

Botanical Resources of Schweich Hill, Golden, Jefferson County, Colorado

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Location

Schweich Hill is near the intersection Colorado State Highway 93 and Washington Avenue, in the City of Golden, Jefferson County, Colorado. It is an approximate 4-acre parcel between the shopping center containing Cannonball Creek Brewery and North Ford Street.

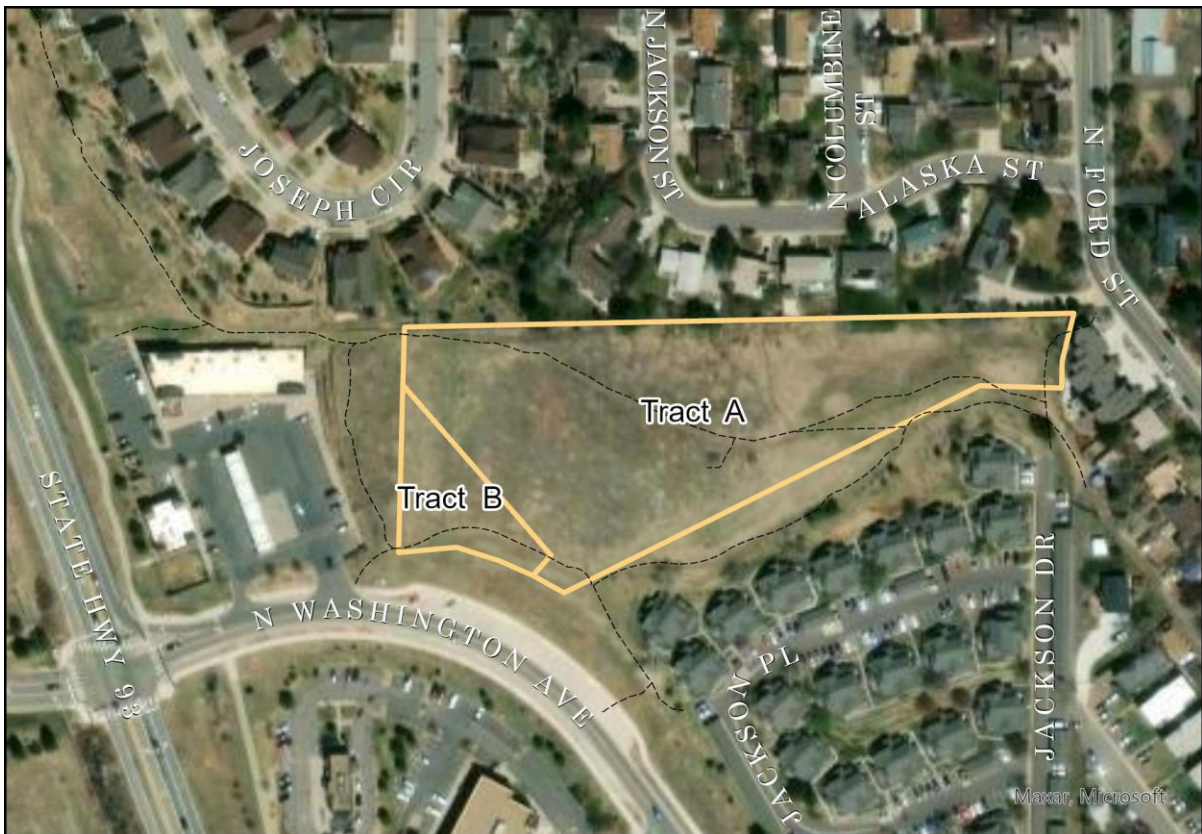


Figure 1. Location of Schweich Hill.

The name Schweich Hill was adopted by the City of Golden by Resolution No. 2806, dated August 24, 2021.

Previous names applied to Schweich Hill include Upper Washington Avenue Open Space, North Washington Avenue Open Space, and Hackberry Hill.

Geology

The geology of the Golden quadrangle was mapped by Van Horn (1972). The hill is mapped as vertically oriented Arapahoe Formation on the western portion of the hill and Denver Formation on the eastern portion of the hill. These are sandstones and claystones with conglomerates, some of which contain andesitic cobbles. However, the amount of gravel in the soil on the top of the hill suggests that this hill is in part composed of outwash from Golden Gate Canyon. The Golden fault zone passes to the west, between Colorado Highway 93 and Mesa View Drive.

History

The open space consists of two City of Golden-owned parcels, totaling about 4 acres.

Tract A (PIN 30-282-11-002) and Tract B (PIN 30-282-11-003) were accepted by the City of Golden by Resolution No. 516, adopted December 23, 1993, as part of Canyon Point Filing No. 4. Tract A was dedicated as open space, and Tract B as open space and future W470 right of way.

The Altitude Apartments (also part of Canyon Point Filing No. 4) were constructed prior to October 1999, as that is when they appear in GoogleEarth imagery. A low soil mound was left on Schweich Hill to accommodate construction of the apartments (Personal Communication, Gregory and Rebecca Capaul, 2017).

The 7-Eleven / Conoco Station and Cannonball Creek Brewery were constructed between 9/2/2004 and 7/4/2005. These dates were determined by comparing aerial imagery provided by GoogleEarth.

Grading for Joseph Circle first appears in 4/29/2006. Some sort of grading in the parcel also appears at the same time. It is possible that the netting also dates from this time period. Housing construction was underway 10/22/2006. The first landscaping, implying homeowner occupancy, appears 3/30/2008.

It is unclear when the water line was placed across the parcel, but the current vault appears in 7/4/2005 imagery.

A 10-foot easement permitting access to the open space from North Ford Street was approved by the City Council on March 9, 2017 (City of Golden, 2017). A water line and gas line connect to utilities under N. Ford Street through this easement.

Management

The status of Schweich Hill within Golden's Parks and Recreation system was unclear at the beginning of this study in 2017, regardless of its dedication as open space in 1993. It was not a park, in the sense that nearby Norman D. Park is a park with play equipment, bluegrass lawn, water fountain and a port-a-potty. City plans referred to "... parks, open space ..." without a definition of "open space" and without objectives or plans for managing it. This was recognized by the Parks, Recreation and Museums (PRAM) Advisory Board and city staff. A budget for writing an open space master plan

was established for 2020. City staff prepared an RFP, and a consulting firm named Great Ecology was selected to perform Phase 1, consisting of Vision, Mission, and Definition of open space. Phase 1 was completed in 2022 and adopted by the City Council on November 1, 2022 (Resolution No. 2891).

Phase 2, tentatively scoped for “inventory” is currently scheduled to begin in the 3rd quarter of 2023.

Methods

Plants were collected in six botanical seasons: 2017 to 2022. There are 117 collections that have been distributed as 373 vouchers. The most vouchers were distributed to Denver Botanic Garden (100 vouchers), California Department of Agriculture (38 vouchers), Colorado State University, Fort Collins (26), and University of California, Riverside (22), with 84 vouchers distributed to 6 other herbaria.

Collections were made when the plants were in a condition that permitted making a good quality collection, such as one containing stem, leaves, flowers, and perhaps seed, and when in sufficient quantity that never more than one-tenth of the extant plant material was collected.

Observations were made when an easily recognizable plant was not in a condition to make a good quality collection or if there were already collections of the taxon but at other parts of the parcels.

The density of certain cacti, primarily *Echinocereus viridiflorus* Engelm., made it impossible to survey some of the vegetation without causing damage. This occurs primarily at the top of the hill, in the areas with the most intact native vegetation, and is shown in Figure 8, below.

Observations and collections were recorded in a field notebook at the time made. Geographic location was obtained from a Garmin 76CSx GPS receiver and downloaded using Minnesota Department of Natural Resources DNRGPS. Notebook and GPS data were stored in a Microsoft Access database and exported to ArcGIS. Collections were transferred to standard botanical presses from a field press. When dry the collections identified, labelled, and distributed to herbaria.

Results

A list of plants collected or observed is in Appendix A. Plant List. There are 136 taxa (species of plants) in 41 plant families.

None of the plants collected or observed are Colorado-ranked rare plants (Colorado Natural Heritage Program, 1997+).

There are 14 species of Colorado-listed Noxious Weeds (Colorado Department of Agriculture, 2014-2019). There is one species on List A, *Euphorbia myrsinites* L.

“Myrtle Spurge,” and seven List B species. Noxious weeds are discussed in the section by that name, below.

Four field trips sponsored by Colorado Native Plant Society visited the open space parcel on May 13, 2018, June 15, 2018, July 21, 2018, and more recently on June 6, 2020. Approximately 30 people participated in the field trips.

There are numerous instances of disturbance that are discussed below. None of the disturbances are unexpected given the location and history of this parcel.

Notwithstanding the level of disturbance, the vegetation in the central portion of this parcel is a relatively intact example of Western Great Plains Foothill and Piedmont Grassland (NatureServe, 2018) with mixed tall and short grass species.

Disturbance

There is substantial disturbance around the edges of the parcel. Disturbance includes grading, water lines or other utilities, construction, landscaping or revegetation, debris disposal, mowing, and social trails and amenities.

The center of the open space is less disturbed. There, the primary disturbances are social trails and amenities. Since we have been watching, lateral migration of the social trails is becoming a type of disturbance.

A map of disturbance is shown in Appendix C. Sources of Disturbance.

Grading

Major episodes of grading have occurred for:

- Washington Avenue ROW, along the southwest sector.
- Canyon Point, LLC, on the west edge.
- Villas at Canyon Point, on the south edge.
- A small section along the north edge.
- Construction of 410-416 N. Ford Street.

Water Lines or Other Utilities

There is a city water line that crosses the southern part of the parcel.

Flagging at the east end of the open space suggests there is a high-pressure gas line crossing the east end.

Construction

Construction of condominiums at 410-416 N. Ford Street has spilled out into the open space, although the vegetation in that area was mostly non-native before construction began and the primary impact was revegetation.

Landscaping or Re-Vegetation

The plastic netting on the western edge of the open space suggests that the site was landscaped or re-vegetated (GoogleEarth, 4/28/2006). Some sort of scraping or grading

can be seen in imagery from 4/28/2006. Perhaps the netting also dates from this time. Presence of two species of fescue (*Festuca idahoensis* and *F. saximontana*) that are native to Colorado but not the Golden area, is probably the result of revegetation. These grasses also appear in a near monoculture in the southeast corner of the parcel.



Figure 2. Disturbance and construction debris.

Just to the west of the open space, in parcels owned by Canyon Point

LLC, there are two irrigation lines constructed of 1" PVC, and six pop-up sprinklers. Nominally, the sprinklers are supported by ½" reinforcing bar. However, most of the supports have failed and the sprinklers have fallen over. Presumably this was part of a revegetation project.

The construction of the condominiums at 410-416 North Ford Street bled over into the open space. The soil was disturbed, construction debris was dumped, and construction equipment was stored on the city-owned parcel. At completion of construction the construction debris and equipment were removed. The disturbed area was covered with a jute mat, and the area seeded. Unfortunately, the primary species seeded was *Bromus carinatus* Hook. & Arn. "California brome." Colorado flora authors disagree whether California brome is native to the state or whether it is an alien grass. Regardless, there are no historic or recent collections of this grass made in Golden *s. l.* (SEINet, 2019). The planting of the grass as construction remediation represents introduction of an alien grass. The seed mix also contained *Triticum aestivum* L. "Wheat" as several specimens of that taxon were collected with the California brome. None of this was necessary, as there are numerous native grasses already growing on Schweich Hill that are easy to obtain and grow from seed.

The presence of the alien grasses as artefacts of revegetation projects illustrates the difficulty of putting a landscape back together after it has been disturbed. Regardless of how careful we might be, a revegetated landscape is "fake nature" and a good argument for careful preservation of what we have rather than attempting to put it back together (Hourdequin, 2015).

Yard Waste Disposal

There are several yard waste piles just inside the fence on the north side of the open space. Disposal of yard waste was first observed in 2017 and has continued through

2019. Several of the garden escapees found in the open space are likely discarded yard waste.

Mowing

In the northeast corner of the parcels, one or more neighbors have mowed the vegetation continually since 2007. Aerial imagery publicly available on Google-Earth, show that on or before 7/20/2007, there were several mowed paths into the parcels to small, cleared areas. The mowing continued, and as observed 6/22/2010, included a large patch inside the parcel. A large patch behind the



Figure 3. Mowed area of smooth brome.

northeastern most four parcels can be seen mowed in imagery dated from 10/7/2012. The area mowed was slightly larger in imagery dated 10/6/2013, and slightly larger still a year later on 10/6/2014. The area was still mowed on 10/9/2015, with additional access paths mowed into the center of the parcel. The city requested neighbors to stop mowing in 2018. Mowing activity was reduced but not eliminated.

The vegetation being mowed is now primarily *Bromus inermis* Leyss “Smooth Brome.” It is unknown whether the vegetation of the area has been altered by ten years of mowing. Mowing has been used as a method of control for Smooth Brome, but its effectiveness, especially as a means of restoring native prairie, is doubtful (Willson and Stubbendieck, 1996).

Within the mowed area, a few small plants are found. These ranging from the native *Buchloe dactyloides* (Nutt.) Engelm. “Buffalo Grass,” to common weeds, such as *Malva neglecta* Wallr. “Common Mallow,” to the Noxious Weed List A *Euphorbia myrsinites* L. “Myrtle Spurge.”

In the short term, it would seem appropriate to continue mowing, or to encourage the neighbors to continue mowing. The mowing should occur when the inflorescences begin to form within the leaf sheath of the Smooth Brome, with the mower height set as high as possible.

There are large areas of smooth brome that have not been mowed. It is unclear whether mowing additional areas of smooth brome would be beneficial. For example, the semi-shrub *Astragalus drummondii* Dougl. ex Hook. “Drummond’s Milkvetch” appears to be successfully competing with the smooth brome. In those areas, would the milkvetch be

mowed along with the smooth brome? Or would an attempt be made to mow around the milkvetch? Or would the immediate vicinity of the milkvetch be hand weeded, then the surrounding area mowed? The hand-weeding or mowing around the milkvetch would be labor intensive.

Social Trails and Amenities

There are four easily identifiable social trails crossing all or part of the parcels. The primary social trail crosses the parcels east to west across the top of the hill. This trail is heavily used by hikers, dog walkers, and by a few mountain bikes. I have even encountered a wedding photography party on top of the hill. The trail is eroding and migrating laterally on the steepest slope at the eastern slope of the hill.

This trail bisects the area of remnant native vegetation on the top of the hill. The opportunities for rerouting this trail away from the native vegetation, while still permitting access to the top of the hill, seem quite limited.

The top of the hill is occasionally used for picnics or similar activities as evidenced from a rather large, trampled area seen in 2018. Unfortunately, the trampled area is at the

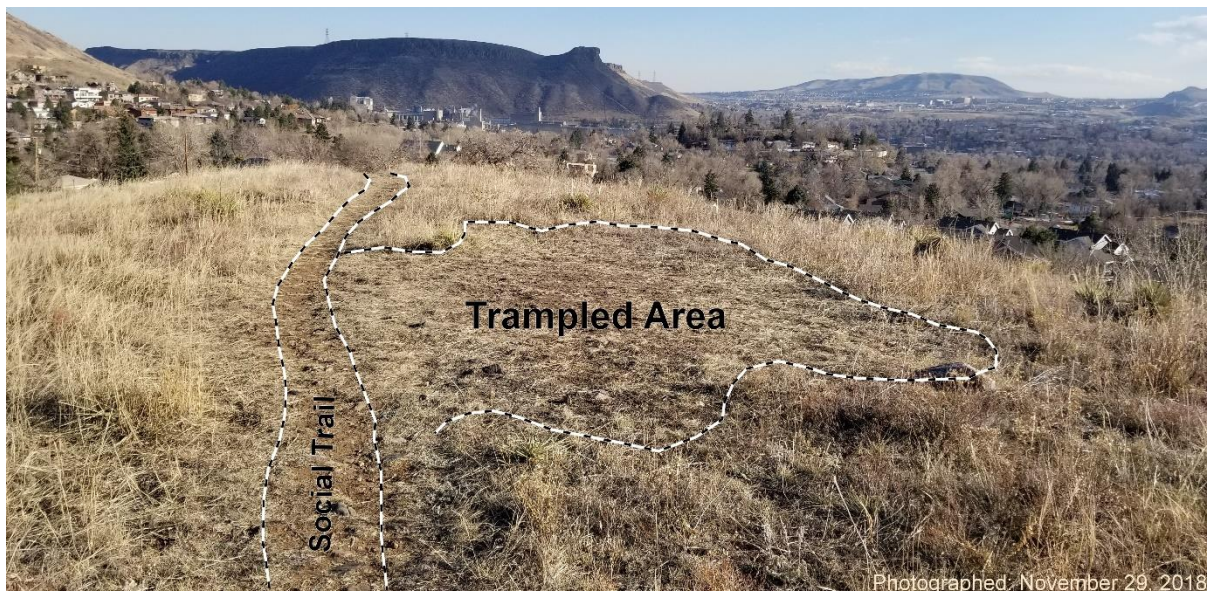


Figure 4. Vegetation trampling by open space users.

center of the best native vegetation. This causes damage to the small area of native prairie and indicates why the trail needs to be signed with a plea for users to remain on the trail.

Signage is not a panacea. Some park users alter their behavior as requested by the signage and some ignore it. Others do the opposite or vandalize the signs.

There is an access trail at the east edge of the parcels connecting North Ford Street to Jackson Drive and an adjacent alley. The city has a 10-foot-wide easement connecting the open space to North Ford Street. (City of Golden, 2017). In the winter, this trail is quite muddy. The muddy conditions lead to widening of the trail.

The social trail along the southern edge crosses land owned by Villas at Canyon Point LLC, in its eastern portion and then turns northwesterly across City of Golden land.

The social trail on the western edge crosses two parcels owned by Canyon Point LLC, lessor of space occupied by the 7-Eleven and Cannonball Creek Brewery.

There is one social amenity, i.e., a bench near the top of the hill. The bench and associated access trail first appear in 10/7/2012 imagery. The access trail to this bench passes perilously close to several individual plants of Missouri Foxtail Cactus.

Lateral Migration of Social Trails

After six-plus years of observation, some of the social trails are migrating laterally. I think this is because it has become difficult to use the trails in their original location. Two likely causes stand out, soil conditions and vegetation, and there may be other contributing factors.

First, in the lower part of the trail, the trampling of the trail inhibited the growth of *Bromus inermis* Leyss. “Smooth Brome.” This left an opportunity for other plants to establish themselves. Some of them are native perennials and others are non-native annuals. *Grindelia squarrosa* (Pursh) Dunal “Curly-Cup Gumweed” is a sticky, gummy native perennial that established itself beside the trail. Avoiding this plant, walkers moved over and widened the trail. When the walkers moved over, they left bare ground that is good habitat for non-native annuals. *Alyssum simplex* L. “European Madwort” and *Chorispora tenella* (Pall.) DC. “Crossflower” are two non-native annuals that quickly filled the exposed portion of the original trail.



Figure 5. Lateral migration of social trail #1.

Second, on other parts of the hill, the soil contains a substantial portion of gravel with some stones as large as 3 inches. As foot traffic wore away finer soils, the large loose gravel remaining is poor footing for walkers. People moved over to an easier footing.

To measure this effect, a cross-section of this section of trail was measured in May 2023. A string was stretched across the trail and leveled. A fiberglass measuring tape was stretched along the string. The distance from the string to the solid surface of the trail was measured at 5 cm. intervals (about 2 inches). Plants and large loose gravel were temporarily moved aside while measuring.

The distance from the string to the trail surface varied from 19 cm. to 29 cm. The old trail was incised about 10 cm. (4 inches) and the new trail was incised about 5 inches (2 inches). The original width of the trail was just under one meter (3 feet). As a result of lateral migration, the trail has become 2.2 meters (7ft 2in) wide, a little more than 4 feet wider than the original trail. The cross-section is shown in Figure 6, below.

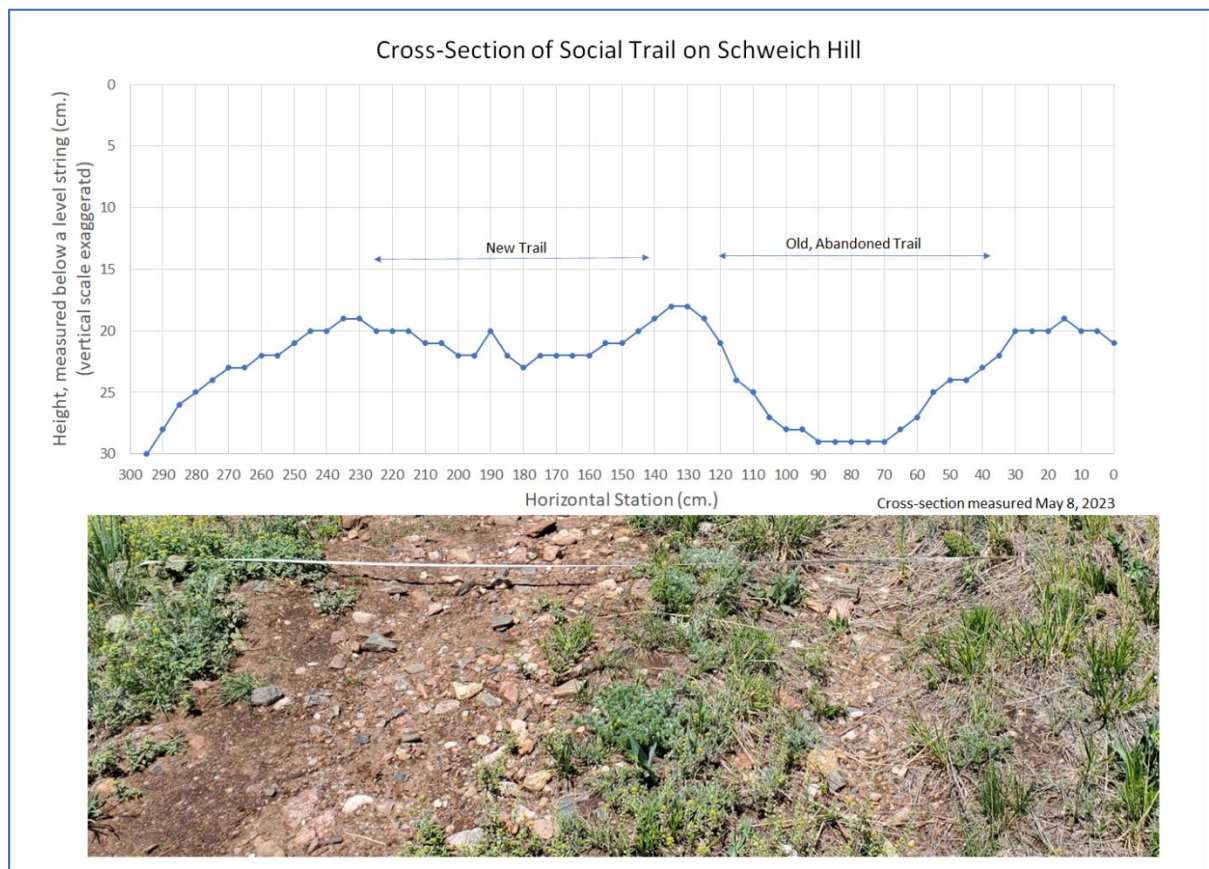


Figure 6. Cross-section of laterally migrated social trail.

While it is understandable the walkers might move over for a path that is easier to walk, the impact of lateral trail migration is additional soil disturbance and trampling of more of the native plants on the hill. Eventually the fine soils on the new path will erode away leaving coarse gravel behind that also becomes difficult to walk on. What happens next? Will the trail move again? Will walkers go back to the old trail?

Ultimately the solution to lateral migration of the social trail is to convert the trail to a regular trail that is managed to prevent erosion and migration. This may include building of stairs, and placement of a small-sized gravel to provide a good walking surface. Prevention of erosion may require stairs or water bars. It may also be necessary to re-route the trail with climbing turns to prevent erosion.

Vegetation

A small portion covering the top of the hill, about 1.5 acres in size, could be identified as Western Great Plains Foothill and Piedmont Grassland with mixed tall and short grass species (NatureServe, 2018).

Of the ten grasses used in the definition of Western Great Plains Foothill and Piedmont Grassland, seven have been collected on Schweich Hill. They are:

- *Andropogon gerardii* Vitman. Big Bluestem
- *Bouteloua gracilis* (Kunth) Lag. ex Griffiths. Blue Grama
- *Buchloe dactyloides* (Nutt.) Engelm. Buffalo Grass
- *Hesperostipa comata* (Trin. & Rupr.) Barkworth. Needle and Thread
- *Nassella viridula* (Trin.) Barkworth. Green Needlegrass
- *Poa secunda* J. Presl. Sandberg Bluegrass
- *Schizachyrium scoparium* (Michx.) Nash. Little Bluestem

Two other plants named as associated species in Western Great Plains Foothill and Piedmont Grassland have also been collected on Schweich Hill:

- *Gutierrezia sarothrae* (Pursh) Britton & Rusby. Broom Snakeweed
- *Yucca glauca* Torr. Soapweed Yucca

Significantly sized other portions of Schweich Hill would be identified as Smooth Brome (*Bromus inermis* Leyss) Ruderal Vegetation.

Rare Plants

No Colorado rare plants have been observed in this parcel (Colorado Natural Heritage Program, 1997).

Notable Plants

Escobaria missouriensis (Sweet) Britton & Rose “Missouri Foxtail Cactus.” This is a species of low-growing North American cacti. It is found along the Missouri River in the tallgrass prairie and shortgrass Great Plains, from Texas to Montana and the Dakotas, and in the Rocky Mountains woodlands of Ponderosa pine (*Pinus ponderosa*), and pinyon-juniper. For most of the year this cactus sits very close to the ground, making it difficult to see and easy to step on. One unique characteristic of this cactus is that the fruit in the spring is from flowers of the previous year, so it is commonly seen with both flower and fruit. *Escobaria missouriensis* has been extirpated from many of its historically known sites by introduced fire ants, suburban development, brush encroachment following fire suppression, and over-grazing (Wikipedia).



Figure 7. *Escobaria missouriensis* (Sweet) Britton

Echinocereus viridiflorus Engelm. Nylon Hedgehog Cactus. This is a common cactus in Colorado. There are small areas in this parcel that have very dense populations of this cactus. In Figure 8 there are 27 of these cacti circled in red.



Figure 8. *Echinocereus viridiflorus* Engelm. Nylon Hedgehog Cactus.

There are four related ragworts or groundsels found on Schweich Hill. All four were formerly in the genus *Senecio*, but collaboration between William A. Weber and Áskell Löve of the University of Colorado at Boulder showed that a group to be called *Packera* should be separated from the remaining *Senecios* (Weber and Löve,



Figure 9. Praying Mantis below inflorescence of *Senecio spartioides*.



Figure 10. Coll. No. 1817, *Packera fendleri*.

1981). All of them are native prairie plants and testify to the intact nature of the vegetation on Schweich Hill.

Senecio integerrimus Nutt., commonly called the “Columbia Ragwort” is found throughout the American west and western Canada. It is very common in Colorado except for the eastern plains. There is one small patch on Schweich Hill that is just east of the top of the hill on the edge of the smooth brome infestation.

Senecio spartioides Torr. & A. Gray “Broomlike Ragwort” is common in open spaces around Golden and frequently adventive in Golden gardens. It is a very common plant in the southern United States Cordillera. The photograph of Figure 9, above, was taken on Schweich Hill. It shows a praying mantis hanging out below the flowers and soldier beetle at left. I assume the soldier beetle is potential prey.

Packera fendleri (A. Gray) W. A. Weber & Á. Löve (Syn: *Senecio fendleri* A. Gray) has a common name of Fendler’s Ragwort. Originally described from a collection by Augustus Fendler (1847) in Santa Fe, New

Mexico, it is found throughout the southern Rocky Mountains. In the Golden area, it has also been found in drier areas of North and South Table Mountains and the Eagle Ridge / Kinney Run area. On Schweich Hill, there is one small patch, about 5 or 6 plants, on the top of the hill, a few feet from the social trail. My collection #1817 shown in Figure 7 was made there and has been delivered to the herbarium at Denver Botanic Garden.

Packera tridenticulata (Rydb.) W.A. Weber & Á. Löve. (Syn: *Senecio tridenticulatus* Rydb.) Three-Tooth Ragwort. This relatively common native ragwort is typically found in sandy or gravelly soils. It has not been previously collected in Golden or immediate vicinity, such as North or South Table Mountains. The closest other collections are along Colorado Highway 93 between 64th and 68th Streets.

Thelesperma megapotamicum (Spreng.) Kuntze. Hopi Tea Greenthread. Hopi Tea Greenthread is much more common around Golden, having also been collected on North and South Table Mountains, in addition to CSM Survey Field. It may have some ethnographic interest from its use in making dyes and medicinal teas.

Mentzelia nuda (Pursh) Torr. & A. Gray. (Syn: *Nuttallia nuda* (Pursh) Greene) Bractless Blazing Star. The aptly named “Blazing Stars” deserve that attention they seem to attract. There are several *Menzelias* found in Golden and vicinity, but the large-flowered plants are all *M. nuda*. This is a plains species also found in the lower foothills.

Mirabilis linearis (Pursh) Heimerl. (Syn: *Oxybaphus linearis* (Pursh) B. L. Robinson) Narrow-Leaf Four O'Clock. One plant of this species was seen July 31, 2017, and it was not collected. It is found just on the east side of the hill, adjacent to some *Thelesperma megapotamicum*. The plant is common in Colorado and has been collected on North and South Table Mountains, but rarely are more than one or two plants seen.



Figure 11. Coll. No. 1543, *Packera tridenticulata*.

Evolvulus nuttallianus Roem. & Schult.
Shaggy Dwarf Morning Glory. In the Morning-Glory family (Convolvulaceae) most everyone recognizes Field Bindweed (*Convolvulus arvensis*), a ubiquitous noxious weed, and a plague on every well-tended garden.

It may come as a surprise, then, that there is also a small native perennial morning-glory that is common in sandy places on the plains and found occasionally in the lower foothills. It is the

“Shaggy Dwarf Morning Glory”

(*Evolvulus nuttallianus*). Found first by

Thomas Nuttall in 1810 on the banks of the Missouri River, it was first named *E. argenteus* by Frederick Pursh (1814) in his North American Flora. However, the name was previously published by Robert Brown (1810) and therefore Pursh's name was illegitimate. Roemer & Schultes (1820) rectified this problem by applying a new name of *E. nuttallianus* after, of course, the name of the original collector, Thomas Nuttall.

In Golden, this little “morning glory” has also been found on South Table Mountain, along the Welch Ditch, and in Magpie Gulch.



12. Flower of *Evolvulus nuttallianus*.

Noxious Weeds

List A

List A Species in Colorado that are designated by the [Colorado Department of Agriculture] Commissioner for eradication. The most common List A species in the Golden area is *Euphorbia myrsinites* L. (Syn: *Tithymalus myrsinites* (L.) Hill) Myrtle Spurge.

- *Euphorbia myrsinites* L. Myrtle Spurge has been collected in the northeast corner of Schweich Hill, in the area of mowed Smooth Brome. The mowing keeps the plants small, but the species also spreads by small underground stems called rhizomes, thus allowing the plants to spread even if kept mowed.

List B

List B Species are species for which the Commissioner, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, develops and implements state noxious weed management plans designed to stop the continued spread of these species. The following List B plants are found in the parcel:

- *Carduus nutans* L. (Syn: *Carduus nutans* L. ssp. *macrolepis* (Peterman) Kazmi) Nodding Plumeless Thistle. Primarily found in the western, revegetated part of the open space.

- *Centaurea diffusa* Lam. (Syn: *Acosta diffusa* (Lam.) Soja' k) White Knapweed. It has been seen along the fence in the northwest portion of the Open Space.
- *Cirsium arvense* (L.) Scop. (Syn: *Breea arvensis* (L.) Lessing) Canada Thistle. There is one patch in deep, unmowed Smooth Brome near the eastern edge of the parcel.
- *Saponaria officinalis* L. Bouncingbet. Several plants were found and removed along the social trail on the east side of the hill.
- *Dipsacus fullonum* L. Fuller's Teasel. Seen on the revegetated western slope in 2017, but not since then.
- *Elaeagnus angustifolia* L. Russian Olive. A moderate size mature plant and one small plant along the north boundary.

There are also several plants of this species in the adjacent parcel of the Villas at Canyon Point that appear to be an intentional element of the property landscaping.

- *Linaria dalmatica* (L.) Mill. (Syn: *Linaria dalmatica* (L.) Mill. ssp. *dalmatica*, *Linaria genistifolia* (L.) Mill. ssp. *dalmatica* (L.) Maire & Petitm.) Dalmatian ToadFlax.

List C

List C Species are species for which the Commissioner, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, will develop and implement state noxious weed management plans designed to support the efforts of local governing bodies to facilitate more effective integrated weed management on private and public lands. The goal of such plans will not be to stop the continued spread of these species but to provide additional education, research, and biological control resources to jurisdictions that choose to require management of List C species. The following List C plants are found in the parcel:

- *Convolvulus arvensis* L. Field Bindweed. Very common, ubiquitous weed.
- *Erodium cicutarium* (L.) L'Her. ex Aiton. Hemlock-leav'd Crane's-bill. Also a very common, ubiquitous weed.
- *Verbascum thapsus* L. Common Mullein. Seen mostly on the western, revegetated slope, although relatively few in number.
- *Bromus tectorum* L. (Syn: *B. tectorum* L. var. *glabratus* Spenn.) Cheat Grass. Annual grass that is ubiquitous throughout the western United States, and often blamed for hot, rapidly burning wildfire.

Watch List

Watch List Species that have been determined to pose a potential threat to the agricultural productivity and environmental values of the lands of the state. The Watch List is intended to serve advisory and educational purposes only. Its purpose is to encourage the identification and reporting of these species to the Commissioner in order to facilitate the collection of information to assist the Commissioner in determining which species should be designated as noxious weeds. There is one plant in the Open Space that is on the Watch List:

- *Gypsophila paniculata* L. Baby's Breath. One plant was found in the northwest portion of the Open Space. Baby's breath is an ornamental species that has escaped cultivation. Once established, it can form dense stands and is difficult to control. In pastures and rangeland, it competes with forage species and decreases hay forage quality. There is only one other collection from Jefferson County, Colorado.

Escaped Ornamentals

The following plants have been collected or observed on Schweich Hill. They are common residential garden ornamentals and are likely garden escapees, or they have been introduced to the open space as discarded yard waste:

- *Juniperus virginiana* L. "Eastern Redcedar." A popular fast-growing columnar evergreen that is readily available in most nurseries. Found along the north fence.
- *Campanula glomerata* L. "Dane's Blood." A perennial herb that spreads by rhizomes. Formerly cultivated at an adjacent residence and probably spread to the open space as discarded yard waste. Available at most nurseries.
- *Colutea arborescens* L. Bladder Senna. A deciduous shrub growing to 3.6 m (11 ft.) although ours are not that tall. Readily available in the nursery trade. Also found along Cressmans Gulch near Wyoming Street.
- *Iris* sp. Horticultural Iris and *Narcissus* sp. Horticultural Daffodil. There are several iris and daffodils in the northern area of the open space. I assume these have survived being discarded into the open space from adjacent residential gardens.

Other Alien Plants

Two species of non-native fescue (*Festuca* sp.) have been collected. *Festuca saximontana* Rydb. Rocky Mountain Fescue, Figure 14, has been confirmed by Denver Botanic Garden. Golden is a little lower than the normally expected range of Rocky Mountain Fescue. Nearby, there are two collections of this grass from Rocky Flats, which is a little higher elevation than Golden. Other collections near Golden are in more mountainous terrain and at higher elevations, such as Golden Gate State Park, Idaho Springs, Tolland, etc. Further, the seed head of this collection is quite large and full compared to that typically seen in this grass species. This suggests that this plant is likely a robust cultivar of Rocky



Figure 13. Coll. No. 1167, *Festuca saximontana*.

Mountain Fescue that was planted here in a previous revegetation project.

This grass is commonly found in former revegetation projects around Golden, notably Kinney Run.

Idaho fescue (*Festuca idahoensis* Elmer) shown in Figure 11 does not naturally occur in Jefferson County (Ackerfield, 2015), i.e., there are no collections (SEINet, 2019), although the map in Shaw (2008) suggests that it could. The two *Festucas* are closely related and generally treated as members of the *Festuca ovina* “Complex.” Since the two species of fescue, *F. idahoensis* and *F. saximontana*, were found growing near each

other, it would be unsurprising to find them hybridizing, or that they are in fact hybrids of the original grasses planted.

Recommendations

While some actions on Schweich Hill may be a priority, adoption of an Open Space Master Plan is prerequisite for many of them. Therefore, the highest priority is to prepare an Open Space Master Plan. This would include the definition of “open space” and possibly other categories of spaces, then determine the status and management objectives for Schweich Hill. Consistent with a possible future city open space master plan, the following possible actions should be considered for Schweich Hill.

1. Develop and implement a plan to stop migration of social trails. Demark the edges of the social trails on the top of the hill to limit widening of the trails and protect adjacent vegetation.
 - a. Add signage requesting visitors stay on marked trails.
2. Clean out the disposed yard waste and garden escapees. Review yard waste disposal options with neighbors.
3. Begin a simple weed abatement program focusing on Myrtle Spurge, Canada Thistle, Baby’s Breath, Russian Olive, and Common Mullein.
4. Add more gravel to the muddy trail at the east end.
5. Consider engagement of knowledgeable volunteers as weeders through organizations such as the Colorado Native Plant Society.

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Appendices

A. Check List for Schweich Hill

This list is assembled from personal collections, herbarium vouchers, and published lists. For California, much of the data is provided by the participants of the Consortium of California Herbaria (<http://ucjeps.berkeley.edu/consortium/>). For Colorado, much of the data is provided by the Southwest Environmental Information Network, which web site is found at (<http://swbiodiversity.org>). See their respective websites for copyright information and recommended citation formats.

This page is highly summarized. For detail about the distribution of plants, please see: Detailed Area List for Schweich Hill, Jefferson County, United States.

Native Taxa are identified by a *serif, italic, and bold* font and non-native taxa are identified with a *sans-serif, italic* font.

Gymnosperms

1. Cupressaceae

2. [] *Juniperus virginiana* L. Eastern Redcedar.

Dicots

3. Anacardiaceae

4. [] *Rhus trilobata* Nutt. var. *trilobata*. (Syn: *Rhus aromatica* Aiton var. *trilobata* (Nutt.) A. Gray ex S. Watson) Skunkbush Sumac.

5. Apiaceae

6. [] *Lomatium orientale* J.M. Coult. & Rose. Salt-and-Pepper.

7. Asclepiadaceae

8. [] *Asclepias speciosa* Torr. Showy Milkweed.

9. Asteraceae

10. [] *Ambrosia psilostachya* DC. Western Ragweed.
11. [] *Artemisia campestris* L. Field Sagewort.
12. [] *Artemisia dracunculus* L. (Syn: *Oligosporus dracunculus* (L.) Poljakov ssp. *glaucis* (Pall. ex Willd.) A. Löve & D. Löve) Tarragon, Dragon Wort.
13. [] *Artemisia frigida* Willd. Prairie Sagewort.
14. [] *Artemisia ludoviciana* Nutt. Silver Wormwood.
15. [] *Artemisia ludoviciana* Nutt. ssp. *ludoviciana*. (Syn: *A. britonii* Rydb.) White Sagebrush.
16. [] *Brickellia eupatorioides* (L.) Shinn. False Boneset.
17. [] *Carduus nutans* L. (Syn: *Carduus nutans* L. ssp. *macrolepis* (Peterman) Kazmi) Nodding Plumeless Thistle. **Weed:** CO DofA, List: B.

18. [] *Centaurea diffusa* Lam. (Syn: *Acosta diffusa* (Lam.) Soja' k) Diffuse Knapweed. **Weed:** CO DofA, List: B.
19. [] *Cirsium arvense* (L.) Scop. (Syn: *Breia arvensis* (L.) Lessing) Canada Thistle. **Weed:** CO DofA, List: B.
20. [] *Cirsium undulatum* (Nutt.) Spreng. Wavy Leaved Thistle.
21. [] *Crepis occidentalis* Nutt. (Syn: *Psilochenia occidentalis* (Nutt.) Nutt.) Largeflower Hawksbeard.
22. [] *Ericameria nauseosa* (Pall. ex Pursh) G.L.Nesom & G.I.Baird var. *graveolens* (Nutt.) Reveal & Schuyler. Goldy-Locks.
23. [] *Erigeron divergens* Torr. & A. Gray. Spreading Fleabane.
24. [] *Erigeron tracyi* Greene. (Syn: *E. cinereus* A. Gray, *E. colomexicanus* A. Nelson, *E. divergens* Torrey & A. Gray var. *cinereus* A. Gray) Running Fleabane.
25. [] *Gaillardia aristata* Pursh. Blanketflower.
26. [] *Gutierrezia sarothrae* (Pursh) Britton & Rusby. (Syn: *G. linearifolia* Lag.) Broom Snakeweed.
27. [] *Helianthus pumilus* Nutt. Little Sunflower.
28. [] *Heterotheca villosa* (Pursh) Shinn. (Syn: *H. v.* (Pursh) Shinn. var. *nana* (A. Gray) Semple, *H. v.* (Pursh) Shinn. var. *villosa*) Hairy False Goldenaster.
29. [] *Hymenopappus filifolius* Hook. var. *polyccephalus* (Osterh.) B.L. Turner. Many-Headed Fine-Leaved Woolly-White.
30. [] *Lactuca serriola* L. Prickly Lettuce.
31. [] *Liatris punctata* Hook. Dotted Blazing Star.
32. [] *Nothocalais cuspidata* (Pursh) Greene. Prairie False Dandelion.

33. [] ***Packera fendleri* (A. Gray) W.A. Weber & Á. Löve.** (Syn: *Senecio fendleri* A. Gray) Fendler's Ragwort.
34. [] ***Packera tridenticulata* (Rydb.) W.A. Weber & Á. Löve.** (Syn: *Senecio tridenticulatus* Rydb.) Three-Tooth Ragwort.
35. [] ***Ratibida columnifera* (Nutt.) Woot. & Standl.** (Syn: *Rudbeckia columnifera* Nutt.) Upright Prairie Coneflower.
36. [] ***Scorzonera laciniata* L.** (Syn: *Podospermum laciniatum* (L.) De Candolle) Cutleaf Vipergrass.
37. [] ***Senecio integerrimus* Nutt.** Columbia Ragwort.
38. [] ***Senecio spartioides* Torr. & A. Gray.** (Syn: *S. multicapitatus* Greenm. ex Rydb.) Broomlike Ragwort.
39. [] ***Solidago missouriensis* Nutt.** Missouri Goldenrod.
40. [] ***Solidago nana* Nutt.** Baby Goldenrod.
41. [] ***Symphotrichum ericoides* (Linnaeus) G. L. Nesom.** (Syn: *Virgulus ericoides* (Linnaeus) Reveal & Keener) White Heath Aster.
42. [] ***Symphotrichum falcatum* (Lindl.) G.L. Nesom.** (Syn: *Aster falcatus* Lindl.) White Prairie Aster.
43. [] ***Symphotrichum porteri* (A. Gray) G.L. Nesom.** (Syn: *Aster porteri* A. Gray) Smooth White Aster.
44. [] ***Taraxacum officinale* F. H. Wigg.** (Syn: *T. laevigatum* (Willd.) DC.) Common Dandelion.
45. [] ***Thelesperma megapotamicum* (Spreng.) Kuntze.** Hopi Tea Greenthread.
46. [] ***Tragopogon dubius* Scop.** (Syn: *Tragopogon dubius* Scop. ssp. *major* (Jacq.) Vollman) Yellow Salsify.
47. [] ***Xanthisma spinulosum* (Pursh) D. R. Morgan & R. L. Hartm.** (Syn: *Machaeranthera pinnatifida* (Hook.) Shinners) Spiny Goldenweed.

48. Boraginaceae

49. [] ***Cryptantha virgata* (Porter) Payson.** (= *Oreocarya virgata* (Porter) Greene) Miner's Candle.
50. [] ***Lithospermum incisum* Lehm.** Narrowleaf Stoneseed.
51. [] ***Mertensia lanceolata* (Pursh) DC.** Prairie Bluebells.

52. Brassicaceae

53. [] ***Alyssum simplex* Rudolphi.** (Syn: *Alyssum minus* Rothm., *Alyssum parviflorum* Fisch. ex M.Bieb.) European Madwort.
54. [] ***Camelina microcarpa* Andr. ex DC.** Little-Podded False Flax.
55. [] ***Chorispora tenella* (Pall.) DC.** Crossflower.
56. [] ***Physaria montana* (A. Gray) Greene.** (Syn: *Lesquerella montana* (A. Gray) S. Watson) Mountain Bladderpod.
57. [] ***Sisymbrium altissimum* L.** Tall Tumblemustard.
58. [] ***Thlaspi arvense* L.** Field Penny Cress.

59. Cactaceae

60. [] ***Echinocereus viridiflorus* Engelm.** (Syn: *Echinocereus chloranthus* (Engelm.) J.N.Haage, *Echinocereus viridiflorus* Engelm. var. *chloranthus* (Engelm.) Backeb.) Nylon Hedgehog Cactus.
61. [] ***Escobaria missouriensis* (Sweet) D.R.Hunt.** (Syn: *Coryphantha missouriensis* (Sweet) Britton & Rose) Missouri Foxtail Cactus.
62. [] ***Escobaria vivipara* (Nutt.) Buxb.** (Syn: *Coryphantha vivipara* (Nutt.) Britton & Rose, *Escobaria vivipara* (Nutt.) Buxb. var. *deserti* (Engelm.) D. R. Hunt, *Escobaria vivipara* (Nutt.) Buxb. var. *rosea* (Clokey) D. R. Hunt) Beehive Cactus.
63. [] ***Opuntia macrorhiza* Engelm.** Western Pricklypear.
64. [] ***Opuntia polyacantha* Haw.** Plains Pricklypear.

65. Campanulaceae

66. [] ***Campanula glomerata* L.** Dane's Blood.

67. Cannabaceae

68. [] ***Celtis reticulata* Torr.** (Syn: *Celtis laevigata* Willd. var. *reticulata* L. D. Benson) Net-Leaved Hackberry.

69. Caprifoliaceae

70. [] ***Lonicera tatarica* L.** Tatarian Honeysuckle.

71. Caryophyllaceae

72. [] ***Cerastium arvense* L. ssp. *strictum* Gaudin.** (Syn: *Cerastium strictum* L.) Field Chickweed.

73. [] *Gypsophila paniculata* L. (Syn: *G. paniculata* L. var. *p.*) Baby's Breath. **Weed:** CO DofA, List: Watch.
74. [] *Saponaria officinalis* L. Bouncingbet. **Weed:** CO DofA, List: B.
75. [] *Stellaria media* (L.) Vill. (Syn: *Alsine media* L.) Common Chickweed.

76. Chenopodiaceae

77. [] *Chenopodium album* L. Lambsquarters.

78. Convolvulaceae

79. [] *Convolvulus arvensis* L. Field Bindweed. **Weed:** CO DofA, List: C.
80. [] *Evolvulus nuttallianus* Roem. & Schult. (Syn: *E. argenteus* Pursh [illeg.], *E. pilosus* Nutt.) Shaggy Dwarf Morning Glory.

81. Elaeagnaceae

82. [] *Elaeagnus angustifolia* L. Russian Olive. **Weed:** CO DofA, List: B.

83. Euphorbiaceae

84. [] *Euphorbia marginata* Pursh. (Syn: *Agaloma marginata* (Pursh) A. Löve & D. Löve) Snow on the Mountain.
85. [] *Euphorbia myrsinites* L. (Syn: *Tithymalus myrsinites* (L.) Hill) Myrtle Spurge. **Weed:** CO DofA, List: A.

86. Fabaceae

87. [] *Astragalus*. Milkvetch.
88. [] *Astragalus agrestis* Douglas ex G. Don. Purple Milkvetch.
89. [] *Astragalus crassicaarpus* Nutt. Groundplum Milkvetch.
90. [] *Astragalus drummondii* Dougl. ex Hook. Drummond's Milkvetch.
91. [] *Astragalus flexuosus* G. Don. Flexible Milkvetch.
92. [] *Colutea arborescens* L. Bladder Senna.
93. [] *Medicago sativa* L. Alfalfa.
94. [] *Melilotus officinalis* (L.) Lam. Yellow Sweet Clover.
95. [] *Oxytropis lambertii* Pursh. Purple Locoweed.
96. [] *Pedimelum tenuiflorum* (Pursh) A. N. Egan. (Syn: *Psoralea tenuiflora* Pursh, *Psoralidium tenuiflorum* (Pursh) Rydb.) Slimflower Scurfpea.

97. Geraniaceae

98. [] *Erodium cicutarium* (L.) L'Her. ex Aiton. Hemlock-leav'd Crane's-bill. **Weed:** CO DofA, List: C.

99. Grossulariaceae

100. [] *Ribes cereum* Douglas. Wax Currant.

101. Lamiaceae

102. [] *Lamium amplexicaule* L. Henbit.
103. [] *Marrubium vulgare* L. Horehound.
104. [] *Scutellaria brittonii* Porter. Britton's Skullcap.

105. Linaceae

106. [] *Linum lewisii* Pursh. (Syn: *Adenolinum lewisii* (Pursh) A. Löve & D. Löve) Prairie Blue Flax.

107. Loasaceae

108. [] *Mentzelia nuda* (Pursh) Torr. & A. Gray. (Syn: *Nuttallia nuda* (Pursh) Greene) Bractless Blazing Star.

109. Malvaceae

110. [] *Malva neglecta* Wallr. Common Mallow.
111. [] *Sphaeralcea coccinea* (Nutt.) Rydb. Cowboy's Delight.

112. Nyctaginaceae

113. [] *Mirabilis linearis* (Pursh) Heimerl. (Syn: *Oxybaphus linearis* (Pursh) B. L. Robinson) Narrowleaf Four O'Clock.

114. Onagraceae

115. [] *Oenothera coronopifolia* Torr. & A. Gray. Crownleaf Evening Primrose. Hierba de San Juan..
116. [] *Oenothera suffrutescens* (Ser.) W. L. Wagner & Hoch. (Syn: *Gaura coccinea* Pursh, *Gaura glabra* Lehm.) Linda Tarde.

117. Orobanchaceae

118. [] *Castilleja integra* A. Gray. Wholeleaf Indian Paintbrush.
119. [] *Orobanche fasciculata* Nutt. (Syn: *Aphyllon fasciculatum* (Nutt.) Torr. & A. Gray) Clustered Broomrape.

120. Plantaginaceae

121. [] *Linaria dalmatica* (L.) Mill. (Syn: *Linaria dalmatica* (L.) Mill. ssp. *dalmatica*, *Linaria genistifolia* (L.) Mill. ssp. *dalmatica* (L.) Maire & Petitm.) Dalmatian ToadFlax.
Weed: CO DofA, List: B.
122. [] *Penstemon secundiflorus* Benth. Sidebells Penstemon.
123. [] *Penstemon virens* Pennell ex Rydb. Front Range Beardtongue.

124. Polygonaceae

125. [] *Eriogonum alatum* Torrey in L. Sitgreaves, Rep. Exped. Zuni Colorado Rivers. 168, plate 8. 1853. (Syn: *Pterogonum alatum* (Torr.) Gross) Winged Buckwheat.
126. [] *Eriogonum arcuatum* Greene, Pittonia. 4: 319. 1901. (Syn: *E. bakeri* Greene, *E. jamesii* Benth var. *flavescens* S. Watson) Baker's Buckwheat.
127. [] *Eriogonum effusum* Nuttall, Proc. Acad. Nat. Sci. Philadelphia. 4: 15. 1848. Spreading Buckwheat.
128. [] *Rumex crispus* L. Curley Dock.

129. Ranunculaceae

130. [] *Delphinium carolinianum* Walter ssp. *virescens* (Nutt.) R.E. Brooks. (Syn: *D. carolinianum* Walter ssp. *penardii* (Huth) L. M. Perry, *Delphinium virescens* Nutt.) Plains Larkspur.

131. Rosaceae

132. [] *Prunus pensylvanica* L. f. (Syn: *Cerasus pensylvanica* (L. f.) Loiseleur) Pin Cherry.
133. [] *Prunus virginiana* L. Chokecherry.
134. [] *Rosa arkansana* Porter. Prairie Rose.

135. Santalaceae

136. [] *Comandra umbellata* (L.) Nutt. ssp. *pallida* (A. DC.) Piehl. (Syn: *Comandra umbellata* (L.) Nutt. var. *pallida* (A. DC.) M. E. Jones) Pale Bastard Toadflax.

137. Scrophulariaceae

138. [] *Verbascum thapsus* L. Common Mullein.
Weed: CO DofA, List: C.

139. Violaceae

140. [] *Viola nuttallii* Pursh. Nuttall's Violet.

141. Vitaceae

142. [] *Parthenocissus vitacea* (Knerr) Hitchcock. Woodbine, thicket creeper.

Monocots

143. Agavaceae

144. [] *Yucca glauca* Nutt. Soapweed Yucca.

145. Anthericeae

146. [] *Leucocrinum montanum* Nutt. ex A. Gray. Star Lily.

147. Commelinaceae

148. [] *Tradescantia occidentalis* (Britton) Smyth. Prairie Spiderwort.

149. Cyperaceae

150. [] *Carex inops* L.H. Bailey ssp. *heliophila* (Mack.) Crins. (Syn: *C. pensylvanica* Lam. ssp. *heliophila* (Mack.) W. A. Weber) Sun Sedge.

151. Iridaceae

152. [] *Iris* L. Horticultural Iris.

153. Liliaceae

154. [] *Muscari botryoides* (L.) Mill. Common Grape Hyacinth.
155. [] *Narcissus* L. Horticultural Daffodil.

156. Poaceae

157. [] . Grass Family.
158. [] *Aegilops cylindrica* Host. (Syn: *Cylindropyrum cylindricum* (Host) Á.Löve) Jointed Goat Grass. **Weed:** CO DofA, List: B.
159. [] *Agropyron cristatum* (L.) Gaertn. Crested Wheat Grass.
160. [] *Andropogon gerardii* Vitman. Big Bluestem.
161. [] *Aristida purpurea* Nutt. var. *longiseta* (Steud.) Vasey. (Syn: *Aristida longiseta* Steud.) Purple Threeawn.
162. [] *Bouteloua gracilis* (Kunth) Lag. ex Griffiths. (Syn: *Chondrosum gracile* Kunth) Blue Grama.
163. [] *Bromus carinatus* Hook. & Arn. (Syn: *Ceratochloa carinata* (Hook. & Arn.) Tutin) California Brome.
164. [] *Bromus inermis* Leyss. (Syn: *B. inermis* Leyss. ssp. *inermis*) Smooth Brome.

165. [] *Bromus japonicus* Thunb. Japanese Cheat Grass.
166. [] *Bromus tectorum* L. (Syn: *B. tectorum* L. var. *glabratus* Spenn.) Cheat Grass. **Weed:** CO DofA, List: C.
167. [] *Buchloe dactyloides* (Nutt.) Engelm. (= *Bouteloua dactyloides* (Nutt.) J.T. Columbus) Buffalo Grass.
168. [] *Dactylis glomerata* L. Orchard Grass.
169. [] *Elymus canadensis* L. Canadian Wildrye.
170. [] *Elymus elymoides* (Raf.) Swezey. (Syn: *E. longifolius* (J. G. Sm.) Gould, *Sitanion hystrix* (Nutt.) J. G. Sm.) Squirreltail Grass.
171. [] *Festuca idahoensis* Elmer. Idaho Fescue.
172. [] *Festuca saximontana* Rydb. (Syn: *F. saximontana* Rydb. var. *purpusiana* (St.-Yves) Fred. & Pavlick) Rocky Mountain Fescue.
173. [] *Hesperostipa comata* (Trin. & Rupr.) Barkworth. (Syn: *Stipa comata* Trin. & Rupr.) Needle and Thread.
174. [] *Koeleria macrantha* (Ledeb.) Schult. Prairie Junegrass.
175. [] *Nassella viridula* (Trin.) Barkworth. (Syn: *Stipa viridula* Trin.) Green Needlegrass.
176. [] *Poa pratensis* L. (Syn: *P. agassizensis* B. Boivin & D. Löve) Kentucky Bluegrass.
177. [] *Poa secunda* J. Presl. (Syn: *P. nevadensis* Vasey ex Scribn.) Sandberg Bluegrass..
178. [] *Schizachyrium scoparium* (Michx.) Nash. Little Bluestem.
179. [] *Sporobolus cryptandrus* (Torr.) A. Gray. (Syn: *Agrostis cryptandra* Torr.) Sand Drop-seed.
180. [] *Thinopyrum intermedium* (Host) Barkworth & D.R. Dewey. (Syn: *Elytrigia intermedia* (Host) Nevski, *Elymus hispidus* (Opiz) Melderis) Intermediate Wheatgrass.
181. [] *Triticum aestivum* L. Wheat.
182. [] *Vulpia octoflora* (Walt.) Rydb. (Syn: *Festuca octoflora* Walter, *Vulpia octoflora* (Walt.) Rydb. var. *octoflora*) Six Weeks Fescue.

Total number of taxa:	141
Native Taxa: (<i>serif, italic, bold</i>)	93
Exotic Taxa: (sans-serif, italic)	45
Nativity Undetermined: (default font, italic)	3
Listed Weeds: Identified as Weed	13

Date and time this list was prepared: 6/6/2024 11:53:21 AM

https://d.docs.live.net/e7363c9a9e61c431/Documents/Schweich_Hill_1D/Botanical_Resources_Schweich_Hill.docx

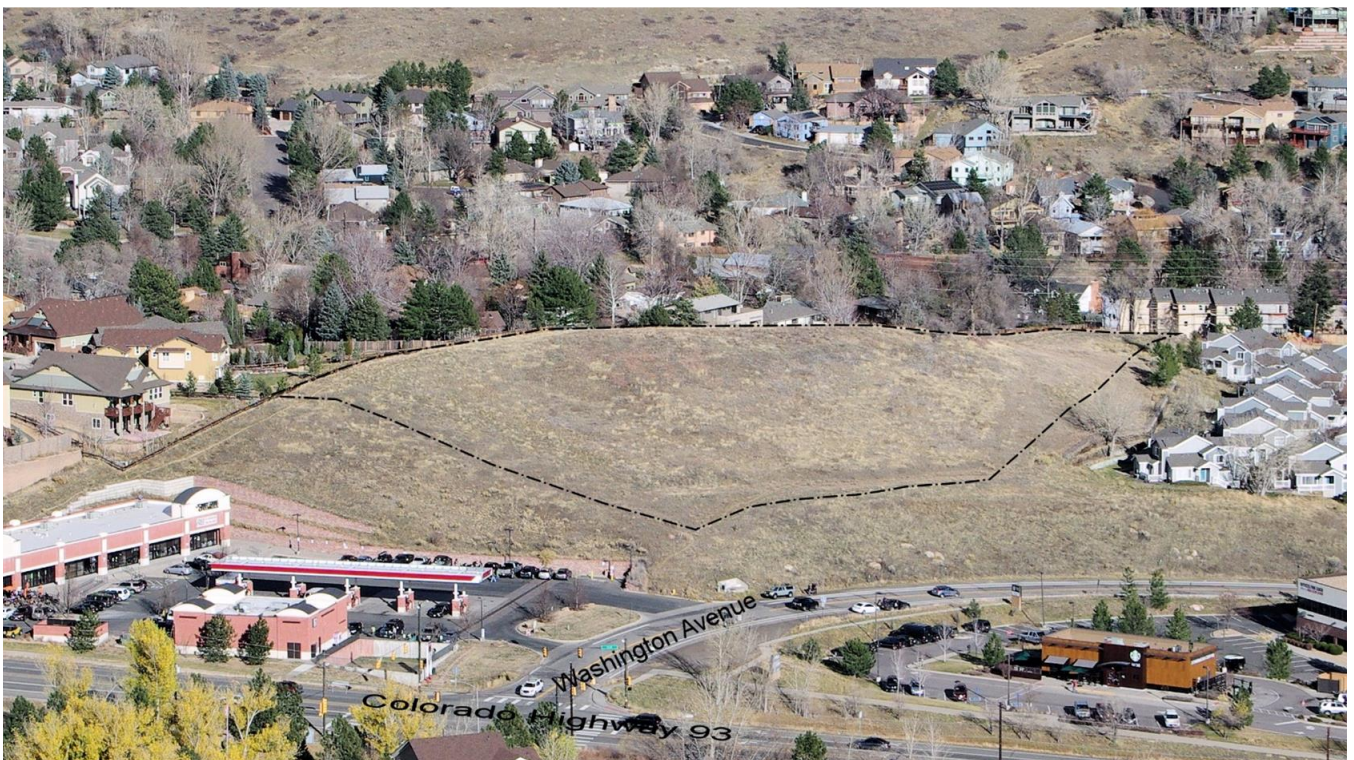


C. Sources of Disturbance





Photograph of Schweich Hill from North Table Mountain, June 8, 2017.



Photograph of Schweich Hill from Mount Galbraith, November 24, 2017

