

*Spiranthes diluvialis*  
**Habitat Assessment and  
Survey Report**

**Portions of  
Gage-Marlatt Open Space  
Boulder County, Colorado**

*Prepared for—*

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## CONTENTS

Introduction .....	1
Project Location .....	1
Survey Methods.....	2
Site Description .....	2
Habitat Assessment and Survey Results .....	3
Conclusions .....	3

## APPENDICES

- Appendix A. Surveyor Qualifications
- Appendix B. Site Photos
- Appendix C. Data Sheets

## FIGURES

- Figure 1. Project Area
- Figure 2. Ute ladies'-tresses orchid Survey Area

# ***SPIRANTHES DILUVIALIS* HABITAT ASSESSMENT AND SURVEY REPORT**

## **PORTIONS OF GAGE-MARLATT OPEN SPACE BOULDER COUNTY, COLORADO**

**AUGUST 14, 2001**

### **Introduction**

ERO Resources is completing a baseline inventory of the Gage-Marlatt Open Space on behalf of Boulder County Parks and Open Space. As part of the baseline inventory, ERO conducted a habitat assessment and survey for the Ute ladies'-tresses orchid (*Spiranthes diluvialis*) on portions of the Marlatt Property that may be used in the future for a recreational trail.

Habitat assessments or surveys for the federally threatened Ute ladies'-tresses orchid were conducted in potentially suitable habitat in locations where the trail may be constructed (survey area). The following types of habitat, which may potentially support populations of Ute ladies'-tresses orchid, were surveyed—

1. Areas determined to be jurisdictional wetlands;
2. Seasonally moist areas near springs, lakes, irrigation ditches, or perennial streams and their associated flood plains;
3. Old stream channels and alluvial terraces;
4. Sub-irrigated meadows;
5. Areas supporting vegetation indicative of seasonally wet areas or areas dominated by vegetation considered to be facultative wetland species.

Habitat assessments and surveys were performed according to the U.S. Fish and Wildlife Service's November 23, 1992 interim survey requirements for Ute ladies'-tresses orchid. On August 8, 2001, Leigh Rouse, an ecologist from ERO Resources, conducted habitat assessments or orchid surveys on a portion of the Gage-Marlatt Open Space.

### **Project Location**

The Gage-Marlatt Open Space is located west of North 75<sup>th</sup> Street between St. Vrain and Hygiene Roads. The property is located in Township 3 North, Range 70 West, parts

of Sections 35 and 36, in Boulder County, Colorado as shown in Figure 1. The survey area includes only portions of the Marlatt Property held in fee title by Boulder County and bounded by Mill Ditch on the north, by St. Vrain Creek on the south, and by private property on the east and west (Figure 2). The UTM coordinates of the survey area are Zone 13: 484500mE and 4448000mN.

### **Survey Methods**

Prior to beginning the field survey for Ute ladies'-tresses orchid, the survey area was reviewed to determine the location and extent of any potential habitat for Ute ladies'-tresses orchid. Surveyors were overly inclusive in determining areas to be surveyed for the presence or absence of Ute ladies'-tresses orchid.

Each area considered to be potential habitat for Ute ladies'-tresses orchid was carefully surveyed by walking a series of parallel transects through the potential habitat. The interval between transects was determined separately for each site depending on the height of vegetation and the distance that the surveyor was confident in determining the radius of accurate observation. Surveyors are familiar with both the vegetative characteristics and the inflorescence of Ute ladies'-tresses orchid. Surveyors did not solely key on inflorescence and color. Additionally, two infrequently occurring species (*Lobelia siphilitica* and *Limnorchis hyberborea*), which are known to occur with Ute ladies'-tresses orchid, were searched for during the survey.

### **Site Description**

The area south of Mill Ditch and around the lakes has been reclaimed from gravel mining in the past 10 years. This area was reclaimed with pasture grasses and landscaped with some tree plantings. Wetlands occur only within the banks of the Mill Ditch and around the lakes. Areas being considered for the trail are drier and are dominated by upland and facultative upland species such as smooth brome (*Bromus inermis*), crested wheatgrass (*Agropyron cristatum*), intermediate wheatgrass (*Agropyron intermedium*), cheatgrass (*Bromus tectorum*), orchard grass (*Dactylis glomerata*), Canada thistle (*Cirsium arvense*), wild licorice (*Glycyrrhiza lepidota*), diffuse knapweed (*Centaurea*

*diffusa*), showy milkweed (*Asclepias speciosa*), and ragweed (*Ambrosia psilostachya*) (Photos 1 and 2). Vegetation cover is often dense.

The floral diversity of the area adjacent to and north of St. Vrain Creek is slightly higher with the presence of many forbs in the area. The area was used previously as a campground and picnic site with some facilities such as trails, bridges, and restrooms. Soils are highly compacted and the area has been overgrazed. Dominant vegetation cover includes western wheatgrass (*Agropyron smithii*), crested wheatgrass (*Agropyron cristatum*), smooth brome, intermediate wheatgrass, and cheatgrass (Photo 3 and 4). The riparian corridor of St. Vrain Creek is characterized by a dense overstory of plains cottonwood (*Populus deltoides*), lance-leaf cottonwood (*P. acuminata*), peachleaf willow (*Salix amygdaloides*), and box elder (*Acer negundo*).

### **Habitat Assessment and Survey Results**

Portions of the Marlatt Property that may be used in the future for a recreational trail were assessed for potential Ute ladies'-tresses orchid habitat. Generally, the area proposed for a recreation trail is too high above the water table and is not characterized by wetlands or species that typically occur within wetlands. Most areas within the survey area are not considered suitable habitat for the following reasons:

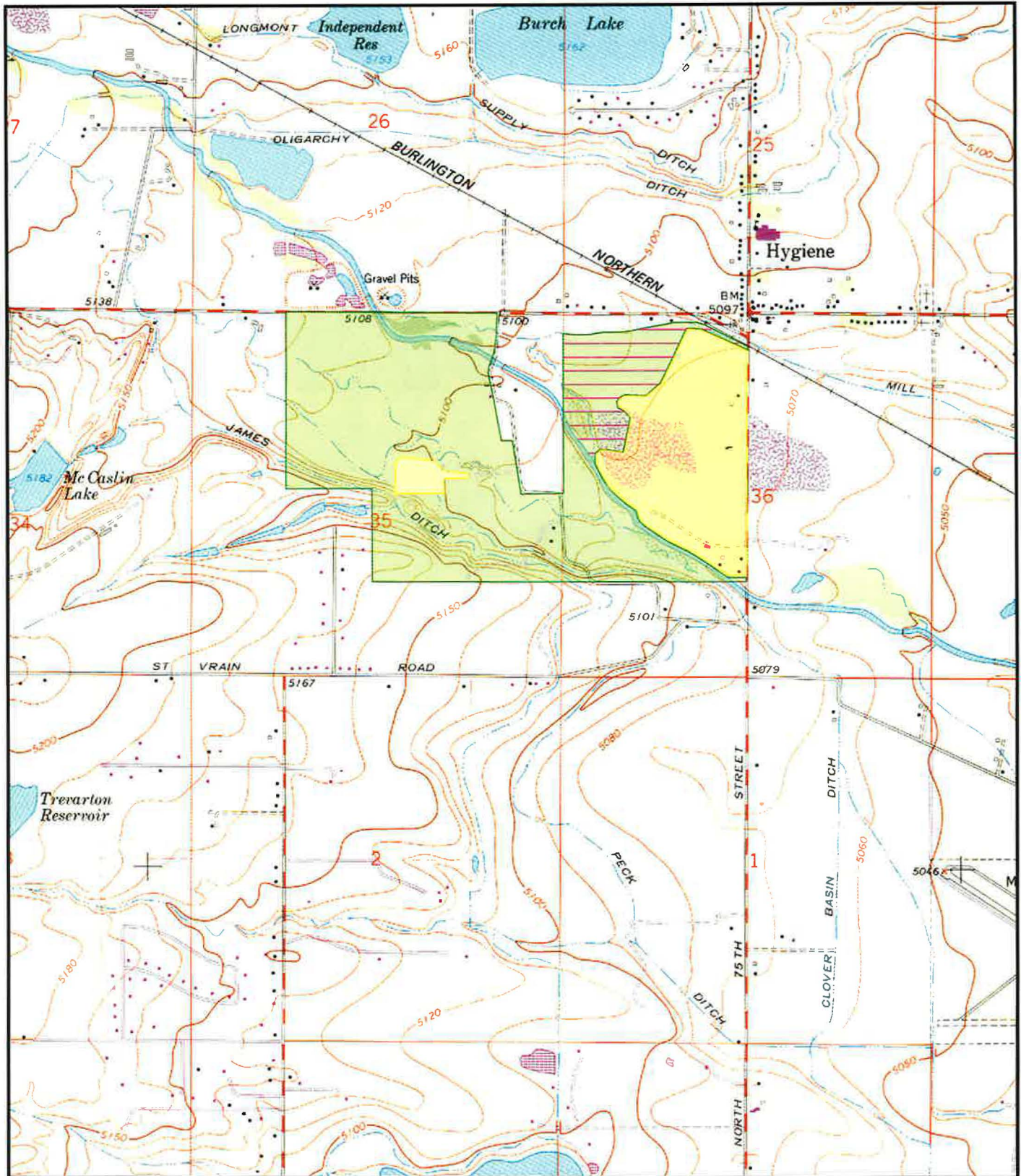
- Species typically associated with the orchid are not present.
- Areas surveyed are not characterized by a high water table (i.e., saturated to within 18 inches of the soil surface).
- Herbaceous vegetation is often dense or areas are heavily shaded by the dense overstory.

Although suitable habitat is not present in the survey area, surveyors carefully traversed all areas to note site conditions, plant species, and to locate any isolated wetlands within the floodplain that may be suitable habitat. No suitable habitat is located in the areas for a proposed recreation trail.

### **Conclusions**

All habitats within the survey area that could potentially support Ute ladies'-tresses orchid were either assessed for habitat or surveyed per the U.S. Fish and Wildlife Service

November 23, 1992 interim survey requirements for Ute ladies'-tresses orchid. Ute ladies'-tresses orchid was not observed within the survey area, and there is no reason to believe that it would be adversely affected by a proposed recreation trail project.



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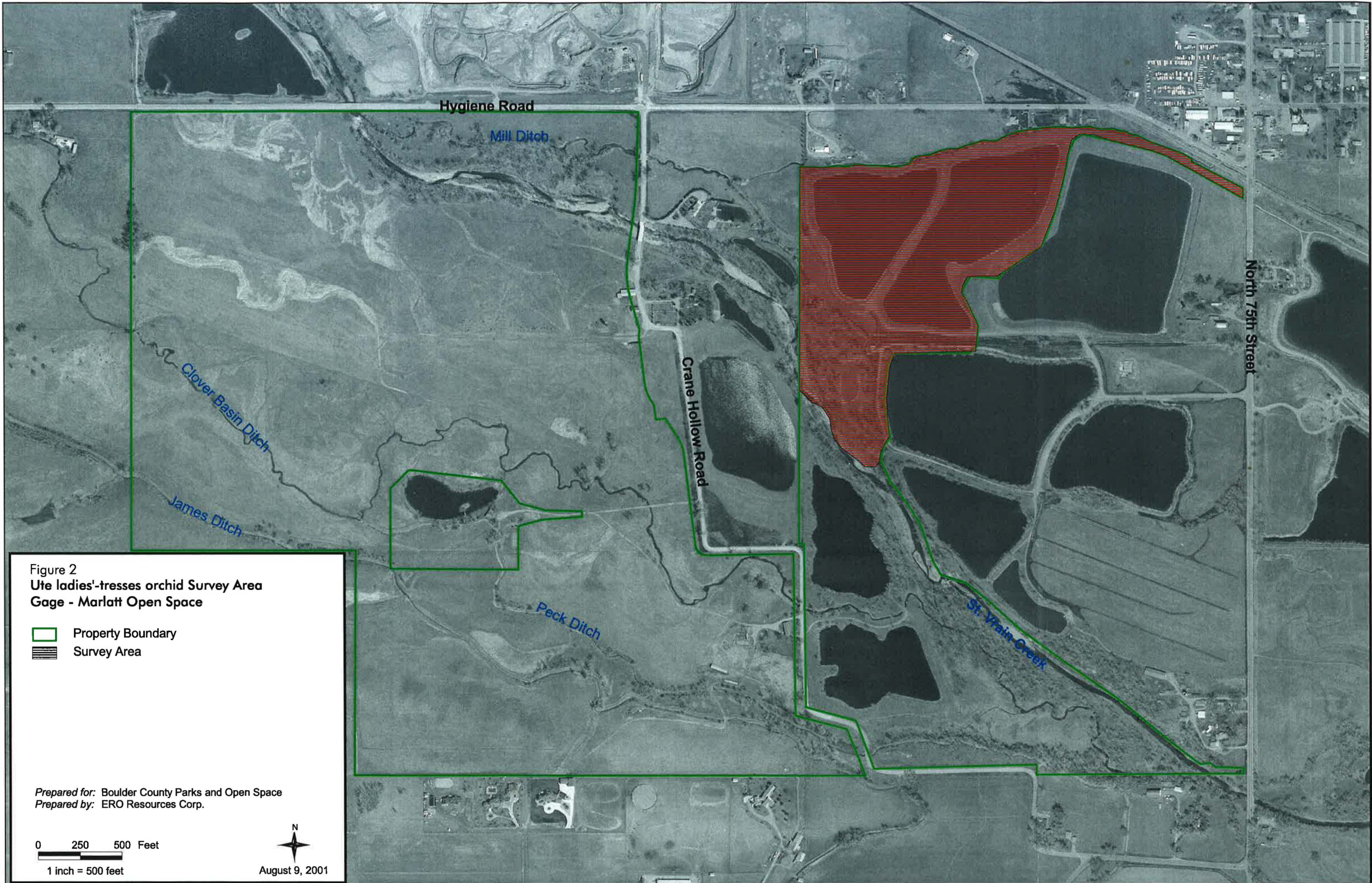
- Gage-Marlatt Open Space
- Properties under Conservation Easement
- Area Surveyed

Hygiene Quadrangle  
 Boulder County, Colorado

Figure 1  
 Project Area

1 Inch = 2,000 Feet







**Appendix A**  
**Surveyor Qualifications**

**Statement of Qualifications**  
**To conduct surveys to determine the presence or absence of**  
**the federally threatened orchid species, *Spiranthes diluvialis***

**Leigh Rouse**  
**ERO Resources Corporation**

**Botanical Expertise**

- Masters Degree in Botany from Arizona State University with courses in plant taxonomy and plant ecology.
- Past experience as an environmental consultant conducting rare plant surveys and monitoring vegetation.

**Rare Plant Surveys**

- Searched for several Forest Service sensitive species including *Machaeranthera coloradensis* near Leadville, Colorado in 1999.
- Searched for *Carex livida*, *Cylactis arctica* ssp. *acaulis*, *Erigeron coloradense*, *Machaeranthera coloradensis*, *Mimulus gemmiparus*, *Ptilagrostis porteri*, and *Sisyrinchium pallidum* along Tarryall Creek, Park County, Colorado, July 1999.
- Searched for *Sclerocactus glaucus* and *Astragalus debequaeus* near Montrose, Colorado in 1998.

**Familiarity with *Spiranthes diluvialis***

Leigh has read the most recent literature available regarding local populations and the ecology of the species. She has visited the orchid populations on Clear Creek in Prospect Park and in Golden as well as the population along Cherryvale Road in Boulder. Additionally, she has seen other areas of habitat where orchids have occurred along Clear Creek. She participated in orchid surveys on Clear Creek in Denver, Colorado and on the Cache la Poudre River and Rist Creek near Fort Collins, Colorado, under the supervision of other qualified surveyors.

**References**

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**Appendix B**  
**Site Photos**

**PORTIONS OF GAGE-MARLATT OPEN SPACE  
HABITAT PHOTO DOCUMENTATION**



**Photo 1. Areas along Mill Ditch and around the adjacent lakes have been reclaimed with pasture grasses such as smooth brome, crested wheatgrass, and intermediate wheatgrass.**



**Photo 2. Vegetation cover adjacent along Mill Ditch is often dense and includes many weedy species such as Canada thistle, diffuse knapweed, and ragweed.**

**PORTIONS OF GAGE-MARLATT OPEN SPACE  
HABITAT PHOTO DOCUMENTATION**



**Photo 3. Dominant vegetation cover in an area previously used as a campground and picnic area includes western wheatgrass, smooth brome, and cheatgrass.**



**Photo 4. Soils in the area adjacent to and north of St. Vrain Creek are highly compacted and has been heavily overgrazed in the past.**

**Appendix C**  
**Data Sheets**

*Spiranthes diluvialis*

**FIELD FORM**

Project/Site: GAGE-Marlatt Open Space	Date: 8/8/01
Applicant/Owner: Boulder Open Space	County: Boulder State: CO
Investigator: L. Rouse	Section: 36 Township: T3N Range: R70W
<b>SITE CONDITIONS</b>	USGS Quad Name: Hygiene
Ecological Condition: Disturbed from past mining, weedy	
Management History: Reclaimed Gravel pond	
Landscape Position: Near St. VRAIN River - South of mill Ditch	

**VEGETATION**

Dominant Plant Species	Other Commonly Occurring Species
1. Bromus inermis	1.
2. Cirsium arvense	2.
3. Glycyrrhiza lepidota	3.
4. Centaurea diffusa	4.
5. <del>St</del> Asclepias speciosa	5.
6. Ambrosia psilostachya	6.
Plant community name:	

Notes: Dry areas around lakes & along mill Ditch





*Spiranthes diluvialis*

**FIELD FORM**

Project/Site: <i>GAGE-Marlatt Open Space</i>	Date: <i>8/8/01</i>
Applicant/Owner: <i>Boulder Open Space</i>	County: <i>Boulder</i> State: <i>CO</i>
Investigator: <i>L. Rouse</i>	Section: <i>36</i> Township: <i>3N</i> Range: <i>70W</i>
<b>SITE CONDITIONS</b>	USGS Quad Name: <i>Hygiene</i>
Ecological Condition: <i>Riparian overstory w/ reclaimed grasses</i>	
Management History: <i>Camping + picnic grounds + cattle grazing</i>	
Landscape Position: <i>Floodplain (Historical)</i>	

**VEGETATION**

Dominant Plant Species	Other Commonly Occurring Species
1. <i>Agropyron cristatum</i>	1. <i>Populus acuminata</i>
2. <i>Agropyron smithii</i>	2. <i>Salix <del>ex</del> amygdaloides</i>
3. <i>Bromus inermis</i>	3. <i>Acer negundo</i>
4. <i>Bromus tectorum</i>	4.
5. <i>Agropyron int.</i>	5.
6. <i>Populus deltoides</i>	6.
Plant community name: <i>Riparian woodland</i>	

Notes: <i>DRY riparian terrace above active FT Flood plain.</i>

## SOILS

<b>Map Unit Name</b> (Series and Phase):			<b>Field Observations</b> Confirm Mapped Type? Yes No		
<b>Profile Description:</b>					
Depth (in)	Horizon	Matrix Color Munsell Moist	Mottle Color Munsell Moist	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
<b>Hydric Soil Indicators:</b> <i>No hydric soils present</i>					
<input type="checkbox"/> Histosol			<input type="checkbox"/> Concretions		
<input type="checkbox"/> Histic Epipedon			<input type="checkbox"/> High Organic Content in Surface Layer-Sandy Soils		
<input type="checkbox"/> Sulfidic Odor			<input type="checkbox"/> Organic Streaking in Sandy Soils		
<input type="checkbox"/> Aquic Moisture Regime			<input type="checkbox"/> Listed on Local Hydric Soils List		
<input type="checkbox"/> Reducing Conditions			<input type="checkbox"/> Listed on National Hydric Soils List		
<input type="checkbox"/> Gleyed or Low-Chroma Colors			<input type="checkbox"/> Other (Explain)		

## HYDROLOGY

<b>Field Observations:</b> <i>water table &gt; 18 inches below surface</i>	
Depth of Surface Water:	(in.)
Depth to Free Water in Pit:	(in.)
Depth to Saturated Soil:	(in.)
Seasonally Flooded?	Yes <input type="checkbox"/> <u>No</u> <input checked="" type="checkbox"/>

## OCCURRENCE OF *SPIRANTHES DILUVIALIS*

Was <i>Spiranthes diluvialis</i> observed on the site	Yes <input type="checkbox"/>	<u>No</u> <input checked="" type="checkbox"/>	State basis of population:
If yes, what is the estimated size of the population:			
Percent of population that is:	Not flowering	_____ %	
	Flowering	_____ %	
	Set Seed	_____ %	
Attach photo of population			