

Nominated Site Name: Dutchman Wetlands

General Location: The Dutchman Wetlands encompass the lower reaches of Dutchman and Lost creeks north and west of the town of Warm Springs.

Maps: Maps and location information are withheld because private land is included in the IPA.

Photographs: Vegetation types are in Appendix A; MTNHP species of concern photographs are found in Appendix B.

County: Deer Lodge

Elevation: 4760-4960 ft

Size of Area: ca. 4,500 acres

Property Ownership: ARCO Environmental Remediation LLC and other individual private land owners

Other designations for the site: Mitigation for wetland impacts at U.S. superfund site. MTFWP had a grazing/wetland easement-agreement on the property prior to ARCO purchase.

Table 1. Plant species of concern at proposed Dutchman Wetlands IPA.

Species	MNHP Rank	Last observed	Population size	Trend
<i>Atriplex truncata</i>	G5-S3	2015	>50	unknown
<i>Castilleja exilis</i>	G5-S2	2015	>500	unknown
<i>Primula incana</i>	G4/G5-S3	2015	>50	unknown
<i>Trichophorum cespitosum</i>	G5-S2	2014	>100	unknown
<i>Thalictrum alpinum</i>	G5-S2	2015	>50	unknown
<i>Utricularia ochroleuca</i>	G4?-S1	2014	>50	unknown

Threats: Changes in upstream diversion of Dutchman or Lost creeks could adversely affect plant communities or rare plant populations. Trampling by livestock may threaten some plant communities and some rare plants; however, disturbance from grazing may be advantageous to some species. Exotic species, including *Agrostis stolonifera*, *Cardaria draba*, *Cirsium arvense* and *Sonchus arvensis*, are present in significant amounts and pose potential threats. Long-term changes in climate could result in hydrologic changes that adversely affect some species while being beneficial to others.

Justification: The proposed Dutchman Wetlands IPA provides habitat for six species listed as species of concern by the Montana Natural Heritage Program which are considered rare in Montana although more common elsewhere. It is one of only two

known sites for *Utricularia ochroleuca* in Montana and is probably one of the largest populations of *Castilleja exilis* in the state.

The proposed Dutchman Wetlands IPA is a large wetland complex which encompasses a mosaic of wetland plant vegetation types, including the following.

Moist saline meadows occur mainly in the drier, eastern portion of the proposed IPA. Soils have a pale cast from surface salts. This type is dominated by the introduced *Agrostis stolonifera* and *Dasiphora fruticosa* with *Plantago eriopoda*, and *Elymus* sp. This area may have been disturbed by past livestock grazing and construction of check dams. This type can be referred to the *Agrostis stolonifera* Community Type (Hansen et al. 1995).

Wet meadow vegetation has wet or moist soil throughout most or all of the growing season. Dominant species include *Juncus balticus*, *Deschampsia cespitosa* and *Calamagrostis stricta*. *Pedicularis groenlandica* and *Allium schoenoprasum* are common forbs. This vegetation often forms a continuum with fen/carr complex and willow shrublands. This type can be referred to the *Deschampsia cespitosa* Habitat Type (Hansen et al. 1995).

Marsh vegetation is found where there are areas of active upwelling along subsurface stream channels. Marshes are dominated by either *Schoenoplectus acutus* or *Typha latifolia*, usually in discrete near-monocultures. *Juncus balticus* and *Deschampsia cespitosa* are minor components of this vegetation. Marsh vegetation is referred to either the *Scirpus acutus* Habitat Type or the *Typha latifolia* Habitat Type (Hansen et al. 1995).

Willow shrublands are common in the western portion of the proposed IPA. They often merge into wet meadow or fen/carr vegetation. *Salix boothii*, *S. geyeriana*, and *S. candida* are the common willows. Common understory species include *Juncus balticus*, *Deschampsia cespitosa* and *Agrostis stolonifera*. This type can most likely be referred to the *Salix geyeriana/Calamagrostis canadensis* Habitat Type (Hansen et al. 1995).

The fen/carr complex occurs on wet, organic soils, often among upwelling areas along underground streams in the western portion of the IPA. *Salix candida* and *Betula pumila* are the common woody plants. Canopy cover of shrubs is variable, even over short distances. Common understory plants include *Carex simulata*, *Juncus balticus*, *Muhlenbergia glomerata* and *Triglochin maritima*. We collected a water sample in fen/carr vegetation; pH was 6.9 and conductivity was 780 $\mu\text{mhos/cm}$. Similar rich fen vegetation has been described by Lesica (1986) for Pine Butte Fen, a large peatland complex with similar water quality.

Small areas of quiet, open water occur scattered in the wet meadow, willow shrubland and fen/carr vegetation. *Potamogeton pectinatus* and *Utricularia vulgaris* are the common species. *Chara* sp. is a common algal component and indicates a significant calcium concentration in the water.

Woodlands dominated by *Populus tremuloides* occur along the southeast margin of the proposed IPA. These woodlands were not surveyed, but they are probably referable to the *Populus tremuloides*/*Cornus stolonifera* Habitat Type (Hansen et al. 1995).

Sources of information:

Dziak, D. J. Horton, P. Lesica, S. Mincemoyer, K. Nelson and S. Wall. 2015, 2016 surveys of Dutchman Creek Wetlands.

Keammerer, W. R. 2009. Post-remediation land reclamation evaluation system (LRES) study results for the Dutchman Creek area located in the Anaconda regional water, waste and soil operable unit. Unpublished report to Atlantic Richfield Co., Butte, MT.

Literature cited:

Hansen, P. L., R. D. Pfister, K. Boggs, B. J. Cook, J. Joy and D. K. Hinckley. 1995. Classification and management of Montana's riparian and wetland sites. Montana Forest and Conservation Experiment Station Miscellaneous Publication No. 54.

Lesica, P. 1986. Vegetation and flora of Pine Butte Fen, Teton County, Montana. Great Basin Naturalist 46: 22-32.

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Appendix A. Vegetation of the proposed Dutchman Wetlands IPA



Fen-carr vegetation



Moist saline meadow vegetation



Wet meadow and willow shrubland vegetation



Willow shrubland in the foreground with a bulrush marsh in the background

Appendix B. Photos of rare plants on the proposed Dutchman Wetlands IPA



Atriplex truncata



Castilleja exilis



Primula incana



Thalictrum alpinum



Trichophorum caespitosum



Utricularia ochroleuca