☐
F. Short and Long Term Surface Water Storage	H	.8	1	0.976	☑
G. Sediment/Nutrient/Toxicant Removal	H	.9	1	1.098	☑
H. Sediment/Shoreline Stabilization	H	1	1	1.22	☐
I. Production Export/Food Chain Support	M	.7	1	0.854	☐
J. Groundwater Discharge/Recharge	H	1	1	1.22	☐
K. Uniqueness	L	.3	1	0.366	☐
L. Recreation/Education Potential (bonus points)	NA	0	NA	0	☐
Totals:		6	10	7.32	
Percent of Possible Score			**60** %		

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

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

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

☑

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

OVERALL ANALYSIS AREA RATING:
(check appropriate category based on the criteria outlined above)

I	II	III	IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Stone Creek - North **2. MDT project#** STPP49-1(25)9 **Control#** 7931000

3. Evaluation Date 6/11/2013 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** WL-17,18, IR-2

6. Wetland Location(s): **T** 5S **R** 7W **Sec1** 15 **T** **R** **Sec2**

Approx Stationing or Mileposts RP 14.9-16.1

Watershed 10020002 **Watershed/County** Beaverhead River, Madison Co. Upper Missouri

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 1.98

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☑ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 1.98

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☐ **Mitigation Wetlands: post construction**

☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Riverine	Unconsolidated Bottom	Artificial	Permanent/Perennial	15
Depressional	Emergent Wetland		Seasonal/Intermittant	40
Depressional	Scrub-Shrub Wetland		Seasonal/Intermittant	45

11. Estimated Relative Abundance Common

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is <=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <=15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc)

AA along Highway 41, active ag adjacent to AA.

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense, Cynoglossum officinale

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

AA includes excavated irrigation canal and adjacent wetland habitat. AA apears disjunct as mapped within project area but is hydrologically connected outside of delineation boundary. Wetland is bound by agriculture along a majority of AA.

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments:

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L

Sources for documented use USFWS T&E list by county

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◯ S Beaked spikerush

Secondary habitat (list Species) ◯ D ◯ S

Incidental habitat (list species) ◯ D ◉ S Great blue heron

No usable habitat ☐ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use MTNHP SOC report, field survey indicated presence of beaked spikerush

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence): Moderate

Substantial (based on any of the following [check]):

- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- ☐ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☑ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 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 (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Low
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☐ **NA** here and proceed to 14E.) Cold Water

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity ***or*** *is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support,* ***or*** *do aquatic nuisance plant or animal species (see* ***Appendix E****) occur in fish habitat?* **Y** ◯ **N** ◉ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating** .5M

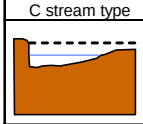
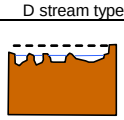
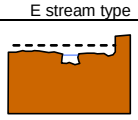
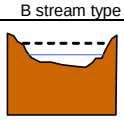
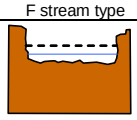
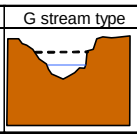
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating .5M

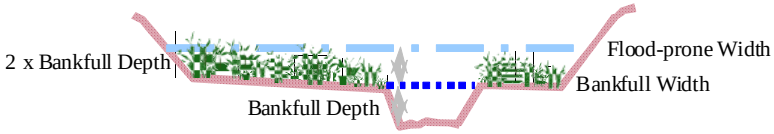
iii. Final Score and Rating: .5 M **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☐ **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodrpone width 20 **/** **Bankfull width** 4 **=** **Entrenchment ratio** 5

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? **Y** ◯ **N** ◉

Comments:

14F. Short and Long Term Surface Water Storage: (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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, click ☐ **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of ≥6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ○ **N** ◉ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .7M

Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☑ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☐ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☑ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments: Likely gains groundwater into canal

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ○ **N** ◉ (if 'Yes' continue with the evaluation; if 'No' then click ☑ **NA** here and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ☐ Educational/scientific study; ☐ Consumptive rec.; ☐ Non-consumptive rec.; ☐ Other

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): WL-17,18, IR-2

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	☐
B. MT Natural Heritage Program Species Habitat	H	.9	1	1.782	☑
C. General Wildlife Habitat	M	.5	1	0.99	☐
D. General Fish Habitat	M	.5	1	0.99	☐
E. Flood Attenuation	H	1	1	1.98	☑
F. Short and Long Term Surface Water Storage	H	.8	1	1.584	☐
G. Sediment/Nutrient/Toxicant Removal	M	.5	1	0.99	☐
H. Sediment/Shoreline Stabilization	H	1	1	1.98	☑
I. Production Export/Food Chain Support	M	.7	1	1.386	☐
J. Groundwater Discharge/Recharge	H	1	1	1.98	☑
K. Uniqueness	L	.2	1	0.396	☐
L. Recreation/Education Potential (bonus points)	NA	0	NA	0	☐
Totals:		7.1	11	14.058	
Percent of Possible Score			**64.55** %		

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

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

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

☑

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

OVERALL ANALYSIS AREA RATING:
(check appropriate category based on the criteria outlined above)

I	II	III	IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Stone Creek - North **2. MDT project#** STPP49-1(25)9 **Control#** 7931000

3. Evaluation Date 6/10/2013 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** WL-2

6. Wetland Location(s): **T** 6S **R** 7W **Sec1** 6 **T** **R** **Sec2**

Approx Stationing or Mileposts RP 10.21

Watershed 10020002 **Watershed/County** Beaverhead River, Beaverhead Co. Upper Missouri

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 0.01

How assessed: Measured e.g. by GPS

Purpose of Evaluation

- [x] **Wetlands potentially affected by MDT project**
- [ ] **Mitigation Wetlands: pre-construction**
- [ ] **Mitigation Wetlands: post construction**
- [ ] **Other**

9. Assesssment area (AA) size (acres) 0.01

How assessed: Measured e.g. by GPS

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Depressional	Emergent Wetland		Seasonal/Intermittant	100

11. Estimated Relative Abundance Abundant

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is <=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <=15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc)

AA in highway right-of-way

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

AA in intermittent drainage surrounded by agriculture and highway corridor

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments:

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L

Sources for documented use USFWS T&E list by county

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use MTNHP SOC report

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence):

Moderate

Substantial (based on any of the following [check]):

- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- ☑ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☐ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 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 (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Low
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☑ **NA** here and proceed to 14E.)

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity ***or*** *is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support,* ***or*** *do aquatic nuisance plant or animal species (see* ***Appendix E****) occur in fish habitat?* **Y** ◯ **N** ◉ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating**

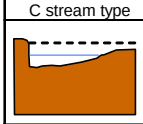
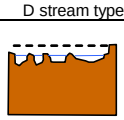
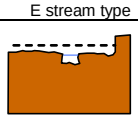
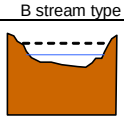
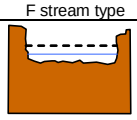
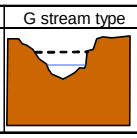
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

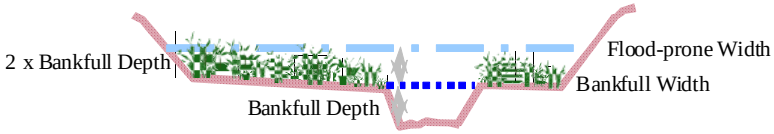
iii. Final Score and Rating: 0 NA **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☐ **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodrpone width 10 **/** **Bankfull width** 1 **=** **Entrenchment ratio** 10

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? **Y** ◯ **N** ◉

Comments:

14F. Short and Long Term Surface Water Storage: (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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, click ☐ **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of ≥6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ○ **N** ◉ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .5M

Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☐ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☑ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ○ **N** ◉ (if 'Yes' continue with the evaluation; if 'No' then click ☑ **NA** here and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ☐ Educational/scientific study; ☐ Consumptive rec.; ☐ Non-consumptive rec.; ☐ Other

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): WL-2

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	☐
B. MT Natural Heritage Program Species Habitat	L	0	1	0	☐
C. General Wildlife Habitat	M	.5	1	0.005	☐
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	M	.5	1	0.005	☐
F. Short and Long Term Surface Water Storage	L	.2	1	0.002	☐
G. Sediment/Nutrient/Toxicant Removal	M	.7	1	0.007	☐
H. Sediment/Shoreline Stabilization	M	.6	1	0.006	☐
I. Production Export/Food Chain Support	M	.5	1	0.005	☐
J. Groundwater Discharge/Recharge	H	1	1	0.01	☐
K. Uniqueness	L	.1	1	0.001	☐
L. Recreation/Education Potential (bonus points)	NA	0	NA	0	☐
Totals:		4.1	10	0.041	
Percent of Possible Score			**41** %		

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

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

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

☑

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

OVERALL ANALYSIS AREA RATING:
(check appropriate category based on the criteria outlined above)

I **II** **III** **IV**

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Stone Creek - North **2. MDT project#** STPP49-1(25)9 **Control#** 7931000

3. Evaluation Date 6/10/2013 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** WL-3

6. Wetland Location(s): **T** 6S **R** 7W **Sec1** 6 **T** **R** **Sec2**

Approx Stationing or Mileposts RP 11.24

Watershed 10020002 **Watershed/County** Beaverhead River, Beaverhead Co. Upper Missouri

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 0.12

Purpose of Evaluation

How assessed: Measured e.g. by GPS

- [x] **Wetlands potentially affected by MDT project**
- [ ] **Mitigation Wetlands: pre-construction**
- [ ] **Mitigation Wetlands: post construction**
- [ ] **Other**

9. Assesssment area (AA) size (acres) 0.12

How assessed: Measured e.g. by GPS

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Depressional	Emergent Wetland		Seasonal/Intermittant	100

11. Estimated Relative Abundance Abundant

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is <=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <=15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc)

Located in unnamed drainage with seasonal hydrology

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

AA surrounded by active ag and located in highway right-of-way

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments:

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L

Sources for documented use USFWS T&E list by county

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use MTNHP SOC report

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence): Moderate

Substantial (based on any of the following [check]):

- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- ☑ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☐ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 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 (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Low
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☑ **NA** here and proceed to 14E.)

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity ***or*** *is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support,* ***or*** *do aquatic nuisance plant or animal species (see* ***Appendix E****) occur in fish habitat?* **Y** ◯ **N** ◉ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating**

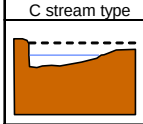
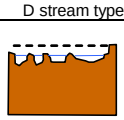
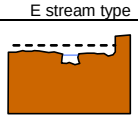
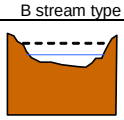
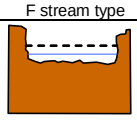
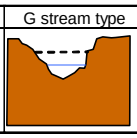
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

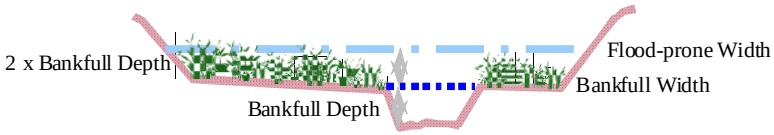
iii. Final Score and Rating: 0 NA **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☐ **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodrpone width 6 **/** **Bankfull width** 1 **=** **Entrenchment ratio** 6

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? **Y** ◯ **N** ◉

Comments:

14F. Short and Long Term Surface Water Storage: (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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, click ☐ **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of ≥6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ○ **N** ◉ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .5M

Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☐ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☑ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ○ **N** ◉ (if 'Yes' continue with the evaluation; if 'No' then click ☑ **NA** here and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ☐ Educational/scientific study; ☐ Consumptive rec.; ☐ Non-consumptive rec.; ☐ Other

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): WL-3

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	☐
B. MT Natural Heritage Program Species Habitat	L	0	1	0	☐
C. General Wildlife Habitat	M	.5	1	0.06	☐
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	M	.5	1	0.06	☐
F. Short and Long Term Surface Water Storage	L	.2	1	0.024	☐
G. Sediment/Nutrient/Toxicant Removal	M	.7	1	0.084	☐
H. Sediment/Shoreline Stabilization	M	.6	1	0.072	☐
I. Production Export/Food Chain Support	M	.5	1	0.06	☐
J. Groundwater Discharge/Recharge	H	1	1	0.12	☐
K. Uniqueness	L	.1	1	0.012	☐
L. Recreation/Education Potential (bonus points)	NA	0	NA	0	☐
Totals:		4.1	10	0.492	
Percent of Possible Score			**41** %		

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

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

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

☑

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

OVERALL ANALYSIS AREA RATING:
(check appropriate category based on the criteria outlined above)

I	II	III	IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Stone Creek - North **2. MDT project#** STPP49-1(25)9 **Control#** 7931000

3. Evaluation Date 6/12/2013 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** WL-5

6. Wetland Location(s): **T** 5S **R** 7W **Sec1** 22 **T** **R** **Sec2**

Approx Stationing or Mileposts RP 14.43

Watershed 10020002 **Watershed/County** Beaverhead River, Madison Co. Upper Missouri

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 0.04

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☑ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 0.04

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☐ **Mitigation Wetlands: post construction**

☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Depressional	Emergent Wetland		Seasonal/Intermittant	100

11. Estimated Relative Abundance Abundant

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is <=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <=15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc)

AA periodically mowed, surrounded by highway and ag

ii. Prominent noxious, aquatic nuisance, other exotic species:

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

Small wetland sustained by precipitation and runoff, seasonal connection to adjacent irrigation network.

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments:

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L

Sources for documented use USFWS T&E list by county

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use MTNHP SOC report

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence): Low

Substantial (based on any of the following [check]):

- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☑ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- ☐ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☐ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 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 (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Low
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☑ **NA** here and proceed to 14E.)

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
*a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity **or** is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, **or** do aquatic nuisance plant or animal species (see **Appendix E**) occur in fish habitat?* **Y** ◯ **N** ◉ *If yes, reduce score in **i** above by 0.1:* **Modified Rating**

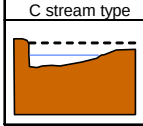
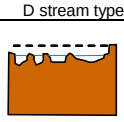
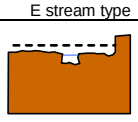
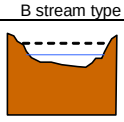
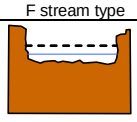
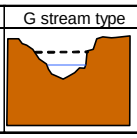
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in **i** or **iia** above:*
Modifed Rating

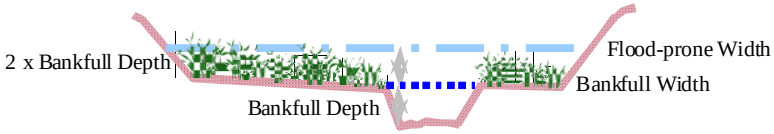
iii. Final Score and Rating: 0 NA **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☑ **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodrpone width / **Bankfull width** = **Entrenchment ratio**

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? **Y** ◯ **N** ◉

Comments:

14F. Short and Long Term Surface Water Storage: (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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, click ☑ **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of ≥6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ○ **N** ◉ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .2L

Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☐ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☑ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ○ **N** ◉ (if 'Yes' continue with the evaluation; if 'No' then click ☑ **NA** here and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ☐ Educational/scientific study; ☐ Consumptive rec.; ☐ Non-consumptive rec.; ☐ Other

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): WL-5

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	☐
B. MT Natural Heritage Program Species Habitat	L	0	1	0	☐
C. General Wildlife Habitat	L	.1	1	0.004	☐
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	NA	0	0	0	☐
F. Short and Long Term Surface Water Storage	L	.3	1	0.012	☐
G. Sediment/Nutrient/Toxicant Removal	H	.9	1	0.036	☐
H. Sediment/Shoreline Stabilization	NA	0	0	0	☐
I. Production Export/Food Chain Support	L	.2	1	0.008	☐
J. Groundwater Discharge/Recharge	M	.7	1	0.028	☐
K. Uniqueness	L	.1	1	0.004	☐
L. Recreation/Education Potential (bonus points)	NA	0	NA	0	☐
Totals:		2.3	8	0.092	
Percent of Possible Score			**28.75** %		

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

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

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

☐

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

OVERALL ANALYSIS AREA RATING:
(check appropriate category based on the criteria outlined above)

I	II	III	IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Stone Creek - North **2. MDT project#** STPP49-1(25)9 **Control#** 7931000

3. Evaluation Date 6/10/2013 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** WW-1, WL-1

6. Wetland Location(s): **T** 6S **R** 8W **Sec1** 12 **T** **R** **Sec2**

Approx Stationing or Mileposts RP 9.06

Watershed 10020002 **Watershed/County** Beaverhead River, Beaverhead Co. Upper Missouri

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 0.06

Purpose of Evaluation

- [x] **Wetlands potentially affected by MDT project**
- [ ] **Mitigation Wetlands: pre-construction**
- [ ] **Mitigation Wetlands: post construction**
- [ ] **Other**

How assessed: Measured e.g. by GPS

9. Assesssment area (AA) size (acres) 0.06

How assessed: Measured e.g. by GPS

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Riverine	Unconsolidated Bottom		Permanent/Perennial	85
Depressional	Emergent Wetland		Seasonal/Intermittant	15

11. Estimated Relative Abundance Common

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is <=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <=15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc)

AA surrounded by active agriculture and adjacent to highway

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

AA occurs along Stone Creek channel at bridge, surrounding land use includes rural agriculture and highway

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments:

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L

Sources for documented use USFWS T&E list by county

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use MTNHP SOC report

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence):

Low

Substantial (based on any of the following [check]):

- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- ☑ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☐ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 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 (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Low
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☑ **NA** here and proceed to 14E.)

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity ***or*** *is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support,* ***or*** *do aquatic nuisance plant or animal species (see* ***Appendix E****) occur in fish habitat?* **Y** ◯ **N** ◉ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating** .5M

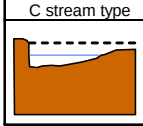
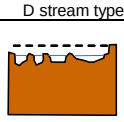
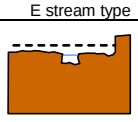
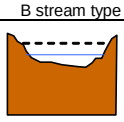
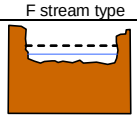
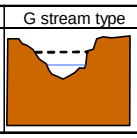
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating .5M

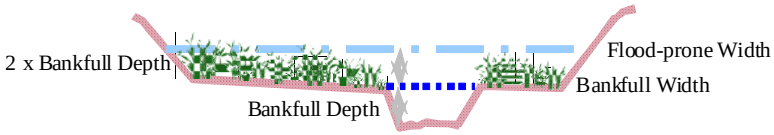
iii. Final Score and Rating: .5 M **Comments:** Fish data from MFISH

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☐ **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodrpone width 15 **/** **Bankfull width** 5 **=** **Entrenchment ratio** 3

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? **Y** ◯ **N** ◉

Comments:

14F. Short and Long Term Surface Water Storage: (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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, click ☐ **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of ≥6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ○ **N** ◉ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .6M

Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☐ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☑ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ◯ **N** ◉ (if 'Yes' continue with the evaluation; if 'No' then click ☑ **NA** here and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ☐ Educational/scientific study; ☐ Consumptive rec.; ☐ Non-consumptive rec.; ☐ Other

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes

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

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	☐
B. MT Natural Heritage Program Species Habitat	L	0	1	0	☐
C. General Wildlife Habitat	L	.3	1	0.018	☐
D. General Fish Habitat	M	.5	1	0.03	☑
E. Flood Attenuation	M	.5	1	0.03	☐
F. Short and Long Term Surface Water Storage	L	.3	1	0.018	☐
G. Sediment/Nutrient/Toxicant Removal	M	.7	1	0.042	☐
H. Sediment/Shoreline Stabilization	M	.7	1	0.042	☑
I. Production Export/Food Chain Support	M	.6	1	0.036	☑
J. Groundwater Discharge/Recharge	H	1	1	0.06	☑
K. Uniqueness	L	.2	1	0.012	☐
L. Recreation/Education Potential (bonus points)	NA	0	NA	0	☐
Totals:		4.8	11	0.288	
Percent of Possible Score			**43.64** %		

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

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

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

☑

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

OVERALL ANALYSIS AREA RATING:
(check appropriate category based on the criteria outlined above)

I	II	III	IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Stone Creek - North **2. MDT project#** STPP49-1(25)9 **Control#** 7931000

3. Evaluation Date 6/10/2013 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** WW-2, WL-4

6. Wetland Location(s): **T** 5S **R** 7W **Sec1** 33 **T** **R** **Sec2**

Approx Stationing or Mileposts RP 12.73

Watershed 10020002 **Watershed/County** Beaverhead River, Beaverhead Co. Upper Missouri

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 0.1

Purpose of Evaluation

How assessed: Measured e.g. by GPS

- [x] **Wetlands potentially affected by MDT project**
- [ ] **Mitigation Wetlands: pre-construction**
- [ ] **Mitigation Wetlands: post construction**
- [ ] **Other**

9. Assesssment area (AA) size (acres) 0.1

How assessed: Measured e.g. by GPS

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Riverine	Emergent Wetland		Permanent/Perennial	5
Depressional	Emergent Wetland		Permanent/Perennial	95

11. Estimated Relative Abundance Common

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is <=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <=15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc)

Agriculture, highway right-of-way

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense, Cynoglossum officinale

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

AA includes narrow drainage below 5-River lodge impoundments supported by perennial groundwater source.

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments:

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L

Sources for documented use USFWS T&E list by county

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ◉ D ◉ S

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ◉ D ◉ S

No usable habitat ☑ S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use MTNHP SOC report

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence):

Moderate

Substantial (based on any of the following [check]):

- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- ☑ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☐ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 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 (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Low
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☑ **NA** here and proceed to 14E.)

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity ***or*** *is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support,* ***or*** *do aquatic nuisance plant or animal species (see* ***Appendix E****) occur in fish habitat?* **Y** ◯ **N** ◉ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating**

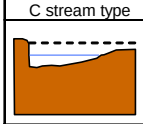
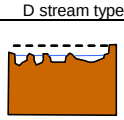
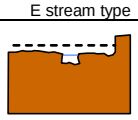
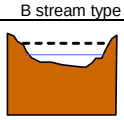
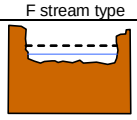
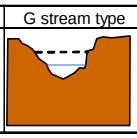
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

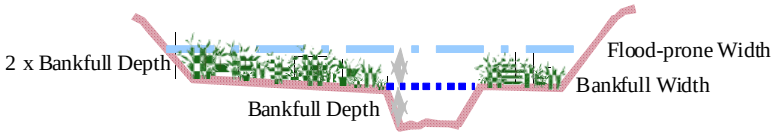
iii. Final Score and Rating: 0 NA **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☐ **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodrpone width 5 **/** **Bankfull width** 1 **=** **Entrenchment ratio** 5

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? **Y** ◯ **N** ◉

Comments:

14F. Short and Long Term Surface Water Storage: (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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, click ☐ **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of ≥6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ◉ **N** ○ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .7M

Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☑ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☐ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☑ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ○ **N** ◉ (if 'Yes' continue with the evaluation; if 'No' then click ☑ **NA** here and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ☐ Educational/scientific study; ☐ Consumptive rec.; ☐ Non-consumptive rec.; ☐ Other

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): WW-2, WL-4

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0	☐
B. MT Natural Heritage Program Species Habitat	L	0	1	0	☐
C. General Wildlife Habitat	M	.5	1	0.05	☐
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	M	.5	1	0.05	☐
F. Short and Long Term Surface Water Storage	L	.2	1	0.02	☐
G. Sediment/Nutrient/Toxicant Removal	M	.7	1	0.07	☑
H. Sediment/Shoreline Stabilization	H	1	1	0.1	☑
I. Production Export/Food Chain Support	M	.7	1	0.07	☑
J. Groundwater Discharge/Recharge	H	1	1	0.1	☑
K. Uniqueness	L	.2	1	0.02	☐
L. Recreation/Education Potential (bonus points)	NA	0	NA	0	☐
Totals:		4.8	10	0.48	
Percent of Possible Score			**48** %		

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

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

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

☑

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

OVERALL ANALYSIS AREA RATING:
(check appropriate category based on the criteria outlined above)

I	II	III	IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Stone Creek - North **2. MDT project#** STPP49-1(25)9 **Control#** 7931000

3. Evaluation Date 6/12/2013 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** WW-3 (east side), WL-6, 7, 11

6. Wetland Location(s): **T** 5S **R** 7W **Sec1** 22 **T** **R** **Sec2**

Approx Stationing or Mileposts RP 14.5

Watershed 10020002 **Watershed/County** Beaverhead River, Madison Co. Upper Missouri

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 0.82

Purpose of Evaluation

How assessed: Measured e.g. by GPS

- [x] **Wetlands potentially affected by MDT project**
- [ ] **Mitigation Wetlands: pre-construction**
- [ ] **Mitigation Wetlands: post construction**
- [ ] **Other**

9. Assesssment area (AA) size (acres) 0.82

How assessed: Measured e.g. by GPS

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Riverine	Unconsolidated Bottom		Permanent/Perennial	10
Depressional	Emergent Wetland		Permanent/Perennial	15
Depressional	Emergent Wetland		Seasonal/Intermittant	45
Depressional	Scrub-Shrub Wetland		Seasonal/Intermittant	40

11. Estimated Relative Abundance Common

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is <=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <=15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc)

Adjacent to highway, AA periodically grazed

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

AA includes emergent and shrub wetlands adjacent to the Beaverhead River and a portion of the river bed. Surrounding landuses include highway and active agriculture.

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments: Emergent, scrub-shrub, and aquatic habitats

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species)	◉ D ◉ S	
Secondary habitat (list Species)	◉ D ◉ S	
Incidental habitat (list species)	○ D ◉ S	Arctic grayling
No usable habitat	▣ S	

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L

Sources for documented use USFWS T&E list by county

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species)	◉ D ◉ S	
Secondary habitat (list Species)	◉ D ◉ S	
Incidental habitat (list species)	○ D ◉ S	Westslope cutthroat trout, great blue heron
No usable habitat	▣ S	

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use MTNHP SOC report

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence): Moderate

Substantial (based on any of the following [check]):

- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- ☐ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☑ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 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 (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Low
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☐ **NA** here and proceed to 14E.) Cold Water

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity ***or*** *is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support,* ***or*** *do aquatic nuisance plant or animal species (see* ***Appendix E****) occur in fish habitat?* **Y** ◯ **N** ◉ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating** .9H

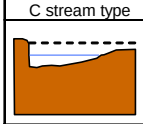
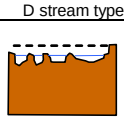
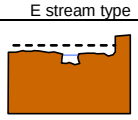
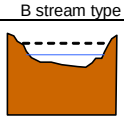
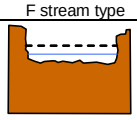
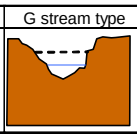
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating .9H

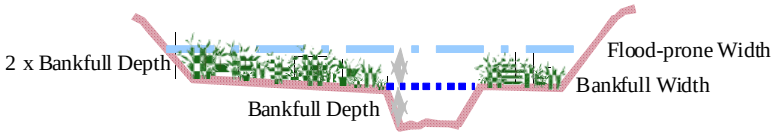
iii. Final Score and Rating: .9 H **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☐ **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodrpone width 110 **/** **Bankfull width** 50 **=** **Entrenchment ratio** 2.2

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? **Y** ◯ **N** ◉

Comments:

14F. Short and Long Term Surface Water Storage: (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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, click ☐ **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of ≥6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ○ **N** ◉ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .9H

Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☐ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☑ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ◉ **N** ○ (if 'Yes' continue with the evaluation; if 'No' then click ☐ **NA** here and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ☐ Educational/scientific study; ☑ Consumptive rec.; ☑ Non-consumptive rec.; ☐ Other

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): WW-3 (east side), WL-6, 7, 11

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	.1	1	0.082	☐
B. MT Natural Heritage Program Species Habitat	L	.1	1	0.082	☐
C. General Wildlife Habitat	M	.5	1	0.41	☐
D. General Fish Habitat	H	.9	1	0.738	☑
E. Flood Attenuation	H	.8	1	0.656	☐
F. Short and Long Term Surface Water Storage	H	.8	1	0.656	☐
G. Sediment/Nutrient/Toxicant Removal	H	.9	1	0.738	☑
H. Sediment/Shoreline Stabilization	M	.7	1	0.574	☐
I. Production Export/Food Chain Support	H	.9	1	0.738	☑
J. Groundwater Discharge/Recharge	H	1	1	0.82	☑
K. Uniqueness	L	.2	1	0.164	☐
L. Recreation/Education Potential (bonus points)	M	.1	NA	0.082	☐
Totals:		7	11	5.74	
Percent of Possible Score			**63.64** %		

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

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

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

☑

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

OVERALL ANALYSIS AREA RATING:
(check appropriate category based on the criteria outlined above)

I	II	III	IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Stone Creek - North **2. MDT project#** STPP49-1(25)9 **Control#** 7931000

3. Evaluation Date 6/13/2013 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** WW-3 (west side), WL-11

6. Wetland Location(s): **T** 5S **R** 7W **Sec1** 22 **T** **R** **Sec2**

Approx Stationing or Mileposts

Watershed 10020002 **Watershed/County** Beaverhead River, Madison Co. Upper Missouri

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 0.49

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☑ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 0.49

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☐ **Mitigation Wetlands: post construction**

☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Riverine	Unconsolidated Bottom		Permanent/Perennial	10
Depressional	Emergent Wetland		Permanent/Perennial	10
Depressional	Emergent Wetland		Seasonal/Intermittant	40
Depressional	Scrub-Shrub Wetland		Seasonal/Intermittant	40

11. Estimated Relative Abundance Common

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) lists)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is <=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <=15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=30%.	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc)

AA includes farmed wetland adjacent to highway

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

AA includes Beaverhead River and adjacent wetlands delineated within floodplain. Surrounding landuses include agriculture and highway corridor

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>=3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments: Scrub-shrub, emergent, and aquatic habitats

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species)	◉ D ◉ S	
Secondary habitat (list Species)	◉ D ◉ S	
Incidental habitat (list species)	○ D ◉ S	Arctic grayling
No usable habitat	▣ S	

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L

Sources for documented use USFWS T&E list by county

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species)	◉ D ◉ S	
Secondary habitat (list Species)	◉ D ◉ S	
Incidental habitat (list species)	○ D ◉ S	Westslope cutthroat trout, great blue heron
No usable habitat	▣ S	

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use MTNHP SOC report

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence): Moderate

Substantial (based on any of the following [check]):

- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- ☑ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☑ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 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 (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Low
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check ☐ **NA** here and proceed to 14E.) Cold Water

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1)
a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity ***or*** *is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support,* ***or*** *do aquatic nuisance plant or animal species (see* ***Appendix E****) occur in fish habitat?* **Y** ◯ **N** ◉ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating** .9H

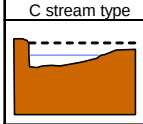
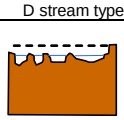
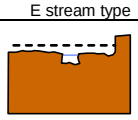
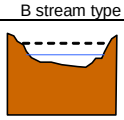
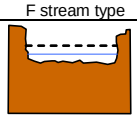
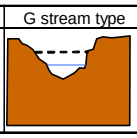
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating .9H

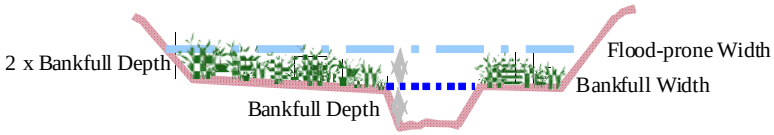
iii. Final Score and Rating: .9 H **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☐ **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						



Floodrpone width 110 **/** **Bankfull width** 50 **=** **Entrenchment ratio** 2.2

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? **Y** ◯ **N** ◉

Comments:

14F. Short and Long Term Surface Water Storage: (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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, click ☐ **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of ≥6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (**NOTE:** Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB)**: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** ○ **N** ◉ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .9H

Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☐ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☑ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (check) **Y** ◉ **N** ○ (if 'Yes' continue with the evaluation; if 'No' then click ☐ **NA** here and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ☐ Educational/scientific study; ☑ Consumptive rec.; ☑ Non-consumptive rec.; ☐ Other

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): WW-3 (west side), WL-11

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	.1	1	0.049	☐
B. MT Natural Heritage Program Species Habitat	L	.1	1	0.049	☐
C. General Wildlife Habitat	M	.5	1	0.245	☐
D. General Fish Habitat	H	.9	1	0.441	☐
E. Flood Attenuation	H	.9	1	0.441	☐
F. Short and Long Term Surface Water Storage	H	.8	1	0.392	☐
G. Sediment/Nutrient/Toxicant Removal	H	.9	1	0.441	☐
H. Sediment/Shoreline Stabilization	H	1	1	0.49	☐
I. Production Export/Food Chain Support	H	.9	1	0.441	☐
J. Groundwater Discharge/Recharge	H	1	1	0.49	☐
K. Uniqueness	L	.2	1	0.098	☐
L. Recreation/Education Potential (bonus points)	M	.1	NA	0.049	☐
Totals:		7.4	11	3.626	
Percent of Possible Score			**67.27** %		

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

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

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

☐

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

OVERALL ANALYSIS AREA RATING:
(check appropriate category based on the criteria outlined above)

I	II	III	IV

Appendix E

Agency Consultation Letters and Phone Logs

MDT Biological Resources Report
Stone Creek – North
Beaverhead and Madison Counties, Montana

CONFLUENCE
consulting incorporated

June 5, 2013

Mike McGrath
US Fish & Wildlife
585 Shepard Way, Suite 1
Helena, MT 59601

Dear Mike:

On behalf of the Montana Department of Transportation (MDT), Confluence, Inc. will be preparing a Biological Resource Report for the Stone Creek – North project STPP 49-1(25)9. This project is located along MT State Hwy 41 (Route P-49) between the towns of Twin Bridges and Dillon, MT (see attached Map 1). The MDT proposes to reconstruct an approximate 7.2-mile stretch from reference post 9.0 to 16.2 and will include improvements to both horizontal and vertical alignments of existing grade. Two significant river drainages, with proposed bridge replacement at each, cross the roadway within the project limits and include the Beaverhead River and Stone Creek (see attached Map 2). The project is located within the Dry Intermontane Sagebrush Valleys Level IV ecoregion. The terrain is rolling hills from Stone Creek to the Beaverhead River then turns to flat until project end.

Our team members are currently reviewing existing information for biological resources (T&E and sensitive plant/animal species), critical habitat, aquatic and wetland resources, and wildlife resources within the study area. We will be conducting field surveys to inventory and map plant communities, weed species, wildlife usage, wetland boundaries and aquatic resources along the study area. We will be contacting several agency representatives for input on sensitive species and/or areas of concern with the project vicinity.

The purpose of this letter is to collectively inquire within the different agencies for any specific concerns or potential issues to ensure that relevant agencies are contacted and given the opportunity to provide input related to the biological surveys. We would appreciate a response from you within 30 days (July 5, 2013) by letter, fax, or e-mail with any concerns or potential issues involving biological resource with respect to the proposed highway project. If we do not hear from you or your agency within the 30 days, we will assume there are no issues. We will utilize the information you provide to evaluate potential impacts during our field surveys and reporting. Team members are anticipating conducting the field surveys in mid-June.

Please feel free to call if you have any questions related to this letter or the project.

Sincerely,

Brian Sandefur
Professional Wetland Scientist

GSA Contract Holder

406-585-9500
fax 406-582-9142

P.O. Box 1133
1115 N. 7th Ave, Suite 1
Bozeman, MT 59771-1133

www.confluenceinc.com

CC:

Deb Wambach
2701 Prospect Avenue
PO Box 201001
Helena, MT 59620-1001

Allan Cox
Montana Natural Heritage Program
1515 East Sixth Avenue
Helena, MT 59620-1800

Beau Downing
SPA Coordinator
Montana Fish Wildlife & Parks
PO Box 200701
Helena, MT 59620

Matt Jaeger
Fisheries Biologist
Montana Fish Wildlife & Parks
PO Box 200701
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Craig Fager
Wildlife Biologist
Montana Fish Wildlife & Parks
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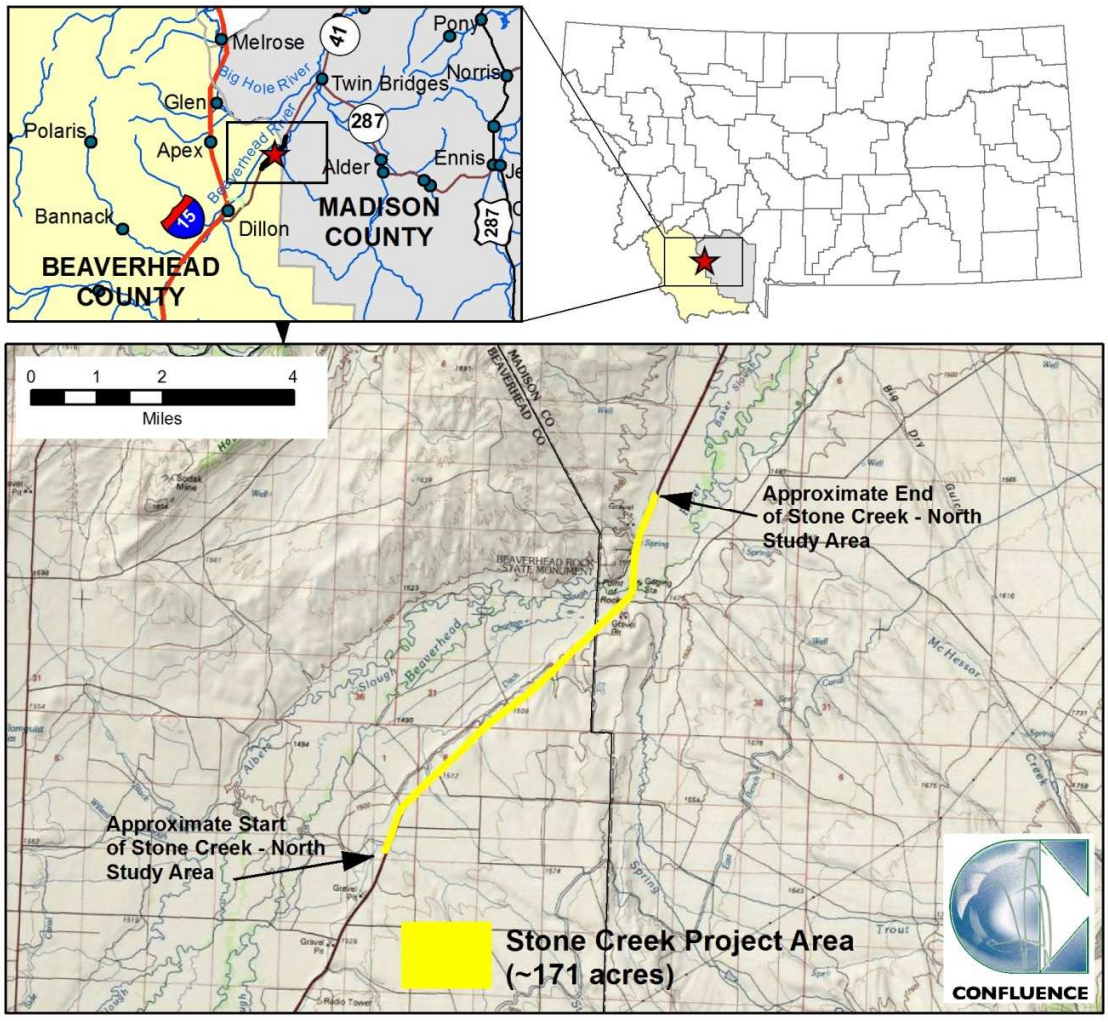
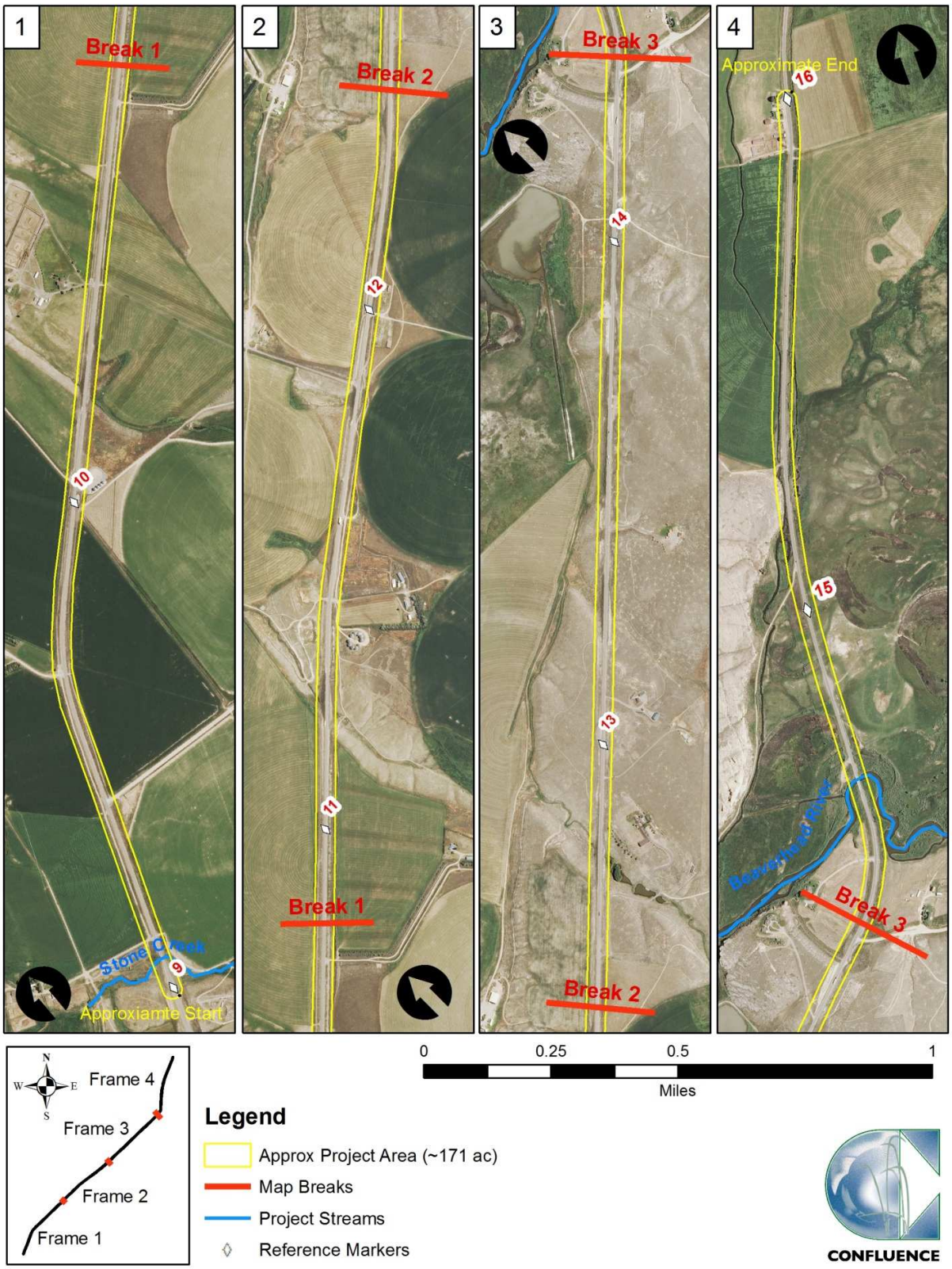


Map 1. Location map for Stone Creek - North project STPP 49-1(25)9.



Map 2. Stone Creek - North STPP 49-1(25)9 project area.

United States Department of the Interior

Fish and Wildlife Service

Ecological Services
Montana Field Office
585 Shepard Way, Suite 1
Helena, Montana 59601-6287
Phone: (406) 449-5225 Fax: (406) 449-5339

06E11000-2013-SL-0159 June 12, 2013

Brian Sandefur
Confluence Consulting, Inc.
PO Box 1133
Bozeman, MT 59771

Dear Mr. Sandefur:

This is in response to your June 5, 2012 email regarding the Montana Department of Transportation's (Department) proposed Stone Creek – North project (STPP 49-1(25)9). The project would be located along Montana State Highway 41, from reference post 9.0 to 16.2, between the towns of Twin Bridges and Dillon, Montana, in Madison and Beaverhead Counties. The proposed project would reconstruct approximately 7.2-miles of road, with improvements to both horizontal and vertical alignments of existing grade, as well as replacing two bridge crossings along the Beaverhead River and Stone Creek. Because you have requested that the Service provide a review of potential project-related effects on threatened and endangered (T/E) species, and their critical habitats, within and in the vicinity of the project area for environmental documentation, these comments have been prepared under the authority of, and in accordance with the provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et. seq.), Migratory Bird Treaty Act (MBTA; 16 U.S.C. 703 et seq.), Bald and Golden Eagle Protection Act (BGEPA; 16 U.S.C. 668-668d, 54 Stat. 250), and the Endangered Species Act (16 U.S.C. 1531 et. seq.). We offer the following comments for your consideration.

The federally-listed T/E species that may occur in the project area are listed in the table below. Of particular note, Ute Ladies' Tresses have been document near the project area in Madison County (Natural Heritage Tracker database 2013). Golden and bald eagle nest territories have been documented within 1 to 2 miles, respectively, of the proposed project area. If eagle nests are observed in proximity of the project area, we highly recommend that you coordinate with Montana Fish, Wildlife & Parks at 1420 East Sixth Ave., P.O. Box 200701, Helena, MT 59620-0701, 406-444-2535, prior to initiating project construction. Should occupied eagle nests occur within 0.5 mile of the proposed project, we would advise that you comply with the recommended temporary seasonal and distance construction buffers stipulated in the *2010 Montana Bald Eagle Management Guidelines: An Addendum to Montana Bald Eagle Management Plan (1994)*.

County/Scientific Name	Common Name	Status
BEAVERHEAD		
Spiranthes diluvialis	Ute Ladies' Tresses	Listed Threatened
Ursus arctos horribilis	Grizzly Bear	Listed Threatened
Centrocercus urophasianus	Greater Sage-Grouse	Candidate
Thymallus arcticus	Arctic Grayling (Upper Missouri River DPS)	Candidate
Gulo gulo luscus	Wolverine	Proposed
Pinus albicaulis	Whitebark Pine	Candidate
MADISON		
Spiranthes diluvialis	Ute Ladies' Tresses	Listed Threatened
Lynx canadensis	Canada Lynx	Listed Threatened
Ursus arctos horribilis	Grizzly Bear	Listed Threatened
Centrocercus urophasianus	Greater Sage-Grouse	Candidate
Anthus spragueii	Sprague's Pipit	Candidate
Thymallus arcticus	Arctic Grayling (Upper Missouri River DPS)	Candidate
Gulo gulo luscus	Wolverine	Proposed
Pinus albicaulis	Whitebark Pine	Candidate

Other recommendations include the following:

- If work is proposed to take place during the breeding season and may result in take of migratory birds, their eggs, or active nests, the Service recommends that the project proponent take all practicable measures to avoid and minimize take, such as maintaining adequate buffers, to protect the birds until the young have fledged. Active nests may not be removed.
- We recommend coordination (and acknowledge your proactive inclusion of the agency in your proposal) with Montana Fish, Wildlife & Parks at 1420 East Sixth Ave., P.O. Box 200701, Helena, MT 59620-0701, 406-444-2535, and the Montana Natural Heritage Program, 1515 East 6th Avenue, Box 201800, Helena, MT 59620-1800, 406-444-5354. Both of these agencies may be able to provide updated, site-specific information regarding eagle and other raptor nests, as well as all other fish, wildlife, and sensitive plant resources occurring in the proposed project areas.

Because this is a bridge replacement project, it may impact streams or wetlands. If so, Corps of Engineers (Corps) Section 404 permits may eventually be required. In that event, depending on permit type and other factors, the Service may be required to review permit applications and will recommend any protection or mitigation measures to the Corps as may appear reasonable and prudent based on the information available at that time.

The Service appreciates your efforts to incorporate fish and wildlife resource concerns into your project planning. If you have questions or comments related to this issue, please contact Mike McGrath at 406-449-5225, extension 201.

Sincerely,

Anne Vandehey
For Jodi L. Bush
Field Supervisor

Copy to: Deb Wambach, Montana Department of Transportation, Helena, MT

Appendix F

Montana Natural Heritage Program Species of Concern Data Report

MDT Biological Resources Report
Stone Creek – North
Beaverhead and Madison Counties, Montana

MONTANA
Natural Heritage
Program

P.O. Box 201800 • 1515 East Sixth Avenue • Helena, MT 59620-1800 • fax 406.444.0266 • tel 406.444.5354 • http://mtnhp.org

June 5, 2013

Brian Sandefur
Confluence Consulting, Inc.
PO Box 1133
Bozeman, Montana 59771

Dear Brian,

I am writing in response to your recent request regarding Montana Species of Concern in the vicinity of Stone Creek - North, in Section 12, T06S, R08W; Sections 5 and 6, T06S, R07W; and Sections 15, 22, 27, 28, 32 and 33, T05S, R07W. I checked our databases for information in this general area and have enclosed 11 species occurrence reports for 7 animal species of concern, 4 species occurrence reports for 4 plant species of concern, a map depicting species of concern and wetland locations, and explanatory material. Note that the maps are in Adobe GeoPDF format. With the appropriate Adobe Reader, it provides a convenient way to query and understand the information presented on the map. Documentation is included.

Please keep in mind the following when using and interpreting the enclosed information and maps:

(1) These materials are the result of a search of our database for species of concern that occur in an area defined by the requested township, range and sections with an additional one-mile buffer surrounding the requested area. This is done to provide a more inclusive set of records and to capture records that may be immediately adjacent to the requested area. Please let us know if a buffer greater than 1 mile would be of use to your efforts. Reports are provided for the species of concern that are located in your requested area with a one-mile buffer. Species of concern outside of this buffered area may be depicted on the map due to the map extent, but are not selected for the SOC report.

(2) On the map, polygons represent one or more source features as well as the locational uncertainty associated with the source features. A source feature is a point, line, or polygon that is the basic mapping unit of a Species Occurrence (SO) representation. The recorded location of the occurrence may vary from its true location due to many factors, including the level of expertise of the data collector, differences in survey techniques and equipment used, and the amount and type of information obtained. Therefore, this inaccuracy is characterized as locational uncertainty, and is now incorporated in the representation of an SO. If you have a question concerning a specific SO, please do not hesitate to contact us.

(3) This report may include sensitive data, and is not intended for general distribution, publication, or for use outside of your organization. In particular, public release of specific location information may jeopardize the welfare of threatened, endangered, or sensitive species or biological communities.

(4) The accompanying map(s) display land management status, which may differ from ownership. Features shown on this map do not imply public access to any lands.

(5) Additional biological data for the search area(s) may be available from other sources. We suggest you contact the U.S. Fish and Wildlife Service for any additional information on threatened and endangered species (406-449-5225). For additional fisheries information in your area of interest, you may wish to contact Montana Fish, Wildlife, and Park's Montana Fisheries Information System (phone: 406-444-3373, or web site: **http://fwp.mt.gov/fishing/mFish/**).

(6) Additional information on species habitat, ecology and management is available on our web site in the Plant, Animal, and ecological Systems Field Guides, which we encourage you to consult for valuable information. You can access these guides at http://mtnhp.org. General information on any species can be found by accessing the link to NatureServe Explorer.

The results of a data search by the Montana Natural Heritage Program reflect the current status of our data collection efforts. These results are not intended as a final statement on sensitive species within a given area, or as a substitute for on-site surveys, which may be required for environmental assessments. The information is intended for project screening only with respect to species of concern, and not as a determination of environmental impacts, which should be gained in consultation with appropriate agencies and authorities.

In order to help us improve our services to you, we invite you to take a simple survey. The survey is intended to gather some basic information on the value and quality of the information and services you recently received from the Montana Natural Heritage Program. The survey is short and should not take more than a few minutes to complete. All information will be kept confidential and will be used internally to improve the delivery of services and to help document the value of our services. Use this link to go to the survey: **http://www.surveymonkey.com/s/RYN8Y8L**.

I hope the enclosed information is helpful to you. Let me know if you would prefer to receive digital PDF versions of these documents via email. Please feel free to contact me at (406) 444-3290 or via my e-mail address, below, should you have any questions or require additional information.

Sincerely,

Martin P. Miller
Montana Natural Heritage Program
martinm@mt.gov

MONTANA Natural Heritage Program

Montana Natural Heritage Program

1515 East Sixth Ave., Helena, Montana 59620-1800
(406) 444-5354 http://mtnhp.org

Explanation of Species of Concern Reports

Since 1985, the Montana Natural Heritage Program (MTNHP) has been compiling and maintaining an inventory of elements of biological diversity in Montana. This inventory includes plant species, animal species, plant communities, and other biological features that are rare, endemic, disjunct, threatened, or endangered throughout their range in Montana, vulnerable to extirpation from Montana, or in need of further research.

Species Occurrences: (formerly called 'Element Occurrences') A "**Species Occurrence**" (**SO**) is an area depicting only what is known from direct observation with a defined level of certainty regarding the spatial location of the feature. If an observation can be associated with a map feature that can be tracked (e.g., a wetland) then this polygon feature is used to represent the SO. Areas that can be inferred as probable occupied habitat based on direct observation of a species location and what is known about the foraging area or home range size of the species may be incorporated into the Species Occurrence. A "Species Occurrence" generally falls into one of the following three categories:

Plants: A documented location of a specimen collection or observed plant population. In some instances, adjacent, spatially separated clusters are considered subpopulations and are grouped as one occurrence (e.g., the subpopulations occur in ecologically similar habitats, and are within approximately one air mile of one another).

Animals: The location of a specimen collection or of a verified sighting; known or assumed to represent a breeding population. Additional collections or sightings are often appended to the original record.

Other: Significant biological features not included in the above categories, such as bird rookeries, peatlands, or state champion trees.

Ecological Information: Areas for which we have ecological information are represented on the map as either shaded polygons (where small and/or well defined) or simply as map labels (where they are large generally-defined landscapes). Descriptive information about these areas is contained in the associated report. Such information can be useful in assessing biological values and interpreting Species of Concern data.

The quantity and quality of data contained in MTNHP reports is dependent on the research and observations of the many individuals and organizations that contribute information to the program. Please keep in mind that the absence of information for an area does not mean the absence of significant biological features, since no surveys may have been conducted there. Reports produced by the Montana Natural Heritage Program summarize information documented in our databases at the time of a request. These reports are not intended as a final statement on the species or areas being considered, nor are they a substitute for on-site surveys, which may be required for environmental assessments.

As a user of MTNHP, your contributions of data are essential to maintaining the accuracy of our databases. New or updated location information for all species of concern is always welcome.

We encourage you to visit our website at http://**mtnhp.org.** On-line tools include a species observation viewer: the Natural Heritage TRACKER and *The Montana Field Guide* which contains photos, illustrations, and supporting information on Montana's animals and plant species of concern. Additional data are available on most species and ecological areas identified in our reports.

If you have questions or need further assistance, please contact us either by phone at (406/444-5354), e-mail (mtnhp@mt.gov) or

Data Descriptions

The section below lists the names and definitions for descriptions of the data fields used in the reports. Certain codes and abbreviations are used in Species Occurrence reports. Although many of these are very straightforward, the following explanations should answer most questions.

Map Label: The label for the species occurrence as it appears on the map.

Element Subnational ID: The unique code used by the state or province to identify a specific element (species).

SO Number: Number that identifies the particular occurrence of the element (species).

Scientific Name: Latin (scientific) name.

Common Name: Commonly recognized name.

Species of Concern/Potential Concern: This value indicates whether the species is a "Species of Concern" (Y) or of "Potential Concern" (W).

Last Observation Date: The date the Species Occurrence was last observed extant at the site (not necessarily the date the site was last visited).

First Observation Date: The date the Species Occurrence was first reported at the site.

EO Rank: indicates the relative value of the Species Occurrence (SO) with respect to other occurrences of the Species, based on an assessment of estimated viability (species).

Values:

A - Excellent estimated viability/ecological integrity
A? - Possibly excellent estimated viability/ecological integrity
AB - Excellent or good estimated viability/ecological integrity
AC - Excellent, good, or fair estimated viability/ecological integrity
B - Good estimated viability/ecological integrity
B? - Possibly good estimated viability/ecological integrity
BC - Good or fair estimated viability/ecological integrity
BD - Good, fair, or poor estimated viability/ecological integrity
C - Fair estimated viability/ecological integrity
C? - Possibly fair estimated viability/ecological integrity
CD - Fair or poor estimated viability/ecological integrity
D - Poor estimated viability/ecological integrity
D? - Possibly poor estimated viability/ecological integrity
E - Verified extant (viability/ecological integrity not assessed)
F - Failed to find
F? - Possibly failed to find
H - Historical
H? - Possibly historical
X - Extirpated
X? - Possibly extirpated
U - Unrankable
NR - Not ranked

SO Data: Data collected on the biology of this Species Occurrence. Specific information may include number of individuals, vigor, habitat, soils, associated species, and other characteristics.

Species Status Codes

Provided below are definitions for species conservation status ranks, categories and other codes designated by MTNHP, Federal and State Agencies and non-governmental organizations.

Species of Concern

Species of Concern are native taxa that are at-risk due to declining population trends, threats to their habitats, restricted distribution, and/or other factors. Designation as a Montana Species of Concern or Potential Species of Concern is based on the Montana Status Rank, and is not a statutory or regulatory classification. Rather, these designations provide information that helps resource managers make proactive decisions regarding species conservation and data collection priorities. See the latest Species of Concern Reports for more detailed explanations and assessment criteria.

Potential Species of Concern

Potential Species of Concern are native taxa for which current, often limited, information suggests potential vulnerability. Also included are animal species which additional data are needed before an accurate status assessment can be made.

Status Under Review

Species designated "Status Under Review" are plant species that require additional information and currently do not have a status rank but may warrant future consideration as Species of Concern. This category also includes plant species whose status rank is questionable due to the availability of new information or the availability of conflicting or ambiguous information or data. Species listed in this category will be reviewed periodically or as new information becomes available.

Exotic Species

Exotic species are not native to Montana, but have either been reported in Montana or have established populations in Montana outside of their native range.

Montana Species Ranking Codes

Montana employs a standardized ranking system to denote global (G) and state (S) status (NatureServe 2003). Species are assigned numeric ranks ranging from 1 (critically imperiled) to 5 (demonstrably secure), reflecting the relative degree to which they are "at-risk". Rank definitions are given below. A number of factors are considered in assigning ranks - the number, size and distribution of known "occurrences" or populations, population trends (if known), habitat sensitivity, life history traits and threats.

For example, Clustered lady's slipper (*Cypripedium fasciculatum*) is ranked G4 S2. Globally the species is uncommon but not vulnerable, while in Montana it is at risk because of limited and potentially declining numbers, extent and/or habitat.

G1 S1
: At high risk because of extremely limited and potentially declining numbers, extent and/or habitat, making it highly vulnerable to global extinction or extirpation in the state.

G2 S2
: At risk because of very limited and potentially declining numbers, extent and/or habitat, making it vulnerable to global extinction or extirpation in the state.

G3 S3
: Potentially at risk because of limited and potentially declining numbers, extent and/or habitat, even though it may be abundant in some areas.

G4 S4
: Uncommon but not rare (although it may be rare in parts of its range), and usually widespread. Apparently not vulnerable in most of its range, but possibly cause for long-term concern.

G5 S5
: Common, widespread, and abundant (although it may be rare in parts of its range). Not vulnerable in most of its range.

GX SX
: Presumed Extinct or Extirpated - Species is believed to be extinct throughout its range or extirpated in Montana. Not located despite intensive searches of historical sites and other appropriate habitat, and small likelihood that it will ever be rediscovered.

GH SH

Possibly Extinct or Extirpated - Species is known only from historical records, but may nevertheless still be extant; additional surveys are needed.

GNR SNR

Not yet ranked.

GU SU

Unrankable - Species currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

GNA SNA

A conservation status rank is not applicable for one of the following reasons:
The taxa is of Hybrid Origin; is Exotic or Introduced; is Accidental or is Not Confidently Present in the state. (see other codes below)

Other Codes and Modifiers

HYB

Hybrid-Entity not ranked because it represents an interspecific hybrid and not a species.

T

Infraspecific Taxon (trinomial) - The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

?

Inexact Numeric Rank - Denotes inexact numeric rank.

Q

Questionable taxonomy that may reduce conservation priority-Distinctiveness of this entity as a taxon at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon in another taxon, with the resulting taxon having a lower-priority (numerically higher) conservation status rank.

C

Captive or Cultivated Only - Species at present is extant only in captivity or cultivation, or as a reintroduced population not yet established.

A

Accidental - Species is accidental or casual in Montana, in other words, infrequent and outside usual range. Includes species (usually birds or butterflies) recorded once or only a few times at a location. A few of these species may have bred on the one or two occasions they were recorded.

SYN

Synonym - Species reported as occurring in Montana, but the Montana Natural Heritage Program does not recognize the taxon; therefore the species is not assigned a rank.

B

Breeding - Rank refers to the breeding population of the species in Montana.

N

Nonbreeding - Rank refers to the non-breeding population of the species in Montana.

M

Migratory - Species occurs in Montana on during migration.

U.S. Fish and Wildlife Service

LE

Listed endangered - Any species in danger of extinction throughout all or a significant portion of its range (16 U.S.C. 1532(6)).

PE

Proposed endangered - Any species for which a proposed rule has been published in the Federal Register to list the species as endangered.

LT

Listed threatened - Any species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (16 U.S.C. 1532(20)).

PT

Proposed threatened - Any species for which a proposed rule has been published in the Federal Register to list the species as threatened.

E(S/A) or T(S/A)

Any species listed endangered or threatened because of similarity of appearance.

C

Candidate - Those taxa for which sufficient information on biological status and threats exists to propose to list them as threatened or endangered. We encourage their consideration in environmental planning and partnerships; however, none of the substantive or procedural provisions of the Act apply to candidate species.

PDL

Proposed for delisting - Any species for which a final rule has been published in the Federal Register to delist the species.

DM

Recovered, delisted, and being monitored - Any previously listed species that is now recovered, has been delisted, and is being monitored.

NL

Not listed - No designation.

XE

Essential experimental population - An experimental population whose loss would be likely to appreciably reduce the likelihood of the survival of the species in the wild.

XN

Nonessential experimental population - An experimental population of a listed species reintroduced into a specific area that receives more flexible management under the Act.

CH

Critical Habitat - The specific areas (i) within the geographic area occupied by a species, at the time it is listed, on which are found those physical or biological features (I) essential to conserve the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by the species at the time it is listed upon determination that such areas are essential to conserve the species.

PS

Partial status - status in only a portion of the species' range. Typically indicated in a "full" species record where an infraspecific taxon or population, that has a record in the database has USESA status, but the entire species does not.

PS:value

Partial status - status in only a portion of the species' range. The value of that status appears in parentheses because the entity with status is not recognized as a valid taxon by Central Sciences (usually a population defined by geopolitical boundaries or defined administratively, such as experimental populations.

Forest Service

The status of species on Forest Service lands as defined by the U.S. Forest Service manual (2670.22). These taxa are listed as such by the Regional Forester (Northern Region). The Forest Service lists animal species as:

Endangered

Listed as Endangered (LE) by the USFWS.

Threatened

Listed as Threatened (LT) by the USFWS.

Sensitive

Any species for which the Regional Forester has determined there is a concern for population viability within the state, as evidenced by a significant current or predicted downward trend in populations or habitat.

Species of Concern

USFS Species-of-Concern (FSH 1909.12, 43.22b) are species for which the Responsible Official determines management actions may be necessary to prevent listing under the Endangered Species Act (ESA). The Responsible Official, as appropriate, may identify the following plant and animal species, including macro-lichens, as species-of-concern:

1. Species identified as proposed and candidate species under the ESA.
2. Species with ranks of G-1 through G-3 on the NatureServe ranking system.
3. Infraspecific (subspecific) taxa with ranks of T-1 through T-3 on the NatureServe ranking system.
4. Species that have been petitioned for federal listing and for which a positive "90-day finding" has been made (a 90-day finding is a preliminary finding that substantive information was provided indicating that the petition listing may be warranted and a full status review will be conducted).
5. Species that have been recently delisted (these include species delisted within the past five years and other delisted species for which regulatory agency monitoring is still considered necessary).

Species of Interest

USFS Species-of-Interest (FSH 1909.12, 43.22c) are species for which the Responsible Official determines that management actions may be necessary or desirable to achieve ecological or other multiple-use objectives. The Responsible Official may review the following sources for potential species-of-interest:

1. Species with ranks of S-1, S-2, N1, or N2 on the NatureServe ranking system.
2. State listed threatened and endangered species that do not meet the criteria as species-of-concern.
3. Species identified as species of conservation concern in State Comprehensive Wildlife Strategies.
4. Bird species on the U.S. Fish and Wildlife Service Birds of Conservation Concern National Priority list (for the U.S. portion of the northern Rockies that occur on National Forest system lands).
5. Additional species that valid existing information indicates are of regional or local conservation concern (this includes all Forest Service Northern Region sensitive species) due to factors that may include:
    a. Significant threats to populations or habitat.
    b. Declining trends in populations or habitat.
    c. Rarity.
    d. Restricted ranges (for example, narrow endemics, disjunct populations, or species at the edge of their range).
6. Species that are hunted or fished and other species of public interest. Invasive species may also be considered.

Bureau of Land Management

BLM Sensitive Species are defined by the BLM 6840 Manual as those that normally occur on Bureau administered lands for which BLM has the capability to significantly affect the conservation status of the species through management. The State Director may designate additional categories of special status species as appropriate and applicable to his or her state's needs. The sensitive species designation, for species other than federally listed, proposed, or candidate species, may include such native species as those that:

1. could become endangered in or extirpated from a state, or within a significant portion of its distribution in the foreseeable future,
2. are under status review by FWS and/or NMFS,
3. are undergoing significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution,

4. are undergoing significant current or predicted downward trends in population or density such that federally listed, proposed, candidate, or State listed status may become necessary,
5. have typically small and widely dispersed populations,
6. are inhabiting ecological refugia, specialized or unique habitats, or
7. are State listed but which may be better conserved through application of BLM sensitive species status. Such species should be managed to the level of protection required by State laws or under the BLM policy for candidate species, whichever would provide better opportunity for its conservation.

MFWP Conservation Need

In recent years states have received federal funding to develop Comprehensive Fish and Wildlife Conservation Strategies. Montana Fish, Wildlife, and Parks completed Montana's Comprehensive Fish and Wildlife Conservation Strategy in 2005. Under this conservation strategy individual animal species were assigned levels of conservation need as follows:

Tier I:
Tier I: Greatest conservation need. Montana Fish, Wildlife & Parks has a clear obligation to use its resources to implement conservation actions that provide direct benefit to these species, communities, and focus areas.

Tier II:
Tier II: Moderate conservation need. Montana Fish, Wildlife & Parks could use its resources to implement conservation actions that provide direct benefit to these species, communities, and focus areas.

Tier III:
Tier III: Lower conservation need. Although important to Montana's wildlife diversity, these species, communities, and focus areas are either abundant and widespread or are believed to have adequate conservation already in place.

Tier IV:
Tier IV: Species that are non-native, incidental, or on the periphery of their range and are either expanding or very common in adjacent states.

Partners In Flight (PIF)

Partners In Flight (PIF) is a partnership of federal and state agencies, industry, non-governmental organizations, and many others, with the goal of conserving North American birds. In 1991, PIF began developing a formal species assessment process that could provide consistent, scientific evaluations of conservation status across all bird species in North America, and identify areas most important to the conservation of each species. This process applies quantitative rule sets to complex biological data on the population size, distribution, population trend, threats, and regional abundance of individual bird species to generate simple numerical scores that rank each species in terms of its biological vulnerability and regional status. The process results in global and regional conservation assessments of each bird species that, among other uses, can be used to objectively assign regional and continental conservation priorities among birds.
The species assessment scores and process has recently been updated! Check out the new scores and make sure to download and read the updated Handbook on Species Assessment, which contains important information on the how scores are derived and used in the assessment process. Note that currently only breeding-season regional scores are available for BCRs. We hope to have non-breeding scores available soon. For those needing access to the previous versions of the PIF Species Assessment Database, including past regional scores for physiographic areas, click here.

Montana Native Plant Society (MNPS) Threat Category

The MNPS Threat Category process was initiated in 2006 at the Montana Plant Conservation Conference with the formation of a committee represented by federal, state and private botanists, ecologists and biologists. The objectives were to: 1) Evaluate threats impacting Montana's Plant Species of Concern and to classify species according to their level of imperilment/risk as a result of these threats. 2) Develop a ranking system based on the impacts of the identified threats to the species' viability in the state. The result of this process is a 4-tier threat ranking system for Plant Species of Concern in Montana. The threat categories are:

Category 1:
The viability of the species in the state is Highly Threatened by one or more activities. Associated threats have caused or are likely to cause a major reduction of the state population or its habitat that will require 50 years or more for recovery, 20% or more of the state population has been or will be affected, and the negative impact is occurring or is likely to occur within the next 5 years.

Category 2:
The viability of the species or a portion of the species habitat in the state is Threatened by one or more activities, though impacts to the species are expected to be less severe than those in Category 1. Associated threats exist but are not as severe, wide-ranging or immediate as for Category 1, though negative impacts are occurring or are likely to occur.

Category 3:
The viability of the species in the state is Not Threatened or the Threats are Insignificant. Associated threats are either not known to exist, are not likely to occur in the near future or are not known to be having adverse impacts that will severely affect the species' viability in the state.

Category 4:
Assessment not possible due to insufficient and/or conflicting information on potential threats to the species.

Please visit the MNPS website at http://www.mtnativeplants.org for additional information on MNPS Threat Categories or for MNPS contact information.

Natural Resource Information System
Montana State Library
PO Box 201800
Helena, MT 59620-1800
(406)444-3009 mtnhp@mt.gov

Species of Concern Data Report

Visit http://mtnhp.org for additional information.

Report Date:
Wednesday, June 5, 2013

Ardea herodias

View Species in MT Field Guide

Common Name: Great Blue Heron
General Habitat: Riparian forest
Description: Birds

Mapping Delineation:

Confirmed nesting area buffered by a minimum distance of 6,500 meters in order to be conservative about encompassing the areas commonly used for foraging near the breeding colony and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S3
Global: G5

FWP CFWCS Tier: 3

MT PIF Code:

Federal Agency Status:

U.S. Fish & Wildlife Service:
U.S. Forest Service:
U.S. Bureau of Land Management:

Species Occurrences

Species Occurence Map Label: 10017639

First Observation Date:	1999-03-01	**SO Number:**	71
Last Observation Date:	1999-03-31	**Acreage:**	32,633

Species Occurence Map Label: 10017642

First Observation Date:	1999-03-01	**SO Number:**	77
Last Observation Date:	1999-03-31	**Acreage:**	32,633

Haliaeetus leucocephalus

View Species in MT Field Guide

Common Name: Bald Eagle
General Habitat: Riparian forest
Description: Birds

Mapping Delineation:

Confirmed nesting area buffered by a minimum distance of 2,000 meters in order to be conservative about encompassing the breeding territory and area commonly used for renesting and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S4
Global: G5

FWP CFWCS Tier: 1

MT PIF Code: 2

Federal Agency Status:

U.S. Fish & Wildlife Service: DM; BGEPA; MBTA; BCC
U.S. Forest Service: SENSITIVE
U.S. Bureau of Land Management: SENSITIVE

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Report Date:
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Species Occurrences

Species Occurence Map Label: 10035193

First Observation Date:	1988-03-01	**SO Number:**	566
Last Observation Date:	1991-09-01	**Acreage:**	3,089

Species Occurence Map Label: 10035198

First Observation Date:	2003-03-01	**SO Number:**	567
Last Observation Date:	2009-09-01	**Acreage:**	3,089

Aquila chrysaetos

View Species in MT Field Guide

Common Name: Golden Eagle
General Habitat: Grasslands
Description: Birds
Mapping Delineation:

Confirmed nesting area buffered by a minimum distance of 3,000 meters in order to be conservative about encompassing the entire breeding territory and area commonly used for renesting and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S3
Global: G5

FWP CFWCS Tier: 2

MT PIF Code:

Federal Agency Status:

U.S. Fish & Wildlife Service: BGEPA; MBTA; BCC
U.S. Forest Service:
U.S. Bureau of Land Management: SENSITIVE

Species Occurrences

Species Occurence Map Label: 10011193

First Observation Date:	1979-02-16	**SO Number:**	254
Last Observation Date:	1979-12-14	**Acreage:**	6,951

Species Occurence Map Label: 10011195

First Observation Date:	1996-05-23	**SO Number:**	2
Last Observation Date:	1996-05-23	**Acreage:**	6,951

Oreoscoptes montanus

View Species in MT Field Guide

Common Name: Sage Thrasher
General Habitat: Sagebrush
Description: Birds
Mapping Delineation:

Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 75 meters in order to encompass the maximum breeding territory size reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S3B
Global: G5

FWP CFWCS Tier: 3

MT PIF Code: 3

Federal Agency Status:

U.S. Fish & Wildlife Service:
U.S. Forest Service:
U.S. Bureau of Land Management: SENSITIVE

Species Occurrences

Species Occurence Map Label: 10002383

First Observation Date:	1994-06-01	**SO Number:**	77,958
Last Observation Date:	2000-06-16	**Acreage:**	33,644

Spizella breweri

View Species in MT Field Guide

Common Name: Brewer's Sparrow
General Habitat: Sagebrush
Description: Birds

Mapping Delineation:

Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 100 meters in order to encompass the maximum territory size reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S3B
Global: G5

FWP CFWCS Tier: 2

MT PIF Code: 2

Federal Agency Status:

U.S. Fish & Wildlife Service:
U.S. Forest Service:
U.S. Bureau of Land Management: SENSITIVE

Species Occurrences

Species Occurence Map Label: 10002894

First Observation Date:	1996-06-26	**SO Number:**	60,087
Last Observation Date:	1996-06-26	**Acreage:**	33,644

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(406)444-3009 mtnhp@mt.gov

Species of Concern Data Report

Visit http://mtnhp.org for additional information.

Report Date:
Wednesday, June 5, 2013

Oncorhynchus clarkii lewisi

View Species in MT Field Guide

Common Name: Westslope Cutthroat Trout
General Habitat: Mountain streams, rivers, lakes
Description: Fish

Mapping Delineation:

Stream reaches and standing water bodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S2
Global: G4T3

FWP CFWCS Tier: 1

MT PIF Code:

Federal Agency Status:

U.S. Fish & Wildlife Service:
U.S. Forest Service: SENSITIVE
U.S. Bureau of Land Management: SENSITIVE

Species Occurrences

Species Occurence Map Label: 10041008
First Observation Date:
Last Observation Date:
SO Number:
Acreage: 32

Species Occurence Map Label: 10041007
First Observation Date:
Last Observation Date:
SO Number:
Acreage: 76

Thymallus arcticus

View Species in MT Field Guide

Common Name: Arctic Grayling
General Habitat: Mountain rivers, lakes
Description: Fish

Mapping Delineation:

Stream reaches and standing water bodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S1
Global: G5

FWP CFWCS Tier: 1

MT PIF Code:

Federal Agency Status:

U.S. Fish & Wildlife Service: C
U.S. Forest Service: SENSITIVE
U.S. Bureau of Land Management: SENSITIVE

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Species of Concern Data Report

Visit http://mtnhp.org for additional information.

Report Date:
Wednesday, June 5, 2013

Species Occurrences

Species Occurence Map Label: 10040861

First Observation Date:
Last Observation Date:
SO Number:
Acreage: 3,885

Natural Resource Information System
Montana State Library
PO Box 201800
Helena, MT 59620-1800
(406)444-3009 mtnhp@mt.gov

Species of Concern Data Report

Visit http://mtnhp.org for additional information.

Report Date:
Wednesday, June 5, 2013

Primula incana

View Species in MT Field Guide

Common Name: Mealy Primrose
Description: Vascular Plants
General Habitat: Wetland/Riparian

Mapping Delineation:

Individual occurrences are generally based upon a discretely mapped area provided by an observer and are not separated by any pre-defined distance. Individual clusters of plants mapped at fine spatial scales (separated by less than approximately 25-50 meters) may be grouped together into one occurrence if they are not separated by distinct areas of habitat or terrain features. Point observations are buffered to encompass any locational uncertainty associated with the observation.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S3
Global: G4G5

Federal Agency Status:

U.S. Fish & Wildlife Service:
U.S. Forest Service: SENSITIVE
U.S. Bureau of Land Management: SENSITIVE

Species Occurrences

Species Occurence Map Label: 19372

First Observation Date:	08/16/1996	**SO Number:**	3	**Acreage:**	1
Last Observation Date:	08/16/1996	**SO Rank:**	C		

Castilleja exilis

View Species in MT Field Guide

Common Name: Annual Indian Paintbrush
Description: Vascular Plants
General Habitat: Wetland/Riparian

Mapping Delineation:

Individual occurrences are generally based upon a discretely mapped area provided by an observer and are not separated by any pre-defined distance. Individual clusters of plants mapped at fine spatial scales (separated by less than approximately 25-50 meters) may be grouped together into one occurrence if they are not separated by distinct areas of habitat or terrain features. Point observations are buffered to encompass any locational uncertainty associated with the observation.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S2
Global: G5

Federal Agency Status:

U.S. Fish & Wildlife Service:
U.S. Forest Service:
U.S. Bureau of Land Management: SENSITIVE

Species Occurrences

Species Occurence Map Label: 19786

First Observation Date:	08/16/1996	**SO Number:**	6	**Acreage:**	8
Last Observation Date:	08/16/1996	**SO Rank:**	CD		

Eleocharis rostellata

View Species in MT Field Guide

Common Name: Beaked Spikerush
Description: Vascular Plants
General Habitat: Wetlands (Alkaline)

Mapping Delineation:

Individual occurrences are generally based upon a discretely mapped area provided by an observer and are not separated by any pre-defined distance. Individual clusters of plants mapped at fine spatial scales (separated by less than approximately 25-50 meters) may be grouped together into one occurrence if they are not separated by distinct areas of habitat or terrain features. Point observations are buffered to encompass any locational uncertainty associated with the observation.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S3
Global: G5

Federal Agency Status:

U.S. Fish & Wildlife Service:
U.S. Forest Service: SENSITIVE
U.S. Bureau of Land Management: SENSITIVE

Species Occurrences

Species Occurence Map Label: 19978

First Observation Date: 08/16/1996
Last Observation Date: 08/16/1996
SO Number: 10
SO Rank: A
Acreage: 8

Spiranthes diluvialis

View Species in MT Field Guide

Common Name: Ute Lady's-tresses
Description: Vascular Plants
General Habitat: Wetland/Riparian

Mapping Delineation:

Individual occurrences are generally based upon a discretely mapped area provided by an observer and are not separated by any pre-defined distance. Individual clusters of plants mapped at fine spatial scales (separated by less than approximately 25-50 meters) may be grouped together into one occurrence if they are not separated by distinct areas of habitat or terrain features. Point observations are buffered to encompass any locational uncertainty associated with the observation.

Species Status

Click Status for Explanations

Natural Heritage Ranks:

State: S1S2
Global: G2G3

Federal Agency Status:

U.S. Fish & Wildlife Service: LT
U.S. Forest Service:
U.S. Bureau of Land Management:

Species Occurrences

Species Occurence Map Label: 19462

First Observation Date: 08/16/1996
Last Observation Date: 08/16/1996
SO Number: 2
SO Rank: D
Acreage: 8

Directions for Using Adobe GeoPDFs

June 2010

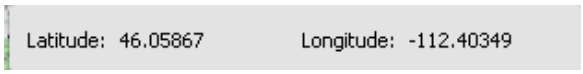
A GeoPDF differs from a PDF in that it contains spatial information. When a GeoPDF is created it retains the latitude and longitude information. Using the GeoSpatial Location Tool in Adobe Reader, the latitude and longitude of your cursor location is displayed.

In order to access the GeoSpatial Location Tool make sure you have the latest version of Adobe Reader. The most current version is Adobe Reader 9 Version 9.3.2. To check your version of Adobe Reader open Adobe Reader and click on "Help" at the top and then click on "About Adobe Reader".

Click on the following link to download the latest version: http://get.adobe.com/reader/

Using the GeoSpatial Location Tool

1. Open a GeoPDF in Adobe Reader
2. Click on "Tools" in the top menu
3. Click on Analysis
4. Click on GeoSpatial Location Tool
5. A gray band with the Latitude and Longitude will not be displayed in the lower right-hand corner of the GeoPDF.
6. Place your cursor within the map to update the Latitude and Longitude

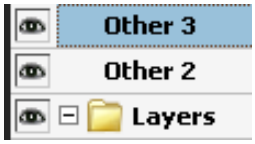


Displaying Map Features

Map features including the spatial data layers, labels, and attributes may be displayed. To turn on or off map layers, click on the "Layers" button on the left side of the GeoPDF.

The "Layers" button looks like two overlapping diamonds. 

If the "Layers" button is not visible then right click within the gray bar on the left side of the GeoPDF and then left click on "Layers". To turn the layers or labels off, click on the "eye" in the box. To turn the layers back on click back in the box until you see the "eye".



Montana Species of Concern
Stone Creek - North

SPECIES OF CONCERN: A polygon feature representing only what is known from direct observation with a defined level of certainty regarding the spatial location of the feature.

NonVascular Plants
- NonVascular Plants

Vascular Plants
- Vascular Plants

Invertebrates
- Invertebrates

Amphibians
- Amphibians

Fish
- Fish

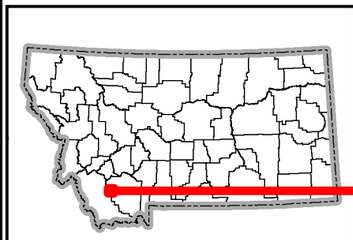
Reptiles
- Reptiles

Birds
- Birds

Mammals
- Mammals

Sites
- Sites

Wetland Types
- Lake
- River
- Freshwater Pond
- Freshwater Emergent Wetland
- Freshwater Scrub-Shrub Wetland
- Freshwater Forested Wetland
- Riparian Emergent
- Riparian Scrub-Shrub
- Riparian Forested



Not all legend items may occur on the map.

Features shown on this map do not imply public access to any lands.

This map displays management status, which may vary from ownership.

MONTANA Natural Heritage Program

Natural Resource Information System, Montana State Library
1515 East Sixth Ave., Helena, MT 59620-1800

406 444-5354 http://mtnhp.org mtnhp@mt.gov

0 0.5 1 2 3 4 Miles

Map Document: K:\REQUESTS\Requests\13\MDT\13mdt0015\13mdt0015.mxd (6/5/2013)

A GUIDE TO WETLAND AND DEEPWATER HABITATS CLASSIFICATION USED IN THE NATIONAL WETLAND INVENTORY (NWI) MAPPING IN MONTANA

MONTANA Natural Heritage Program

Purpose:

The Montana Wetland and Riparian Mapping Center uses the Cowardin classification system (Cowardin et al. 1979) adopted by the National Wetland Inventory (NWI) for wetlands (FGDC Wetlands Subcommittee, 2009). The riparian system follows the U.S. Fish and Wildlife Service (USFWS) standard (U.S. Fish and Wildlife Services, 2009). NWI is the standard classification system for wetland mapping across the United States. For ease of display and interpretation the NWI attributes have been grouped into major wetland and riparian types.

Wetlands

In Montana, there are three NWI wetland systems: Palustrine, Lacustrine, and Riverine.

PALUSTRINE:

- In Montana, this system includes all wetlands dominated by trees, shrubs, and emergent, herbaceous vegetation.
- Wetlands lacking vegetation are included if they are less than 8 hectares (20 acres) in size and are less than 2 meters (6.6 feet) deep in the deepest portion of the wetland.

Freshwater pond:

- Wetlands with vegetation growing on or below the water surface for most of the growing season.

Freshwater Emergent Wetland:

- Wetlands with erect, rooted herbaceous vegetation present during most of the growing season.

Freshwater Shrub Wetland:

- Wetlands dominated by woody vegetation less than 6 meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.

Freshwater Forested Wetland:

- Wetlands dominated by woody vegetation greater than 6 meters (20 feet) tall.

LACUSTRINE (Lakes):

- This system includes any large body of water that is greater than 8 hectares (20 acres) in size OR is more than 2 meters (6.6 feet) deep.
- This system is usually found in a topographic depression. It may also be formed by damming of a river channel.

RIVERINE (Rivers and streams and shore):

- This system includes all wetlands and deepwater habitats that are within natural and artificial channels.
- These systems contain either continuous (perennial) or intermittently flowing water.

RIPARIAN:

The Wetland and Riparian Mapping Center uses the riparian classification system developed by the U.S. Fish and Wildlife Service to map riparian areas in Montana. The riparian classification types listed below are followed by the coding convention used for mapping purposes.

- Plant communities (trees, shrubs and/or herbaceous plants)contiguous to rivers, streams, lakes, or drainage ways.
- Riparian areas are influenced by both surface and below surface hydrology.
- The plant species present in riparian areas are distinctly different from plant species found in adjacent areas.
- Plants in riparian areas demonstrate more vigorous or robust growth forms than in adjacent areas.

Riparian Classes:

Scrub-Shrub (SS):

- This type of riparian area is dominated by woody vegetation that is less than 6 meters (20 feet) tall.
- Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.

Forested (FO):

- This riparian class has woody vegetation that is greater than 6 meters (20 feet) tall.

Emergent (EM):

- Riparian areas that have erect, rooted herbaceous vegetation during most of the growing season.

References

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service, Washington, D.C. FWS/OBS-79/31.

FGDC Wetlands Subcommittee. 2009. Wetlands Mapping Standard. U.S. Geological Survey, Reston, Virginia.

U.S. Fish and Wildlife Services. 2009. A system for mapping riparian areas in the western United States. Division of Habitat and Resource Conservation, Branch of Resource and Mapping Support, Arlington, Virginia.

Appendix G

Wildlife Species List for Beaverhead and Madison Counties

MDT Biological Resources Report
Stone Creek – North
Beaverhead and Madison Counties, Montana

Type	Common Name	Scientific Name	County
Amphibians	Plains Spadefoot	*Spea bombifrons*	Beaverhead
Amphibians	Rocky Mountain Tailed Frog	*Ascaphus montanus*	Beaverhead
Amphibians	Long-toed Salamander	*Ambystoma macrodactylum*	Beaverhead
Amphibians	Barred Tiger Salamander	*Ambystoma mavortium*	Beaverhead/Madison
Amphibians	Boreal Chorus Frog	*Pseudacris maculata*	Beaverhead/Madison
Amphibians	Columbia Spotted Frog	*Rana luteiventris*	Beaverhead/Madison
Amphibians	Northern Leopard Frog	*Lithobates pipiens*	Beaverhead/Madison
Amphibians	Western Toad	*Anaxyrus boreas*	Beaverhead/Madison
Birds	Chestnut-collared Longspur	*Calcarius ornatus*	Madison
Birds	Golden-crowned Sparrow	*Zonotrichia atricapilla*	Beaverhead
Birds	American Golden-Plover	*Pluvialis dominica*	Madison
Birds	Black Scoter	*Melanitta americana*	Madison
Birds	Black-billed Cuckoo	*Coccyzus erythropthalmus*	Madison
Birds	Black-chinned Hummingbird	*Archilochus alexandri*	Madison
Birds	Black-throated Green Warbler	*Setophaga virens*	Madison
Birds	Blackpoll Warbler	*Setophaga striata*	Madison
Birds	Brant	*Branta bernicla*	Madison
Birds	Broad-winged Hawk	*Buteo platypterus*	Madison
Birds	Buff-breasted Sandpiper	*Tryngites subruficollis*	Madison
Birds	Cape May Warbler	*Setophaga tigrina*	Madison
Birds	Ash-throated Flycatcher	*Myiarchus cinerascens*	Beaverhead
Birds	American Woodcock	*Scolopax minor*	Beaverhead
Birds	Black Swift	*Cypseloides niger*	Beaverhead
Birds	Black-and-white Warbler	*Mniotilta varia*	Beaverhead
Birds	Sage Sparrow	*Artemisiospiza belli*	Beaverhead
Birds	Pomarine Jaeger	*Stercorarius pomarinus*	Beaverhead
Birds	Alder Flycatcher	*Empidonax alnorum*	Beaverhead
Birds	Spruce Grouse	*Falcipennis canadensis*	Beaverhead
Birds	Summer Tanager	*Piranga rubra*	Beaverhead
Birds	Lesser Goldfinch	*Spinus psaltria*	Beaverhead
Birds	Yellow Rail	*Coturnicops noveboracensis*	Beaverhead
Birds	Semipalmated Sandpiper	*Calidris pusilla*	Madison
Birds	Pine Warbler	*Setophaga pinus*	Madison
Birds	Purple Finch	*Haemorhous purpureus*	Madison
Birds	Purple Martin	*Progne subis*	Madison
Birds	Red Knot	*Calidris canutus*	Madison
Birds	Red Phalarope	*Phalaropus fulicarius*	Madison
Birds	Red-headed Woodpecker	*Melanerpes erythrocephalus*	Madison
Birds	Red-throated Loon	*Gavia stellata*	Madison
Birds	Stilt Sandpiper	*Calidris himantopus*	Madison
Birds	Parasitic Jaeger	*Stercorarius parasiticus*	Madison
Birds	Yellow-rumped Warbler (Myrtle)	*Setophaga coronata coronata*	Madison
Birds	Ruddy Turnstone	*Arenaria interpres*	Madison
Birds	Sharp-tailed Grouse	*Tympanuchus phasianellus*	Madison
Birds	Short-billed Dowitcher	*Limnodromus griseus*	Madison
Birds	Sprague's Pipit	*Anthus spragueii*	Madison
Birds	Chestnut-sided Warbler	*Setophaga pensylvanica*	Madison
Birds	Yellow-billed Cuckoo	*Coccyzus americanus*	Madison
Birds	Wood Stork	*Mycteria americana*	Madison
Birds	Tennessee Warbler	*Oreothlypis peregrina*	Madison
Birds	Western Screech-Owl	*Megascops kennicottii*	Madison

Type	Common Name	Scientific Name	County
Birds	Whimbrel	*Numenius phaeopus*	Madison
Birds	White-throated Sparrow	*Zonotrichia albicollis*	Madison
Birds	White-winged Scoter	*Melanitta fusca*	Madison
Birds	Rusty Blackbird	*Euphagus carolinus*	Madison
Birds	Eastern Screech-Owl	*Megascops asio*	Madison
Birds	Gyrfalcon	*Falco rusticolus*	Madison
Birds	Greater White-fronted Goose	*Anser albifrons*	Madison
Birds	Pacific Loon	*Gavia pacifica*	Madison
Birds	Greater Scaup	*Aythya marila*	Madison
Birds	Glaucous Gull	*Larus hyperboreus*	Madison
Birds	Hoary Redpoll	*Acanthis hornemanni*	Madison
Birds	Lesser Black-backed Gull	*Larus fuscus*	Madison
Birds	Long-tailed Jaeger	*Stercorarius longicaudus*	Madison
Birds	Eurasian Wigeon	*Anas penelope*	Madison
Birds	Herring Gull	*Larus argentatus*	Madison
Birds	Eastern Phoebe	*Sayornis phoebe*	Madison
Birds	Mountain Plover	*Charadrius montanus*	Madison
Birds	Northern Flicker (Yellow-shafted)	*Colaptes auratus auratus*	Madison
Birds	Ovenbird	*Seiurus aurocapilla*	Madison
Birds	Dark-eyed Junco (Slate-colored)	*Junco hyemalis hyemalis / cismontanus*	Madison
Birds	Eastern Meadowlark	*Sturnella magna*	Madison
Birds	Mew Gull	*Larus canus*	Madison
Birds	Burrowing Owl	*Athene cunicularia*	Beaverhead/Madison
Birds	Brown Creeper	*Certhia americana*	Beaverhead/Madison
Birds	Cassin's Finch	*Haemorhous cassinii*	Beaverhead/Madison
Birds	Brown-headed Cowbird	*Molothrus ater*	Beaverhead/Madison
Birds	Bufflehead	*Bucephala albeola*	Beaverhead/Madison
Birds	Caspian Tern	*Hydroprogne caspia*	Beaverhead/Madison
Birds	Bullock's Oriole	*Icterus bullockii*	Beaverhead/Madison
Birds	Canvasback	*Aythya valisineria*	Beaverhead/Madison
Birds	Canada Goose	*Branta canadensis*	Beaverhead/Madison
Birds	California Gull	*Larus californicus*	Beaverhead/Madison
Birds	Broad-tailed Hummingbird	*Selasphorus platycercus*	Beaverhead/Madison
Birds	Calliope Hummingbird	*Selasphorus calliope*	Beaverhead/Madison
Birds	Canyon Wren	*Catherpes mexicanus*	Beaverhead/Madison
Birds	Black-crowned Night-Heron	*Nycticorax nycticorax*	Beaverhead/Madison
Birds	Black Tern	*Chlidonias niger*	Beaverhead/Madison
Birds	Black Rosy-Finch	*Leucosticte atrata*	Beaverhead/Madison
Birds	Belted Kingfisher	*Megaceryle alcyon*	Beaverhead/Madison
Birds	Black-backed Woodpecker	*Picoides arcticus*	Beaverhead/Madison
Birds	Black-bellied Plover	*Pluvialis squatarola*	Beaverhead/Madison
Birds	Barrow's Goldeneye	*Bucephala islandica*	Beaverhead/Madison
Birds	Barred Owl	*Strix varia*	Beaverhead/Madison
Birds	Barn Swallow	*Hirundo rustica*	Beaverhead/Madison
Birds	Bonaparte's Gull	*Chroicocephalus philadelphia*	Beaverhead/Madison
Birds	Black-capped Chickadee	*Poecile atricapillus*	Beaverhead/Madison
Birds	Brewer's Sparrow	*Spizella breweri*	Beaverhead/Madison
Birds	Black-headed Grosbeak	*Pheucticus melanocephalus*	Beaverhead/Madison
Birds	Black-necked Stilt	*Himantopus mexicanus*	Beaverhead/Madison
Birds	Blue Jay	*Cyanocitta cristata*	Beaverhead/Madison
Birds	Blue-winged Teal	*Anas discors*	Beaverhead/Madison
Birds	Bobolink	*Dolichonyx oryzivorus*	Beaverhead/Madison

Type	Common Name	Scientific Name	County
Birds	Bohemian Waxwing	*Bombycilla garrulus*	Beaverhead/Madison
Birds	Black-billed Magpie	*Pica hudsonia*	Beaverhead/Madison
Birds	Boreal Owl	*Aegolius funereus*	Beaverhead/Madison
Birds	Brewer's Blackbird	*Euphagus cyanocephalus*	Beaverhead/Madison
Birds	Cassin's Vireo	*Vireo cassinii*	Beaverhead/Madison
Birds	Flammulated Owl	*Otus flammeolus*	Beaverhead/Madison
Birds	Common Nighthawk	*Chordeiles minor*	Beaverhead/Madison
Birds	Downy Woodpecker	*Picoides pubescens*	Beaverhead/Madison
Birds	Dunlin	*Calidris alpina*	Beaverhead/Madison
Birds	Dusky Flycatcher	*Empidonax oberholseri*	Beaverhead/Madison
Birds	Dusky Grouse	*Dendragapus obscurus*	Beaverhead/Madison
Birds	Eared Grebe	*Podiceps nigricollis*	Beaverhead/Madison
Birds	Eastern Kingbird	*Tyrannus tyrannus*	Beaverhead/Madison
Birds	Barn Owl	*Tyto alba*	Beaverhead/Madison
Birds	European Starling	*Sturnus vulgaris*	Beaverhead/Madison
Birds	Dark-eyed Junco (Pink-sided)	*Junco hyemalis mearnsi*	Beaverhead/Madison
Birds	Ferruginous Hawk	*Buteo regalis*	Beaverhead/Madison
Birds	Dark-eyed Junco (Montana)	*Junco hyemalis montanus*	Beaverhead/Madison
Birds	Forster's Tern	*Sterna forsteri*	Beaverhead/Madison
Birds	Fox Sparrow	*Passerella iliaca*	Beaverhead/Madison
Birds	Franklin's Gull	*Leucophaeus pipixcan*	Beaverhead/Madison
Birds	Gadwall	*Anas strepera*	Beaverhead/Madison
Birds	Golden Eagle	*Aquila chrysaetos*	Beaverhead/Madison
Birds	Golden-crowned Kinglet	*Regulus satrapa*	Beaverhead/Madison
Birds	Grasshopper Sparrow	*Ammodramus savannarum*	Beaverhead/Madison
Birds	Gray Catbird	*Dumetella carolinensis*	Beaverhead/Madison
Birds	Gray Flycatcher	*Empidonax wrightii*	Beaverhead/Madison
Birds	Evening Grosbeak	*Coccothraustes vespertinus*	Beaverhead/Madison
Birds	Common Merganser	*Mergus merganser*	Beaverhead/Madison
Birds	Cedar Waxwing	*Bombycilla cedrorum*	Beaverhead/Madison
Birds	Chipping Sparrow	*Spizella passerina*	Beaverhead/Madison
Birds	Chukar	*Alectoris chukar*	Beaverhead/Madison
Birds	Cinnamon Teal	*Anas cyanoptera*	Beaverhead/Madison
Birds	Clark's Grebe	*Aechmophorus clarkii*	Beaverhead/Madison
Birds	Clark's Nutcracker	*Nucifraga columbiana*	Beaverhead/Madison
Birds	Clay-colored Sparrow	*Spizella pallida*	Beaverhead/Madison
Birds	Cliff Swallow	*Petrochelidon pyrrhonota*	Beaverhead/Madison
Birds	Common Goldeneye	*Bucephala clangula*	Beaverhead/Madison
Birds	Double-crested Cormorant	*Phalacrocorax auritus*	Beaverhead/Madison
Birds	Common Loon	*Gavia immer*	Beaverhead/Madison
Birds	Cattle Egret	*Bubulcus ibis*	Beaverhead/Madison
Birds	Eurasian Collared-Dove	*Streptopelia decaocto*	Beaverhead/Madison
Birds	Common Poorwill	*Phalaenoptilus nuttallii*	Beaverhead/Madison
Birds	Common Raven	*Corvus corax*	Beaverhead/Madison
Birds	Common Redpoll	*Acanthis flammea*	Beaverhead/Madison
Birds	Common Tern	*Sterna hirundo*	Beaverhead/Madison
Birds	Common Yellowthroat	*Geothlypis trichas*	Beaverhead/Madison
Birds	Cooper's Hawk	*Accipiter cooperii*	Beaverhead/Madison
Birds	Cordilleran Flycatcher	*Empidonax occidentalis*	Beaverhead/Madison
Birds	Dark-eyed Junco	*Junco hyemalis*	Beaverhead/Madison
Birds	Common Grackle	*Quiscalus quiscula*	Beaverhead/Madison
Birds	American Kestrel	*Falco sparverius*	Beaverhead/Madison

Type	Common Name	Scientific Name	County
Birds	American Avocet	*Recurvirostra americana*	Beaverhead/Madison
Birds	American Bittern	*Botaurus lentiginosus*	Beaverhead/Madison
Birds	American Coot	*Fulica americana*	Beaverhead/Madison
Birds	American Crow	*Corvus brachyrhynchos*	Beaverhead/Madison
Birds	American Goldfinch	*Spinus tristis*	Beaverhead/Madison
Birds	American Pipit	*Anthus rubescens*	Beaverhead/Madison
Birds	American Redstart	*Setophaga ruticilla*	Beaverhead/Madison
Birds	American Robin	*Turdus migratorius*	Beaverhead/Madison
Birds	American Three-toed Woodpecker	*Picoides dorsalis*	Beaverhead/Madison
Birds	American Tree Sparrow	*Spizella arborea*	Beaverhead/Madison
Birds	American White Pelican	*Pelecanus erythrorhynchos*	Beaverhead/Madison
Birds	American Wigeon	*Anas americana*	Beaverhead/Madison
Birds	Baird's Sandpiper	*Calidris bairdii*	Beaverhead/Madison
Birds	Bald Eagle	*Haliaeetus leucocephalus*	Beaverhead/Madison
Birds	American Dipper	*Cinclus mexicanus*	Beaverhead/Madison
Birds	Bank Swallow	*Riparia riparia*	Beaverhead/Madison
Birds	Marbled Godwit	*Limosa fedoa*	Beaverhead/Madison
Birds	Gray Jay	*Perisoreus canadensis*	Beaverhead/Madison
Birds	Upland Sandpiper	*Bartramia longicauda*	Beaverhead/Madison
Birds	MacGillivray's Warbler	*Geothlypis tolmiei*	Beaverhead/Madison
Birds	Steller's Jay	*Cyanocitta stelleri*	Beaverhead/Madison
Birds	Surf Scoter	*Melanitta perspicillata*	Beaverhead/Madison
Birds	Swainson's Hawk	*Buteo swainsoni*	Beaverhead/Madison
Birds	Swainson's Thrush	*Catharus ustulatus*	Beaverhead/Madison
Birds	Townsend's Solitaire	*Myadestes townsendi*	Beaverhead/Madison
Birds	Townsend's Warbler	*Setophaga townsendi*	Beaverhead/Madison
Birds	Tree Swallow	*Tachycineta bicolor*	Beaverhead/Madison
Birds	Trumpeter Swan	*Cygnus buccinator*	Beaverhead/Madison
Birds	Spotted Sandpiper	*Actitis macularius*	Beaverhead/Madison
Birds	Turkey Vulture	*Cathartes aura*	Beaverhead/Madison
Birds	Sora	*Porzana carolina*	Beaverhead/Madison
Birds	Varied Thrush	*Ixoreus naevius*	Beaverhead/Madison
Birds	Veery	*Catharus fuscescens*	Beaverhead/Madison
Birds	Vesper Sparrow	*Pooecetes gramineus*	Beaverhead/Madison
Birds	Violet-green Swallow	*Tachycineta thalassina*	Beaverhead/Madison
Birds	Virginia Rail	*Rallus limicola*	Beaverhead/Madison
Birds	Warbling Vireo	*Vireo gilvus*	Beaverhead/Madison
Birds	Western Bluebird	*Sialia mexicana*	Beaverhead/Madison
Birds	Western Grebe	*Aechmophorus occidentalis*	Beaverhead/Madison
Birds	Western Kingbird	*Tyrannus verticalis*	Beaverhead/Madison
Birds	Tundra Swan	*Cygnus columbianus*	Beaverhead/Madison
Birds	Semipalmated Plover	*Charadrius semipalmatus*	Beaverhead/Madison
Birds	Ruby-crowned Kinglet	*Regulus calendula*	Beaverhead/Madison
Birds	Ruddy Duck	*Oxyura jamaicensis*	Beaverhead/Madison
Birds	Ruffed Grouse	*Bonasa umbellus*	Beaverhead/Madison
Birds	Rufous Hummingbird	*Selasphorus rufus*	Beaverhead/Madison
Birds	Sabine's Gull	*Xema sabini*	Beaverhead/Madison
Birds	Sage Thrasher	*Oreoscoptes montanus*	Beaverhead/Madison
Birds	Sanderling	*Calidris alba*	Beaverhead/Madison
Birds	Sandhill Crane	*Grus canadensis*	Beaverhead/Madison
Birds	Savannah Sparrow	*Passerculus sandwichensis*	Beaverhead/Madison
Birds	Spotted Towhee	*Pipilo maculatus*	Beaverhead/Madison
Birds	Scissor-tailed Flycatcher	*Tyrannus forficatus*	Beaverhead/Madison

Type	Common Name	Scientific Name	County
Birds	Western Tanager	*Piranga ludoviciana*	Beaverhead/Madison
Birds	Sharp-shinned Hawk	*Accipiter striatus*	Beaverhead/Madison
Birds	Short-eared Owl	*Asio flammeus*	Beaverhead/Madison
Birds	Snow Bunting	*Plectrophenax nivalis*	Beaverhead/Madison
Birds	Snow Goose	*Chen caerulescens*	Beaverhead/Madison
Birds	Snowy Egret	*Egretta thula*	Beaverhead/Madison
Birds	Snowy Owl	*Bubo scandiacus*	Beaverhead/Madison
Birds	Solitary Sandpiper	*Tringa solitaria*	Beaverhead/Madison
Birds	Solitary Vireo	*Vireo solitarius*	Beaverhead/Madison
Birds	Song Sparrow	*Melospiza melodia*	Beaverhead/Madison
Birds	Say's Phoebe	*Sayornis saya*	Beaverhead/Madison
Birds	Western Meadowlark	*Sturnella neglecta*	Beaverhead/Madison
Birds	Willow Flycatcher	*Empidonax traillii*	Beaverhead/Madison
Birds	Rose-breasted Grosbeak	*Pheucticus ludovicianus*	Beaverhead/Madison
Birds	Western Wood-Pewee	*Contopus sordidulus*	Beaverhead/Madison
Birds	White-breasted Nuthatch	*Sitta carolinensis*	Beaverhead/Madison
Birds	White-crowned Sparrow	*Zonotrichia leucophrys*	Beaverhead/Madison
Birds	White-faced Ibis	*Plegadis chihi*	Beaverhead/Madison
Birds	White-throated Swift	*Aeronautes saxatalis*	Beaverhead/Madison
Birds	White-winged Crossbill	*Loxia leucoptera*	Beaverhead/Madison
Birds	Whooping Crane	*Grus americana*	Beaverhead/Madison
Birds	Wild Turkey	*Meleagris gallopavo*	Beaverhead/Madison
Birds	Williamson's Sapsucker	*Sphyrapicus thyroideus*	Beaverhead/Madison
Birds	Wilson's Phalarope	*Phalaropus tricolor*	Beaverhead/Madison
Birds	Wilson's Snipe	*Gallinago delicata*	Beaverhead/Madison
Birds	Wilson's Warbler	*Cardellina pusilla*	Beaverhead/Madison
Birds	Wood Duck	*Aix sponsa*	Beaverhead/Madison
Birds	Yellow Warbler	*Setophaga petechia*	Beaverhead/Madison
Birds	Yellow-breasted Chat	*Icteria virens*	Beaverhead/Madison
Birds	Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*	Beaverhead/Madison
Birds	Yellow-rumped Warbler	*Setophaga coronata*	Beaverhead/Madison
Birds	Yellow-rumped Warbler (Audubon's)	*Setophaga coronata auduboni*	Beaverhead/Madison
Birds	Western Sandpiper	*Calidris mauri*	Beaverhead/Madison
Birds	Willet	*Tringa semipalmata*	Beaverhead/Madison
Birds	Long-billed Dowitcher	*Limnodromus scolopaceus*	Beaverhead/Madison
Birds	Lark Sparrow	*Chondestes grammacus*	Beaverhead/Madison
Birds	Lazuli Bunting	*Passerina amoena*	Beaverhead/Madison
Birds	Least Flycatcher	*Empidonax minimus*	Beaverhead/Madison
Birds	Least Sandpiper	*Calidris minutilla*	Beaverhead/Madison
Birds	Lesser Scaup	*Aythya affinis*	Beaverhead/Madison
Birds	Lesser Yellowlegs	*Tringa flavipes*	Beaverhead/Madison
Birds	Lewis's Woodpecker	*Melanerpes lewis*	Beaverhead/Madison
Birds	Lincoln's Sparrow	*Melospiza lincolnii*	Beaverhead/Madison
Birds	Little Blue Heron	*Egretta caerulea*	Beaverhead/Madison
Birds	Mute Swan	*Cygnus olor*	Beaverhead/Madison
Birds	Long-billed Curlew	*Numenius americanus*	Beaverhead/Madison
Birds	Killdeer	*Charadrius vociferus*	Beaverhead/Madison
Birds	Long-eared Owl	*Asio otus*	Beaverhead/Madison
Birds	Mallard	*Anas platyrhynchos*	Beaverhead/Madison
Birds	Marsh Wren	*Cistothorus palustris*	Beaverhead/Madison
Birds	McCown's Longspur	*Rhynchophanes mccownii*	Beaverhead/Madison
Birds	Merlin	*Falco columbarius*	Beaverhead/Madison
Birds	Mountain Bluebird	*Sialia currucoides*	Beaverhead/Madison

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Birds	Mountain Chickadee	*Poecile gambeli*	Beaverhead/Madison
Birds	Rough-legged Hawk	*Buteo lagopus*	Beaverhead/Madison
Birds	Loggerhead Shrike	*Lanius ludovicianus*	Beaverhead/Madison
Birds	Harlequin Duck	*Histrionicus histrionicus*	Beaverhead/Madison
Birds	Gray-crowned Rosy-Finch	*Leucosticte tephrocotis*	Beaverhead/Madison
Birds	Great Blue Heron	*Ardea herodias*	Beaverhead/Madison
Birds	Great Egret	*Ardea alba*	Beaverhead/Madison
Birds	Great Gray Owl	*Strix nebulosa*	Beaverhead/Madison
Birds	Great Horned Owl	*Bubo virginianus*	Beaverhead/Madison
Birds	Greater Sage-Grouse	*Centrocercus urophasianus*	Beaverhead/Madison
Birds	Greater Yellowlegs	*Tringa melanoleuca*	Beaverhead/Madison
Birds	Green-tailed Towhee	*Pipilo chlorurus*	Beaverhead/Madison
Birds	Green-winged Teal	*Anas crecca*	Beaverhead/Madison
Birds	Lark Bunting	*Calamospiza melanocorys*	Beaverhead/Madison
Birds	Hammond's Flycatcher	*Empidonax hammondii*	Beaverhead/Madison
Birds	Lapland Longspur	*Calcarius lapponicus*	Beaverhead/Madison
Birds	Harris's Sparrow	*Zonotrichia querula*	Beaverhead/Madison
Birds	Hermit Thrush	*Catharus guttatus*	Beaverhead/Madison
Birds	Hooded Merganser	*Lophodytes cucullatus*	Beaverhead/Madison
Birds	Horned Grebe	*Podiceps auritus*	Beaverhead/Madison
Birds	Horned Lark	*Eremophila alpestris*	Beaverhead/Madison
Birds	House Finch	*Haemorhous mexicanus*	Beaverhead/Madison
Birds	House Sparrow	*Passer domesticus*	Beaverhead/Madison
Birds	House Wren	*Troglodytes aedon*	Beaverhead/Madison
Birds	Indigo Bunting	*Passerina cyanea*	Beaverhead/Madison
Birds	Nashville Warbler	*Oreothlypis ruficapilla*	Beaverhead/Madison
Birds	Hairy Woodpecker	*Picoides villosus*	Beaverhead/Madison
Birds	Red-necked Phalarope	*Phalaropus lobatus*	Beaverhead/Madison
Birds	Pine Grosbeak	*Pinicola enucleator*	Beaverhead/Madison
Birds	Pine Siskin	*Spinus pinus*	Beaverhead/Madison
Birds	Pinyon Jay	*Gymnorhinus cyanocephalus*	Beaverhead/Madison
Birds	Prairie Falcon	*Falco mexicanus*	Beaverhead/Madison
Birds	Pygmy Nuthatch	*Sitta pygmaea*	Beaverhead/Madison
Birds	Red Crossbill	*Loxia curvirostra*	Beaverhead/Madison
Birds	Red-breasted Merganser	*Mergus serrator*	Beaverhead/Madison
Birds	Red-breasted Nuthatch	*Sitta canadensis*	Beaverhead/Madison
Birds	Red-eyed Vireo	*Vireo olivaceus*	Beaverhead/Madison
Birds	Mourning Dove	*Zenaida macroura*	Beaverhead/Madison
Birds	Red-necked Grebe	*Podiceps grisegena*	Beaverhead/Madison
Birds	Peregrine Falcon	*Falco peregrinus*	Beaverhead/Madison
Birds	Red-tailed Hawk	*Buteo jamaicensis*	Beaverhead/Madison
Birds	Red-winged Blackbird	*Agelaius phoeniceus*	Beaverhead/Madison
Birds	Redhead	*Aythya americana*	Beaverhead/Madison
Birds	Ring-billed Gull	*Larus delawarensis*	Beaverhead/Madison
Birds	Ring-necked Duck	*Aythya collaris*	Beaverhead/Madison
Birds	Ring-necked Pheasant	*Phasianus colchicus*	Beaverhead/Madison
Birds	Rock Pigeon	*Columba livia*	Beaverhead/Madison
Birds	Rock Wren	*Salpinctes obsoletus*	Beaverhead/Madison
Birds	Gray Partridge	*Perdix perdix*	Beaverhead/Madison
Birds	Red-naped Sapsucker	*Sphyrapicus nuchalis*	Beaverhead/Madison
Birds	Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	Beaverhead/Madison

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Birds	Northern Bobwhite	*Colinus virginianus*	Beaverhead/Madison
Birds	Northern Flicker	*Colaptes auratus*	Beaverhead/Madison
Birds	Northern Flicker (Red-shafted)	*Colaptes auratus cafer*	Beaverhead/Madison
Birds	Northern Goshawk	*Accipiter gentilis*	Beaverhead/Madison
Birds	Northern Harrier	*Circus cyaneus*	Beaverhead/Madison
Birds	Northern Hawk Owl	*Surnia ulula*	Beaverhead/Madison
Birds	Northern Mockingbird	*Mimus polyglottos*	Beaverhead/Madison
Birds	Northern Oriole	*Icterus galbula*	Beaverhead/Madison
Birds	Northern Parula	*Setophaga americana*	Beaverhead/Madison
Birds	Pileated Woodpecker	*Dryocopus pileatus*	Beaverhead/Madison
Birds	Northern Pygmy-Owl	*Glaucidium gnoma*	Beaverhead/Madison
Birds	Pied-billed Grebe	*Podilymbus podiceps*	Beaverhead/Madison
Birds	Northern Saw-whet Owl	*Aegolius acadicus*	Beaverhead/Madison
Birds	Northern Shoveler	*Anas clypeata*	Beaverhead/Madison
Birds	Northern Shrike	*Lanius excubitor*	Beaverhead/Madison
Birds	Northern Waterthrush	*Parkesia noveboracensis*	Beaverhead/Madison
Birds	Olive-sided Flycatcher	*Contopus cooperi*	Beaverhead/Madison
Birds	Orange-crowned Warbler	*Oreothlypis celata*	Beaverhead/Madison
Birds	Osprey	*Pandion haliaetus*	Beaverhead/Madison
Birds	Pacific Wren	*Troglodytes pacificus*	Beaverhead/Madison
Birds	Pectoral Sandpiper	*Calidris melanotos*	Beaverhead/Madison
Birds	Ross's Goose	*Chen rossii*	Beaverhead/Madison
Birds	Northern Pintail	*Anas acuta*	Beaverhead/Madison
Fish	Bull Trout	*Salvelinus confluentus*	Beaverhead
Fish	Burbot	*Lota lota*	Beaverhead
Fish	California Golden Trout	*Oncorhynchus mykiss aguabonita*	Beaverhead
Fish	Columbia Slimy Sculpin	*Cottus cognatus*	Beaverhead
Fish	Common Carp	*Cyprinus carpio*	Beaverhead
Fish	Lake Trout	*Salvelinus namaycush*	Beaverhead
Fish	Stonecat	*Noturus flavus*	Madison
Fish	Green Swordtail	*Xiphophorus helleri*	Madison
Fish	Flathead Chub	*Platygobio gracilis*	Madison
Fish	Shortfin Molly	*Poecilia mexicana*	Madison
Fish	Sailfin Molly	*Poecilia latipinna*	Madison
Fish	Mountain Sucker	*Catostomus platyrhynchus*	Madison
Fish	Longnose Dace	*Rhinichthys cataractae*	Beaverhead/Madison
Fish	Arctic Grayling	*Thymallus arcticus*	Beaverhead/Madison
Fish	Brown Trout	*Salmo trutta*	Beaverhead/Madison
Fish	Longnose Sucker	*Catostomus catostomus*	Beaverhead/Madison
Fish	Mountain Whitefish	*Prosopium williamsoni*	Beaverhead/Madison
Fish	Rainbow Trout	*Oncorhynchus mykiss*	Beaverhead/Madison
Fish	Redside Shiner	*Richardsonius balteatus*	Beaverhead/Madison
Fish	Rocky Mountain Sculpin	*Cottus bondi*	Beaverhead/Madison
Fish	Utah Chub	*Gila atraria*	Beaverhead/Madison
Fish	Westslope Cutthroat Trout	*Oncorhynchus clarkii lewisi*	Beaverhead/Madison
Fish	White Sucker	*Catostomus commersoni*	Beaverhead/Madison
Fish	Yellowstone Cutthroat Trout	*Oncorhynchus clarkii bouvieri*	Beaverhead/Madison
Fish	Brook Trout	*Salvelinus fontinalis*	Beaverhead/Madison
Mammals	Richardson's Ground Squirrel	*Urocitellus richardsonii*	Madison
Mammals	Bison	*Bos bison*	Madison
Mammals	Least Weasel	*Mustela nivalis*	Madison
Mammals	Dwarf Shrew	*Sorex nanus*	Beaverhead

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Mammals	Feral Horse	*Equus caballus*	Madison
Mammals	Northern Flying Squirrel	*Glaucomys sabrinus*	Beaverhead
Mammals	Northern Grasshopper Mouse	*Onychomys leucogaster*	Beaverhead
Mammals	Northern Bog Lemming	*Synaptomys borealis*	Beaverhead
Mammals	Merriam's Shrew	*Sorex merriami*	Beaverhead
Mammals	Hoary Marmot	*Marmota caligata*	Beaverhead
Mammals	Heather Vole	*Phenacomys intermedius*	Beaverhead
Mammals	Fisher	*Martes pennanti*	Beaverhead
Mammals	Red-tailed Chipmunk	*Tamias ruficaudus*	Beaverhead
Mammals	Snowshoe Hare	*Lepus americanus*	Beaverhead
Mammals	Montane Vole	*Microtus montanus*	Beaverhead/Madison
Mammals	Sagebrush Vole	*Lemmiscus curtatus*	Beaverhead/Madison
Mammals	Least Chipmunk	*Tamias minimus*	Beaverhead/Madison
Mammals	Little Brown Myotis	*Myotis lucifugus*	Beaverhead/Madison
Mammals	Long-eared Myotis	*Myotis evotis*	Beaverhead/Madison
Mammals	Long-legged Myotis	*Myotis volans*	Beaverhead/Madison
Mammals	Long-tailed Vole	*Microtus longicaudus*	Beaverhead/Madison
Mammals	Long-tailed Weasel	*Mustela frenata*	Beaverhead/Madison
Mammals	Marten	*Martes americana*	Beaverhead/Madison
Mammals	House Mouse	*Mus musculus*	Beaverhead/Madison
Mammals	Meadow Vole	*Microtus pennsylvanicus*	Beaverhead/Madison
Mammals	Hoary Bat	*Lasiurus cinereus*	Beaverhead/Madison
Mammals	Moose	*Alces americanus*	Beaverhead/Madison
Mammals	Mountain Cottontail	*Sylvilagus nuttallii*	Beaverhead/Madison
Mammals	Mountain Goat	*Oreamnos americanus*	Beaverhead/Madison
Mammals	Mountain Lion	*Puma concolor*	Beaverhead/Madison
Mammals	Mule Deer	*Odocoileus hemionus*	Beaverhead/Madison
Mammals	Muskrat	*Ondatra zibethicus*	Beaverhead/Madison
Mammals	Myotis Spp	*Myotis spp.*	Beaverhead/Madison
Mammals	Northern Pocket Gopher	*Thomomys talpoides*	Beaverhead/Madison
Mammals	Northern River Otter	*Lontra canadensis*	Beaverhead/Madison
Mammals	Masked Shrew	*Sorex cinereus*	Beaverhead/Madison
Mammals	Columbian Ground Squirrel	*Urocitellus columbianus*	Beaverhead/Madison
Mammals	Badger	*Taxidea taxus*	Beaverhead/Madison
Mammals	Beaver	*Castor canadensis*	Beaverhead/Madison
Mammals	Big Brown Bat	*Eptesicus fuscus*	Beaverhead/Madison
Mammals	Bighorn Sheep	*Ovis canadensis*	Beaverhead/Madison
Mammals	Black Bear	*Ursus americanus*	Beaverhead/Madison
Mammals	Black-tailed Jack Rabbit	*Lepus californicus*	Beaverhead/Madison
Mammals	Bobcat	*Lynx rufus*	Beaverhead/Madison
Mammals	Bushy-tailed Woodrat	*Neotoma cinerea*	Beaverhead/Madison
Mammals	Idaho Pocket Gopher	*Thomomys idahoensis*	Beaverhead/Madison
Mammals	Canada Lynx	*Lynx canadensis*	Beaverhead/Madison
Mammals	Preble's Shrew	*Sorex preblei*	Beaverhead/Madison
Mammals	Coyote	*Canis latrans*	Beaverhead/Madison
Mammals	Deer Mouse	*Peromyscus maniculatus*	Beaverhead/Madison
Mammals	Dusky or Montane Shrew	*Sorex monticolus*	Beaverhead/Madison
Mammals	Elk	*Cervus canadensis*	Beaverhead/Madison
Mammals	Fringed Myotis	*Myotis thysanodes*	Beaverhead/Madison
Mammals	Golden-mantled Ground Squirrel	*Callospermophilus lateralis*	Beaverhead/Madison
Mammals	Gray Wolf	*Canis lupus*	Beaverhead/Madison
Mammals	Great Basin Pocket Mouse	*Perognathus parvus*	Beaverhead/Madison
Mammals	Grizzly Bear	*Ursus arctos*	Beaverhead/Madison

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Mammals	California Myotis	*Myotis californicus*	Beaverhead/Madison
Mammals	Wolverine	*Gulo gulo*	Beaverhead/Madison
Mammals	Wyoming Ground Squirrel	*Urocitellus elegans*	Beaverhead/Madison
Mammals	Yellow-bellied Marmot	*Marmota flaviventris*	Beaverhead/Madison
Mammals	Yellow-pine Chipmunk	*Tamias amoenus*	Beaverhead/Madison
Mammals	Pika	*Ochotona princeps*	Beaverhead/Madison
Mammals	Western Spotted Skunk	*Spilogale gracilis*	Beaverhead/Madison
Mammals	Spotted Bat	*Euderma maculatum*	Beaverhead/Madison
Mammals	Pronghorn	*Antilocapra americana*	Beaverhead/Madison
Mammals	Pygmy Rabbit	*Brachylagus idahoensis*	Beaverhead/Madison
Mammals	Raccoon	*Procyon lotor*	Beaverhead/Madison
Mammals	Red Fox	*Vulpes vulpes*	Beaverhead/Madison
Mammals	Red Squirrel	*Tamiasciurus hudsonicus*	Beaverhead/Madison
Mammals	Short-tailed Weasel	*Mustela erminea*	Beaverhead/Madison
Mammals	White-tailed Jack Rabbit	*Lepus townsendii*	Beaverhead/Madison
Mammals	Southern Red-backed Vole	*Myodes gapperi*	Beaverhead/Madison
Mammals	White-tailed Deer	*Odocoileus virginianus*	Beaverhead/Madison
Mammals	Striped Skunk	*Mephitis mephitis*	Beaverhead/Madison
Mammals	Townsend's Big-eared Bat	*Corynorhinus townsendii*	Beaverhead/Madison
Mammals	Uinta Ground Squirrel	*Urocitellus armatus*	Beaverhead/Madison
Mammals	Vagrant Shrew	*Sorex vagrans*	Beaverhead/Madison
Mammals	Water Shrew	*Sorex palustris*	Beaverhead/Madison
Mammals	Water Vole	*Microtus richardsoni*	Beaverhead/Madison
Mammals	Western Jumping Mouse	*Zapus princeps*	Beaverhead/Madison
Mammals	Western Small-footed Myotis	*Myotis ciliolabrum*	Beaverhead/Madison
Mammals	Porcupine	*Erethizon dorsatum*	Beaverhead/Madison
Mammals	Silver-haired Bat	*Lasionycteris noctivagans*	Beaverhead/Madison
Mammals	American Mink	*Mustela vison*	Beaverhead/Madison
Reptiles	Pygmy Short-horned Lizard	*Phrynosoma douglasii*	Beaverhead
Reptiles	Eastern Racer	*Coluber constrictor*	Madison
Reptiles	Prairie Rattlesnake	*Crotalus viridis*	Beaverhead/Madison
Reptiles	Rubber Boa	*Charina bottae*	Beaverhead/Madison
Reptiles	Terrestrial Gartersnake	*Thamnophis elegans*	Beaverhead/Madison
Reptiles	Common Gartersnake	*Thamnophis sirtalis*	Beaverhead/Madison
Reptiles	Painted Turtle	*Chrysemys picta*	Beaverhead/Madison
Reptiles	Gophersnake	*Pituophis catenifer*	Beaverhead/Madison