APPENDIX G

RARE PLANT SURVEY REPORT

Westside Irrigation District Rare Plant Survey Report

Big Horn County and Washakie County, Wyoming

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INTRODUCTION

The proposed project involves the conveyance of a parcel of land, comprising approximately 16,500 acres, from the Bureau of Land Management (BLM) to the Westside Irrigation District (WID). The parcel is located in southern Big Horn County and northern Washakie County, immediately west of Worland, Wyoming. WID proposes to use those portions of the parcel that are irrigable and that avoid impacts to wildlife, recreation, sensitive environmental areas, and other land uses. The majority of the project area is potentially suitable for irrigation by center pivot sprinkler systems. Irrigation water would be obtained by pumping water from the Bighorn River at three locations. Each site would contain two pumps together capable of pumping 80 cfs, a pump station and fore bay.

The majority of the 16,500-acre parcel is dominated by sagebrush steppe. Although extensive tracts of salt desert shrub occur immediately adjacent the site to the west, only small, scattered inclusions of this habitat were observed within the parcel. Four intermittent drainages convey water across the site in an easterly direction into the Bighorn River. The 4 tributaries, listed from north to south, include Alamo, Fivemile, Sixmile, and Tenmile Creeks. All of these drainages are culverted beneath the Bighorn (irrigation) Canal, which borders the site on the east. Three impoundments (stockponds) were observed on site, 1 of which contained standing water and supported hydrophytic vegetation.

This report has been prepared to document a survey that was conducted for two rare plant species with the proposed project area. The two species include Ute ladies'-tresses orchids (*Spiranthes diluvialis*), a federally-listed threatened plant species, and persistent sepal yellowcress (*Rorippa calycina*), a BLM-sensitive plant species (BLM Worland Field Office). The survey was conducted within areas of suitable habitat in the proposed project area.

Spiranthes diluvialis

Ute ladies'-tresses is a perennial forb in the orchid family. It was first described as a species by C. J. Sheviak in 1984. At the time of its discovery, the orchid was only known from Colorado and Utah. In January of 1922 it was listed as a federally Threatened species. Since its listing, additional populations of the orchid have been found in Colorado, Idaho, Montana, Nevada, Utah and Wyoming.

Ute ladies'-tresses orchid typically blooms from late July through August, and in some cases into September (USFWS 1992), although blooms have been recorded from early July to as late as October (Jennings 1989). Stems of the orchid typically reach 20 to 50 cm in height, rising from thick tuberous roots that depend on mycorrhizal fungi for enhanced water and nutrient absorption.

Spiranthes diluvialis primarily occurs on moist soils in mesic or wet meadows near springs, lakes, or perennial streams featuring relatively open vegetative cover. Jennings (1990) and Coyner (1989) reported that the orchid seems to require "permanent subirrigation", indicating a close affinity with floodplain areas where the water table is close to the surface throughout the growing season, but it is not tolerant of permanent standing water. Although the orchid often colonizes early successional riparian habitats (e.g., point bars, sand bars), it is generally believed

that it possesses a very low reproductive rate (*i.e.*, it recruits relatively few individuals to the overall population each year) (Coyner 1991). Furthermore, research has shown that individual plants can remain dormant for several growing seasons or produce only vegetative shoots, complicating inventory and study of its population structure.

Rorippa calycina

Persistent sepal yellowcress formerly had Federal Status as a Category 2 (C2) species, defined as a taxa for which current information indicates that proposing to list as endangered or threatened is possible, but more biological information is needed. Persisitent sepal yellowcress is currently considered a sensitive species by the BLM in Wyoming (Worland and Rawlins Field offices).

This rhizomatous, perennial herb in the mustard family occurs primarily along moist, sandy to muddy banks of streams, stock ponds, and man-made reservoirs near the high-water line. It is typically found at elevations ranging from 3,660 to 6,800 feet. The flowering period for the species extends from May to July, and the fruiting period extends from June through September (WYNDD). Persistent sepal yellowcress is known from 24 occurrences in Wyoming, from the Bighorn Basin, North Platte River drainage, Green River, and Wind River basins in Albany, Big Horn, Carbon, Fremont, Park, Sweetwater, and Washakie counties (WYNDD).

METHODS

All potential habitats within the proposed project area were thoroughly surveyed on foot from September 12-15, 2005. In general, parallel transects were walked through the wetlands concentrating in areas that most closely met the habitat descriptions for Ute ladies'-tresses (e.g., open wet meadows characterized by grasses, sedges, rushes and a lack of dense overstory or deeply shaded areas) and persistent sepal yellowcress, so that thorough coverage of all suitable habitats were achieved. Plant species observed during the survey were recorded (Appendix A). The surveys were performed by qualified WEST botanists Kurt Flaig and Jeanette Flaig.

RESULTS

Surveys for Ute ladies'-tresses orchid and persistent sepal yellowcress were conducted in a variety of wetland habitat types on site. These include emergent wet meadow, shallow marsh, fringe wetland, riparian scrub-shrub wetland, and forested wetland. Although the latter two wetland types are typically too dense with overstory vegetation for the two species, they featured small inclusions of open areas dominated by emergent vegetation. As a result, all portions of these wetland types were surveyed. No Ute ladies'-tresses or persistent sepal yellowcress were observed on site and they are presumed absent from the survey area.

All but one of the wetlands identified within the project area were in the immediate vicinity of, and associated with, the Bighorn Canal. This sole, isolated wetland occurred within an impoundment on a tributary to Tenmile Creek, along the southern boundary of the site. This shrub-scrub wetland was dominated by small plains cottonwoods (*Populus deltoides*) and whiplash willow (*Salix lasiandra*), which sparsely encircled a shallow pond. The pond

supported scattered patches of broadleaf cattail (*Typha latifolia*). The overall site, including its heavy clay soils, provided very marginal habitat for Ute ladies'-tresses orchids.

The remaining wetlands on site occurred along the Bighorn Canal, and were either associated with seepage from the levee or with a high water table (from the presence of the large canal). Emergent wetlands were observed along the canal and along the portions of the 4 tributaries in the immediate vicinity of the canal. To the west of the Bighorn Canal, each of these tributaries occurred as dry washes, and, with the exception of some scattered cottonwoods, supported no hydrophytic vegetation. Once culverted beneath the canal, the creeks became perennial, and supported a variety of hydrophytic vegetation. Hydrology is presumably a result of seepage, high water table, and canal water diversions into the tributaries. Forested wetlands were dominated by Russian olive (*Elaeagnus angustifolia*) and whiplash willow (*Salix lasiandra*) trees, and generally included scattered patches of open, emergent wetlands. Species that were commonly observed within emergent wetland and shallow marsh on site included slender wheatgrass (*Agropyron trachycaulum*), creeping bentgrass (*Agrostis stolonifera*), meadow foxtail (*Alopecurus pratensis*), beaked sedge (*Carex rostrata*), foxtail barley (*Hordeum jubatum*), Baltic rush (*Juncus balticus*), reed canarygrass (*Phalaris arundinacea*), curly dock (*Rumex crispus*), common threesquare (*Scirpus pungens*), softstem bulrush (*Scirpus validus*), broadleaf cattail, and cocklebur (*Xanthium strumarium*).

The majority of emergent wetlands and portions of the forested and scrub-shrub wetlands on site provide at least marginal habitat for Ute ladies'-tresses and persistent sepal yellowcress. However, the overall site elevation is approximately 1,000 feet below the known elevation range of the orhid in Wyoming, and it is therefore unlikely for the species to occur. No Ute ladies'-tresses or persistent sepal yellowcress were found on site.

DETERMINATION

It is determined that the proposed project would not likely affect any individuals or populations of Ute ladies'-tresses and persistent sepal yellowcress within the survey area.

Literature Cited

Coyner, J. 1989. Status check on reported historic populations of *Spiranthes dilvialis*. Report for Bureau of Land Management, Salt Lake City, Utah. 9pp.

Jennings, W. F. 1989. Final Report – *Spiranthes diluvialis*. Report for The Nature Conservancy under the Colorado Natural History Small Grants Program. The Nature Conservancy, Boulder, Colorado. 48pp.

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U.S. Fish and Wildlife Service (USFWS). 1992. Final Rule to List the plant *Spiranthes diluvialis* (Ute ladies'-tresses) as a Threatened species. Federal Register 57 (12): 2048-2054.

APPENDIX A
PLANT SPECIES OBSERVED
DURING THE WESTSIDE IRRIGATION DISTRICT
RARE PLANT SURVEY

FAMILY	COMMON NAME	SCIENTIFIC NAME
Alismataceae	Northern water plantain	*Alisma triviale*
	Arumleaf arrowhead	*Sagittaria cuneata*
Anacardiaceae	Skunkbush sumac	*Rhus trilobata*
Apiaceae	Water hemlock	*Cicuta douglasii*
Asclepidaceae	Showy milkweed	*Asclepias speciosa*
Asteraceae	Big sagebrush	*Artemisia tridentata*
	Gray rabbitbrush	*Chrysothamnus nauseosus*
	Canada thistle	*Cirsium arvense*
	Curly-cup gumweed	*Grindelia squarrosa*
	Povertyweed	*Iva axillaris*
	Sow thistle	*Sonchus uglinosus*
	Common cocklebur	*Xanthium strumarium*
Brassicaceae	Whitetop	*Cardaria draba*
	Tumble mustard	*Sysimbrium* sp.
Chenopodiaceae	Amaranth	*Amaranthus* sp.
	Twoscale saltbush	*Atriplex micrantha*
	Pitseed goosefoot	*Chenopodium berlandieri*
	Red goosefoot	*Chenopodium rubrum*
	Halogeton	*Halogeton glomeratus*
	Russian thistle	*Salsola tragus*
Cyperaceae	Nebraska sedge	*Carex nebrascensis*
	Beaked sedge	*Carex rostrata*
	Creeping spikerush	*Eleocharis palustris*
	Panicled bulrush	*Scirpus microcarpus*
	Common threesquare	*Scirpus pungens*
	Softstem bulrush	*Scirpus validus*
Elaeagnaceae	Russian olive	*Elaeagnus angustifolia*
Equisetaceae	Horsetail	*Equisetum* sp.
Fabaceae	Wild licorice	*Glycyrrhiza lepidota*
	White sweetclover	*Melilotus alba*
	Yellow sweetclover	*Melilotus officinalis*
Grossulariaceae	Gooseberry	*Ribes* sp.
Juncaceae	Baltic rush	*Juncus balticus*
Lamiaceae	Field mint	*Mentha arvensis*
Onagraceae	Fringed willowherb	*Epilobium ciliatum*
Poaceae	Slender wheatgrass	*Agropyron trachycaulum*
	Creeping bentgrass	*Agrostis stolonifera*
	Meadow foxtail	*Alopecurus pratensis*
	American sloughgrass	*Beckmannia syzigachne*
	Smooth brome	*Bromus inermis*
	Cheatgrass	*Bromus tectorum*
	Barnyardgrass	*Echinochloa crus-gali*
	Canada wildrye	*Elymus canadensis*

	Foxtail barley	*Hordeum jubatum*
	Reed canarygrass	*Phalaris arundinacea*
	Common reed	*Phragmites australis*
	Bristlegrass	*Setaria* sp.
	Sand dropseed	*Sporobolus cryptandrus*
Polygonaceae	Curly dock	*Rumex crispus*
	Golden dock	*Rumex maritimus*
Rosaceae	Prickly rose	*Rosa acicularis*
Salicaceae	Plains cottonwood	*Populus deltoides*
	Sandbar willow	*Salix exigua*
	Whiplash willow	*Salix lasiandra*
Sarcobataceae	Greasewood	*Sarcobatus vermiculatus*
Tamaricaceae	Tamarisk	*Tamarix chinensis*
Typhaceae	Broadleaf cattail	*Typha latifolia*