# Gentry Mountain Spring 158 Condition Assessment

**Location:** Gentry Pasture, Gentry Allotment (Wasatch Plateau), Manti-La Sal National Forest
**Date:** September 28, 2016 **Begin/End Time:** 11:11 AM, 12:00 PM
**Observers:** Kenzie Spooner, Sarah Dunn, Signe Lindquist, Fields Ford, Collin Smith

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## I. Introduction

Spring 158 is located on Gentry Mountain in Gentry Allotment at NAD 83, 492935E and 4374428N at an elevation of 9,988' at the source. Spring 158 was assessed to determine the condition of the spring and adjacent riparian areas.. This particular spring is composed of two microhabitats: the area within the exclosure and the area outside. The area within the exclosure is marshy around the spring source with plant growth. The area outside the exclosure is grassy with the spring fed stream running through it. A cattle pond is nearby. This spring is within a cattle allotment, and damages associated with livestock presence are evident at the spring. Aside from the spring source, signs of disturbance by grazers abound in the spring system.

## II. Spring Evaluation Methods

To assess the health and impacts on Spring 158, a team of five volunteers traveled to the site to collect data and make observations. Specific tasks were assigned to each team member, including observation recording, mapping the complex, assessing and sampling vegetation composition, and photographing significant features of the complex, as well as marking them as GPS waypoints with UTM coordinates. The team moved throughout the complex, examining microhabitats one at a time and recording observations for each assigned task. Specific, recorded observations include georeference points, photographic and drawn images associated with such points, notation of water presence and infrastructure as well as vegetation and groundcover composition, native and exotic dominant species samples, evidence of wildlife presence, and evidence of disturbance. The assessment of the spring was completed using a GPS unit, spring survey observation sheets, two cameras, a ruler, and sampling bags for vegetation.

## III. Photographs:

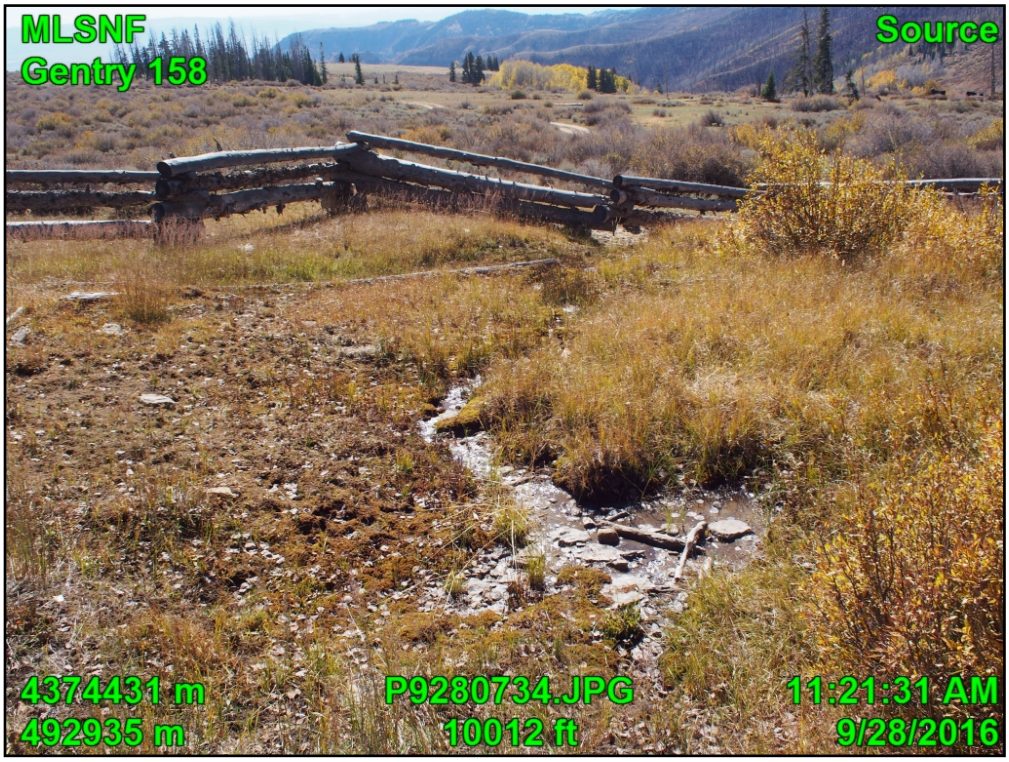


***Fig. 1:*** *The Spring Source.*

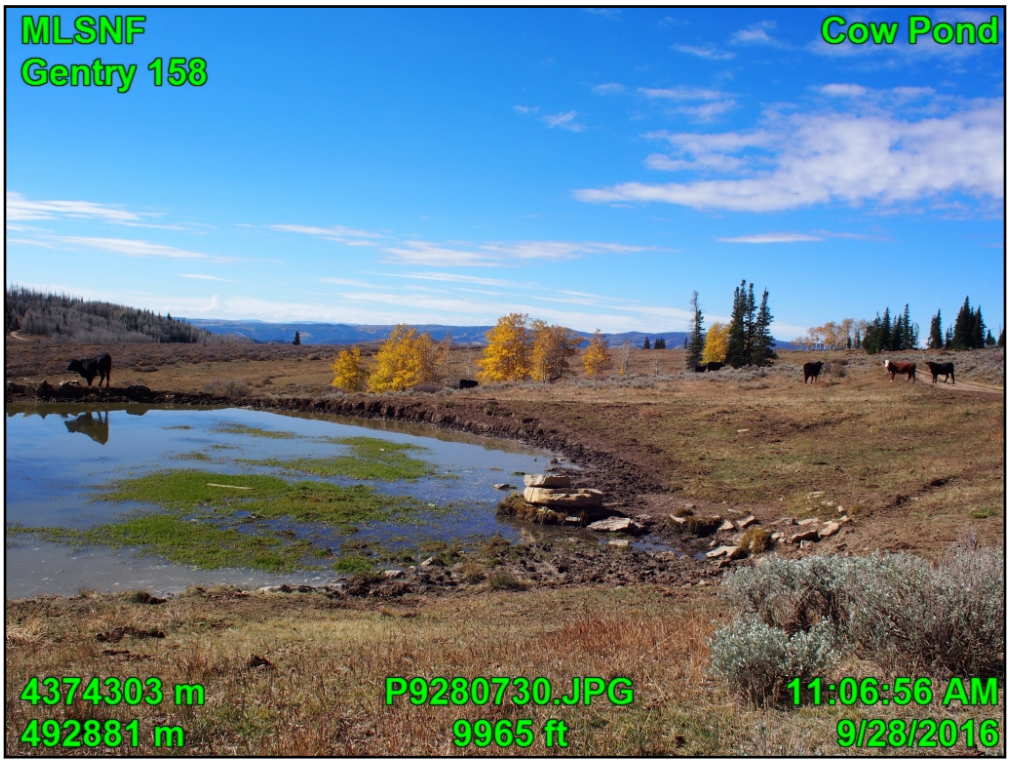


***Fig. 2:*** *A cow pond.*


***Fig. 3:*** *Trampling outside exclosure.*


***Fig. 4:*** *Unidentified prints near source.*

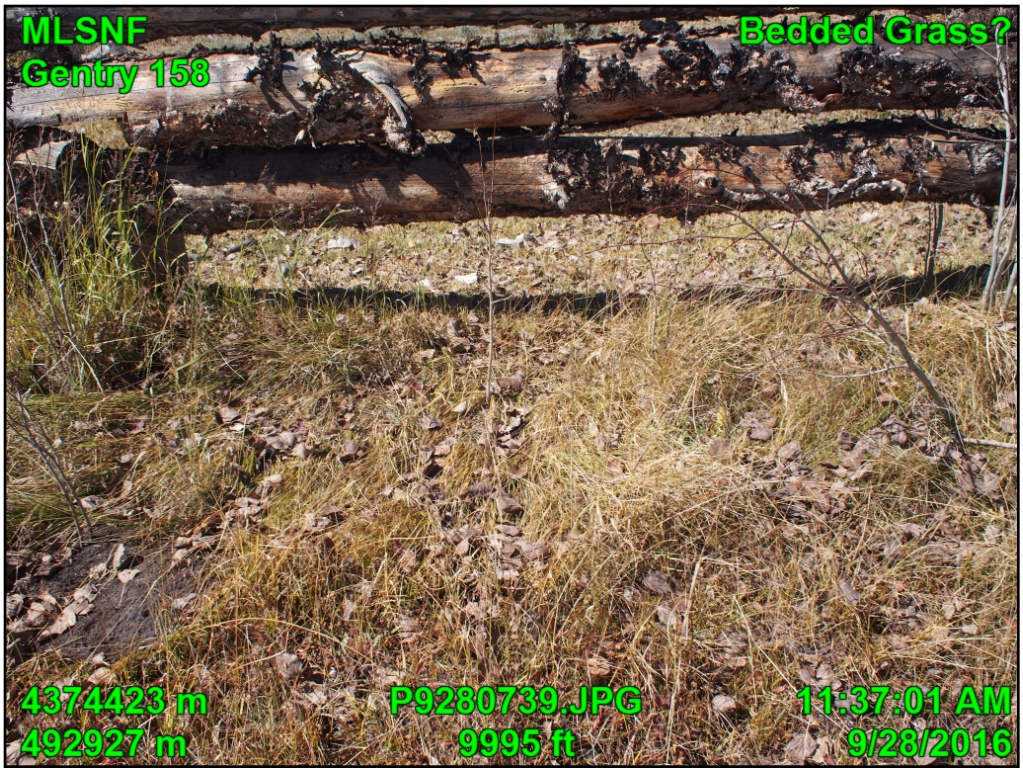


***Fig. 5:*** *Flattened grass within exclosure, that has not been grazed.*

## IV. Assessment:

### *Water Presence*

At the location of Spring 158, water is present beginning at the source and in a channel flowing downhill. At the source of this spring, small pools of standing water are present. Although there is no moving water, the moisture does 'flow' downhill, as throughout the streambed there are more small pools of standing water.

### *Water Infrastructure*

The spring source (Fig. 1) has no water infrastructure associated with it, but is within an exclosure approximately sixty feet in diameter, made of three stacked logs. Downhill, southwest, and across the road from the spring source is a developed cattle pond (Fig. 2). Approximately half of the pond's perimeter is a constructed berm holding in water. Along this berm is a small fenced-in section that is most likely a fragile part of the bank enclosed to protect it from the cattle.

### *Browsing evidence and Disturbance*

Within the source exclosure, there is a relatively small presence of disturbance. Some of the aspen (*Populus tremuloides*) within the exclosure have been browsed, along with some willows—including Booth's (*Salix boothii*), glaucous (*Salix glauca*), and Drummond's (*Salix drummondiana*)—also found near the source. Also within the source exclosure is remnant hummocking. Although not widespread, the hummocking is likely

due to cattle presence and left over from before the spring source was fenced Outside the exclosure, disturbance is more extreme. The vegetation surrounding the exclosure has been flattened and heavily grazed back. The streambed flowing from the source is muddied and trampled (Fig. 3), and hummocking is present throughout the area. The bank of the streambed has been sheared, most likely by cows' hooves, and manure is littered in and around the streambed.

The pond located southwest of the source is also heavily disturbed. The area surrounding the pondis extraordinarily trampled and covered by bare ground. Deeply in-cut livestock trails also surround the pond.

***Vegetation Composition***

Each microhabitat of spring 158—the riparian exclosed area and the surrounding scrubland—is characterized by the presence of certain dominant vegetation species. The riparian area surrounding the spring source is populated by three main species, including swordleaf rush (*Juncus ensifolius*), wooly sedge (*Carex pellita*), and an unidentified grass Other prevalent species within the source microhabitat included Woods' rose (*Rosa woodsia*) and three species of willow (Booth's, glaucous, and Drummond's).

The microhabitat outside the exclosure was populated mostly by round-leaved snowberry (*Symphoricarpos rotundifolius*), wax currant (*Ribes cereum*), and sagebrush (*Artemisia tridentata*). An unidentified, exotic species of thistle is also present.

***Wildlife evidence***

Within the source exclosure, there are few signs of wildlife presence. Hoofprints, most likely belonging to mule deer (*Odocoileus hemionus*), are present in the soft, wet soils surrounding the source itself (see Fig. 4). Also within the exclosure is a small area of flattened grass (see Fig. 5), perhaps deer bedding down or moving under the fence. Small hills of bare earth are also present near the source, possibly indicating the presence of vole or mole species. Elk are likely present outside of the exclosure, as evidenced by the presence of scat around the microhabitat.

## V. Analysis:

The contrast between the two microhabitats at Spring 158 is stark, marking the impact of cattle grazing on the landscape. Microhabitat A is an enclosed area surrounding the source of the spring, which bars cattle access. At the source, there is very little standing water, but what water is present at the surface meanders slowly downhill. Rushes, sedges, and grasses are most common in this area, accompanied by a few shrubs and some signs of fungi along the marshy banks of the source. A few small animal tracks (likely deer) were identified in this marsh area, but the banks were not significantly disturbed. Another light impact within the exclosure was scattered signs of browsing on young aspen. One patch of grass inside the exclosure near the fence border is flattened, a sign that an animal (potentially deer) has either bedded down here or crawled under the exclosure fence from

the outside (the gap between the ground and the bottom of the fence here is approximately 1.5 feet, enough for a deer to come through).

On the land outside the exclosure, Microhabitat B is open to cattle, and has been impacted heavily by grazing. The source water continues under the fence into this habitat, where it is present in small, shallow and slow-moving pools of water in a path that moves downhill towards the road. Hoof prints indicate that the banks along this trail of water have been sheared by cattle. The water throughout is brown and silty, diverted from its natural flow by this disturbance. Cattle feces are also a concern for water contamination, littering both the riparian areas as well as the grasses further away from the presence of water. Willow and aspen have been moderately grazed in this microhabitat, but most heavily impacted have been grasses and sedges. Signs of any other wildlife were insignificant compared to traces left by cattle, clearly the dominant species of this habitat.

## VI. Restoration Recommendation

Based on the evidence of degradation present at Spring 158, we make the following recommendations:

1. Ensure that livestock in the area do not continue to negatively impact the spring and surrounding riparian area.
2. Maintain the fence around the spring source to protect the intact riparian area.
3. Fence the stream flowing out of the spring to protect the riparian area, and concentrate use on the already heavily impacted cattle pond. This would help mitigate their negative impacts.

## VIII. Field Map