Hillside (Beaver Creek) Spring Condition Assessment

Location: Chicken Creek Allotment, Manti-La Sal National Forest
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Date: September 25, 2016 **Begin/End Time:** 1:20pm to 2:30pm

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I. Introduction

The purpose of this assessment is to determine the current condition of the Hillside Spring. We focused our assessment on the vegetation and wildlife of the area immediately surrounding the spring. Hillside spring is located above Beaver Creek at 8,632' in the La Sal Mountains, Moab-Monticello District of the Manti-La Sal NF. The NAD 83 UTM for the source of the spring is 0658504 E, 4252673 N. The spring is in a marshy area surrounded by a mixed forest of aspen, ponderosa pine, and Gambel oak (Figs. 2,5). The spring site consists of the source (Fig. 1) and a large pool (Fig. 4) below the source. There is a motorized-vehicle trail directly above the spring. The spring is used by cattle and a variety of wildlife including mule deer, black bears, numerous birds, insects, and northern leopard frogs.

II. Spring Evaluation Methods:

. To assess the site the spring was divided into two features, the source and the pool below. The team botanist determined the vegetation composition of the site and took samples of the dominant plants. The photographer used the GPS to take waypoints at the source and the pool, and photographed features of the spring, vegetation, scat, and disturbances. The recorder took notes on the condition of the spring. The sketcher created a map of the site. Species at the site were identified by observing, hearing calls, and looking for scat and tracks. Equipment involved a GPS device, camera, compass, distometer, ruler, and paper maps.

The flow of water was assessed at the source of the spring and the large pool by rating each on a qualitative scale from 0 to 4. On this scale, 0 is dry or dewatered, with no water present and likely no water for the last year. A rating of 1 is dry with no water present but there has likely been water present intermittently; 2 is wet or damp soil with water likely present erratically and intermittently; 3 is wet with surface water or flow present and water likely present regularly but intermittently; 4 is wet with surface water or flow present and low, moderate, or large flow is likely always present.

Disturbance at the site was assessed with a scale from 0 to 3. A rating of 0 is no or negligible disturbance; 1 is light impact, but the spring site is not degraded; 2 is moderate impact and the spring is somewhat degraded; 3 is high impact and the spring is substantially degraded. Disturbances we looked for included impacts by deer/elk, cattle, and humans.

III. Photographs:

Fig. 1. Source of the Hillside Spring. Notice trampled, muddy ground with mat of green algae on water surface.

Fig. 2. Wet, marshy area at spring source. Notice source in middle of photo, common dead wood, and person in background for scale. The person is standing on the motorized-vehicle road directly above the spring.

Fig. 3. The ground was muddy, trampled, and partially hummocked in front of the source.

Fig. 4. Large pool of water and grazed grasses, rushes, and sedges below the source.

Fig. 5. Overview of pool, burned snags, and Ponderosa pines.

Fig. 6. Dry meadow of logged stumps above the source.

Fig. 7. Defunct, broken wooden trough above source.

Fig. 8. Close-up of defunct, broken wooden trough above source

Fig. 9. One of several black bear prints found in the motorized-vehicle road directly above the spring source. The print measured 8 inches across (ruler for scale.)

Fig. 10. Cow print found in the vicinity of the spring.

IV. Assessment:

Browsing evidence Stubby and broken grasses and rushes provide evidence of grazing/browsing here.

Vegetation Composition The Hilltop Spring source was dominated by four unidentified grass species. There was a scattering of rushes and sedges that made up a marshy area surrounding dispersed small pools of water. Within the water, there were patches of algae were growing. Downed trees were common within the marshy area, and scattered rock and bare ground surrounded much of the source. There was a Ponderosa pine (*Pinus ponderosa*) and aspen (*Populus tremuloides*) saplings on the outskirts of the water source, where forbs such as Rocky Mountain iris (*Iris missouriensis),* hoary aster (*Machaeranthera canescens*), rose *(Rosa woodsii),* and an unidentified thistle were scattered amid the grasses, dominated by non-native creeping bentgrass (*Agrostis stolonifera*), and native Thurber's fescue (*Festuca thurberi*). Swordleaf rush (*Juncus ensifolius* var. *brunnescens*)

In the larger pool below the source, rushes and sedges are quite common, growing along the rim of the water as well as in deeper areas. Thurber's fescue *(Festuca thurberi*) was present. The water was fairly open with the exception of the areas covered in rushes or a pondweed. Downed wood and rock were scattered throughout the pool and a ring of bare ground, 2-3 feet wide, encompassed the water. The four species of grasses were still the most common vegetation in this area. Among the grasses there was a large presence of Rocky Mountain iris (*Iris missouriensis*) along with other forbs scattered throughout, such as plantain, an unidentified thistle and hoary aster (*Machaeranthera canescens*). Round-leaf snowberry (*Symphoricarpos rotundifolius*) was the most common shrub in the area and a few Gambel oak (*Quercus gambellii*) and Ponderosa pine (*Pinus ponderosa*) were present on the edges of the microhabitat. Just outside the pool microhabitat, aspen (*Populus tremuloides*) stands and an abundance of Ponderosa pine are present.

Underneath the dominating Ponderosa pines, Gambel oak*)* and patches of aspen forbs including hoary aster, common yarrow (*Achillea millefolium*), unidentified strawberries, violets, thistle, Oregon grape (*Mahonia repens*), an unidentified columbine and curly cup gumweed (*Grindelia squarrosa*) were growing in the surrounding forest. Shrubs in these farther-reaching areas included round-leaf snowberry, western serviceberry (*Amelanchier alnifolia*) and Wood's rose. In areas where there was a clear disturbance, primarily trampling or browsing by ungulates, the vegetation composition shifted to a prevalence of round-leaf snowberry and Gambel oak. . Hoary aster, unidentified violet, Oregon grape, yarrow, and thistle grow here.

Wildlife evidence There was evidence of a diversity of wildlife at Hillside Spring. We heard mountain chickadees, white-breasted nuthatches, and a red squirrel. We observed a flock of approximately 15 common raven as well as American robins and dark-eyed juncos. Downhill of the spring we observed five wild turkeys. On the road uphill of the spring we found black bear and mule deer prints. Elk, deer, and bear scat were all present nearby (Fig. 9). Some of the tracks and scat appeared to be very fresh. Frogs, pond snails, and water skimmers were observed at the large pool. Red ants, yellow jackets, bald-faced hornets, yellow butterflies, spiders, and a tachinid fly were observed at the spring.

Water Presence Standing water was present at the source of the spring, with a very slight but constant flow of clear water coming out of the ground. The source was rated a 4 on the flow consistency scale, as we believe that it is present perennially. Below the source is a pool of standing water, approximately 40 by 70 feet and marshy. We believe that flow to this pool is also present year round.

Water Infrastructure The entire water infrastructure at this site is extremely old and defunct (Figs. 7,8). Remnants of a metal pipe stick out of the ground immediately downhill of the source, but it is rusted and full of holes. To the side of the spring are wooden boards that once formed a cow trough, but today the structure is not capable of holding water. There is no fencing around this spring.

V. Analysis:

Cattle are moderately disturbing the Hilltop Spring. Cows have trampled the area surrounding the source and the pool, as evidenced by bare ground, mud, and hummocking (Figs. 1,3,10). Cow patties can be seen and smelled at the site. The dilapidated infrastructure does not minimize the impacts of cattle. The motorized-vehicle trail has enabled humans to impact this site as well, and three aluminum cans were found by the source and pool. Additionally, the forest surrounding the spring has been affected by fire and tree die-off, and trees have been logged here (Fig. 6). Despite the disturbances, Hillside Spring provides habitat and a water source for an abundance of wildlife.

VII. Recommendations:

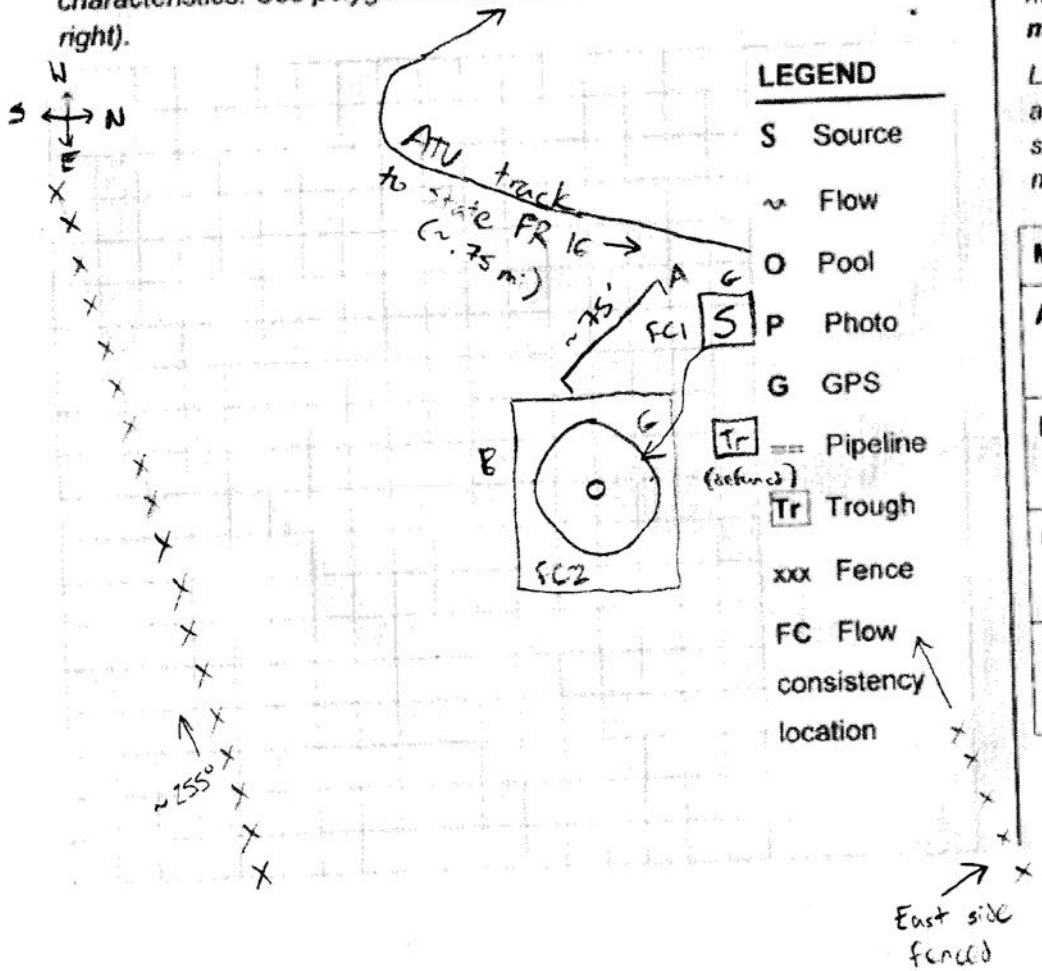
We recommend fencing the spring source and pool. These two perennial water sources are important for aquatic species, evidenced by the presence of northern leopard frogs and many pond snails and insects. A fence would eliminate impacts of cattle and reduce the impacts of humans littering around the spring from the adjacent motorized-vehicle road.

We also recommend a survey and potential fencing of a wet meadow found to the southeast (about halfway between Hillside Spring and Beaver Creek), probably a continuation of the Hillside Spring complex.

Finally, if required for cattle, we recommend installation of a cattle trough outside the fence and a pipe from the spring to the trough. A significant portion of the water should be left for the riparian area, and the pipe should be closed when the allotment is not being actively grazed.

SKETCH MAP

*Sketch a basic map of the site. Use the legend symbols to identify spring components (source, flow, pool) or infrastructure; where measurements, samples, photos, or GPS points were taken; or other notable characteristics. Use polygons to indicate microhabitats **A-D** (listed at right).*



MICROHABITATS

*List significant microhabitats and identify each with a labeled polygon in the sketch map. A spring can just have one microhabitat, or it can have several. A microhabitat can be a **cave, channel, marsh, moist meadow, or other** (specify)*

*List the microhabitats and identify each with a labeled polygon (**A**, **B**, **C**, or **D**) in the sketch map. A spring can just have one microhabitat (**A**) or it can have several (**A-D**).*

MICROHABITAT DESCRIPTION
A. Marsh
B. Marsh / pond
C.
D.