



**VASCULAR PLANTS  
OF  
HIDDEN MESA OPEN SPACE  
DOUGLAS COUNTY, COLORADO, USA**

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for

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Castle Rock, CO

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### **Western end of northern mesa rimrock area. Bearing NNE. Event 8. (6.2.21)**



## EXECUTIVE SUMMARY

The Hidden Mesa Open Space, Douglas County, Colorado is one of many parcels and contiguous landscapes in the fee simple tenure component of the county Open Space & Natural Resources system. The 1200-acre size and the diversity of the landscape at Hidden Mesa, as well the largely intact condition of the plant communities, contribute to the vascular plant species richness here. Over 400 species were documented at this open space, including some 26 species of interest. Some of these are officially designated as critically imperiled or imperiled at the state level (i.e., “S1”, “S2”, respectively, state-level conservation status ranks). Some have not been documented with herbarium accessions from the County. To document the presence of these plants, 10 days of solo field effort were employed over three seasons. Areas covered included the greater mesa area, shrub-dominant or co-dominant hilly uplands, two riparian areas, and shortgrass steppe.

The S1 and S2 species present are *Helianthemum bicknelli*, *Heuchera richardsonii*, *Sparganium eurycarpum* & *Alopecurus carolinianus*.

The species documented here for which herbarium specimens from Douglas County are lacking are: *Mimulus sukdorfii*, *Chenopodium incanum*, *Chenopodium watsonii*, *Erigeron glabellus*, *Amaranthus blitoides*, *Pseudognaphalium canescens*, and *Elodea canescens*.

Those species for which there are only 1 or 2 independent herbarium accessions from the County are: *Alopecurus carolinianus*, *Dichanthelium linearifolia*, *Heuchera richardsonii*, *Salvia reflexa*, *Eleocharis acicularis*, and *Linaria canadensis*

The species found at HMOS for which there are less than 50 (not necessarily independent) herbarium accessions statewide are: *Helianthemum bicknelli*, *Mimulus sukdorfii*, *Alopecurus carolinianus*, *Dichanthelium linearifolia*, *Heuchera richardsonii*, *Linaria canadensis* and *Elodea canadensis*.

The only Colorado endemic found here is *Mentzelia speciosa*.



**South side mesa cliff.  
Event 9 (7.3.21)**

## INTRODUCTION

The Hidden Mesa geologic feature is located east of the town of Castle Rock and two miles west of Franktown (intersection of Hwys. 86 & 83) in Douglas County, Colorado (Figs. 1, 2). Hidden Mesa Open Space (HM or HMOS) is bisected by Cherry Creek, a tributary of South Platte River in the Great Plains-Rocky Mountain transition zone. Elevation ranges from about 6040 feet in the lower Cherry Creek watercourse to 6500 at the mesa top. The open space is largely surrounded by a combination of large-lot residential and small-lot agricultural parcels, with a high density, residential subdivision on the north boundary. State highways form a portion of the southern and eastern borders. Another protected area, Gateway Mesa Open Space (Town of Castle Rock), is found adjacent to the south of the west end of HM across Highway 86. Most of the land between Cherry Creek and State Highway 83 to the east has been extensively altered and it is still used for crop and hay production. Except for intact areas adjacent to the creek, this areas was not included in the survey effort.

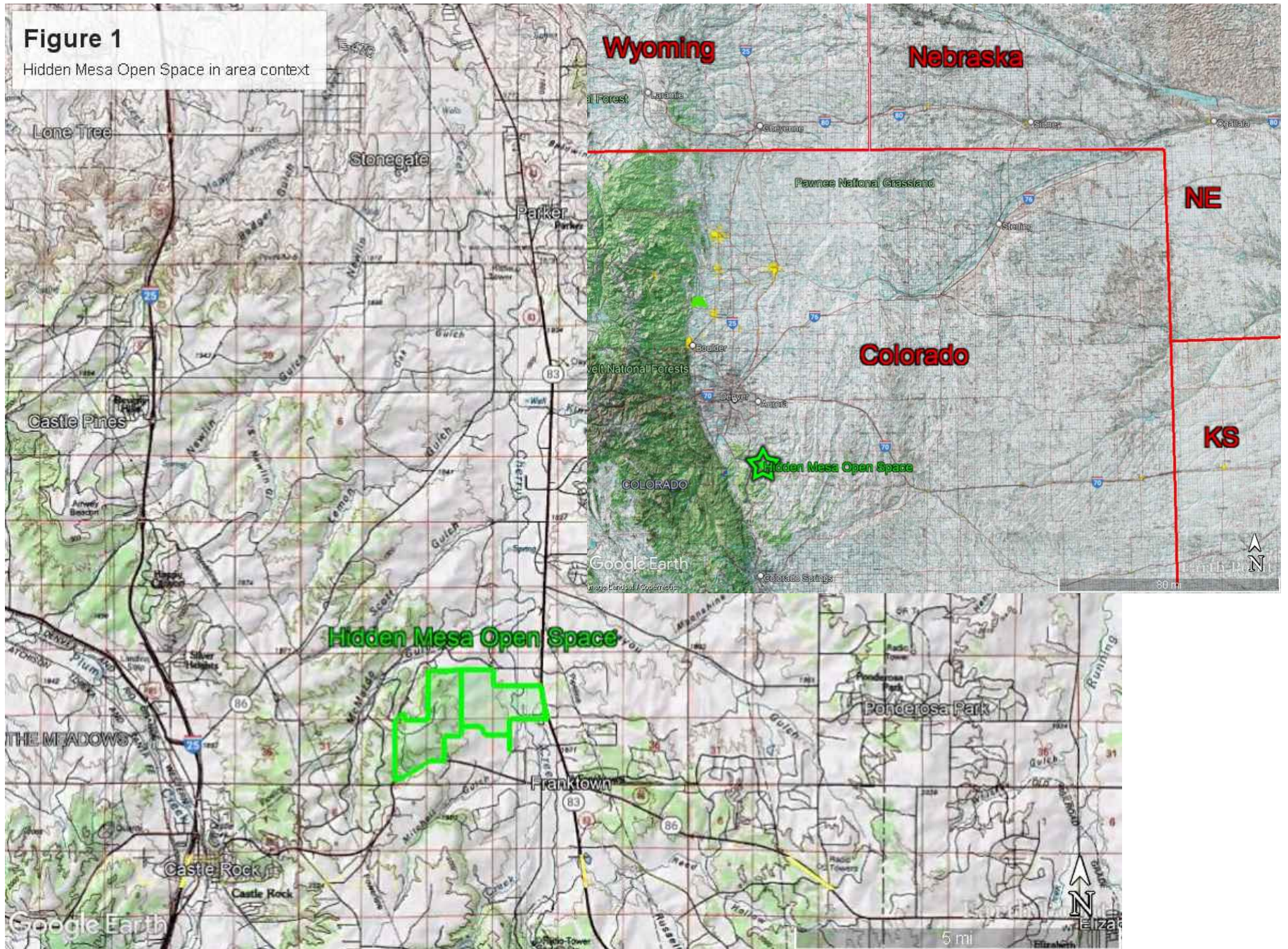
The Colorado Natural Heritage Program (CNHP) conducts conservation species status assessments and identifies uncommon species for which it collects and curates detailed information. A composite listing for plants and other groups with locations identified by US Geological Survey 7.5' quadrant map is available to the public for download from the CNHP website. Hidden Mesa is located in the Castle Rock North quadrant. There are three vascular plant species in the “Quad by EO” tracking list (CNHP, 2019): *Aristida basiramea*, *Asclepias stenophylla* and *Carex saximontana*. *Aristida basiramea* was documented at Gateway Mesa Open Space, in 2015 (Wittman & Wingate. Unpublished, ca 2016).



**From northern extension of mesa, bearing SE. Event 8. (6.2.21)**

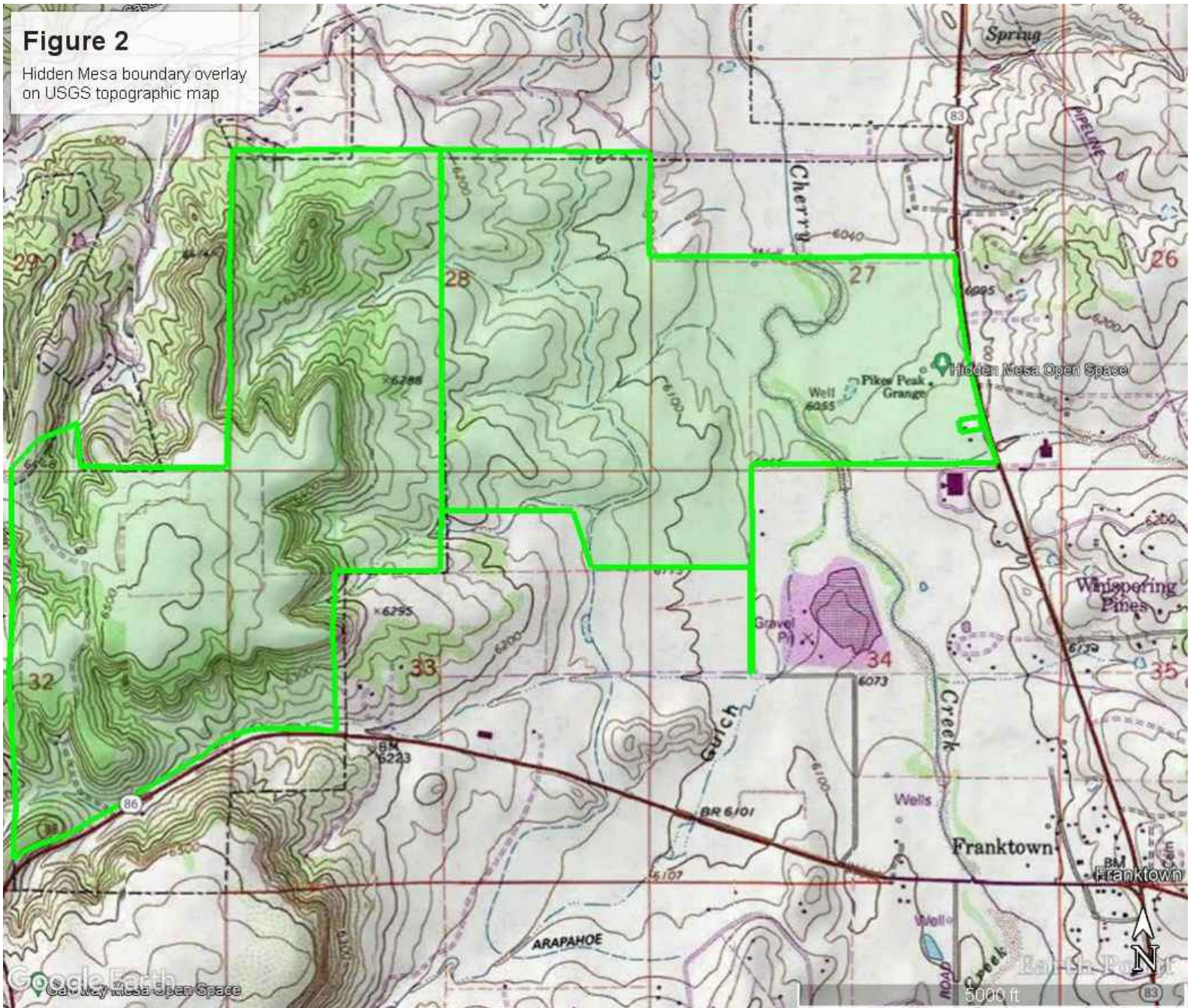
**Figure 1**

Hidden Mesa Open Space in area context



**Figure 2**

Hidden Mesa boundary overlay  
on USGS topographic map



## OBJECTIVES

This study is part of an ongoing effort to better characterize the vascular plants of each of the conserved areas of the Douglas County Open Space system. Recent activities include the Denver Botanic Gardens' field study of Sandstone Ranch (Alba & Wingate. 2020) and this author's survey of Prairie Canyon Ranch (Vickery, J. 2020). The known botanical quality of Hidden Mesa and the fact that a detailed or comprehensive survey had not been conducted was responsible for prioritizing a plant inventory study here by OSNR staff. **The purpose of this project was to 1. develop a better understanding of the plant species richness of the Hidden Mesa Open Space and 2. to provide detailed documentation of occurrences of uncommon-to-rare species.** With the first, a list of the species present at Hidden Mesa was to be generated. Also to be documented in the project are the locations of species of interest, including those of Special Concern [that is with conservation ranks of S1, S2, or S3 (NatureServe Explorer & Colorado Natural Heritage Program)]. Such documentation was to include substrate, aspect, overstory, plant associates, and plant count or density and area covered [i.e., info. needed for a CNHP Plant Element Occurrence Field Form for those plants that are tracked].

The results of plant surveys of protected areas can be useful in a number of ways, including:

- A. development of a better floristic understanding and natural resource characterization of the area
- B. protection and monitoring of uncommon-to-rare species, including Species of Special Concern
- C. informing land use decision making
- D. informing recreational planning, including trail routes.
- E. informing the preservation of additional lands in the vicinity.



**Cherry Creek between pedestrian bridge and HMOS south boundary.  
Bearing N (downstream)  
Event 10.**

## METHODS

Ten, day-long field events were carried out over a period of three years from April to September. A narrative description of the area covered in each day's field effort is provided in Table 1. A combination of two general 'methods' of surveying the landscape was employed. In one, all plants encountered were documented. In the other, the focus was on finding and documenting infrequent-to-rare species or species not previously documented in the study. With this method, common species were not usually recorded unless their presence was deemed atypical for a particular area or setting. The latter or second method was used for Events 6 to 10. For Events 1 to 5, the first method was employed

Also, two general approaches were used for traversing the areas of interest. In one, a set of meandering, nominally parallel, transects was used to cover the day's focus area in a relatively more intensive manner. In the second, irregular and meandering loops were used to cover the terrain—typically in a relatively diffuse manner. These two general approaches are denoted 'areas' and 'routes', respectively, in the third column, 'Approach', in Table 1, as well as in the project map (Fig. 3).

The areas covered by each such event are shown on the satellite image map in Figure 3. Throughout the survey effort, GPS locations were recorded for uncommon-to-rare plants—some of which are CNHP-tracked species or Species of Special Concern—as well as other occurrences of particular interest. Most locations were determined with a handheld, Garmin GPSMAP 66st unit. For some locations the coordinates associated with smartphone photos were utilized. Also, some were approximated after the fact with GoogleMaps online. [These details are conveyed in a version of Appendix 1, for internal Douglas Co. use.] For the most part, species identifications were made in the field; but many specimens were subsequently identified later in the office. In either case, the references utilized are listed in 'References' section.

### **Trailside off north side of mesa, bearing SW. Event 8. (6.2.21)**





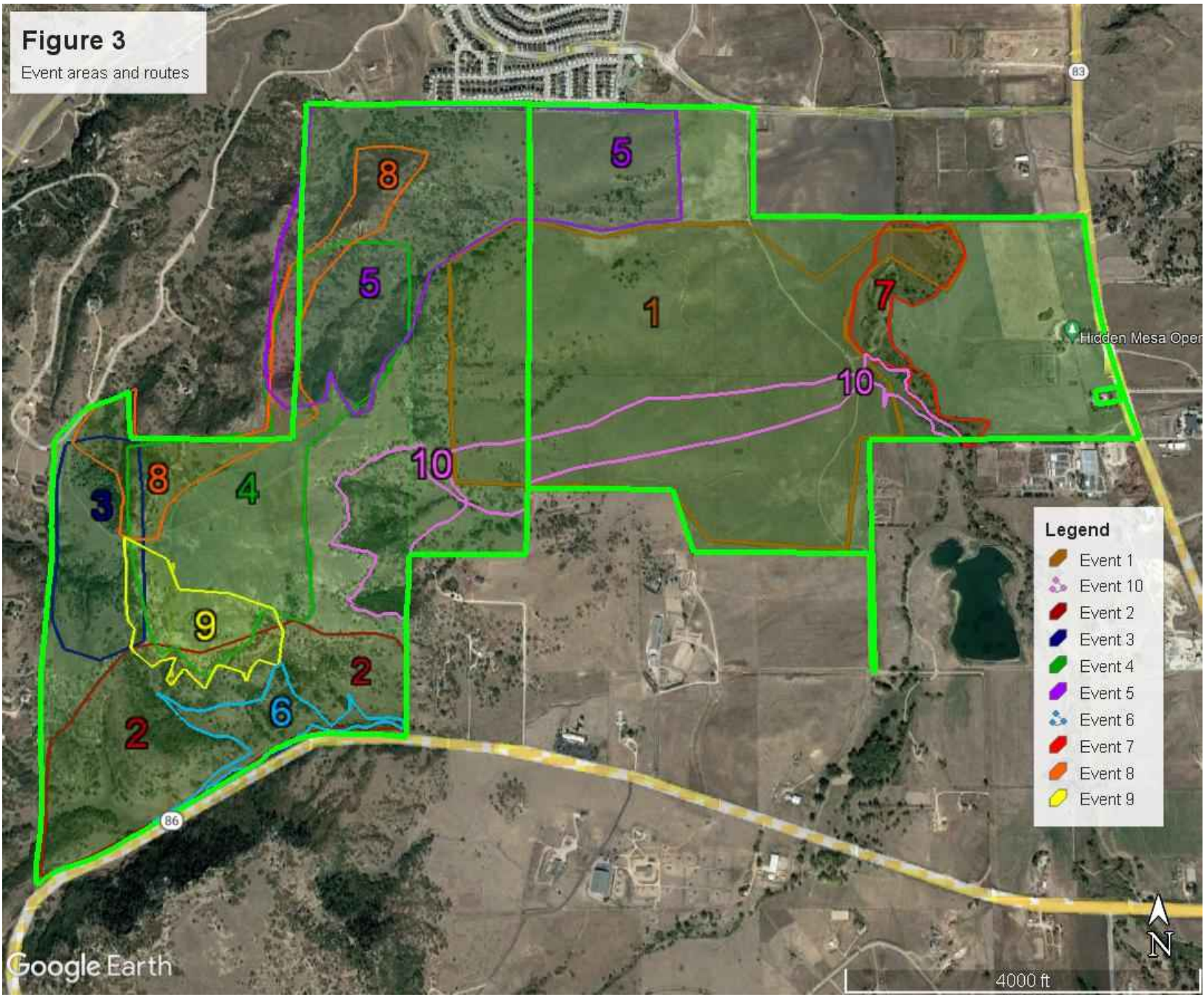
**Table 1. Survey event location descriptions.**

<b>Event no.</b>	<b>Date</b>	<b>Approach</b>	<b>Narrative description</b>
1	4.14.19	Area	~ Six meandering N-S, S-N transects Fr Cherry Creek in the E, westward to E base of mesa; fr S fence northward to N fence (in the E) and Hidden Mesa Trail (in the W)
2	5.4.19	Area	4 meandering W-E & E-W transects in upper/western south side, fr W fence to E fence (parcel w red silo) & fr S fence/SH86 to S mesa rimrock
3	6.21.19	Area	3 ½ meandering transects in (western) NW corner, fr W fence to W mesa rim & fr E fenceline (Pleasant View entrance) westward about 2/3 way to main road (Hwy. 86)
4	8.15.19	Area	Mesa top: 3 1/2 meandering N-S transects in western 4/5 of mesa, plus 3 E-W transects covering NW portion of mesa top and the NW corner of HMOS between mesa top and trail from NW parking lot
5	9.22.19	Area	Northwest quadrant, 7 N-S,S-N transects. All transects, N border was residential subdivision boundary/fence. S border was: 4 eastern transects, the main (HM) trail; 3 western transects, mesa rim. E border aligned w/ stormwater detention pond just S of subdivision. W border is N HMOS boundary or 'N-S finger ridge' (just E of Pleasant Valley Rd.)
6	7.15.20	Route	Cherry Creek and vicinity: fr bridge to S boundary on E side; fr bridge to N boundary on W side; fr bridge S to 2nd big bend on E side
7	8.3.20	Area	Drainage along S boundary across from mesa, including 2 draws/washes that come down to the drainage fr the mesa, plus some adjoining or nearby upland areas
8	6.2.21	Area, Route	A. Northern rimrock vicinity, between trail & N boundary & B. far N double hill mesa peninsula & routes between A & B
9	7.3.21	Area	Southern portion of western rimrock area & west half of southern rimrock area
10	8.2.21	Route	West bank of Cherry Creek fr bridge to S border, then back N to bridge via ancient CC alluvial terrace to the W. Then to E side of Mesa, covering s half, including lower slope & rimrock/cliffs areas, then back to bridge.

Field participants. Project investigator, all events.

Events 1-5, all encountered species recorded. Events 6-10, less common and newly encountered species recorded

**Figure 3**  
Event areas and routes



## RESULTS

### Summary findings

A total of 433 species representing 83 families, were found in this study. Over 80% of these are native. Summary statistics are found in the box below. More details about species of interest are found in the Discussion section. The plant list compilation is presented as Appendix 1. Plant occurrence details for species of interest are found in a version of Appendix a provided for internal DCOSNR use.

#### **Box 1. Summary descriptive statistics of plant species found at Hidden Mesa Open Space**

- ~ 83 families
- ~ 433 species
- ~ 75 introduced species
- ~ 14 noxious weed species [As designated by the Colorado Dept. of Agriculture]
- ~ 26 species of interest (as specified in narrative below)
- ~ 2 S1 species (critically imperiled in Colorado)
- ~ 2 S2 species (imperiled in Colorado)
- ~ 10 species for which there are no herbarium accessions from Douglas County (per SEINet searches)
- ~ 7 species for which there are only 1 or 2 herbarium accessions from Douglas County
- ~ 7 species for which there are less than 25 statewide herbarium accessions
- ~ 1 Colorado endemic

### Species of interest

In all, 26 species of interest have been found at HMOS. These are identified below and placed in categories for review. A more detailed treatment for some of these species is found in the Discussion section (Box 2). In general, to be considered a species of interest, one or more of the follow characteristics apply:

- ~ CNHP tracked or watch listed
- ~ Species of Concern, that is, with a State Conservation Rank (SCR) of 1, 2, or 3—critically imperiled, imperiled, or vulnerable, respectively [conservation ranks were obtained from the species listings found via the Nature Serve Explorer 2.0 online search application]
- ~ Poorly collected in Colorado and/or Douglas County [as represented in herbarium accessions per SEINet searches]
- ~ Deemed by one or more Colorado authorities as 'rare', 'uncommon', 'infrequent', or 'occasional'
- ~ A Colorado endemic

Plants with a conservation rank of '1' or '2' or to a lesser extent, '3', are typically 'fully tracked' or placed on the 'watch list' by CNHP, with exceptions. The *lack* of an assigned SCR for Colorado should not be interpreted as a *lack* of a need for concern or protection with respect to land use and land management decision making. This is because many plants that are infrequent-to-uncommon in Colorado have not yet been assigned an SCR. Often, plants that are uncommon in Colorado are at the edge of their natural range or occur here as apparently disjunct populations.

#### **A. 4 species are fully tracked by the Colorado Natural Heritage Program**

*Helianthemum bicknelli*, frostweed. S2 [CISTACEAE]

*Mentzelia speciosa*, jeweled blazingstar. S3. Endemic. [LOASACEAE]

*Heuchera richardsonii*, Richardson's alumroot. S1. Disjunct. [SAXIFRAGAEAE]

*Sparganium eurycarpum*, broadfruit bur-reed. S2. [TYPHACEAE]

[[Also, a tentative ID of *Asclepias stenophylla*, slimleaf milkweed. S2, based on vegetative characters]

**B. 2 species are on the CNHP 'watch list'**

*Asplenium septentrionale*, grassfern, forked/northern spleenwort. S3S4. [ASPLENIACEAE]

*Alopecurus carolinianus*, Carolina foxtail. S1. [POACEAE]

**C. There is one S3 species**

*Mimulus (Erythranthe) floribunda*, Manyflowered monkey-flower. S3. [PHRYMACEAE]

**D. Poorly collected at the state or county level** [Based SEINet searches (11.28.21 & other dates)]

Note 1: Some of these are not considered to be of particular botanical interest (rather, they are just poorly collected).

Note 2: Species listed above under A or B, are not relisted under C, even if applicable.

1. There are few Douglas County-sourced herbarium records for some of the species (including some of the above listed tracked species). In some cases, such accessions are lacking. Some are well collected in Colorado; some are poorly collected state wide. The number of herbarium records are given in parenthesis following each species (CO = Colorado, DC = Douglas County). Douglas County is among the moderately intensively collected counties (no. of accessions per unit land area) in the state (Alba, et al. 2018. Fig. 5) being 28th out of 64. For the purposes herein, species are included below if there are **less than three** independent herbarium specimens sourced from the County.

2. There are some species that are reasonably well-collected in Douglas County, but are poorly or relatively poorly collected on a statewide basis. For the purposes herein, this typically means **less than about 100** specimens from across Colorado.

*Sagittaria latifolia*. 59 CO, 0 DC [ALISMATACEAE]

*Amaranthus blitoides*. 198 CO, 0 DC [AMARANTHACEAE]

*Erigeron glabellus*. 293 CO, 0 DC [ASTERACEAE]

*Eutrochium maculatum*. 77 CO, 6 DC [ASTERACEAE]

*Pseudognaphalium canescens*. 65 CO, 0 DC [ASTERACEAE]

*Symphotrichum fendleri*. 76 CO, 4 DC [ASTERACEAE]

*Opuntia fragilis*. 144 CO, 1 DC [CACTACEAE]

*Chenopodium incanum*. 162 CO, 0 DC [CHENOPODIACEAE]

*Chenopodium simplex*. 78 CO, 4 DC [CHENOPODIACEAE]

*Chenopodium watsonii*. 70 CO, 0 DC [CHENOPODIACEAE]

*Delphinium carolinianum* ssp. *virescens*. 279 CO, 3 DC [2 independent; 1902, 1936] [RANUNCULACEAE]

*Eleocharis acicularis*. 220 CO, 2 DC [CYPERACEAE]

*Elodea canadensis*. 45 CO, 0 DC [HYDROCHARITACEAE]

*Juncus articulatus*. 100 CO, 4 DC [JUNCACEAE]

*Hedeoma hispida*. 60 CO, 3 DC [LAMIACEAE]

*Salvia reflexa*. 245 CO, 1 DC [fr 1903, Platte Canyon railroad station] [LAMIACEAE]

*Mimulus suksdorfii (Erythranthe)*. 35 CO, 0 DC [PHRYMACEAE]

*Gratiola neglecta*. 78 CO, 3 DC [Sandstone Ranch, Castle Rock, Sedalia] [PLANTAGINACEAE]

*Linaria canadensis*. 21 CO, 1 DC [Gateway Mesa OS] [PLANTAGINACEAE]

*Dichanthelium linearifolia*. 40 CO, 1 DC [Sandstone Ranch] [POACEAE]

*Mimulus floribundus*, manyflowered monkey-flower. G5S3. Mesa rimrock overhang. Event 9 (7.3.21)



*Eutrochim maculatum*, joeypyweed. Event 10 (8.2.21)



***Gratiola neglecta*. Clammy hedgehyssop. Event 9 (7.3.21)**  
**Mesa rimrock rundown channel**



***Mentzelia speciosa*. Jeweled blazingstar. Event 10 (8.2.21)**  
**On ancient alluvial terrace.**



## Introduced species

Of the 400-plus species documented at Hidden Mesa, about 75 are introduced or non-native. For the most part, this tally does not include species that are known to be native in the region, but which may or may not (or are probably not) native here at the edge of the Great Plains. The plant list in Appendix 1, specifies 'N' for native and 'I' for introduced in column F for each species. Where authorities differ or where nativity is unclear, summary information is provided in the notes column (J). An online search via EDDMapS for introduced plants in Douglas County, did not produce any documented occurrences at HMOS.

## Noxious weeds

Of the 75 introduced species at HMOS, fourteen are 'noxious weeds'. Through an administrative process, the Colorado Department of Agriculture designates certain weeds as 'noxious' based on characteristics such as invasiveness, ecological significance and economic affects, along with the feasibility of management or eradication. Noxious weeds are placed in three categories, A, B, and C. In brief but simplistic terms, these categories can be differentiated as A. 'Eradication required', B. 'Management required', C. 'Management desired'. For additional information and an official explanation of the categories (including 'watch list'), see the State's Noxious Weed Species ID webpage (Colorado Dept. of Agriculture). No List A species were encountered at HMOS in this study.

### List B species

Bouncingbet	<i>Saponaria officinale</i>
Canada thistle	<i>Cirsium arvensis</i>
Dalmatian toadflax	<i>Linaria dalmatica</i>
Diffuse knapweed	<i>Centaurea diffusa</i>
Hound's tongue	<i>Cynoglossum officinale</i>
Leafy spurge	<i>Euphorbia esula</i>
Musk thistle	<i>Carduus nutans</i>
Russian olive	<i>Eleagnus angustifolia</i>
Scotch thistle	<i>Onopordum acanthum</i>

### List C species

Common burdock	<i>Arctium minus</i>
Common mullein	<i>Verbascum thapsus</i>
Common St. Johnswort	<i>Hypericum perforatum</i>
Poison hemlock	<i>Conium maculatum</i>
Redstem filaree	<i>Erodium cicutarium</i>

### Watch list species

Hoary alyssum	<i>Berteroa incana</i>
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## Uncommon introduced plants

Some non-native species were found at Hidden Mesa that are infrequent to uncommon in Colorado. The short treatments below use a simplified version of a format used in the 'summaries of selected native species of interest box' (Box 2) in the discussion section. See that section for an explanation of abbreviations and sources.

Palmer amaranth, *Amaranthus palmeri*

SEINet 12.11.21: 54 CO, 0 DC

Event 1

Carpet weed, *Mollugo verticillata*

SEINet 11.28.21: 32 CO, 1 DC [CS, 134225, E. Bethel, 1916, Castleview]

Events: 4,9

Small tumbleweed mustard, *Sisymbrium loeselii*

SEINet 11.28.21: 122 CO, 2 DC [Cherokee Ranch, Lost Lake Equestrian Center]

Event 3

Russian hawthorn, *Crataegus ambigua*

SEINet 12.11.21: 1 CO, 0 DC. Dissected, toothed leaves. Not included in CO flora; but escapes have occasionally been seen by author elsewhere in no. CFR.

Event 7

## DISCUSSION

A total of 433 species were documented at Hidden Mesa during the study. For comparison, 413 species were found at Prairie Canyon Ranch by the author in 2020 (Vickery, J. 2021). In that field effort, a 978-acre open space leased for cattle grazing was surveyed with six person-days of effort. Like HMOS, it included a reach of Cherry Creek—about 6 air miles upstream.

There are no confirmed herbarium accessions from HMOS. A SEINet locality search for ‘Hidden Mesa’ on 11.26.21 did not yield any specimens, but a rough perimeter search yielded four species collected in 1937 two miles west of Franktown, with a 0.5 mile accuracy. This means they could have been collected from present-day MHOS. Three species are common to somewhat infrequent and were observed in the present study: *Penstemon angustifolius* var. *angustifolius*, *Astragalus crassicaarpus* var. *crassicaarpus*, and *Astragalus drummondii*. The fourth, *Penstemon auriberbis*, is well collected in Colorado, but few collections are from north of the Palmer Divide [vicinity Monument, CO (some 20 miles south of HMOS)]. It has only been collected this one time in Douglas Co.

Although this is the first known study of the plant species at HMOS, a survey was undertaken at an adjoining Town of Castle Rock open space across Highway 86 to the south. The inventory at Gateway Mesa (Wittman & Wingate, ca 2016) included vascular and nonvascular plants. A number of vascular plants were found there that were not documented in the present study at Hidden Mesa. They are:

<i>Selaginella underwoodii</i>	<i>Dryopteris filix-mas</i>	<i>Hordeum brachyantherum</i>
<i>Acer glabra</i>	<i>Helianthus petiolaris</i>	<i>Veronica/Pocilla biloba</i>
<i>Corydalis aurea</i>	<i>Alyssum alyssoides</i>	<i>Hieracium fendleri</i>
<i>Pseudotsuga menziesii</i>	<i>Carex rossi</i>	<i>Juniperus osteosperma</i>

There are seven species documented in the present study for which there are no Douglas County herbarium accessions per SEINet, nor any mapped occurrences in Ackerfield, BONAP, nor USDA Plants Database [with the exception that Ackerfield indicates herbarium documentation for *Sagittaria latifolia*]. *Sagittaria latifolia* and *Mimulus suksdorfii* are treated in more detail in Box 2 (where the same abbreviations are used and explained). Three species are treated here more briefly:

*Amaranthus blitoides*. 198 CO, 0 DC [AMARANTHACEAE]  
Considered ‘exotic’ by NSE across NA, except for CO, WY, & MT. BONAP treats as exotic in plains states, introduced elsewhere. Plants db treats as introduced throughout. CO authorities treat as native, but it is typically encountered in non-natural settings in the NCFR.

*Erigeron glabellus*. 293 CO, 0 DC [ASTERACEAE]  
Across w CO to FR, at elevations from 5500 to 12500 ft. Yet to be collected from Jefferson Co. to the W; 1 collection from Teller Co. to the SW; 5 collections f El Paso Co. to the S.

*Pseudognaphalium canescens*. 65 CO, 0 DC [ASTERACEAE]  
Western states fr TX & OK, W to CA, N to BC & Alberta. CO FR fr WY to NM, E to Baca Co.

*Chenopodium incanum*. 162 CO, 0 DC [CHENOPODIACEAE]  
Collected from many counties across CO at 3500 to 8500 ft, but uncollected from many counties in w 1/3. Collected from adjoining counties to N, W and E, but not fr. those to the S and SW. Usually associated with prairie dog burrows.

*Chenopodium watsonii*. 70 CO, 0 DC [CHENOPODIACEAE]  
Relatively poorly collected statewide from some dozen e and sc counties at 4500 to 5500 ft. Vegetatively very similar to preceding.



*Elodea canadensis*. 45 CO, 0 DC [HYDROCHARITACEAE]

Across the US, but absent fr or uncommon in se and sc states. Collected fr ¼ of CO cos., mostly fr central 1/3 fr WY to NM border at 4000 to 9000 ft.

Summary details for each of ten species of special interest follow next in Box 2. These 'briefs' or 'snapshots' are intended to provide a short, but more holistic assessment of the 'notability' or 'conservation concern' or importance of a species occurrence in Douglas County.

***Helianthemum bicknelli*, frostbite. Events 5, 8 (9.22.19, 6.2.21)**





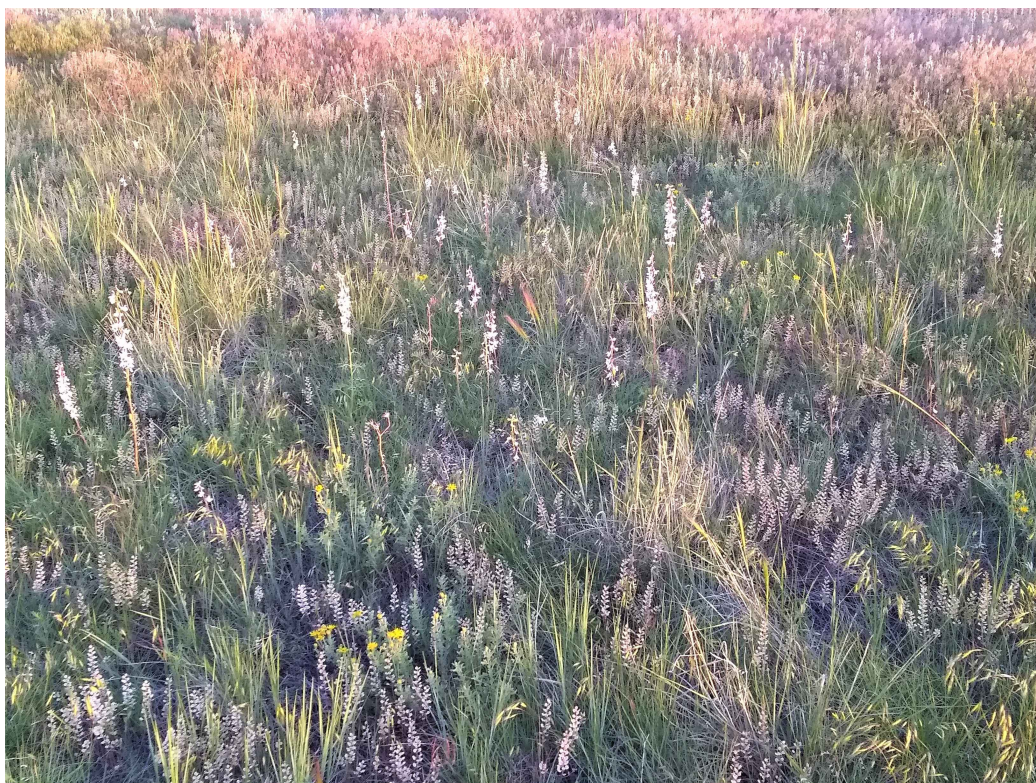
*Opuntia fragilis*, brittle pricklypear. Event 9 (7.3.21)



*Asplenium septentrionale*, forked spleenwort. Mesa rimrock. Event 9 (7.3.21)



*Mimulus sukdorfii*. Event 8 (6.2.21)



*Delphinium carolinianum* ssp. *virescens*. Event 9, 7.3.21. Well collected on the eastern slope, but only two independent collections in Douglas Co., the last in 1936. Encountered at only one location at HMOS—on the mesa top.

**Box 2. Briefs, Species of Interest** [for abbreviations and sources see below box]

## ALISMATACEAE

***Sagittaria latifolia***, broadleaf arrowhead

G5SNR. WY, AZ: S1. NM, OK, KS, NE, UT: SNR (Re UT: BONAP indicates accession(s) only fr se corner)

SEINet 12.6.21: 59 CO, 0 DC records [Note: Ack map indicates DC accession, but Plants db &amp; BONAP do not concur]

From coast to coast, FL to CA, N to Canadian Provinces, but relatively uncommon in western half of USA. CO: scattered collections. Mostly along both sides of the borders with both NM and WY + nc counties S to Jefferson, Arapahoe + El Paso.

Cherry Creek. Also found upstream in Cherry Creek and in tributary impoundments at Prairie Canyon Ranch (Vickery. 2020).

## ASPLENIACEAE

***Asplenium septentrionale***, grassfern, forked/northern spleenwort

G5S3S4, CNHP watchlist. NM: S3; WY: S2; UT, OK: S1; AZ: SNR.

10.15.20 SEINet: 203 CO, 4 DC records

From TX to SD, W to OR &amp; CA (absent fr KS, NE). In CO, found in many c to wc counties fr N to S border, plus Moffat, Las Animas, and Baca Counties.

## CISTACEAE

***Helianthemum bicknelli***, frostweed, CHNP fully tracked

G5S2. WY, NE: S1. KS: SNR. OK: SH (possibly extirpated). OK, TX, NM, AZ, UT: absent.

SEINet 11.28.21: 12 CO, 4 DC [8 El Paso]

Ack: Infrequent. W&amp;W: infrequent or rare.

NC W to CO, N to Manitoba, Quebec, ME. S1, S2, S3 or possibly extirpated in much of its range.

## LOASACEAE

***Mentzelia speciosa***, jeweled blazingstar

G3S3. WY: S1. CNHP fully tracked. Endemic.

SEINet 8.10.21: 193 CO, 12 BC (10 independent)

Range limited to WY &amp; CO. Central CO counties fr NM border to WY border, plus SE corner county of WY.

Often in poorly vegetated areas, including eroded slopes, ancient sand benches and gravel-cobble bars in floodplains. Relatively well collected in CO, but w quite limited global range.

## PHRYMACEAE

***Mimulus suksdorfii* (*Erythranthe*)**, Suksdorf's monkey-flower

G5, absent fr CO per NSE. WY: S1. NM, AZ, UT: SNR.

SEINet 11.28.21: 35 CO, 0 DC [Eagle, Grand, Gunnison, Hindsdale, Jefferson, Larimer, Mesa, Montrose, Moffat, Rio Blanco, Routt]

Ack: uncommon. W&amp;W does not recognize presence in CO.

Western USA, NM to CA, N to MT, British Columbia

Scattered collections fr w 2/3 of CO. Only 3 ES records.

## PLANTAGINACEAE

***Gratiola neglecta***, clammy hedgehyssop

G5SNR. NE, UT: S1. WY, KS: S2. AZ: S1. OK, TX, NM: SNR.

SEINet 11.28.21: 78 CO, 3 DC [Sandstone Ranch, Castle Rock, Sedalia]

Found across the USA and the s tier of Canadian provinces (absent fr FL).

**Box 3 cont.**

## POACEAE

*Alopecurus carolinianus*, Carolina foxtail. **CNHP watchlist.**

G5S1. UT: S1. WY: S2. NE, KS, OK, TX, NM, AZ: SNR.

SEINet 11.28.21: 9 CO, 1 DC [Gateway Mesa OS (which is adjacent to HMOS to the S across Hwy. 86)]

Ack. Shaw: rare. C&L: uncommon. W&W: alien.

Across the USA and much of the s tier of Canadian provinces. Treated as exotic in some ne jurisdictions.

*Dichanthelium linearifolia*, slimleaf panicgrass

G5SNR. NE: S1. KS: S2. OK, TX, NM, WY: SNR. AZ, UT: absent.

SEINet 11.28.21: 40 CO, 1 DC [Sandstone Ranch]

Eastern and central NA, fr Gulf Mexico to Canada.

CFR counties plus Baca. CO occurrences apparently disjunct (along w most of those in adjacent or nearby cos. in WY & NM). Well collected in BC; poorly collected statewide.

From Newfoundland to British Columbia, N to Nunavut, S to CO, OK, IN.

Colorado populations disjunct—nearest populations apparently fr nw NE, ne WY.

## SAXIFRAGACEAE

*Heuchera richardsonii*, Richardson's alumroot

**G5S1, CNHP fully tracked**

WY: S3. KS, NE: SNR. OK: possibly extirpated. NM, AZ, UT: absent

SEINet 10.31.20: 21 CO, 2 DC records [mostly El Paso, plus 1 ea fr Larimer, La Plata]

Ack, Plants db only recognizes accessions from El Paso and Douglas Counties

Ack, W&W: rare.

## TYPHACEAE

*Sparganium eurycarpum* Engelm. ex Gray, broadfruit bur-reed

**G5S2. CNHP fully tracked. WY: S1. UT: S2. NE, KS, NM, AZ: SNR**

SEINet. 12.6.21: 56 CO, 5 DC (4 unique occurrences)

From coast-to-coast across most of NA, except absent fr most sc and se states from TX to NC.

[Also found upstream at Prairie Canyon Ranch. (Vickery, 2020)]

**Box 3 sources and abbreviations**

Conservation Status Ranks. <https://explorer.natureserve.org/> AND

<https://explorer.natureserve.org/AboutTheData/Statuses>

See also: <https://cnhp.colostate.edu/ourdata/trackinglist/custom-tracking/?group=11>

SEINet, <https://swbiodiversity.org/SEINet/collections/harvestparams.php>

Distribution /Map sources & authorities cited, abbreviations: Ack = Ackerfield, J, Flora of Colorado, 2015; BONAP = Biota of North America Plant Atlas, online (bonap.org); C&L = Culver & Lemly, Field Guide to Colorado's Wetland Plants, 2013. CNHP = Colorado Natural Heritage Program; Plants db = USDA Plants Database, online (<https://plants.usda.gov/home>); Shaw = Grasses of Colorado, 2008; W&W = Weber & Wittman, Colo Flora, 4th ed., 2012; Win = Wingate, Janet, 1994. Illustrated Keys to the Grasses of Colorado QR Sedges of Colorado, 2017.

Other abbreviations: w, s, e, n = western, southern, eastern, northern; W, S, E, N = west, south, east, north; ft = feet, co. = county, CFR = Colorado Front Range, ea. = each, FR = Front Range, NCFR = northern Colorado Front Range, recs = records, RM = Rocky Mountain(s), NA = North America, WS = west slope, ES = east slope, fr/Fr = from, w = with.

## CITATIONS

[Plant identification references cited in the narrative or otherwise are listed in the next section]

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Great Plains Grassland Summit. Denver, CO (April 10-11, 2018).

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**West end of south mesa rim. Event 9. (7.3.21)**

## REFERENCES UTILIZED: PLANT IDENTIFICATION, OCCURRENCE RECORDS, GEOGRAPHIC DISTRIBUTION, CONSERVATION STATUS

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**Colorado Department of Agriculture, Noxious Weed Program.** Noxious weed lists. <https://www.colorado.gov/pacific/agconservation/noxious-weed-species>

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**EDDMapS** (Early Detection and Distribution Mapping System) Advanced query tool, <https://www.eddmaps.org/tools/query/>

**Freeman, Craig.** ca. 2009 (Kansas State University, unpublished). Key to Colorado Chenopodium

**Great Plains Flora Association.** 1986. Flora of the Great Plains.

**NatureServe Explorer 2.0.** <https://explorer.natureserve.org/Search> (source for conservation status ranks, range maps, taxonomic synonyms, etc)

**NatureServe Explorer 2.0.** <https://explorer.natureserve.org/AboutTheData/Statuses> [For an explanation of rank designations (e.g., G5S2)]

**SEINet Portal Network.** Online search application for herbarium accessions. <http://swbiodiversity.org/SEINet/index.php>

Utilized 11.5.21 for accessions collected from the Preserve. Two searches were made:

1. State: Colorado, County: Boulder: Locality: Rabbit Mountain
2. Smallest rectangle encompassing the Preserve: Search Criteria: Lat: 40.21473 - 40.26741 Long: -105.25544 - -105.17647

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**GENERAL INTEREST IMAGES**

**Honeybee nest in mesa cliff overhang. Event 10 (8.2.21)**



**Ranching era stone fence; SW mesa rim. Event 9 (7. 3.21)**





## APPENDIX 1

### DESCRIPTION

#### Appendix 1. Plant species list.

The design preserves the details of the entire field effort by compiling all the species found during each event (1-10).

The table (imported from spreadsheet format) is as follows with lettered columns in alphabetical order:

- [A. Blank placeholder in original format]
- B.** Documentation summary: Each numeral represents a dated, survey event, 1-10.  
'?' = denotes a tentative identification.
- C.** Family name: scientific. Families listed in alphabetical order.
- D.** Scientific name: genus species. Listed in alphabetical order by genus.
- E.** Common name (typically from Ackerfield, 2015, USDA Plants Database and/or the investigator's usage)
- F.** Nativity: N = native, I = introduced (i.e., non-native, exotic, alien)
- G.** Duration: P = perennial, B = biennial, A = annual, sl P = short-lived perennial, woody P = woody perennial
- H.** Bloom month: indicates flowering period. For example '5' = May [typically left blank for graminoids or other species with inconspicuous flowers]
- I.** Wetland Indicator Status per 2012 National Wetland Plant List, US Army Corps of Engineers. Sources: USDA Plants database (online) &/OR Field Guide to Colorado's Wetland Plants, Culver & Lemly, 2013.  
GP = Great Plains, WMVC = western mountains valleys and coasts
- J.** Notes

A narrative description of the area covered by each survey event is provided at the bottom of the list/spreadsheet. [This information is also provided in Table 1 (Methods section)]

**APPENDIX 1. PLANT LIST: Hidden Mesa Open Space, Douglas Co. 2019-2021 12.26.21: 433 species**

B	C	D	E	F	G	H	I	J
DOCUMENTATION SUMMARY	FAMILY	SCIENTIFIC NAME	COMMON NAME	NATIVITY	DURATION	BLOOM	WIS: GP, WMVC	NOTES
<b>FERNS &amp; FERN ALLIES</b>								
3,5,9	<b>Athyriaceae</b>	<i>Cystopteris fragilis</i>	brittle fern	N	P	NA		
9	<b>Dryopteraceae</b>	<i>Asplenium septentrionale</i>	forked spleenwort	N	P	NA		<b>S3S4. CNHP watch list</b>
8		<i>Cystopteris fragilis</i>	brittle bladder fern	N	P	NA		
8,9		<i>Woodsia oregana</i>	Oregon cliff fern	N	P	NA		8. 1st & 3rd specimens: WOOR. 2nd spec: sp unclear. Margins of pinnae w translucent projections—neomexicana; fronds glabrescent or sparsely glandular—neomexicana; petiole dark toward base--oregana
10	<b>Equisetaceae</b>	<i>Equisetum arvense</i>	horsetail	N	P	NA		
2		<i>Hippochaete (Equisetum) hymale</i>	scouring-rush	N	P	NA	FACW, FACW	Green stems stout; stem persists several years, sheaths with dark band at base; cone pointed at apex
6,7,10		<i>Hippochaete (Equisetum) laevigata</i>	smooth scouring-rush	N	P	NA	FACW, FAC	Green stems stout; stems dying after one season, sheath lacking dark band at base, cone rounded at apex
9	<b>Selaginaceae</b>	<i>Selaginella densa</i>	Rocky Mountain spike-moss	N	P	NA		
<b>GYMNOSPERMS</b>								
1,2,3,4,5,7,10	<b>Cupressaceae</b>	<i>Juniperus (Sabina) scopulorum</i>	Rocky Mountain juniper	N	woody-P	NA		
2,3,5,7	<b>Pinaceae</b>	<i>Pinus ponderosa</i>	Ponderosa pine	N	woody-P	NA		
<b>ANGIOSPERMS</b>								
1,2,3,4,5,6,7	<b>Agavaceae</b>	<i>Yucca glauca</i>	soapweed yucca	N	P	6		
4,5	<b>Alliaceae</b>	<i>Allium cernuum</i>	nodding onion	N	P	5		nodding pink umbels

2,3,4		<i>Allium textile</i>	prairie onion	N	P	4-6, 9-10		erect white/pinkish umbels; 2-leaved. 2. verified fibrous-covered bulb
4,9	<b>Alismataceae</b>	<i>Alisma triviale</i>	northern water-plantain broadleaf	N	P	7-8	OBL, OBL	
6,10		<i>Sagittaria latifolia</i>	arrowhead	N	P	6-7	OBL, OBL	
5	<b>Amaranthaceae</b>	<i>Amaranthus blitoides</i>	prostrate/mat pigplant	N	A	summer		SEINet 12.11.21: 198 CO, 0 DC records
1		<i>Amaranthus palmeri</i>	Palmer amaranth	I	A	summer		1. keys to AMPA--dioecious, acute tepals . . . but only ~6 dm, lacks long terminal inflorescence (not male). Perhaps native to southeastern corner of Colo.; not native here
6?		<i>Amaranthus retroflexus</i>	redroot pigplant	N	A	7-8		6. likely ID. May not be native here.
6,10		<i>Froelichia gracilis</i>	slender snake cotton	N	A	6		6. growth form like <i>gracilis</i> ; most sepal projections like <i>floridana</i> , but bottom ones soft spines. The two species are known to hybridize & both are known from ES (See FNA/eflora; SEINet)
1,2,3,4,5,6	<b>Anacardiaceae</b>	<i>Rhus aromatica</i> subsp. <i>trilobata</i>	skunkbrush	N	P	4		woody flowers before leafing out. Dioecious
3,5,7		<i>Toxicodendron rydbergii</i>	poison ivy	N	P	5-6		woody vine
6,10	<b>Apiaceae</b>	<i>Cicuta maculata</i>	water hemlock	N	P		OBL, OBL	
1,2,5,6,7		<i>Conium maculatum</i>	poison hemlock	I	B	5-6	FACW, FAC	List C noxious weed
4		<i>Ligusticum porteri</i>	osha	N	P	5-7		
1,2,3		<i>Lomatium orientale</i>	salt and pepper	N	P	4-5		peduncles elongate in fruit
3,4,7,9	<b>Apocynaceae</b>	<i>Apocynum androsaemifolium</i>	dogbane	N	P	6-8	UPL, FACU	
3,4,6,7		<i>Asclepias speciosa</i>	showy milkplant/weed	N	P	summer	FAC, FAC	common, large, showy species with large pinkish flowers and broadly oblong leaves; rhizomatous Infrequent. S2. 3: probable ID based on V characters. Lvs linear-lanceolate, opposite, closely spaced [1.5 cm (closer than typical)], 7 stems [leaf pairs?!--8.5.20] fr base, densely covered w short hairs
3?		<i>Asclepias stenophylla</i>	slimleaf milkweed green comet	N	P			
2,10		<i>Asclepias viridiflora</i>	milkplant	N	P			10. straight-edged, lance-linear leaf form
7		<i>Asclepias</i> sp.	milkweed		P			Small colony of small, sparsely distributed stems

(rhizomatous?), densely covered w short hairs-appressed/incurved in diff directions ; lvs linear (3-4.5 mm), opposite, margins and rachis w incurved hairs, nodes 0.8-1.5 cm apart; inf lacking.

4	<b>Asparagaceae</b>	<i>Asparagus officinale</i>	asparagus	I	P		
2,3,4,5,6,7	<b>Asteraceae</b>	<i>Achillea millefolium/lanulosa</i>	western yarrow	N	P	5-7	
1,2,3,4,5,6,7 2,3,4,8		<i>Ambrosia psilostachya</i> var. <i>coronopifolia</i>	western ragweed	N	P	7-10	
1,5,7		<i>Antennaria parviflora</i>	small-leaf pussy-toes	N	P	5-6	4. likely ID, V only, mat-forming
6		<i>Antennaria sp.</i>	pussy-toes	N	P		
3,9		<i>Arctium minus</i>	common burdock	I	B	summer	FACU, UPL List C noxious weed
2,3,8		<i>Arnica cordifolia</i>	heart-leaf arnica	N	P	6-8	At bottom of altitudinal range here
6		<i>Arnica fulgens</i>	foothill arnica	N	P	5-6 summer	opposite leaves, yellow orange petals Introduced 'varieties' are found across much of NA; native varieties are known in UT & WY
1,3,4,5,6,7		<i>Artemisia biennis</i>	biennial sage	I	B	mer	
1,3,4,5,6		<i>Artemisia campestris</i>	field sage	N	P	7-9	AKA <i>Oligosporus pacificus</i>
1,2,3,4,5,6,7		<i>Artemisia dracunculus</i>	wild tarragon	N	P		
		<i>Artemisia frigida</i>	fringed sage	N	subshrub-P	summer	
1,2,3,4,5,6,7			prairie /white sage, Louisiana			summer	
3,4		<i>Artemisia ludoviciana</i>	sagewort	N	P		
10		<i>Bahia dissecta</i>	cutleaf nodding	N	P		
6,10		<i>Bidens cernua</i>	beggartick	N	P	8-9	OBL, OBL FACW, FACW May not be native here. Ack: introduced in Colorado. W&W does not specify 'alien'. Native to GP and Eurasia.
5		<i>Bidens frondosa</i>	devil's beggar tick	N	A	8-9	
7		<i>Brickellia californica</i>	California bricklebrush	N	P	7-8	
1,2,5,7		<i>Brickellia grandiflora</i>	tasselflower bricklebrush	N	P	8-9	
1,2,3,4,5,6,7		<i>Brickellia eupatoriodes</i>	false boneset	N	P	7-8	AKA: <i>B. rosmarinifolia</i> subsp. <i>chlorolepis</i> List B noxious weed. leaf: edges have a whitish cast; broad, whitish central vein.
1,2,3,4,5,6,7		<i>Carduus nutans</i> ssp <i>macrolepis</i>	musk thistle	N	B	6-8	List B noxious weed. Also, Acosta
1,2,3,4,5,6,7		<i>Centaurea diffusa</i>	diffuse knapweed	I	B, sl P	7-8	

1,2,3,4,6,7	<b>Asteraceae</b>	<i>Cirsium (Brea) arvensis</i>	Canada thistle	N	P	6-7	
1,2,4,5,7		<i>Cirsium ochrocentrum</i>	yellowspine thistle	N	B,P	6-7	
2,3,4,5,7		<i>Cirsium undulatum</i>	wavyleaf thistle	N	B	6-7	Leaves decurrent on stem <1 cm
2,7		<i>Cirsium vulgare</i>	bull thistle	I	B		List B noxious weed. Spiny leaf surfaces & decurrent winged bases.
1,2,3,4,6		<i>Conyza canadensis</i>	horseweed	I	A	7-9	Native to e NA, but widely occurring throughout the world
1?,2,3,8,9		<i>Crepis occidentalis</i>	largeflower hawk'sbeard	N	P	6-7	
6		<i>Cyclachaena xanthifolia</i>	giant sumpweed, marsh elder		A		
1?,3,4,5,7		<i>Dieteria canescens</i>	hoary tansy-aster	N	sl-P	7-9	Also 'Machaeranthera'
1,4,5		<i>Dyssodia papposa</i>	fetid marigold	N	A	summer	
5		<i>Ericameria nauseosus</i>	rabbitbrush	N	P	9-10	AKA <i>Ericameria nauseosa</i> (golden bush). Variety not noted/specified.
1,4,10		<i>Ericameria nauseosus v. nauseosus</i>	rabbitbrush	N	P		Dwarf variety, often w relatively bluish leaves, stems.
3,4		<i>Erigeron bellidastrum</i>	pretty daisy	N	A,B	6-7	4. ID somewhat tentative.
3,5,7		<i>Erigeron canus</i>	hoary daisy	N	P	5-7	1 flower per stalk, lvs & stem w appressed hairs, calyces w obvious spreading hairs, basal lvs numerous
1?,2,3,4,6		<i>Erigeron divergens</i>	fleabane daisy	N	A	5-8	1: possible ID Ack: 24b Stems w appressed or ascending hairs, not glandular
4,7		<i>Erigeron flagellaris</i>	whiplash fleabane	N	B, sl-P	5-7	
4		<i>Erigeron glabellus</i>	smooth daisy	N	B,P	7-9	SEINet 11.21.21: 293 CO, 0 DC
8,9		<i>Erigeron pumilus</i>	shaggy daisy	N	P	6-8	
1,2,3,5,7		<i>Erigeron tracyi/colomexicanus</i>	fleabane	N	A,B,sl-P	5-7	Ack: 24a Stems w spreading or tangled hairs or mostly glandular
6		<i>Euthamia occidentalis</i>	western goldentop	N	P	7-8	OBL, FACW
6,10		<i>Eutrochium maculatum</i>	joe pye weed	N	P	7-8	OBL, OBL SEINet 11.21.21: 77 CO, 6 DC
1,2,3,4,5,6,7		<i>Grindelia squarrosa</i>	curlycup gumweed	N	B	7-8	
1,2,3,4,5,7		<i>Gutierrezia sarothrae</i>	snakeweed	N	P	8-9	grazing increaser
1,4,5,6,7		<i>Helianthus annuus</i>	sunflower	N	A	summer	
1,6		<i>Helianthus maximilliani</i>	Maximillian's sunflower	N	P	8-9	FACU, UPL
1,2,3,4,5,7		<i>Helianthus pumilus</i>	foothills sunflower	N	P	7-8?	
2,3,4,5,7		<i>Heliomeris multiflora</i>	showy goldeneye	N	P	7-9	Also, Vigueira
1,2,3,5,6,7	<b>Asteraceae</b>	<i>Heterotheca villosa</i>	golden aster	N	P	7-9	

1,2,3,5,8	Hymenopappus filifolia	fineleaf Hymenopappus	N	P	5-9 summer		
1,2,3,4,6,7 2,3,5,7	Lactuca serriola Lactuca tartarica	prickly lettuce blue lettuce	I N	WA P	7-8	UPL, FAC	milky sap 3. Probable ID, stem 3 dm tall
1,2,3,4,5,7 4,7	Liatrix punctata Lygodesmia juncea	gayfeather, blazing star skeletonweed/plant	N N	P P	7-8 6-8		
1,2,3	Nothocalais cuspidata	false dandelion	N	P	4-6 6-		leaf edges are white hairy, wavy; milky sap
1,2,6,7	Onopordum acanthium	scotch thistle	I	B	7(8)		List B noxious weed 5. leaves highly variable within small number of closely spaced plants reported here In CFR, often associated with prairie dog colonies. 8. leaves not as distinctive as usual, but there aren't any other likely sps.
5,9	Packera fendleri	Fendler's ragwort	N	P	6-7		
2,3,7,8	Packera tridenticulata	three-tooth ragwort	N	P	5-6		
3	Podospermum laciniatum	false salsify, cutleaf vipergrass	I	P	5-6		Also, Scorzonera Ack: uncommon. NSE: Exotic (!?) SEINet 12.11.21: 65 CO, 0 DC. AKA Gnaphalium wrightii. petals usually yellow, occasionally maroon--'Mexican hat'
9	Pseudognaphalium canescens	Wright's cudweed	N	P			
5	Ratibida columnifera	prairie coneflower lamb's-tongue	N	P	7-8		
1,2,3,5	Senecio integerrimus	ragwort broom	N	P	4-6	FAC, FACU	5. likely ID; plant senescent "bushy" clumps with numerous stems and linear leaves; leaves equally distributed along the stem leaves pubescent, sharply serrate; stem pubescent. 1. lvs. hairy
1,2,6,7	Senecio spartioides	groundsel/senecio	N	P	8-9		leaves glabrous, stem usually glabrous. 1: leaves lack hairs
1	Solidago canadensis	Canada goldenrod	N	P	7-9		leaves gradually reduced in size, not serrate, petioles of basal lvs. Not strongly ciliated; leave and stem +/_ glabrous; stems often maroon
1,6,10	Solidago gigantea	giant goldenrod	N	P	7-9	FAC, FACW	
4,5,7,9	Solidago missouriensis	Missouri/smooth goldenrod	N	P	7-9		
7	Solidago nana	baby goldenrod	N	P			
5?	Solidago rigida	stiff goldenrod	N	P	7-8		5. likely ID; a few, poorly developed plants
4?, 10?	Solidago velutina ssp. sparsiflora	three-nerved goldenrod	N	P	7-9		4. tentative ID. 10. possibly S. nana
1,5,9,10	Stephanomeria pauciflora	brownplume wire- lettuce	N	P	6-9		
5	<b>Asteraceae</b> Symphyotrichum fendleri	Fendler's aster	N	P	8-9		SEINet, 3.4.20: 71 CO, 3 DC records. involucre bracts usually glandular stipitate; ray flowers purple
7	Symphyotrichum laeve	smooth aster	N	P	8-9		
1	Symphyotrichum	western lined aster	N	P	7-9		1. lines of hairs, decurrent fr leaf bases

		lanceolatum ssp hesperium					G3SNR. WY: S1. NM: SNR. Limited range (se WY to ne NM), but common in n CFR mesas and foothills.
4,5		Symphotrichum porteri	Porter's aster	N	P		
8		Tanacetum vulgare	common tansy	N	P	7-8	
1,2,4		Taraxacum officinale	dandelion	I	P	4-5, 9	
4,6,10		Thelesperma filifolium	stiff greenthread rayless	N	P	6-8	
1,3,5,7		Thelesperma megapotamicum	greenthread, Hopi/Navajo tea Hooker's Easter	N	P	6-9	1: achene, 7 mm long
1,2,5		Townsendia hookeri	daisy	N	P	3-5	
1,3,4,5,6,7		Tragopogon dubius subsp.major*	salsify / oysterplant	N	WA, B	(to 9) 5-6	white sap
6		Verbesina/Ximenesia enceloides*	cowpen daisy, golden crownbeard	I	A	7-9	foliage has foul odor; native to s GP and SW, but often considered undesirable; CO authorities treat it as non-native similar species: V. ericoides-stem hairs appressed / ascending & involucre < 5 mm tall with < 20 ray flowers vs. VIFA spreading hairs & involucre > 5 mm tall with 20+ ray flowers. 1: peduncles of inflorescence 1 sided
1,3,5,6,7		Virgulus falcatus &/or ericoides	heath aster yellow/lacy tansy	N	P	8-10	
1,3,4,5		Xanthisma spinulosum	aster	N	P	7-9	AKA Machaeranthera pinnatifida
6,10	<b>Balsaminaceae</b>	Impatiens capensis	jewelweed	I	A	FACW,FACW	
2,3,4,5,7	<b>Berberidaceae</b>	Berberis/Mahonia repens	Oregon-grape, creeping barbery	N	woody P	4-5	
6?	<b>Boraginaceae</b>	Cryptantha fendleri/sp.	sand-dune cryptantha	N	A	5-6	6. fendleri best fit, but mature nutlets lacking
6		Cynoglossum officinale	hound's tongue	I	B	5-6	List B noxious weed
2,3,4		Lappula occidentalis (redowskii)	flatspine stickseed	N	A, B	5-8	2 subspecies), per USDA Plants db. Ack: introduced; W&W do not specify 'alien'; FGP: "GP; (N.Amer. E of the Cascade Mts.; Eurasia)
2,5		Lithospermum incisum	stoneseed	N	P	4-5	
1,2,3,7		Mertensia lanceolata	chiming bells	N	P	5-6	
3		Myosotis arvensis/sp.	forget-me-knot	I	A	6-7	Stem 40 dm, densely beset w ascending, incurved hairs. Lowest lvs spatulate, mid-upper lvs elliptic, w incurved hairs; corolla blue w yellow 'eye ring'

1,2,(5),7		<i>Onosmodium bejariense</i> var. <i>occidentale</i>	marbleseed	N	P	6-7	5. ~15 yds S of HM Trail—outside of this day's survey area.
					A	3-4	
2,6	<b>Brassicaceae</b>	<i>Alyssum desertorum</i>	alyssum	I	A	3-5	
1,2,3,5,7		<i>Alyssum simplex</i>	alyssum	I	A	3-4	1: species not identified
10		<i>Arabis pycnocarpa</i> v. <i>pycnocarpa</i>	hairy rockcress	N	B,P	5-6	
2		<i>Barbarea orthoceras</i>	yellow rocket	N	A	4-6	2. auricles ciliate, glabrous otherwise. W&W: native. NSE: native to NA, except MN. Ack: introduced W&W: alien. Ack treats both BAVU and BAOR as non-native. NSE: exotic throughout NA
1,6		<i>Barbarea vulgaris</i> or <i>orthoceras</i>	yellow rocket, wintercress	?	P	4-6	OBL; FACW
1,2,6		<i>Berteroa incana</i>	hoary cress	I	P		Noxious weed watch list
3,7?		<i>Boechera fendleri</i>	Fendler's rockcress	N	P	4-5	
5,6		<i>Boechera</i> sp	rockcress	N	P		5. W&W key to <i>lignifera</i> , Ack keys to <i>gracilentia</i> a WS species
2,4,5		<i>Camelina microcarpa</i>	little/smallseed falseflax blue/purple	I	A	4-6	yellow flowers form ellipsoid pods with elongate style tip
1		<i>Chorispورا tenella</i>	mustard	I	A	3-5	
2,3		<i>Descurainia pinnata</i>	pinnate tansy mustard	N	A	4-5	fruit is shorter and thicker--fusiform (compared to next)
1,2,4,5,6,7		<i>Descurainia sophia</i>	flixweed	I	A	3-5	fruit is longer and linear compared to previous
1,2,3,8,9		<i>Draba reptans</i>	Carolina draba	N	A	4-5	
2		<i>Erysimum asperum</i>	wallflower	N	P	4-5	2. Fl, B; pedicels pubescent (See W&W Key)
1?,3,4		<i>Erysimum capitatum</i>	wallflower	N	P	4-6	1. likely ID, possibly <i>asperum</i>
1,3		<i>Lepidium densiflorum</i>	peppergrass	N	A	4-5	
2,5,8		<i>Lepidium virginicum</i>	Virginia pepperweed Jim Hill/tumble	I	A	5	2. tentative ID. SEINet 3.4.20: 165 CO, 0 DougCo records. BONAP map: no records in any adjoining counties
1,3,4,5,6		<i>Sisymbrium altissimum</i>	mustard small tumbleweed	I	WA	5-7	basal & lower stem leaves deciduous
3		<i>Sisymbrium loeselli</i>	mustard	I	A	6-8	SEINet 3.4.20: 1 CO, 0 DougCo records
1,2,3,5,6		<i>Thlaspi arvense</i>	pennycress tower	I	A	4-6	WGP: 222; malodorous
3,4,5,8		<i>Turritis glabra</i>	mustard/rockcress	N	B,(P)	4-5	
2?,3,4,5,6,8,9	<b>Cactaceae</b>	<i>Coryphantha vivipara</i>	pink nipple cactus	N	P	6-7	2. <i>Coryphantha</i> sp. Pink flowers, protruding central spine, mature fruit green 8. Fl; areoles lack protruding central spine



1,2,3,4,5,7		Echinocereus viridiflorus	green hedgehog / hen & chicks cactus	N	P	5-6		barrel w ribs; chartreuse yellow flowers born below branch apex
9		Opuntia fragilis	brittle cactus	N	P			prostrate spreading with round stems that are easily detached
2,3,4,5,7	<b>Cactaceae</b>	Opuntia macrorhiza	prickly-pear cactus	N	P	6-7		stems flattened with spines concentrated near top, yellow flowers; persistent edible fruit
3,5		Opuntia polycantha	prickly-pear cactus	N	P	5-6		yellow, red, or pink flowers; dry fruit
3		Pediocactus simpsonii	mountain cactus	N	P	4-5		
3,4,5	<b>Campanulaceae</b>	Campanula rotundifolia	harebell	N	P	6-8		
3,4,8,9		Triodanis perfoliata	Venus looking glass	N	A	5-7		SEINet 3.4.20: 3 DC records (inclu Gateway Mesa OS & Sandstone Ranch)
2,6	<b>Capparacea</b>	Cleome serrulata	Rocky Mountain beepant	N	A	6-9		
3	<b>Caprifoliaceae</b>	Symphoricarpos albus	white snowberry	N	woody P	6-7		
1,2,4,5,6,7		Symphoricarpos occidentalis	western snowberry	N	P	summer	UPL, FAC	2. likely ID based on V charac. 4: SYOC. Weak shrub foming dense colonies in swales; pink bell flowers followed by white berries (turning black w age)
7	<b>Cannabaceae</b>	Celtis reticulata	netleaf hackberry	N	woody P			
1,2,6,7,10		Humulus lupulus var. neomexicanus	New Mexican hops	N	P	6-8		
2,8	<b>Caryophyllaceae</b>	Holosteum umbellatum	jagged chickweed	N	A	4-5		SEINet 3.4.20: 4 DougCo records inclu Gateway Mesa & Sandstone Ranch
2,7		Saponaria officinalis	bouncing-bet	I	P	7-8		List B noxious weed (CO is only state to designate it noxious). Rhizomatous;
3,4,5,8		Silene antirrhina	sleepy catchfly	N	A	5-6		
5,9,10		Silene drummondii	Drummond's catchfly	N	P			Usually at least some of the flowers or united calyxes on pedicels over twice as long as the calyx
6		Silene latifolia	white campion	I	A, sl P	6-7		Also: Melandrium dioeca, Lychnis alba
4,5,6	<b>Chenopodiaceae</b>	Chenopodium alba	lambsquarters	I	A	summer		6. likely ID. Plants db: both native & introduced types in L48
6		Chenopodium atrovirens	pinyon goosefoot	N	A	6		

5,6		<i>Chenopodium dessoratum</i>	aridland goosefoot	N	A			6. possibly pratericola
2,3,4,5,10		<i>Chenopodium fremontii</i>	Fremont's chenopod	N	A	7-8		2,3: tentative ID based on vegetative characters. 3. under juniper
4		<i>Chenopodium incanum</i>	mealy goosefoot	N	A	summer		diminitve, highly assoc w pd colonies, esp. the mounds. SEINet 3.4.20: 156 CO, 0 DC records
4		<i>Chenopodium leptophyllum</i>	narrow-leaved goosefoot	N	A			very narrow leaves with single vein
10		<i>Chenopodium pratericola</i>	desert goosefoot	N	A			
4,8,10		<i>Chenopodium simplex</i>	maple-leaf goosefoot	N	A			SEINet 3.4.20: 68 CO, 4 DC records
10		<i>Chenopodium watsonii</i>	Watson's goosefoot	N	A			WY: S1. SEINet 8.3.21: 7 CO, 0 DC
1,5		<i>Kochia scoparia</i>	kochia	I	A	7-8		AKA <i>Bassia sieversiana</i>
1,4,6		<i>Salsola collina</i>	tumbleweed	I	A	7-9		not prickly
5,8	<b>Cistaceae</b>	<i>Helianthemum bicknelli</i>	hoary frostweed	N	P			Rare plant, S2. SEINet. 3.4.20: 13 CO, 4 DC records. 5 & 8 (EV, PY-Inf): same location.
1,3,6,7	<b>Commelinaceae</b>	<i>Tradescantia occidentalis</i>	western spiderwort	N	P	5-6		monocot
2,3,6,7	<b>Convallariaceae</b>	<i>Maianthemum/Smilacina stellata</i>	false Solomon's seal	N	P	5-6		monocot
6,10	<b>Convolvulaceae</b>	<i>Calystegia sepium</i>	hedge bindweed	N	P	6-8		
1,2,4,5,6,7		<i>Convolvulus arvensis</i>	field bindweed	I	P	6-9		large rootmass; List C
2,5		<i>Evolvulus nuttallianus</i>	shaggy dwarf morning-glory	N	P	5-7		~ 1.5 dm tall; fuzzy, grey leaves; small, bluish flowers; upright stems, not 'viney'
6	<b>Cornaceae</b>	<i>Cornus serices ssp sericea</i>	red-osier dogwood	N	P		woody-	reddish stems; opposite, arcuate-veined leaves
1,6,10	<b>Cucurbitaceae</b>	<i>Echinocystis lobata</i>	wild cucumber	N	A			
2,3,4,5,6	<b>Crassulaceae</b>	<i>Sedum lanceolata</i>	spearleaf stonecrop	N	P	6-8		
4,7	<b>Cyperaceae</b>	<i>Carex brevior</i>	plains oval sedge	N	P		FAC, FAC	
3,4		<i>Carex deweyana</i>	Dewey's sedge	N	P		NA	Huge clump of long, but reclining stems. Spikes gynecandrous but staminate flowers easily overlooked.

2,3,8		<i>Carex duriuscula</i>	needleleaf sedge	N	P	5	NA	rhizomatous. Spikelets androgynous, few flowered
1,2,3,4		<i>Carex inops</i> subsp <i>heliophila</i>	sunsedge	N	P	4-5	NA	AKA <i>C. pennsylvanica</i> . 4. probable ID, inflorescence lacking
2,7		<i>Carex nebrascensis</i>	Nebraska sedge	N	P		OBL, OBL	wide, greyish leaves
2,5,7,8,9		<i>Carex occidentalis</i>	western sedge	N	P	4-5	NA	
3?		<i>Carex simulata</i>	short beaked sedge	N	P		OBL, OBL	3. tentative/probable ID—staminate inflorescence only
4		<i>Eleocharis acicularis</i>	needle spikerush	N	P		OBL, OBL	FGP, W&W: culms up to 0.5 mm wide SEINet 11.21.21: 220 CO, 2 DC
3,9		<i>Eleocharis compressa</i>	flat-stem sedge	N	P		FACW, FACW	stems subterete to greatly compressed and flattened perfect flowers; solitary terminal spikes; lenticular/biconvex achene w/conic tubercules; 2-styles; terete culms; most common spec.; wet soil
6,9,10		<i>Eleocharis palustris</i>	common spikerush	N	P		OBL, OBL	5: achenes not fully formed, ID uncertain
6		<i>Schoenoplectus acutus</i>	hardstem bulrush	N	P		OBL, OBL	
6,10		<i>Schoenoplectus pungens</i>	common threesquare	N	P		OBL, OBL	perfect flowers in numerous (oval) spikes protruding sideways from (triangular) stem; pond margins or elsewhere in wet soil
4,6,9,10		<i>Schoenoplectus tabernaemontani</i>	softstem bulrush, tule	N	P		OBL, OBL	spikelets solitary
6,10		<i>Scirpus microcarpus</i>	panicled bulrush	N	P		OBL, OBL	
10		<i>Scirpus pallidus</i>	cloaked bulrush	N	P			
1,2,6,7	<b>Eleagnaceae</b>	<i>Elaeagnus angustifolia</i>	Russian olive	I	woody P	6-7	FACU, FAC	List B noxious weed. [Only 4 species in this family in CO]
5	<b>Ericaceae</b>	<i>Arctostaphylos uva-ursi</i>	kinnikinnick, bearberry	N	woody P			
5,6	<b>Euphorbiaceae</b>	<i>Chamaesyce glyptosperma</i>	ribseed sandmat	N	A	7-9		
4,9		<i>Chamaesyce maculata</i>	spotted sandmat	I	A	7-8		
4,5,10		<i>Chamaesyce serpyllifolia</i>	thymeleaf sandmat	N	A	7-8		W&W treats this sp as 'alien'
5,8		<i>Euphorbia brachyceras</i>	horned spurge	N	P	5		
4		<i>Euphorbia dentata</i>	spotted/toothed spurge	N	A	7-8		
1,2,3,4,5,6,7		<i>Euphorbia esula</i>	leafy spurge	I	P	5-6		List B noxious weed. rhizomatous
1?,2,3,7	<b>Fabaceae</b>	<i>Astragalus agrestis</i>	purple milkvetch	N	P	6-7		

2		<i>Astragalus crassicaarpus</i>	groundplum	N	P	5-6	
1?,2,4,5,7		<i>Astragalus drummondii</i>	Drummond's milkvetch	N	P	5-6	gray with hairs; calyx w black hairs.
2,3,7		<i>Astragalus flexuosus</i>	limber vetch	N	P	6-7	
2,3,5		<i>Astragalus laxmanii</i>	prairie milkvetch	N	P	6-7	leaves w dolabriform hairs
2,3,6,7		<i>Astragalus parryi</i>	Parry's milkvetch	N	P	4-6	
2,3		<i>Astragalus shortianus</i>	Short's milkvetch	N	P	4-5	
8?,10		<i>Dalea candida</i>	white prairie (bush) clover	N	P	~6-8	Wider (elliptic) leaflets, 5-7. 8. V
2,7		<i>Dalea purpurea</i>	purple prairie (bush) clover	N	P	~6-8	linear leaflets, 3-5
6		<i>Gleditsia triacanthos</i>	honey locust	N	P		6. leaves bipinnately compd, 1 plant
1,2,6,7		<i>Glycyrrhiza lepidota</i>	wild licorice	N	P	7-8	FACU, FAC hooked prickles; common in slightly moist sites
1?,2?,3,5,6,7		<i>Lupinus argenteus</i>	common lupine	N	P	7-8	1,2:likely ID tiny yellow flowers in capitate clusters; 3 leaflets; WGP: 314
4,6,7		<i>Medicago lupulina</i>	black medic	I	A, B, P	5-9	
6		<i>Medicago sativa</i>	alfalfa	I	P	6	escape from cultivation
1?,6,7		<i>Melilotus alba</i>	white sweetclover	I	A,B	7.8	1: Melilotus sp. yellow blooms earlier & locally more common than white sweet clover; both sps. present
3,4,7		<i>Melilotus officinalis</i>	yellow sweet clover	I	A, B	(5)6	
3,5,6		<i>Oxytropis lambertii</i>	Lambert's locoweed	N	P	5-6	hot pink flowers; more slender plant
6		<i>Psoraleidum lanceolata</i>	lemon scurfpeq	N	P		
2,3,4,5,6,7		<i>Psoraleidum tenuiflorum</i>	slimflower scurfpea	N	P	7-8	small purple flowers, trifoliolate foliage like alfalfa, but much less dense & lighter green
6,7		<i>Trifolium fragiferum</i>	strawberry clover	I	P	6	
7		<i>Trifolium pratense</i>	red clover	I	P		leafy stems bear sessile heads of dark pink flowers
1,6		<i>Trifolium repens</i>	white/Dutch clover	I	P		
2,3,7		<i>Vicia americana</i>	American milkvetch	N	P	5-6	var. americana, var. minor (V. linearis)

1,2,3,4,5,7,10	<b>Fagaceae</b>	<i>Quercus gambelli</i>	Gambell oak	N	P	5	woody 2,7,10: shrub and tree forms
2,3,4,5,8	<b>Gentianaceae</b>	<i>Frasera speciosa</i>	green gentian, monument plant	N	sl-P	7-8	monocarpic,
1,2,3,4,6	<b>Geraniaceae</b>	<i>Erodium cicutarium</i>	redstem filaree	I	WA	1-12	List C noxious weed

1,2,3,5,7		<i>Geranium caespitosum</i>	wild geranium	N	P	6-7		
2,6,7	<b>Grossulariaceae</b>	<i>Ribes aureum</i>	golden currant	N	woody-P	5	FACU, FAC	yellow flowers, common on streambanks and near wet ditches in the lower valleys and plains
1,2,3,4,5,7		<i>Ribes cereum</i>	wax currant	N	woody-P	4-5		
1?,6,10		<i>Ribes inerme</i>	gooseberry	N	woody-P			Armed. 1. ID not definitive
3,8,9	<b>Hydrangeaceae</b>	<i>Jamesia americana</i>	waxflower, five-petal cliffbush,	N	woody-P	6-7		
6	<b>Hydrocharitaceae</b>	<i>Elodea canadensis</i>	Canadian waterweed	N	P		OBL, OBL	SEINet 12.11.21: 45 CO, 0 DC
2,3,8	<b>Hydrophyllaceae</b>	<i>Ellisia nyctelea</i>	Aunt Lucy	N	A	4-6		W&W: alien; FGP, Pdb, BONAPS: native; Ackerfield does not specify 'adventive', etc.; petals white (to bluish)
6		<i>Hydrophyllum fendleri</i>	Fendler's waterleaf	N	B	5	FACW, FAC	
1,2,3,6,7		<i>Phacelia heterophylla</i>	scorpionweed	N	P	5-8		1,2: possibly hastata, leaves lacking small lateral lobes. Did not check for branching caudex, stem no.
	<b>Hypericaceae</b>							List C noxious weed. Also, Clusiaceae. Locally, tends to be in bloom on the feast day, 6.24. Leaves w translucent dots. Sometimes infested w biocontrol beetles.
2,4,5		<i>Hypericum perforatum</i>	common St. John's-wort	I	P	6-7		
1,7	<b>Juncaceae</b>	<i>Juncus arcticus</i> var. <i>balticus</i>	arctic rush	N	P	summer	FACW, FACW	
6		<i>Juncus articulatus</i>	jointleaf rush	N	P		OBL, OBL	Ack: uncommon. SEINet 11.21.21: 111 CO, 4 DC recs. 6. Scattered streamside occurrences N of bridge
3,9		<i>Juncus bufonius</i>	toad rush	N	A		OBL, FACW	
3,7,8?		<i>Juncus dudleyi</i>	Dudley's rush	N	P		FACW, FAC	Both dudleyi & interior: inflorescence terminal, flowers single, bracteate. Auricles cartilagenous. 8. immature
2?,7		<i>Juncus ensifolius</i>	swordleaf rush	N	P		FACW, FACW	2&7 specimens fr same location, but 2 ID was w PY-Inf. 2 was previously ID as <i>J. torreyi</i>
4,5		<i>Juncus interior</i>	inland rush	N	P		FACW, FAC	Auricles soft and thin, dull, white or lt brownish or translucent
7		<i>Juncus longistylis</i>	longstyle rush	N	P		FACW, FACW	

10		<i>Juncus nodosus</i>	knotted rush	N	P		OBL, OBL	
3,4,5,9,10	<b>Lamiaceae</b>	<i>Hedeoma hispida</i>	rough false pennyroyal	N	A			Ack: uncommon. SEINet 3.3.20: 2 DougCo records —Gateway Mesa OS & Sandstone Ranch
6,10		<i>Lycopus americana</i>	American water horehound	N	P	7-8		
6		<i>Mentha arvensis</i>	fieldmint	N	P	summer	FACW, FACW	aromatic, rhizomatous (more common in open spaces than next)
2,3,4,5,7		<i>Monarda fistulosa</i>	bergamot	N	P	7-8		
2,4,5,6,7		<i>Nepeta cataria</i>	catnip	I	P	7-9		WGP: 344
4		<i>Salvia reflexa</i>	blue sage	N	A			SEINet 11.21.21: 245 CO, 1 DC
2,3,4		<i>Scutellaria brittonii</i>	Britton's skullcap	N	P	5-6		Genus <i>Scutellaria</i> is distinguished by a transverse ridge on the calyx
6,10		<i>Scutellaria galericulata</i>	marsh skullcap	N	P	6-8	OBL, OBL	SEINet 12.6.21: 123 CO, 5 DC
6		<i>Stachys pilosa</i> var <i>pilosa</i>	hairy hedgenettle	N	P	6-8	FACW, FACW	Ack; <i>Stachys palustris</i> var <i>pilosa</i> . SEINet 11.26.21: 235 CO, 5 DC
7	<b>Lemnaceae</b>	<i>Lemna minuta</i>	duckweed	N	A	?	OBL, OBL	aquatic, unrooted, floating on surface or in water column
3,4,5	<b>Lilliaceae</b>	<i>Calochortus gunnisonii</i>	mariposa lily	N	P	5-6		
1,2		<i>Leucocrinum montanum</i>	sand lily	N	P	3-5		
1?,6,7	<b>Loasaceae</b>	<i>Mentzelia nuda</i>	white-flowered blazingstar	N	sl p	7-8		1. PY capsule, 25 mm long.
10		<i>Mentzelia speciosa</i>	jeweled blazingstar	N	B,P	7-8		G3S3. CNHP fully tracked. Endemic.
1,2,3,4,5,7	<b>Malvaceae</b>	<i>Sphaeralcea coccinea</i>	scarlet mallow, cowboy's delight	N	P	5-6		stellate hairs
1,2,3,5	<b>Melanthiaceae</b>	<i>Zigandenus paniculatus</i>	foothill death-camas	N	P	5-6		AKA: <i>Z. venenosus</i> , <i>Toxicoscordion paniculatum</i>
4,9	<b>Molluginaceae</b>	<i>Mollugo verticillata</i>	green carpetweed	I	A			SEINET 3.4.20: 31 CO, 1 DougCo records
1,2	<b>Montiaceae</b>	<i>Claytonia rosea</i>	Rocky Mountain springbeauty	N	P	3-5		
3,4,6,9,10		<i>Phemeranthus parviflorus</i>	sunbright, fameflower	N	P	5		AKA: <i>Talinum</i>

6,10	<b>Myrsinaceae</b>	<i>Lysimachia ciliata</i>	fringed loosestrife	N	P	6-7	
6	<b>Nyctaginaceae</b>	<i>Abronia fragrans</i>	fragrant sand-verbena	N	P	6-7	
6		<i>Oxybaphus/Mirabilis lanceolata</i>	umbrellawort	N	P	6	M. linearis X M. hirsutus
4,6,7,8,9		<i>Oxybaphus/Mirabilis linearis</i>	narrowleaved umbrellawort	N	P	6-8	broad flat involucre resembles an umbrella
1,6,7,10		<i>Oxybaphus/Mirabilis nyctaginea</i>	heartleaf/common four o'clock	N	P	6-7	rhizomatous
4,5,6,7,9	<b>Onagraceae</b>	<i>Epilobium ciliatum</i>		N	P		FACW, FACW
2,3,4,5,6		<i>Gaura coccinea</i>	scarlet gaura lizard tail, small-flowered gaura	N	P	5-6	pioneer species, can establish in disturbed sites
1,2,5,6,7		<i>Gaura parviflora/mollis</i>	groundsmoke	N	B	summer	
8		<i>Gayophytum sp.</i>	prairie/white(st)	N	A	7-8	8. EB
10		<i>Oenothera albicaulis</i>	e.p. cutleaf evening primrose	N	A	(7)	leafy stems (but smaller specimens may be scapose), pinnatifid, spreading hairs
3,5,6,7,8,10		<i>Oenothera coronipifolia</i>	primrose	N	P	6-7	
5,8,10		<i>Oenothera/Calylophus serrulata</i>	yellow sundrops common evening-primrose	N	P	6-7	
1,2,6,7		<i>Oenothera villosa</i>		N	B	summer	
2,3,5,9	<b>Orobanchaceae</b>	<i>Castilleja integra</i>	foothills paintbrush	N	P	5-7	tomentose stems, lvs. entire
3		<i>Orobanche/Aphyllon fasciculatum</i>	clustered broomrape	N	P	6-7	
4,7,9	<b>Oxalidaceae</b>	<i>Oxalis dillenii</i>	slender yellow wood sorrel	N	?	5-8	
1,5,6	<b>Papaveraceae</b>	<i>Argemone polyanthemus</i>	prickly poppy	N	P	6-8	
3,8,9,10	<b>Phrymaceae</b>	<i>Mimulus floribundus</i>	manyflowered monkeyflower	N	A	6-7	Also, <i>Erythranthe floribunda</i> . G5S3; SEINET 3.4.20: 111 CO, 4 DougCo records
8		<i>Mimulus sukdorfii</i>	Sukdorf's monkeyflower	N	A	5-6	SEINet 12.6.21: 35 CO, 0 DC (only 3 ES records—Larimer, Jefferson). NSE, W&W do not recognize presence in CO.

2,3,5,7	<b>Pinaceae</b>	<i>Pinus ponderosa</i>	ponderosa pine	N	woody- P	NA	
9		<i>Pseudotsuga menziesii</i>	Douglas fir	N	woody P	NA	
2,3	<b>Plantaginaceae</b>	<i>Collinsia parviflora</i>	blue-eyed Mary	N	A	4-5	
9		<i>Gratiola neglecta</i>	clammy hedgehyssop	N	A	6-7	Ack, C&L: uncommon. G5SNR. UT, NE: S1; WY, KS: S2; AZ: S3. SEINET 7.4.21: 78 CO, 3 DC recs inclu Sandstone Ranch
3,9,10		<i>Linaria canadensis</i>	blue toadflax	N	A	4-6	Ack: uncommon. SEINET 11.21: 21 CO, 1 DC—2015, Gateway Mesa OS
1,2,3,4,5,6		<i>Linaria dalmatica</i>	Dalmatian toadflax	I	sl-P	5-10	List B CO noxious weed with large yellow, spurred flowers; rhizomatous; ovate leaves are glabrous and glaucous
9		<i>Linaria vulgaris</i>	yellow toadflax	I	P		
3,5,8		<i>Penstemon albidus</i>	white penstemon	N	P	5-6	glandular; lvs w sparse, small teeth
2		<i>Penstemon angustifolius</i>	narrow-leaved penstemon sidebells	N	P	5(6)	2: Blue flowers--not 1-sided; leaves glabrous & glaucous [11.21.21: tentative ID specified; unclear why].
3,4,5,6?,8		<i>Penstemon secundiflorus</i>	penstemon bluemist	N	P	5-6	
2,3,5		<i>Penstemon virens</i>	penstemons	N	P	5-6	
1?,5,6		<i>Penstemon virgatus</i>	oneside penstemon	N	P	7-8	1:possible ID, PY-Inf 1-sided, leaves green, not blue-green
6,7		<i>Plantago major</i>	common plantain	I	P	5-7	FAC, FAC
3,4,5,6,8		<i>Plantago patagonica</i>	woolly plantain	I	A	6-7	tiny annual with woolly grey leaves
2?,6,7		<i>Veronica catenata</i> ( <i>anagalis-aquatica</i> )	water speedwell	N	P	6-8	OBL, OBL 2: tentative ID, V. Emergent with opposite clasping leaves; flowers in axillary racemes
5?,8,9		<i>Veronica peregrina</i> var <i>xalapensis</i>	purslane speedwell	N	A		? 5: tentative ID; specimen senescent, lvs lacking; stems glandular; pedicels ~ 1mm
5,8	<b>Poaceae</b>	<i>Achnatherium hymenoides</i>	Indian ricegrass	N	P		
10		<i>Achnatherium robustum</i>	sleepygrass	N	P		
1,2,3,4,6,7		<i>Agropyron cristatum</i>	crested wheatgrass	I	P		
6,7		<i>Agrostis gigantea</i>	redtop bent	I	P		FACW, FACW
4		<i>Agrostis scabra</i> *	tickle grass	I	P		
4,6		<i>Alopecurus aequalis</i>	shortawn foxtail	N	P		OBL, OBL



9		<i>Alopecurus carolinianus</i>	Carolina foxtail	N	A		FACW, FACW	UT, CO: S1; WY: S2. Ack. Shaw: rare. C&L: uncommon. W&W: alien.
1,2,4,5,10		<i>Andropogon gerardii</i>	big bluestem	N	P		FACU, FACU	caespitose or short rhizomatous perennial with racemes branched into digitate groups; spikelets in pairs: 1) sessile and bisexual and 2) pediceled and staminate; leaves long-haired; C4
1,2,3,4,5,6		<i>Anisantha (Bromus) tectorum</i>	cheatgrass, downy brome	I	A	3-4		caespitose winter annual with open panicles of flexuous branches and pedicels; long and narrow lemmas gradually taper to the long awn; C3; List C caespitose perennial with contracted, spikelike panicles; lemmas with 3 divergent awns; C4; common in pdog colonies; grazing increaser.
1,2,3,4,5,6,7		<i>Aristida purpurea</i>	purple three-awn	N	P			
4,5,9		<i>Blepharoneuron tricholepis</i>	pine/hairy dropseed	N	P			
1,2,3,4,5,7		<i>Bouteloua curtipendula</i>	sidecoats grama	N	P			caespitose perennial with panicles of relexed, spicate branches ("flags") of pendent spikelets; papillose-based hairs along blade margins; C4 rhizomatous perennial with open panicles; "W"/"M" fold half-way down blades; C3; common pasture and hay grass
1,2,3,4,5,6		<i>Bromopsis inermis</i>	smooth brome	I	P	5-7		4. Difficult to key: w W&W—lanatipes or ciliatus;
4?,7,9,10		<i>Bromopsis (Bromus) lanatipes</i>	woolly brome	N	P			w Shaw—ciliatus or richardsonii; with Ack-lanatipes
3,4,5,7		<i>Bromus japonicus</i>	Japanese brome	I	A	4-5		aka <i>B. arvensis</i> , USDA Plants db
5		<i>Buchloe dactyloides</i>	buffalo grass	N	P	4-6		stoloniferous dioecious perennial: staminate -- spicate panicles and pistillate -- panicle of burr-like clusters; leaf blades typically hairy; dominant plant of shortgrass prairie; C4
4?		<i>Calamagrostis</i> sp	reedgrass	N	P			4. from keys, (Win, Shaw, Ack) best fits are <i>montanensis</i> and <i>rubescens</i> ; but neither of these is likely base on geographic and altitudinal range
5,7	<b>Poaceae</b>	<i>Calamovilfa longifolia</i>	prairie sandreed	N	P			
1,2,3,4,5,6,7		<i>Chondrosum (Bouteloua) gracile</i>	blue grama	N	P			caespitose perennial with panicles of spicate branches resembling flags; tuft of hairs at leaf collar; dominant plant of shortgrass prairie but common in most western grasslands; C4
1,4,9		<i>Chondrosum simplex</i>	matted grama	N	A			
7		<i>Critesion (Hordeum) jubatum</i>	foxtail barley	N	P			caespitose perennial with spikes that nod at maturity; very long awns; wet disturbed ground; C3
7		<i>Dactylis glomerata</i>	orchardgrass	I	P		FACU, FACU	caespitose perennial with contracted, 1-sided panicles; sheaths and blades keeled; common pasture or hay grass; C3
9		<i>Danthonia parryi</i>	Parry's oatgrass	N	P			
3		<i>Danthonia spicata</i>	poverty oatgrass	N	P			

5,9		Dichanthelium linearifolium	slimleaf panicgrass	N	P		C3; infrequent. G5SNR. SEINET 12.17.21: 40 CO, 1 DC—2019, Sandstone Ranch
8,9		Dichanthelium oligosanthos	panicgrass	N	P		
4,10?		Echinochloa crus-galli	barnyardgrass	N	A		4: Did Not Key. 10. possibly muricata
6		Echinochloa muricata	rough barnyard grass	N	A	FACW, FACW	C4.
1,2,4,5,6,7		Elymus canadensis	Canada wildrye	N	P	FACU, FAC	
1,2,3,4,5,7,10		Elymus elymoides	squirreltail	N	P		
1,5,6		Elymus/Elytrigia repens	quackgrass	I	P		C3
4,5,7,9		Elymus trachycaulus	slender wheatgrass	N	P		C3
1,5		Festuca sp.	fescue species	N	P		5. idahoensis or arizonica, seeds have dropped—unable to use presence/absence of awns to ID
6		Glyceria elata	tall mannagrass	N	P	OBL, OBL	
10		Glyceria grandis	American mannagrass	N	P	OBL, OBL	
3,4,5,6,7,8		Hesperostipa comata	needle-and-thread grass	N	P		caespitose perennial with open or contracted panicles of 1-flowered spikelets with extremely long lemma awns (6+ cm); C3
9		Hordeum pusillum	little barley	N	A		
1,2,3,4,5,7		Koeleria macrantha	junegrass	N	P		C3
6,10		Leersia oryzoides	rice cutgrass	N	P	OBL, OBL	perennial with panicles of spikelets made of flat, single, glume-less florets; foliage and stems strongly scabrous; C3
4	<b>Poaceae</b>	Leymus triticoides	beardless wildrye	N	P		
1?,2?		Muhlenbergia filiculmis	slimstem muhly	N	P		1. PY-Inf; Shaw, Win key to Muhlenbergia. 2. PY-Inf; possibly montana—lemmas absent
4,5		Muhlenbergia minutissima	annual muhly	N	A		SEINet 12.6.21: 123 CO, 5 DC (4 ind)
4,5,9		Muhlenbergia montana	mountain muhly	N	P		
5,10		Muhlenbergia racemosa	marsh muhly	N	P	FACW, FACW	
4,10		Muhlenbergia wrightii	spike muhly	N	P		
3,4,5		Nasella viridula	needle grass	N	P	5-6	C3
2,4,9		Panicum capillare	witchgrass	?	A		C4; unclear whether native or introduced
1,6		Panicum virgatum	switchgrass	N	P		rhizomatous
1,2,3,4,5,6,7		Pascopyrum (Agropyrum) smithii	western wheatgrass	N	P		rhizomatous perennial with erect spikes; very blue foliage, upper surface of leaf blades strongly ribbed; dominant plant of mixedgrass prairie; C3
2,6,7		Phalaris arundinacea	reed canarygrass	N	P	FACW,	rhizomatous perennial with open or contracted

							panicles of 1-flowered spikelets; C3. Species is native to NA, but Eurasian biotypes may dominate W&W: alien; Shaw: native; Ack treats as native. Native and non-native biotypes. Often treated as nonnative or undesirable in Colo.
							caespitose perennial with dense, cylindrical, spikelike panicles; wide glumes w 2 'horns';
3,4,7		Phleum pratense	timothy little(seed)	I	P	FACU, FAC	common pature or hay grass; C3
3,4,5,7,9		Piptatherum micranthum	ricegrass	N	P		4. specimen keys to Piptatherum, but lemma lacks awn (9.24.19: awn deciduous)
2,8		Poa bulbosa	bulbous bluegrass	I	P		
3,4,5,7		Poa compressa	Canada bluegrass	I	P		
2,8		Poa fendleriana	muttongrass	N	P	4-5	
3		Poa interior	inland bluegrass	N	P		SEINet 3.4.20: 895 CO, but only 3 DougCo records
4,5,6,7		Poa pratensis	Kentucky bluegrass	I	P	FACU, FAC	rhizomatous perennial with open panicle; lemma with cobwebby hairs at base; C3
2,3,4,5,8		Poa secunda	Sandberg bunchgrass	N	P	4-6	
4,5,9,10	<b>Poaceae</b>	Schedonnardus paniculatus	tumblegrass	N	P		C4
7		Schedonorus arundiceus	tall fescue	I	P		
1,4,5,7		Schizachyrium scoparium	little bluestem	N	P	~7	
6		Setaria viridis	green bristlegrass	N	A		
1,2,4,6,7		Sporobolus cryptandrus	sand dropseed intermediate	N	P		
7		Thinopyrum intermedium	wheatgrass tall/rush	I	P		
4		Thinopyrum ponticum*	wheatgrass	I	P	~7	AKA Elymus/Elytrigia elongata
3,8		Vulpia octoflora	six-weeks fescue	N	A	4-5	
1,2,3,6,7,8	<b>Polemoniaceae</b>	Aliciella pinnatifida	sticky gilia	N	B, (A)	6-7	
3,7,8		Collomia linearis	tiny trumpet	N	A	5-6	
8,9		Gilia ophthalmoides	eyed gilia	N	A	5-6	
2,3,4,5,6,7		Ipomopsis aggregata	fairy trumpet	N	P	6-7	3,4,5,6,7: corolla red
1		Microsteris gracilis	slender phlox	N	A	4-5	petals pink to white
6	<b>Polygonaceae</b>	Acetosella vulgaris	sheep sorrel	I	P		Also, Rumex acetosella. WGP: 494
1,2,5,6,7		Eriogonum effusum	prairie babysbreath	N	subshru b-P	7-8	grazing increaser
2,3,4,5,6		Eriogonum umbellatum	wild buckwheat	N	P	sum	

						mer	
5,6		Fallopia convolvulus	black bindweed	I	A	4-5	
1,6		Persicaria amphibia	smartplant	N	P		
6		Persicaria lapathifolium	pale/curly top smartweed	N	A	6-9	OBL, FACW
6		Persicaria maculosa	spotted lady's thumb	I	A		FACW, FACW
4,5,6		Polygonum arenastrum/aviculare	devil's shoestring, common/prostrate knotweed	I	A	6-10	
3,4,5,9		Polygonum sawatchense ssp sawatchense	Sawatch knotweed	N	A	4-6	
1,2,3,4,5,7		Pterogonum (Eriogonum) alatatum	winged buckwheat	N	P	6-7	
1?,2,3,4,5,6,7		Rumex crispus	curly dock	I	P	5 (6)	FAC, FAC FACW, FACW
6,10		Rumex stenophyllum	narrowleaf dock	I	P	5-6?	
4,5,6,9	<b>Portulacaceae</b>	Portulaca oleracea	common purslane	I	A	6-9	WGP: 500
7	<b>Ranunculaceae</b>	Anemone cyllindrica	candle anemone	N	P	5-6	
8		Anemone patens var multifida	pasqueflower	N	P	4-5	
2?,9		Delphinium carolinianum ssp virescens	white/Carolina larkspur	N	P	6	2. tentative ID; V.
1?,2,3		Delphinium nuttallianum	Nuttall's larkspur	N	P	5-6	
9		Myosaurus minimus	tiny mousetail	N	A	5-6	FACW, OBL
6,10		Ranunculus aquatilis	water crowfoot	N	P	5-7	OBL, OBL
6,10		Ranunculus macounii	Macoun's buttercup	N	P	6-7	OBL, OBL
10		Thalictrum dasycarpum	purple meadowrue	N	P		
5?	<b>Rhamnaceae</b>	Ceanothus herbaceus	New Jersey tea	N	woody P		G5S2. 5. V; small specimen; no sign of having flowered in survey year. Tentative ID.
7,8	<b>Rosaceae</b>	Amelanchier alnifolia	serviceberry	N	woody P		8. subsp unclear, either alnifolia or utahensis

2,3,4,5,7		<i>Cercocarpus montanus</i>	mountain mahogany	N	woody P	5		
1,7		<i>Crataegus succulenta</i>	hawthorn	N	woody P			
7		<i>Crataegus ambigua.</i>	hawthorn, ornamental escape	I	woody P			Likely ID. Lvs. dissected/lobed & toothed. DNK; not included in CO flora. Escapes have been seen elsewhere in NCFR by author
2,7		<i>Fragaria virginiana</i>	strawberry	N	P	5-6		
10		<i>Geum aleppicum</i>	yellow avens	N	P		FACU, FACW	
2,3,8		<i>Geum triflorum</i>	prairie smoke	N	P	4-5		
3		<i>Physcarpus monogynous</i>	mountain ninebark	N	woody P	6-7		
2,3,4,5		<i>Potentilla//Drymocallis fissa</i>	bigflower cinquefoil	N	P	5-6		
3,4,5,8		<i>Potentilla hippiana</i> var <i>effusa</i>	woolly cinquefoil	N	P	6-7		AKA <i>P. effusa</i> . 8. Var not determined
1		<i>Potentilla pensylvanica</i>	Pennsylvania cinquefoil	N	P			
2,5,6,7	<b>Rosaceae</b>	<i>Prunus americana</i>	American plum	N	woody P	4,5		
1,2,3,5,6,7		<i>Prunus (Padus) virginiana</i>	chokecherry	N	woody P	4-5	FACU, FACU	
5		<i>Rosa arkansana</i>	Arkansas rose	N	P	6-7		
6		<i>Rosa woodsii/blanda</i>	Wood's rose	N	P	6-7		broad-based thorns; purple-black woody stems; sepals ~2mm wide
2,3,4,5,7		<i>Rubus (Oreobatus) deliciosus</i>	Boulder/delicious raspberry	N	woody P	5-7		
7		<i>Rubus idaeus</i>	red raspberry	N	P	5-6		
2,3,5	<b>Rubiaceae</b>	<i>Galium aparine</i>	catchwilly, cleavers	I	A	5-7	FACU, FACU	
2,3,4,7		<i>Galium boreale</i> (septentrionale)	northern bedstraw	N	P	6-7		
1,2,6,7	<b>Salicaceae</b>	<i>Salix amygdaloides</i>	peach-leaved willow	N	woody P		FACW, FACW	multi-trunked, leaning-reclining; leaf tips drawn out into a slender point
6,10		<i>Salix eriocephala</i> var <i>ligulifolia</i>	strapleaf willow	N	woody P	4-6		
1,2,6,7		<i>Salix exigua</i>	coyote willow	N	woody P		FACW, FACW	suckering shrubs with linear gray-green leaves
1,6		<i>Salix fragilis</i>	crack willow	I	woody P		FAC, FAC	trees with brittle branchlets; raised glands at base of leaf blade

1,2,6,7		Populus deltoides ssp. monilifera	plains cottonwood narrowleaf	N	woody P	4-5	FAC, FAC	petiole flattened perpendicular to the plane of the deltoid leaf
7		Populus angustifolia	cottonwood	N	woody P			
9		Populus tremuloides	quaking aspen	N	woody P			
2,3,5	<b>Santalaceae</b>	Comandra umbellata	bastard toadflax	N	P	4-6		monotypic family in CO; vegetatively, looks like a small Dalmatian toadflax.
1	<b>Sapindaceae</b>	Acer negundo	box elder, ashleaf maple	N	woody- P	3-4	FAC, FAC	AKA Negundo aceroides
2,3,5	<b>Saxifragacea</b>	Heuchera parviflora	common parviflora	N	P	6-7		Also, 4. Heuchera sp.
8		Heuchera richardsonii	Richardson's alumroot	N	P	5-6		S1. Ack:rare. CO populations disjunct.
7	<b>Scrophulariaceae</b>	Scrophularia lanceolata	lance-leaf figwort	N	P	5-6		
1,2,3,4,5,6,7		Verbascum thapsus	common mullein	I	B	7-9		List C noxious weed
7	<b>Solanaceae</b>	Physalis hederifolia var comata	ivy-leaf ground cherry	N	P	6-8		
3		Physalis hispida	prairie ground cherry	N	P	7-8		3. probable ID 1. 2019 notes: "1. possibly longifolia—hispid hairs lacking; PY-V." 7. w W&W (which does not recognize PHLO), keys to P. virginiana
1,7		Physalis longifolia	long-leaf groundcherry	N	P	7-8		
4		Solanum triflorum	cutleaf nightshade	N	A	summer		Typically associated w prairie dog colonies
6	<b>Typhaceae</b>	Sparganium eurycarpum	broadfruit bur-reed	N	P	6	OBL, OBL	G5S2, CNHP fully tracked
4,7		Typha angustifolia	narrow-leaved cattail	N	P		OBL, OBL	staminate and carpellate parts of the spike separated
2,7		Typha latifolia	broad-leaved cattail	N	P	7-9	OBL, OBL	staminate and carpellate parts of the spike not separated. 1: species not noted.
3,4	<b>Urticaceae</b>	Parietaria pensylvanica	Pennsylvania pellitory	N	A	4-5		
1,2,6,7		Urtica dioeca ssp gracilis	stinging nettle	N	P		?	
5	<b>Verbenaceae</b>	Glandularia bipinnatifida	dakota mock	N	A, P	5-6		



**Column B, numbered survey event:**

- 1. 4.14.19.** ~ Six meandering N-S, S-N transects Fr Cherry Creek in the E, westward to E base of mesa; fr S fence northward to N fence (in the E) and Hidden Mesa Trail (in the W)
- 2. 5.4.19.** 4 meandering W-E & E-W transects in upper/western south side, fr W fence to E fence (parcel w red silo) & fr S fence/SH86 to S mesa rimrock
- 3. 6.21.19** 3 ½ meandering transects in (western) NW corner, fr W fence to W mesa rim & fr E fenceline (Pleasant View entrance) westward about 2/3 way to main road (Hwy. 86)
4. 8.15.19 Mesa top: 3 1/2 meandering N-S transects in western 4/5 of mesa, plus 3 E-W transects covering NW portion of mesa top and the NW corner of HMOS between mesa top and trail from NW parking lot
- 5. 9.22.19** Northwest quadrant, 7 N-S,S-W transects. All transects, N border was residential subdivision boundary/fence. S border was: 4 eastern transects, the main (HM) trail; 3 western transects, mesa rim. E border aligned w/ stormwater detention pond just S of subdivision. N border is N HMOS boundary or 'N-S finger ridge' (just E of Pleasant Valley Rd.)
- 6. 7.15.20** Cherry Creek and vicinity: fr bridge to S boundary on E side; fr bridge to N boundary on W side; fr bridge S to 2nd big bend on E side
- 7. 8.3.20** Drainage along S boundary across from mesa, including 2 draws/washes that come down to the drainage fr the mesa, plus some adjoining or nearby upland areas
8. 6.2.21 A. Northern rimrock vicinity, between trail & N boundary & B. far N double hill mesa peninsula & routes between A & B
9. 7.3.21 Southern portion of western rimrock area & west half of southern rimrock area
10. 8.2.21 West bank of Cherry Creek fr bridge to S border, then back N to bridge via ancient CC alluvial terrace to the W. Then to E side of Mesa, covering s half, including lower slope & rimrock/cliffs areas, then back to bridge.

Note: For events 1-5, all species encountered were recorded. For event 6-10, only selected species were recorded. For events 6 & 7, focus was on riparian areas.