# **Deer Springs complex Condition Assessment**

Location: La Sal Creek Pasture, La Sal Allotment, Manti-La Sal National Forest
Date: September 25, 2016
Begin/End Time: 12:51 PM, 3:31 PM
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## **Table of Contents**

- I. Introduction
- II. Spring Evaluation Methods
- III. Photographs
- IV. Assessment
- V. Analysis
- VI. Restoration Recommendation
- VII. Field Map

## I. Introduction

The Deer Springs complex is a collection of springs on the south side of La Sal Mountains in the Manti-La Sal National Forest, located at NAD 83 N 4247927, E 655137 and an elevation of 8,423' at the source. The complex resides in the La Sal Creek Unit of the La Sal cattle allotment. The Deer Springs complex was assessed to determine the condition and health of the spring area. This particular spring complex is composed of three microhabitats, including streamside riparian area, marshy spring source area, and open meadow. There are two main creek riparian areas; a main source located within an exclosure; three side-by-side marshy sources; one large, open meadow; and one source in a smaller, marshy meadow. Because this complex is accessible to cattle within a Manti-La Sal grazing allotment, the damages associated with livestock presence are evident within the springs system, with the exception of the main, fenced source.

## **II.** Spring Evaluation Methods:

To assess the health of and impacts on the Deer Springs complex, a team of four volunteers undertook diverse tasks, including observation, recording, mapping the complex, assessing and sampling vegetation composition, and photographing significant features of the complex—marking them as GPS waypoints with UTM coordinates. The recorder compiled all observations and data onto a data entry sheet. The illustrator made a comprehensive map of the spring. The botanist collected plant samples and identified plants, animals, and scat. The photographer/GPS manager was in charge of documenting the spring area, microhabitats, and specific spring features.

The team moved throughout the complex, examining microhabitats one at a time and recording observations for each assigned task. Observations recorded 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, a camera, and sampling bags for vegetation.

# III. Photographs



Fig. 1: The main, enclosed source of the Deer Springs complex.



*Fig. 2:* One of three smaller sources located below the main enclosed source.



Fig. 3: One of three smaller sources located below the main enclosed source.



Fig. 4: One of two small downstream sources. Signs of trampling evident.



Fig. 5: One of two small downstream sources.



*Fig. 6:* A source located within a wooded thicket in the meadow.



Fig. 7: A source located in between the main enclosed source and the three smaller sources, just below the road.



Fig. 8: An unmaintained exclosure in the meadow



Fig. 9: A caged enclosure in the meadow.









Fig. 13 Juba Skipper



Fig. 14 Reikart's Blue



Fig. 15 Arizona Star



Fig.16. Armored creek bottom



Fig. 17 Excessive bare soil adjacent to spring run

## IV. Assessment

## Water Presence

Within the Deer Springs complex, an abundance of water is evident. The most notable is a main source, which is located within an exclosure and flows quickly downhill (Fig.1). This source is at the highest elevation, located just below Forest Service road 128. Northeast of this main source are three smaller sources (Figs.1-3), each with a consistent, trickling flow, located in a marshy meadow above one meadow area. The stream starts below two of the sources and continues southeast and downhill through a wooded riparian area with dense understory vegetation. A significant distance downstream from these sources are two more small sources (Figs. 4,5), both set slightly north of the stream and producing standing water in muddy riparian areas. A second stream also flows southeast from the main, fenced-in source. This waterway moves for a significant distance through another wooded riparian area. South of the beginning of this stream is a seventh source (Fig.6) that originates in a wooded thicket located within a meadow. This source produces standing water within the thicket that permeates out to an open, marshy area. The eighth and final source (Fig. 7) is fairly isolated, but it flows steadily. It is located in between the main enclosed source and the three smaller sources, and only a few feet below the road. The creek beds of the spring flows are fairly armored with rocks, which is preventing significant incision from hoof action by livestock (Fig. 16).

#### Water Infrastructure

The Deer Springs complex has only one instance of water infrastructure. The main source is located within a small exclosure. The exclosure boundary is a waist-high log fence. The fence has three rungs, each spaced about two or three feet from the next rung above or below. The water infrastructure within the exclosure consists of a metal barrier that backs up the source, allowing water to flow slightly downhill through a pipe into a cistern emerging from the ground.

#### Vegetation Composition

Each microhabitat within the Deer Springs complex is characterized by the presence of certain species of dominant vegetation, both native and exotic. The streamside riparian areas are populated mostly by trees of various ages, including mountain willow (*Salix monticola*), Scouler's willow (*S. scouleriana*), chokecherry (*Prunus virginiana*), Gambel oak (*Quercus gambelii*), and white alder (*Alnus rhombifolia*). These areas are also populated by other willow species, as well as some smaller shrubs, rushes, and grasses with native tufted hairgrass (*Deschampsia cespitosa*) as the dominant grass.

Exotic species are present in the wooded riparian areas, including an unidentified invasive thistle and watercress (*Nasturtium officinale*). The marsh microhabitats, especially the southeast one, are characterized by smaller vegetation. The more dominant vegetation includes mountain willow, Woods' rose (*Rosa woodsii*), and an unidentified tree. The main, exclosed source of the spring is dominated by rushes and grasses. These

include Baltic rush (*Juncus balticus*); an unidentified grass; smooth brome (*Bromus inermis*); and another invasive, rhizomatous grass that covered much of the ground within the exclosure.

# Browsing/Grazing Evidence and Disturbance

Within the Deer Springs complex, there is extensive evidence of negative impacts resulting from livestock presence. All three microhabitats—streamside areas, marshy sources, and open meadows—are trampled with signs of grazing and browsing. At the three sources northeast of the exclosure, the ground surrounding the water is heavily trampled. The groundcover at the sources is also heavily grazed back. The surrounding area is littered with cattle manure. Downstream from these sources, the banks of the waterway are similarly trampled. This trampling also occurs near the two streamside sources. The trampling is most obvious near the sources, as the muddy ground that has been churned up by hooves has no vegetation growing on it. The open meadow— characterized by a small wire fence and a larger, dilapidated enclosure (Figs. 8-9)—southeast of the exclosure is also impacted, as the groundcover is flattened by cattle and heavily grazed.

# Wildlife evidence

Wildlife presence at Deer Springs is mostly identified by evidence of scat. Black Bear (*Ursus americanis*) and Mule Deer (*Odocoileus hemionus*) scat were observed throughout the complex. This scat is present in both meadow and riparian microhabitats. The springs complex is also home to various pollinators, including six species of butterfly (Figs. 10-15 for images and species names). Four species of birds were also recorded: Clark's Nutcracker (*Nucifraga columbiana*), Mountain Chickadee (*Poecile gambeli*), Sharp-shinned Hawk (*Accipiter striatus*), and White-crowned Sparrow (*Zonotrichia leucophrys*).

# V. Analysis

Overall, the Deer Springs complex ecosystem is suffering from the effects of overgrazing. The majority of the impact was upon the meadow microhabitat, where grasses and forbs had been heavily grazed. The streamside habitat also suffered from the effects of trampling, as several banks were littered with manure and hoofprints. It is concerning to think about how fecal matter and disturbed sediment may be impacting water quality.

Grasses, forbs, and shrubs in the drier areas of the complex, and particularly the meadow have been grazed so heavily that in some areas, exposed dirt and rocks are all that is left (Fig. 17). This leaves critical land near streams and riparian areas prone to erosion, which can mean decreased water quality for the complex and inhospitable land to vegetation growth, as well as habitat loss. The only area that looked healthy and showed no signs of grazing was the enclosed main source.

# VI. Restoration Recommendation

Based on the evidence of degradation present at the Deer Springs complex, it is recommended that the US Forest Service take steps to ensure that the presence of livestock in the area does not continue to negatively impact the complex. Since the majority of impact is in the open meadow, the riparian areas are not in need of immediate protection. It is recommended, then, that the grazing pressure be reduced. To further improve the health of the springs complex, nonnative species could be removed from fragile environments such as the enclosed spring source.

