South Mesa Spring Condition Assessment

Location: Brumley Ridge Allotment, South Mesa Pasture, Manti-La Sal National Forest
Date: September 25, 2016 **Begin/End Time:** 10:30am to 12:00pm
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I. Introduction

South Mesa Spring is ecologically important for the water and nutrients supplied to surrounding vegetation and as wildlife habitat. The riparian habitat created from the spring is highly sensitive to ungulate browsing and trampling. The purpose of this assessment is to analyze the condition and health of the spring area

South Mesa Spring is located close to the Loop Road in the Manti-La Sal National Forest of southern Utah. The sources of this spring are located at NAD 83 0643307E and 4263231E and 0643351E and 4263197N, at 7,421 feet and 7,410 feet, respectively (Map, Fig. 1).. There was evidence of a major wind or other event that ripped up trees and flattened all vegetation outside the fence, though the trees inside the fence have remained intact.

During the summer months, the surrounding area is grazed by cattle. However, signs of grazers have diminished in the past several years as a benefit of a new fence that is in good shape. There was old elk scat present in the area so the fence evidently doesn't ward off all ungulates, but it has excluded cattle.

II. Spring Evaluation Methods

Materials used included a GPS, a compass, a ruler, a distometer, a camera, a clipboard with data sheets, one large map and one small map, and a pen. The group divided into four distinct roles: recorder, illustrator, botanist, and photographer/GPS handler. The recorder compiled all observations and data onto the data entry sheet. The illustrator made a comprehensive map of the spring. The botanist collected plant samples and identified plants, wildlife, and animal scat. The photographer/GPS handler took GPS points and photographs of important components of the spring area, including microhabitats, animal scat, wildlife, plants, and specific spring features. Plant identification was done on site when the botanist could successfully identify the plant, and plant samples were taken from the site when the plants could not be identified. Unidentified plant samples were pressed and will be sent to a botanist for identification.

Flow is assessed on a ranking from 0-4. A rank of 0 is dry or dewatered and is identified as no water present and likely no water for last year, dewatered; 1 is dry intermittent and is identified as dry, no water present but likely water present intermittently; 2 is erratic intermittent and is identified as wet, damp soils, likely water present erratically and intermittently; 3 is regular intermittent and is identified as wet, surface water/flow present, likely water present regularly but

intermittently; and 4 is perennial and is identified as wet, surface water/flow present, low, moderate, or large flow likely always present. Disturbance is assessed on a ranking from 0-3. 0 is no or negligible disturbance. A rating of 1 is light impact, but spring site is not degraded; 2 is moderate impact, spring site is somewhat degraded; and 3 is high impact, spring site is substantially degraded.

There is water flow present on the surface but it may be intermittent. The disturbance rank is a 1 as there is little impact;

The spring area contains three microhabitats: the spring, the wet meadow inside the fence, and the area outside the fence which includes the trough. Inside the fence, a spring runs directly into a dug out watering hole about 3' X 4'. A stream off to the side of the hole has an unidentifiable source outside the fence. These two streams create a large wet marsh (approx..20' X 50') below the watering hole. The marsh filters into a flowing channel shaded by juniper trees and flows out of the fenced area. The second spring within the fence begins in the opposite corner and meanders down the slope where it joins the channelized flow of the first source.

Given these conditions, the springs are classified as a perennial surface spring area and a regular intermittent spring. Shrubs, forbs, and grasses were all present. Conifers were common. Wildlife evidence included deer, bees, butterflies, and flies. Disturbance of the fenced area was minimal. Inside the exclosure, a 4' X 3' hole had been dug as a watering hole, which perhaps was there before the area was fenced off. Additionally, there may have been a couple hoof prints but it was hard to identify how old they were.

III. Map and Photographs

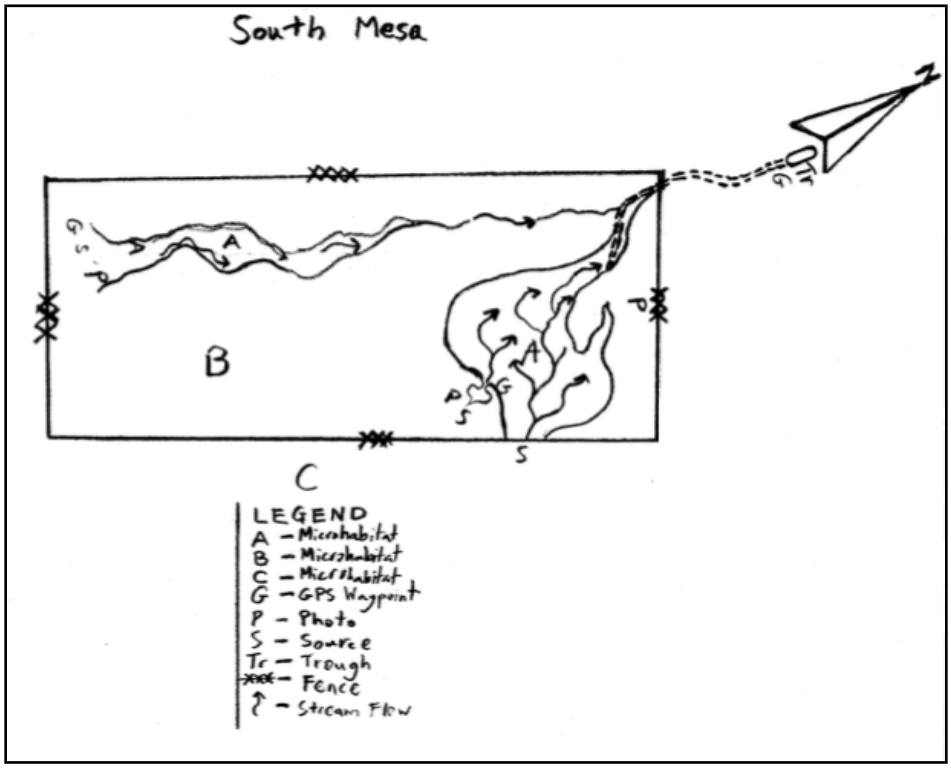

Fig. 1. South Mesa Spring Map

Fig. 2. First Source

Fig. 3. Second Source

Fig. 4. Watering hole next to trough

Fig. 5. Elk Scat

Fig. 6. Water infrastructure by watering hole

Fig. 7. Landscape outside fenced exclosure

IV. Assessment

Browsing evidence. There was no evidence of browsing, either inside or outside the exclosure.

Vegetation Composition. The dominant vegetation of the spring area is a variety of exotic grasses.Exotic, invasive Russian olive (*Eleagnus angustifolia*) is present.

In microhabitat A the main vegetation is invasive, exotic redtop grass (*Agrostis gigantea*) and creeping bentgrass (*A. stolonifera*). Native western goldentop (*Euthamia* occidentalis), western aster (*Aster asce* ndans), and a second aster (*Aster* sp.) are present as forbs.

Microhabitat B is composed largely of conifers, including junipers and oaks, along with Russian olive.

. Microhabitat C was free of vegetation. A treatment or wind event may have flattened all vegetation to the ground fairly recently as the trees are torn from their stumps and scattered (Fig. 7). There is no new vegetation recruiting.

Wildlife evidence. In microhabitat A, bees, flies, and butterflies were observed. Elk scat was found in microhabitat B (Fig. 5).

Water Presence. The site has a small channel fed by a large surface runoff area. There are two spring sources within the fenced area and one unidentifiable source whose water seeped into the fenced area.

Water Infrastructure. There is a watering hole that appears to have been dug for cattle use but there were no recent signs of cattle. An intake pipe extended into the fence line and twisted haphazardly about twenty feet along the spring until it ended suspended several feet in the air. Additionally, there was a watering hole dug into the ground just below a source (Fig. 4).

V. Analysis

The fenced area was in overall good condition. The redtop grasses (*agrostis gigantea*) showed no signs of grazing, so the fence seems to be effective. However, the grasses are exotic so they must have outcompeted native plants in order to colonize the marshy area. The conifers are healthy in contrast to trees outside the fence which have been decimated in an unpredictable desert wind event or treatment (Fig. 7). Other than the watering hole and a couple old hoof prints, the spring lacked signs of human or cattle presence. The spring is an oasis for insects and trees.

VI. Discussion

As the spring was in good condition, there are few recommendations for improvement. The most critical recommendation would be to have the fence regularly maintained, although no maintenance is currently needed.

Additionally, the watering hole should be filled in to allow a natural flow consistency. Ultimately, the obsolete pipe should be removed.

Perhaps the exotic grasses could be removed to encourage restoration of native grasses.