

4th Annual
Colorado Rare Plant Symposium
G2-G3 Plants in Northeast Colorado
September 7, 2007
Butterfly Pavilion
Westminster, CO

Introduction and ground rules: Steve Popovich and Jill Handwerk

Thanks to USFS, CNHP, CONPS, USFWS, and University of Colorado Herbarium for supporting this symposium with time and funding.

The first symposium was held in Steamboat Springs in 2004, and covered all of Colorado's threatened, endangered, candidate, and petitioned plant species. The second symposium, held in Pagosa Springs in 2005, covered the globally critically imperiled (G1) plant species of Colorado that are not federally listed species. The third symposium was held in Colorado Springs and covered imperiled (G2) plants species of southeastern Colorado. This year we will review imperiled and vulnerable (G2 and G3) species known from the northeast quadrant of Colorado.

Editor's note: You may view the accompanying Powerpoint presentation for additional information on each species on the CNHP website <http://www.cnhp.colostate.edu/botany.html> and go to the 2007 Rare Plant Symposium section.

Goals:

Facilitate knowledge exchange
Facilitate conservation of rare plants
Review results of past symposia

Ground rules: 10 minutes per plant, plus comments

New Information for Species Reviewed in Previous Years: Jill Handwerk

2004 - T/E species

***Eriogonum pelinophilum* G2QS2**

- CNAP purchased 43 acres with TNC and others, adjacent ranch owned by Wackers is now for sale.
- BLM ACEC lands-issues with fencing and enforcement to prevent ORV activity, CNAP working with BLM and Al Pfister at FWS on fencing
- Volunteer steward will be on site to help (Brian Kurzel)

***Eutrema penlandii* G1G2S1S2 LT**

- found 6 new subpopulations, original was 30 plants, and found >100 plants (Brian Elliot, formerly FS botanist)

***Gaura neomexicana* ssp. *coloradoensis* G3T2S1 LT**

- City of Ft. Collins found another population, CO pop is now 11,000 plants (Jill Handwerk)

***Ipomopsis polyantha* G1S1 C**

- Peggy Lyon has been monitoring, is a candidate taxon, active SW Land Alliance working with land owners and considering conservation easements
- Peggy found population on BLM land, was about to be traded, and now BLM has withdrawn the exchange

***Lesquerella congesta* G1S1 LT**

- CNHP surveyed this past summer
- Brian Kurzel monitored at Duck Creek-at one transect the plants are declining, other populations are fluctuating, part of Duck Ck owned by oil co. and CNAP working with Co. to designate as a natural area, and maybe conservation easement

***Pediocactus knowtonii* G1S1 LE**

- Off the list for CO; GIS data determined there are no populations in CO, only NM

***Penstemon debilis* G1S1 C**

- Carol Dawson – monitoring indicates numbers of individuals are increasing on BLM lands.
- Brian Kurzel – An oil company owns the land on which 3 out 4 of populations are found. CNAP is working with oil companies to expand the natural area designated for this species, some conservation action starting at Mt. Callahan

***Penstemon grahamii* G2S1**

- Changed from S2 to S1, was a candidate, but had been removed from list

***Penstemon scariosus* var. *albifluvis* G4T1S1 C**

- Only 2 occurrences in CO, some specimens annotated

***Phacelia formulosa* G1S1 LE**

- Possible population in Laramie River valley still not confirmed, waiting for Atwood from UT to confirm, considering doing an ACEC for this population (Ellen Mayo)

***Phacelia submutica* G4T2S2 C**

- Peggy Lyon - BLM found some new population, Ellen Mayo wants to organize a field trip to look for it next year

***Physaria obcordata* G1G2S1S2 LT**

- Peggy- surveyed nothing new, Brian K. - new well pad nearby and may be expanded, Ellen M. - looking at additional leasing of oil shale, preliminary, might be a final draft early next year, BLM hiring a new botanist in Meeker.

***Sclerocactus glaucus* G3S3 LT**

- UT pops have been split off, numbers may change, UT populations are *wetlandicus* and *brevispinus* (still listed as *glaucus*)
- 5 year review being done by UT office in 2008
- Andy K.- Barry Johnston says it occurs on Gunnison (contact Barry about this)

***Spiranthes diluvialis* G2S2 LT**

- Ellen M. - New population in Garfield Co. found a few weeks ago, confirmed id.
- Steve Popovich.- all populations along Poudre River in Larimer County documented in fall 2006 are actually *S. romanzoffiana*. Confirmed via DNA (by Tom Ranker at CU) and morphological ID (by Sheviak).
- Ellen M. - In Roaring Fork Valley, look in swales with sedges, found large population on private land, and on a roadside, and a mitigated created wetland with sedges- *Spiranthes* occurring there on edge of town of Carbondale. Elevations between 5000-7000 ft. should be surveyed for additional plants
- Steve P.- suggests we re-examine identification of *Spiranthes diluvialis* occurrences/herbaria specimens in light of mis-ID of Poudre River *S. romanzoffiana* populations

2005 - G1 Species

***Aliciella (Gilia) sedifolia* G1S1**

- Tim Hogan (CU)-relocated plant at type locality-about 20 plants; revisited Sue Komarek's population on Half Peak-found 1,000 plants;
- Elaine Hill searched for it climbing other 13ers in the area, but didn't find it.

***Astragalus microcymbus* G1S1**

- Jenny Ramp Neale (DBG) - monitoring- species rapidly decreasing, next year will survey for other populations, plants inside exclosures are doing better, will change tactics next year

***Cirsium scaponolepis* G1G2QS1**

- Needs taxonomic work
- Ellen-petitioned for listing, but little information, needs work! In FNA, but need to look at Jennifer A. (CSU) *Cirsium* key for CO, Jennifer believes it is *C. clavelatum* which is known from Utah

***Corispermum navicula* G1?S1**

- Dave Anderson - found additional occurrence next to original population
- Carol D. - working to figure out if it is *navicula* or not
- Katherine Mauz has been working on this in herbarium, didn't find *navicula*
- Dave A. sent specimens to expert in Ukraine, some plants were *navicula* and some not, Carol D. is working to figure it out.

***Cryptantha gypsophila* G1G2S1S2**

- Peggy-found lots of new areas, Dry Creek Basin and Sinbad Valley
- Terry Ireland finished assessment based on Peggy's work

***Draba weberi* G1S1**

- Steve Olson-visited only known site, work with Colorado Springs utility, wants to get a group together to visit the site, may work with John Proctor to do field studies

***Eriogonum brandegeei* G1G2S1S2**

- Steph Neid (CNHP) and Dina Clark (DBG) saw –biggest populations around Salida, Droney Gulch, BLM managed off road vehicles, mapping is tricky in badlands, current mapped sites are dubious, several populations have 1000s of plants
- BLM doing travel management in areas east of Salida-need to shut off road, Jennifer Ramp Neale- DBG has been monitoring for several years, debating whether to set up another site at Droney Gulch

***Hackelia gracilentia* G1S1**

- Peggy-habitat exists next to Mesa Verde but hasn't been surveyed, potentially on BLM land too

***Lygodesmia dolorensis* G1G2S1**

- Peggy-reported large population in Rabbit Valley, BLM found, it is still there near Gateway

***Mimulus gemmiparus* G1S1**

- CNAP-hired Paul Beardsley-found another population, scoped out potential restoration-reintroduction areas
- Steve P. - didn't find any other populations on Federal land in 2007

***Oreoxis humilus* G1S1**

- Steve O.- it is still there on Pikes Peak, total of one population, covers the alpine habitat on Pikes Peak.

***Physaria pulvinata* G1S1**

- Peggy did survey and found new population in a new state park, feels good about State Park management, they are aware it is a rare plant, survey is planned for species in future
- Ellen-candidate assessment report will be available

2006 - G2 Species of SE Colorado

***Asclepias uncialis* G3G4T2T3S2**

- Steph Neid-potentially 3 new occurrences south of Purgatoire River and Pueblo State Wildlife Area (SWA), 3 new spots at the SWA (photos from Steve Olson)

- Steve P. - rare rangewide, one population on private land near Pawnee NG, observed at site in 2004 but not 2003-2007; feels it may be truly rare in CO.
- Jill H. - on Pinon Canyon-observed moth near plants-it is a rare moth species (relationship between moth sp. and *A. uncialis* unknown)
- Steve P - about 633 plants rangewide in (USFS species assessment)

***Draba grayana* G2S2**

- Steve P. - thinks this taxon and *D. exunguiculata* are more common than we know. For *D. exunguiculata*, new lift terminal in Winter Park worked to transplant 5 individuals, avoided most habitat, transplanted too early to collect seeds, not sure if transplanted plants are alive or not, looked for more.
- Brian Elliott - most sites are very small in numbers

***Draba smithii* G2S2**

- Tim Hogan *D. smithii* occurs in Huerfano County

***Grindelia inornata* G4S4**

- CNHP took off tracking list, determined to be widespread, was ranked G2S2, it is now ranked as G4S4
- Don Hazlett - in FNA it is lumped with another species

***Herrickia horrida* G2?S1**

- Don H. - 100's of plants in NM along Canadian River

***Lequerella calcicola* G2S2**

- Jill - may become a G3 after analysis of field survey, abundant where it occurs, now on Ft. Carson
- Ellen - need to check to see if now classified as *Physaria*

***Nuttalia (Mentzelia) chrysantha* G2S2**

- Occurs on Walker Ranch-conservation easement lands

***Nuttalia (Mentzelia) densa* G2S2**

- Jill - expanded range, now found in Chaffee Co. as a result of Steph Neid's field work

***Oenothera harringtonii* G2S2**

- Jill - new Eos on DoD lands in SE Colorado, good year for expression, and CNHP may make a G3

***Oonopsis foliosa* var. *moncephala* G2G3T2S2**

- Jill - may be down ranked to a G3, regional endemic, huge populations - tens of thousands of plants

***Oonopsis puebloensis* (*Oonopsis* sp 1) G2S2**

- Jill - Greg Brown states that taxon treatment will be published soon, expanded acres at Ft. Carson, Pueblo State Park

Oxybaphus rotundifolius (Mirabilis rotundifolia) G2S2

- 10% of known populations are protected with TNC conservation easement south of Ft. Carson

Penstemon degeneri G2S2

- Steve O. - south of Canyon City - couple thousand plants in campground, 5 populations mapped, maybe one population well distributed, plans to look more next year
- Leo B.- 2007 was banner year, new sites, new pollination biology by grad student Carol English, related to *P. griffenii*, need to sort out taxonomy

Ptilagrostis porteri G2S2

- Jill - petition to list was denied, last observed in 2006, still a sensitive species (FS and BLM)
- Ellen - will reassess if needed
- Brian Kurzel - observed at Lost Park with land steward Lee Grunau

Telesonix jamesii G2S2

- Jill - Tass Kelso thinks much more widespread, but can't change rank without data
- Rob B. will send new information to CNHP

Botrychiums

- Steve P. - there are 3 undescribed species that are genetically valid according to Dr. Don Forrar at Iowa State University
- *B. lanceolatum* ssp. nov. *viride* several sites in Colorado Rocky Mountains
- *B. sp. nov.* "redbank"- numerous sites in Colorado Rocky Mountains
- *B. tax. nov.* "furatum"- several sites in Colorado Rocky Mountains, may be a Colorado endemic
- CDOT incurred substantial cost to protect a site of *B. "furcatum"* on Guanella Pass Road in 2006 during a road re-alignment project on Arapaho National Forest.
- *B. "furcatum"* will be published in 2009 as part of the re-alignment of *B. campestre* and *B. lineare* group
- *B. pallidum* - no true *B. pallidum* has been genetically confirmed through 2008 in Colorado. To date, all plants believed to be *pallidum* have been "redbank" or other taxa
- Don't collect moonworts without authorization from landowner
- Conservation - all moonwort sites should be conserved; should conserve on public lands to maintain viable populations; undetected rare species can co-occur with relatively more common ones; plants do not come up above ground every year;

we create lots of habitat on Federal lands, but that doesn't justify extirpating extant sites (sometimes 6-7 species at one site)

- Best time to collect/photograph is late June-July in mountains for most taxa
- On prairie best time to collect is late April through mid May, plants occur with little bluestem

2007 Review of Northeast Colo. G2 and G3 species: Susan Spackman

Introduction:

Thanks to CNPS, CU Herbarium, FWS, CNHP and USFS (special thanks to Karin Decker produced all maps and photos); thanks to Bonnie Heidel of WYND re: distribution in WY. Thanks to all herbaria. Thanks to everyone for conducting field work and depositing info to herbaria and to CNHP.

Area of interest is NE Colorado north of Colorado Springs and east of Continental Divide. Species ranked G2 are those known from 5-20 locations in the world, G3 are known from 20-100 locations in world, ranks also consider threats, overall range, and total number of individuals in ranking species

Goals for today:

- ensure we have accurate ranks on species, some G2-G3 have little information, some no photos, little habitat information
- information sharing
- increase our awareness of these species so that we can keep an eye out for them and make additional observations

***Aletes humilis*-G2G3S2S3**

- One historical collection in So. WY
- 36 EOs, 1 historical in Colorado
- Stephanie Neid - several new subpopulations in Boulder Co
- Threats: recreational use, secondary affects of fire
- Protection: TNC preserve, RNA on FS provides some protection (RNA can allow livestock grazing, and doesn't prohibit use of herbicides)
- Rick Scully and MaryJane Howell - volunteers updated and documented most of occurrences, Nan L. on N. St. Vrain.
- Betsy N. - TNC's Heather Knight has been monitoring sites for past 3 years

***Aletes nuttallii*-G3S1**

- CO-Grand and Weld Co.
- Don H. - Chalk Bluffs and another site
- 6 EOs, 1 historical-might be in Grand Co.
- 6500 individuals.
- Threats: ORVs, weeds, cattle
- Susan - we need more info.
- Don-rocky canyon edges and slopes in Weld Co., Susan - open areas in Grand Co. (Denise says in sagebrush)

***Aquilegia saximontana*-G3S3**

- Endemic to CO, along continental divide, dwarf species

- 26 known or presumed extant EOs, 23 are historic and not seen recently (only 1500 plants total known)
- Threats: recreational uses, road work, pica grazing, rock garden collecting
- Alpine and also below tree line, talus in krummholz zone, fell field
- Tim H. saw in upper montane in Lost Creek area a few years ago
- Maybe this is more suitably ranked G2G3, so much potential habitat, but infrequent
- Brian and Emily Elliott found new site near Alma, in middle of trail to 14er, co-occur with 2 other rare species, spoke with Loretta McElhany has only seen 2-3 times; this is definitely rare and should be ranked higher bc so much alpine recreation (CNHP to get info. from Brian)
- Susan - 2 new locations from Boulder Co, but CNHP needs to verify id this winter
- Andy - saw on Squaw Pass, below tree line, in timber close to 11,000 ft.
- Linda S. - CSU field camp - found in rocks
- Ann H. - observed on Twin Sisters in RMNP
- Steve P.- hired company to look for more plants at rock quarry sites on Guanella Pass, found 400-700 plants in areas undisturbed - maybe 20-25% more plants. FS let company take some plants in line of the rock quarry site because they found others.
- Needs more work

***Astragalus sparsiflorus* G3?S3?**

- 3 CO EOs from 6 counties (old collections from Barneby and Iseley)
- No info on # of individuals and threats
- No photos
- Tim H. - CU herbarium has records from Park, Boulder, and Jefferson
- CNHP will get these records in the data base, searched for in Boulder Co. on rocky slopes-mid-elevation (montane)
- Potentially threatened with development in S. Platte Watershed

***Bolophyta (Parthenium) alpina* G3S1**

- Weld county, Chalk Bluffs area
- Two distribution center in WY (46 Eos), and NM
- Species assessment published in 2004, since then, *P. tetraeuris* is a race; CNHP will use literature and reevaluate rank, likely will be G4S3 rank
- Don H. - probably 3-4 more populations
- Steve P. has been doing lots of surveys on Pawnee NG, may be large metapopulation with 100,000-1,000,000+ plants on FS, private and state lands. One site on state is disturbed by dumping cattle hay over plants, however, significant portions of the CO populations are secure at this time. Recent pipeline construction on Pawnee NG avoided plants as much as possible.

***Carex oreocharis* G3S1**

- Dry grasslands and mid-elevation to subalpine
- 9 known EOs, 4 historical, several thousand individuals

- Threats: weeds, road construction, grazing
- Steph Neid - new EO on City of Boulder Open Space - west of Rocky Flats (Boulder Co OS) may be recreational use in future.
- Distinguished from sunsedge by color, it is browner (single spikelet)
- Denise W. - found near Carbondale (need to get more info. from Denise, deposited at CU herbarium)
- Brian E. has some new data for Wet Mountain Valley (will share with CNHP)

***Draba crassa* G3S3**

- 42 EOs, 8 historical, 2700 individuals.
- Threats-recreational uses
- Brian E. - numerous records, knows of a botanist who has found it many times (she is doing alpine work), has little concern for this species
- Maybe a G4/S4 would be more appropriate, likely enough occurrences that we don't need to worry,
- Brian E. - found at 11 different sites on Mt. Bross, counted over 500 individuals
- Alpine meadows, rocky, alpine tundra, stringer of rocks, hard to reroute trails
- Peggy - in San Juans more common, tends to be a bit lower elevation but still alpine
- Andy - with climate change it could become rarer

***Draba globosa* G3S1**

- Habitat in rare plant book is incorrect
- 7 EOs, 1 historical, only 150 individuals.
- USFS species assessment
- Threatened by recreational use and potential mining
- Rocky alpine
- Brian E.- not common in other states MT, UT (Uinta mtns), WY, in CO just a few Eos; is on Region 4 Sensitive species list but not Region 2; easy to overlook because short growing season and small, lots of unsurveyed habitat
- Tim - CU herbarium has from Summit County

***Draba streptobrachia* G3S3**

- CO endemic, about 11 counties
- 52 EOs, 15 historical, don't know # of individuals
- Threat: recreation, global warming (every alpine species has this threat)
- Brian E. - not as common as other *Drabas*

***Eriogonum exilifolium* G3S2**

- Also in WY, known in CO from Grand, Jackson and Larimer Cos (half of EOs in WY)
- 10 EOs, 2 historical in CO; 1-2 million individuals in CO
- FS assessment completed
- Threat: weeds, incompatible grazing, roads

***Heuchera hallii* G3/S3**

- CO endemic
- 18 occurrences, unknown number of individuals
- Stan Smookler - Lost Creek occurrences? Douglas CO?
- Brian Elliott - new sites: MacKenzie Junction and south Culebra Range
- Wide elevation range 6000-12,000 ft.
- Tim H. - shade of boulders

***Nuttallia (Mentzelia) sinuata* G3S2**

- Stan S. – occurs in Linda’s backyard!
- Disturbed areas, golden flowers, broad wavy leaves
- Boulder County recently found by Steph N.
- Larimer County occurrence and Weld
- Brian E. - see Robert Hill article *M. sinuata* 1976 Bulletin of Torrey
- Annette Miller - Perhaps Pine Ridge
- 10 occurrences in Wyoming, from Robert Hill article, send to Bonnie Heidel

***Nuttallia (Mentzelia) speciosa* G3?S3?**

- Flower color is important to document while fresh and write on label
- Difficult to identify, herbaria specimens need to be annotated, especially the historical records—Kathryn and Carol Dawson
- Jefferson Co - Pine Valley Ranch
- Stan S. - on Platte River
- Brian E. - 6 counties in Hill paper

***Oonopsis wardii* G3S1**

- only known from one location in CO
- Laramie River Valley
- 4 counties in Wyoming, 19 occurrences, road construction is threat

***Phacelia denticulata* G3?S3?**

- All EORs considered historical
- Blue flowers, annual
- Albany and Laramie counties in Wyoming, 5 extant and 4 historical, S2
- Perhaps should be an S1 in Colorado, 7 counties, should be an SH?
- Don H. - are there misidentifications in herbaria?
- Tim H. - collection on Hwy 285, most specimens collected in June and July

***Physaria bellii* G2G3S2S3**

- Co endemic, one global historic record from El Paso
- Records at Ken Caryl are hybrids with *P. vitulifera* from genetic work just completed
- Steph N. - Genetic work will likely change the rank specs for separate occurrences

- May be one new Owl Canyon occurrence, S. Popovich observed with Brian E. Sept 2007
- Found in wider geological settings than previously known, e.g., red sandstone
- Heather Knight of TNC has data from 3 years of monitoring on the Roberts Ranch that they will share with CNHP (Betsy); TNC also actively working to protection part of another population thru a conservation easement (will coordinate with DBG)
- Park Creek Hogback - DBG is monitoring a population there
- Dave Anderson - City of Ft Collins populations are being impacted/declining from prairie dogs

***Potentilla ambigens* G3S1S2**

- May be realized threats now from weed treatment for misidentifications of sulphur cinquefoil, occurs in disturbed areas
- Large approx. 1 m. tall, large pinnate leaves
- Wyoming ranked Historical, known from New Mexico, no details
- Brian E. - site in NM hybridizes with *P. hippiana*, one of only a few potentillas that have no synonyms from species assessment
- Tim H. - first collected in Morrison, then not seen for decades before next documentation
- Steve P. - has looked for it for 4 yrs on the forest, has found only a few times
- Need to make an effort to educate sulphur cinquefoil weed sprayers to prevent the loss of *P. ambigens*
- USFS species assessment available

***Potentilla rupicola* G2S2**

- USFS species assessment available
- Completely glabrous shiny leaves very distinctive
- N. St Vrain occurrence in Boulder County
- Rea O. - Gilpin Co occurrence
- Rare to find truly glabrous on both sides of leaves, hybridization/speciation from *P. effusa*? Steve P. is working with Ana Child to further research this species. She only knows a few sites with only pure *P. rupicola*. Mostly find hybrids mixed with pure plants at known occurrences.
- Susan P. - knows that in N. Larimer County there are plants with glabrous leaves on both sides
- Barry Johnston has also done intensive work
- Heather Knight - needs assistance on plant ID for Phantom Canyon
- Steve P. - Ana Child has dropped out of school and many not complete/publish any *P. rupicola* research. Steve P. is working on this with her and USGS.

***Sisyrinchium pallidum* G2G3S2**

- Wyoming has the global rank responsibility will likely be G3, therefore CO will likely change to S3

- CNAP volunteer steward - Ann Henson has Jimmy Creek, *Sisyrinchium pallidum* was there in large numbers, also *Breca arvensis* there in large numbers. Larimer County has been notified to control weeds.
- Need to find high quality occurrences receive protection, for it does occur in disturbed areas, hay meadows, grazing
- Look into the number of historical records, e.g., Moraine Park in RMNP
- Need to research response of this species to grazing, degrees of grazing, Ann Henson feels that the species can withstand intensive grazing from her experience at Jimmy Creek

Top 5 species with needs/Conclusion:

1. *Phacelia denticulata*—needs inventory work, currently only historical data
2. Take off list *Draba crassa*, *Physaria bellii*, *Sisyrinchium pallidum*, *Bolophyta alpina*

Species	Inventory	Research	Taxonomy	Threat Assessment	Conservation Needs
<i>Oonopsis wardii</i>	X				G3 in Wyoming, less of priority in Colorado
<i>Phacelia denticulata</i>	X				
<i>Astragalus sparsiflorus</i>	X				
<i>Potentilla ambigens</i>	X			educate weed eradication crews	Need to protect higher quality occurrences i.e. Larimer Co State Land Board
<i>Draba globosa</i>	X	Monitoring global warming—encourage university research- Dave Buckner is studying below ground effects in the alpine			
<i>Aquilegia saximontana</i>	X	Monitoring long term for global			Tim H. not as threatened, occurs in NP,

Species	Inventory	Research	Taxonomy	Threat Assessment	Conservation Needs
		warming effects— GLORIA Project in San Juans			hidden places
<i>Heuchera hallii</i>	X-rocky outcrops		Likely overlooked or missed as <i>H. parviflora</i>		
<i>Carex oreochais</i>	X			Upland sedge warrants attention, assess threats	
<i>Potentilla rupincola</i>	Ana Child has attempted much historical site re-location		Results distributed	Weed education for crews Follow-up restoration efforts	Move forward efforts on Boulder and Larimer counties occurrences—“pure”
<i>A. humilis</i>					Low priority
<i>A. nuttallii</i>	X			Weed education	Low priority
<i>Eriogonum exilifolium</i>	X-Steve P. may in 2008				Low priority
<i>Nuttallia sinuata</i>	X	Confirm, annotate specimens, little data on species ecology, population demographics			
<i>Nuttallia speciosa</i>	X	Confirm and annotate, same as <i>N. sinuata</i>			

Priorities:

1. *Phacelia denticulata* and *Astragalus sparsiflorus* highest priority for inventory
2. *Potentilla ambigens* and *P. rupincola*—education for weed control and not spraying rare plants (especially *Cirsium* species)

Other Species of Concern:

1. *Corispermum* -ATV activity, Carol Dawson working on it, and Brian E.
2. *Astragalus hyalinus* - cushion plant, blooms in June, confused with *A. oophthalmus*, only two occurrences, in NE, WY, Dakotas, chalk bluff/sandstone habitat - Dina Clark and Don H. only in Yuma and Weld cos.
3. *Physaria brassicoides* - Bill Jennings
4. *Pediomelum cuspidatum* - Don H.
5. *Psoraleum digitatum* - Don H.
6. *Psoraleum linearifolium* - Don H.
7. *Trifolium dasyfolium* ssp. - east of Grover, only occurs along Laramie Hills in Wyoming - Don H.
8. *Eustoma grandiflora* –Stan S.
9. *Astragalus debequeus* - new activity with oil/gas activities, needs to be reviewed - Betsy N.
10. *Botrychium* tax. nov. “*furcatum*” - Steve Popovich
11. Non-vascular -Steve Olson, *Rhinodecapetatus* in Boulder County
12. *Castellija puberula*, alpine - Susan S. P., endemic to Colorado, Stan S. collected in Gilpin Co

CO Rare Plant Initiative: Betsy Neely

- The goal of this initiative is to take conservation of native rare plants in Colorado to a new level through a partnership effort by developing a coordinated strategy, prioritizing needs, and taking action to address increasing threats.
- 75% of imperiled species in CO tracked by CNHP are plants, however there is little to no money/protection for plants
- Over 10 partners already involved (BLM, USFS, USFWS, DBG, TNC, CNAP, CNHP, CU herbarium, CoNPS) and hope to include others, i.e., CDOT, Cattleman’s Land Trust, Betty Ford Alpine Gardens, etc.
- We received word this week that National Fish and Wildlife Foundation proposal has received funding, not sure yet of level, most of grant will go to CNHP for data collection/analysis; CoNPS, CNAP, CNHP, TNC and DBG have committed match
- Develop statewide strategy, lead to long term funding, esp. for monitoring and inventory and continue to prioritize species and sites, partner with land trusts for protection
- Two teams formed—Prioritization team and Strategy team; 5 major priorities:
 - Pagosa, Roan Plateau, Adobe Hills, Piceance, and Arkansas Valley have been identified to work with local communities and organizations
- Species on BLM lands, receive increased attention for protection, oil and gas

- Develop Best Mgmt Practices for two species most threatened by oil/gas development
- Rob Billerbeck is working on the State level for plant protection
- Andy K. government accounting office released a report addressing the need for species inventory on federal lands. This will help support the Rare Plant Initiative. Need to tie into this Government Report.

Feedback on Meeting:

- Rea O.- please add a discussion of look a-likes of the rare species
- Ann H.- difficult to see shading of county map distribution, revise?
- Do not need the star for location of Denver
- Use different colors to indicate major highways

Other news:

- New botanist position open in BLM Vernal office in UT
- Need good photos of rare plants and will give photo credit

If you would like to submit information on any rare plant occurrences for which you have knowledge, use the forms available at the CNHP website and provide as much information as possible, particularly directions to the site, and the size and condition of the rare plants. Mail completed forms to CNHP at the address below. For a complete list of rare species in Colorado visit the CNHP website at:

<http://www.cnhp.colostate.edu/list.html>

Field forms can be downloaded from the “How can you help section?”

**Colorado Natural Heritage Program
Colorado State University
8002 Campus Delivery
Fort Collins, CO 80524**

List of Presenters/Organizers

Jill E. Handwerk
Botany Information Manager
Colorado Natural Heritage Program
Colorado State University
8002 Campus Delivery
Fort Collins, CO 80523-8002
Phone 970/491-5857
Fax 970/491-3349
Email jill.handwerk@colostate.edu

Steve J. Popovich, Botanist
U.S. Forest Service
Arapaho-Roosevelt National Forests
& Pawnee National Grassland

2150 Centre Ave, Building E
Fort Collins, CO 80526-8119
Phone 970/295-6641
Fax 970/295-6696
Email sjpopovich@fs.fed.us

Susan Spackman Panjabi
Botanist
Colorado Natural Heritage Program
Colorado State University
8002 Campus Delivery
Fort Collins, CO 80523-8002
Phone 970/491-2992
Fax 970/491-3349
Email susan.panjabi@colostate.edu

Attendees:

NAME	AFFILIATION
Billerbeck, Rob	State Parks & CNAP
Bowes, Megan	CoNPS
Bruederle, Leo	UCDHSC
Clark, Dina	DBG
Culver, Denise	CNHP
Dawson, Carol	BLM
DeLeo, Claire	CoNPS
DePregner-Levin, Michelle	DBG
Elliott, Brian	CoNPS
Elliott, Emily	CoNPS
Freehly, Mike	CoNPS
Giolitto, Marianne	City of Boulder Open Space and Mountain Parks
Handwerk, Jill	CNHP
Harrison, Phil	Habitat Biologist
Hazlett, Don	UNC/Consultant
Henson, Ann	CoNPS
Hogan, Tim	CU Herbarium
Huggins, Janis	CNHP
Kirkpatrick, Mike	USFS Ft. Collins
Kratz, Andrew	USFS
Krishnan, Sarada	CoNPS/DBG
Larson, Denise	CoNPS-Denver
Lemly, Joanna	CNHP
Lyon, Peggy	CNHP
Mahoney, Linda	Friends of Colorado Natural Areas
Martin, Sue	CoNPS
Mauz, Kathryn	CO BLM/ Univeristy of Arizona Herbarium
Mayo, Ellen	USFWS
Miller, Annette	Ft. Collins CoNPS
Neale, Jenny	DBG
Neely, Betsy	TNC
Neid, Stephanie	CNHP
Orthner, Rea	Western Ecological
Popovich, Steve	USFS, Arapaho-Roosevelt NF
Powell, John	EPC-E&NW
Ripley, Nicola	Betty Ford Alpine Gardens
Root, Peter	
Senser, Linda	CoNPS
Smith, Melissa W.	CoNPS
Smith, Scott F.	CoNPS
Smookler, Stan	CoNPS
Spackman-Panjabi, Susan	CNHP
von Ahlefeldt, Judy	CoNPS
Whitcher, Ixchel	Forest Service
Wilson, Denise	CONPS, Parners for Co. Native Plants, DBG

4th Annual Colorado Rare Plant Symposium
NE Colorado G2 & G3's

GNAME	SNAME	GRANK	SRANK	RND_GRNK	USES	FEDSENS
<i>Aletes Humilis</i>	<i>Aletes humilis</i>	G2G3	S2S3	G2		
<i>Lomatium nuttallii</i>	<i>Aletes nuttallii</i>	G3	S1	G3		
<i>Aquilegia saximontana</i>	<i>Aquilegia saximontana</i>	G3	S3	G3		
<i>Astragalus sparsiflorus</i>	<i>Astragalus sparsiflorus</i>	G3?	S3?	G3		
<i>Parthenium alpinum</i>	<i>Bolophyta alpina</i>	G3	S1	G3		
<i>Carex oreocharis</i>	<i>Carex oreocharis</i>	G3	S1	G3		
<i>Draba crassa</i>	<i>Draba crassa</i>	G3	S3	G3		
<i>Draba globosa</i>	<i>Draba globosa</i>	G3	S1	G3		
<i>Draba streptobrachia</i>	<i>Draba streptobrachia</i>	G3	S3	G3		
<i>Eriogonum exilifolium</i>	<i>Eriogonum exilifolium</i>	G3	S2	G3		USFS
<i>Heuchera hallii</i>	<i>Heuchera hallii</i>	G3	S3	G3		
<i>Mentzelia speciosa</i>	<i>Nuttallia sinuata</i>	G3?	S3?	G3		
<i>Mentzelia speciosa</i>	<i>Nuttallia speciosa</i>	G3?	S3?	G3		
<i>Oonopsis wardii</i>	<i>Oonopsis wardii</i>	G3	S1	G3		
<i>Phacelia denticulata</i>	<i>Phacelia denticulata</i>	G3?	S3?	G3		
<i>Physaria bellii</i>	<i>Physaria bellii</i>	G2G3	S2S3	G2		
<i>Potentilla ambigens</i>	<i>Potentilla ambigens</i>	G3	S1S2	G3		
<i>Potentilla rupicola</i>	<i>Potentilla rupicola</i>	G2	S2	G2		USFS
<i>Sisyrinchium pallidum</i>	<i>Sisyrinchium pallidum</i>	G2G3	S2	G2		BLM