

Tenth Annual Colorado Rare Plant Symposium

September 27, 2013

Lafayette Public Library, Lafayette CO

10:30 am

Opening Remarks

Moderator: Steve Popovich (Acting Regional Botanist, US Forest Service)

Steve Popovich: Thanks for coming, especially given the recent catastrophic flood events impacting the Boulder area. This year celebrates a benchmark in our symposia – the 10th year – a decade of successful information sharing and networking by all stakeholders interested in botany to better manage and conserve Colorado’s rarest plants! Our annual symposia have been well-received and have averaged 50 to 75 people in attendance. Ground rules are to speak up if you have a comment on a particular species. If conversation drags out on a certain species, we will have to move on in the interest of time but folks can mingle during breaks to seek more information.

10:35 a.m

Special Presentation: Colorado’s Most Endangered Species

Dr. William A. Weber

Dr. Weber: Introduces book “Why Darwin Matters”.

Reads Lewis Carroll poem “Father William”.

Dr. Weber: Boulder used to have ditches full of plant species diversity. The White Rocks Formation contains interesting native plant species. Ground nesting bees were common at the Formation. Darwin Andrews found a fern that he did not recognize. Aven Nelson identified *Asplenium andrewsi*. A study by a scientist at Smithsonian corroborated this. Later work revealed it was *Asplenium adiantum-nigrum*. Weber photographed the species. It was only known from three populations. A man named Ricki Wiser lived on top of White Rocks. The Sullivan farm was sold to a developer. The developer wanted to turn the White Rocks into a fruit and vegetable cellar. Ricki died and the site where the fern grows still exists and is guarded by a large stand of poison ivy.

At Mount Evans mountain goats are destroying vegetation that is unique and rare. An endowment was started in my name to get kids interested in natural history. I am not ready to quit pursuing all matters botany, and I am feeling well despite recently being in the hospital. Namaste.

11:00 a.m.

Awards

Steve Popovich presents awards to Dr. Weber and Ron Wittmann for their significant contribution to Colorado as well as global botany and taxonomy. Special mention was given to their contributions to increased knowledge of bryophytes and lichens, importance of conserving entire communities and ecosystems, as well as Dr. Weber's publications of biographies of influential historical botanists/naturalists. Recognition of awards included a standing ovation from attendees. Awards were presented on behalf of CNHP, Colorado Rare Plant Technical Committee, and the U.S. Forest Service.

11:15 a.m.

Rare Plant Symposium

Presenter: Jill Handwerk (Botanist, CNHP)

Thank you to sponsors CoNPS, USFWS, CU Natural History Museum, CNHP, and USFS.

10th Annual Symposium! Map shown of all previous symposium locations.

G2-G3 Plant Species, NE Colorado

***Aletes humilis* (G2G3/S2S3)**

Jill Handwerk: This is a CO/WY endemic. Last observation was in 2013. Scott Smith saw this in Boulder County this year.

***Aletes nuttallii* (G3/S1)**

Jill Handwerk: This species occurs in Grand and Weld Counties in Colorado. The last observation was by Scott Smith in 2013 in Grand County. He visited occurrences at Troublesome Creek and Highway 9. It occurs on state and private lands.

Dina Clark: It also occurs at Red Mountain Open Space in Larimer County. CU has specimen.

***Aquilegia saximontana* (G3/S3)**

Jill Handwerk: There are many historic sites. Scott Smith found sites in Fremont County at Bushnell Lakes, and in Huerfano County at West Spanish Peaks. Tass Kelso reported that this species is abundant on Pike's Peak in the Bottomless Pit area, a cirque on the east face. There have been large numbers of individuals there in 2012 and 2013. Tass collected vouchers for the COCO Herbarium, and will turn in EORs.

David Steinman: We found a new population at Niwot Ridge.

Ginni Greer: The Mosquito Range Natural Heritage Program found new populations in Mosquito Range.

Jill Handwerk: Has been collected for rock gardens, so that is a concern.

Astragalus sparsiflorus (G2/S2)

Jill Handwerk: This species has not been well documented, but Adopt-A-Rare Plant volunteers have recently been out looking for it on the Front Range.

Bolophyta alpina (G3/S3)

Steve Popovich: As mentioned several years ago when we last covered this taxon, we have found a metapopulation of about a million plants over several miles on the Pawnee National Grassland, so we think it is more secure than previously thought. Even with proposed oil and gas development that so far has not occurred on the grassland, if it were to occur, the occupied habitat may not conflict with possible development sites and it would be unlikely that development with NSO's and other design criteria would impact enough plants (directly or indirectly) to the point of creating a viability issue on the grassland unit.

Don Hazlett: We found a large population on Eagle Ranch along a pipeline and it is reseeding in the disturbed area. We also found a Wyoming population at Camp Guernsey.

Carex oreocharis (G3/S2)

Steve Olson: We are recognizing it more often and recently observed it in East Lost Park. It is common in South Park. Sheila Lamb has found numerous populations.

Lynn Reidel: We have lower elevation populations in Boulder County. One population is in prairie dog town. We are monitoring this site.

Draba crassa (G3G4/S3)

Jessica Smith: I visited a population at Hoosier Ridge and Treasure Vault Mountain.

Jill Handwerk: Scott Smith saw populations at Treasure Vault Mountain in Park County, and at A-Basin Ski Area in Summit County.

Draba globosa (G3/S1)

Jill Handwerk: Scott Smith saw this on Loveland Pass on both sides of the Clear Creek/Summit County line.

Draba streptobrachia (G3/S3)

Ginni Greer: Found it on Horseshoe Ridge, Pennsylvania Ridge, Lamb Mountain and Sheep Mountain.

Jill Handwerk: Scott Smith observed a population in Park County at Treasure Vault Mountain.

Eriogonum exilifolium (G3/S2)

Jill Handwerk: I saw this species at California Gulch and it appeared drought stressed this year. Brian Elliott found element occurrences in Grand County that will be submitted to CNHP.

Heuchera hallii (G4/S4)

Mary Goshorn: What does “watchlisting” mean?

Jill Handwerk: For watchlisted species, we still maintain data in our database on the species, but we do not map the occurrences. Scott Smith saw this species near Bailey in Park County.

Nuttallia sinuata (G3/S3)

Jen Ackerfield: *Mentzelia* [synonym *Nuttallia*] experts in the Pacific Northwest want to combine *N. sinuata* and *N. speciosa*. They will be combined for FNA treatment. I do not recognize this as distinct from *N. speciosa*.

Jessica Smith: I saw it at Dome Rock State Wildlife Area.

Jill Handwerk: Tass Kelso found masses of it in Hayman Burn Area. She disagrees with Bill Weber and thinks that *N. speciosa* is different than *N. densa* at least, and has a narrower concept of this taxon. She found masses of *N. speciosa* in Douglas County, on the Pike National Forest. Thousands of individuals were present. There are also large populations on the Pikes Peak gravels. It has been quite a common species around the area for awhile.

Oonopsis wardii (G3/S1)

Jill Handwerk: Known from the Laramie River Valley.

Phacelia denticulata (G3/SU)

Jen Ackerfield: We see it at Soapstone Prairie and it is very small. We have six specimens at the CSU herbarium.

Susan Spackman-Panjabi: It is an inconspicuous annual.

Dina Clark: I found populations at Red Mountain Open Space west of Soapstone. All individuals were large and not inconspicuous, like the Soapstone populations.

Physaria bellii (G2G3/S2S3)

Susan Spackman-Panjabi: All plants in Jefferson County are now considered *P. vitulifera*. There is also a hybrid between *P. bellii* and *P. vitulifera* that is apparently rarer than its parent species. [Discussion ensued regarding if the hybrid entity should itself be tracked]

Megan Bowes: We have about seven occurrences in Boulder County, and since the 2013 flood I do not think any of the shale slumping affected the populations.

Jill Handwerk: Scott Smith visited a site along Highway 93 in Boulder County.

Potentilla ambigens (G3/S2)

Jill Handwerk: Scott Smith saw this in Larimer County in 2013 at Estes Park and Lily Lake.

Steve Popovich: Some county road crews may have sprayed this species thinking it was sulphur cinquefoil.

Jen Ackerfield: I saw it at Hewlett Gulch west of Ft Collins (Roosevelt National Forest). [Jen later told Steve P. she believes it to be locally common in the area in appropriate habitat]

Potentilla rupincola (G2/S2)

Jill Handwerk: Scott Smith saw this in 2013 in Larimer County at the Abbey.

Steve Popovich: It is hard to identify because it can be confused with the *P. effusa* nominal type.

Steve Olson: We have a possible occurrence at Lost Creek Wilderness. The person who reported it is a credible source, we will be checking next year.

Sisyrinchium pallidum (G3/S2)

Jill Handwerk: Scott Smith saw an occurrence in Park County at the State Wildlife Area (SWA) south of Fairplay. Carol English found new populations on State Land Board Land. Sites were in fens in South Park. Some of the populations were large.

Steve Popovich: Does anyone have a sense for if we should still be tracking this?

Susan Spackman-Panjabi: Given that this species occurs in wetland habitats, and the threats from peat mining and grazing, it seems like maybe we should still track it.

Jen Ackerfield: This is tough to tell apart from other *Sisyrinchium* species. The characters are overlapping.

Don Hazlett: We collected *Sisyrinchium angustifolium* at Eagle Rock Ranch. Would you still track this even though it is known from other states? Dina Clark has the information.

Jill Handwerk: Yes, we can look into tracking this. Send us an email.

Pat Murphy: What is the cost of doing genetic work?

Jenny Neale: The cost of doing genetic work can range from \$3,000 to \$30,000.

12:00 pm

Threatened and Endangered Species

Presenter: Jill Handwerk

Astragalus humillimus (G1/S1)

Don Hazlett: I surveyed transmission lines in New Mexico and found new populations on Mancos Shale. There is likely suitable habitat just over the border in CO.

Astragalus microcymbus (G1/S1)

Gina Glenne: This is a Candidate for Listing, and a decision should be made in 2015.

Bernadette Kuhn: We had about 13 people join a Bioblitz for this species. We searched adjacent drainages to S. Beaver Creek, including Willow Creek. No new populations were found. We helped the BLM resample their monitoring transects, and the numbers were very low, just like last year. Individuals were very small.

Jenny Neale: We have stepped up our efforts on monitoring this species, and our work was published in the Natural Areas Journal. We have fencing around plots to keep herbivores away. This has led to snow trapping in plots, so there may be additional moisture in our plots from snow.

Astragalus osterhoutii (G1/S1)

Bernadette Kuhn: Accessed a new population on private lands outside of Kremmling. Site was an A rank, and this was a banner year for *A. osterhoutii*. Plants were very robust.

Gina: Brian Elliott found a new population on private land.

Astragalus schmolliae (G1/S1)

Bernadette Kuhn: We are continuing our monitoring of this species at Mesa Verde National Park. This year we sampled belt transects across Chapin Mesa for *A. schmolliae*. This is our fifth year of data collection. Brian Wender, one of the ecologists at the Park that helped out with this project, left to take a job in Oregon. He has not been replaced. Trespass horses may be contributing to this species' decline near Park headquarters.

Astragalus tortipes (G1/S1)

Gina Glenne: The listing decision for this species should be coming out in 2015.

Don Hazlett: Ken Heil's much-awaited *Four Corners Flora* is soon to be published and available!

Eriogonum pelinophilum (G2/S2)

Gina Glenne: Fences were built, four in total, on both BLM and Model Airplane site to keep out sheep and Off Highway Vehicle users.

Carol Dawson: We set up two new plots.

Eutrema penlandii (G1G2/S1S2)

Ginni Greer: We found new populations on Gemini Mountain, Mount Evansby, Dyer Mountain Basin, Horseshoe Mountain.

Carol Dawson: We completed a second year of sampling for our monitoring of this species.

Gina Glenne: I am hoping that the recovery plan is finished this winter in draft form. Leo Bruderle is working on taxonomy between *E. penlandii* and *E. edwardsii*.

Ipomopsis polyantha (G1/S1)

Gina Glenne: Archuleta County bought a parcel in 2009 that has about 50% of the known global population, and they want to sell the parcel. We are in negotiations to purchase the land. We did get a lot of surveys from private land parcels and documented a new occurrence that is across the river.

Oenothera coloradensis ssp. coloradensis (G3T2/S1) (=Gaura neomexicana ssp. coloradensis)

Bernadette Kuhn: Pam Smith and I went looking for a reported occurrence under Broadway Bridge in Denver. No plants were found.

Denise Larson: I looked for it there and could not find it either. Purple loosestrife was common at the site.

Dina Clark: I noticed herbivory on leaves at Soapstone population that I have not seen in other years.

Pediocactus knowltonii (G1/SNA)

Jill Handwerk: CNHP did surveys at Navajo Lake for this species, but no individuals were found.

Don Hazlett: I may have found this in Utah.

Susan Spackman-Panjabi: I do not think it is known from Utah.

Don Hazlett: I need to check my notes. I might be thinking of a different *Pediocactus*.

Penstemon debilis (G1/S1)

Carol Dawson: Our data shows a stable trend at Anvil Points.

Jessica Smith: One of our populations has been declining, but the other increased. The Mount Callahan population declined and the Mt. Callahan Saddle population increased.

John Duwalt: The BLM in Silt is doing a seismic study and may have new information on distribution for this species.

Susan Spackman-Panjabi: The Rare Plant Technical Committee is working on Best Management Practices for this species for oil and gas operators.

Gina Glenne: We have been trying to get permission from Occidental Petroleum to survey sites.

Jessica Smith: The Colorado Natural Areas Program is working on agreement with Occidental Petroleum to designate one of their sites as a natural area.

Break for Lunch (12:30-1:30 pm)

Threatened and Endangered Species, Continued

Presenter: Jill Handwerk

Penstemon grahamii (G2/S1)

Gina Glenne: Proposed for listing, comment period closes on October 7th, 2013.

Jessica Smith: I saw this at Raven Ridge with Larry Allison at two sites this year. We turned in EOR forms.

Carol Dawson: There are about 105 individuals in our macroplot with very little fluctuations over the years. We have not had success finding other populations at the Area of Critical Environmental Concern (ACEC). We have been monitoring this population since 2005, and our plots are on top of Rusty Roberts plots he established around 1985.

Penstemon penlandii (G1/S1)

Carol Dawson: We may have misidentified this at one of our monitoring plots. The population is doing well.

Penstemon scariosus var. albifluvis (G4T1/S1)

Gina Glenne: *Penstemon scariosus var. albifluvis* comment period is open until October 7th as well.

Phacelia formulosa (G1/S1)

Jill Handwerk: I saw this during summer of 2013 at known sites near the fairgrounds and the airport Walden, CO.

Jen Ackerfield: Is the Laramie River Valley population actually *P. formulosa*?

Jenny Neale: The Jackson and Larimer County populations are genetically similar to *P. formulosa*, so they are not falling out as something different that would possibly warrant a new species.

Gina Glenne: We are reviewing the report submitted by Jenny Neale and DBG.

Susan Spackman-Panjabi: Where are the specimens for these populations?

Jenny Neale: Duane Atwood's collection was unfortunately incinerated, but I have the leaf tissue samples.

Phacelia submutica (G2/S2)

Gina Glenne: Alicia Langton is working on this species for her Master's degree in Utah. She has not documented any pollinators visiting this species. She presented a poster at the Ecological Society of America meeting on her work. She should be finished with her Master's thesis in the spring. This year the plants in the higher elevations were expressed, but lower elevation sites did not show any plant expression.

Jill Handwerk: Mit McGlaughlin is collecting *P. submutica* tissue to assess genetic structure though out the species range and paternity within two target populations. The paternity analyses in particular will help determine breeding system and if the species is primarily selfing, which is significant for management. The project was initiated in the spring of 2013, so there is not much to report at this time. He is working on developing molecular markers, and plans to do another round of collecting next spring if it is a good year. You can contact Mit directly if you have questions.

Physaria congesta (G1/S1)

Bernadette Kuhn: Sasha Victor is working on a project establishing new populations in the Piceance Basin. She had to go through an Environmental Assessment (EA) to get clearance for the project. She is also doing a soil study. She has 600 plants that she grew from seed in the greenhouse at CSU.

Gina Glenne: Oil and gas operators were concerned about the project, so it had to go through an EA.

Carol Dawson: I think the state director signed off on the EA.

Physaria obcordata (G1G2/S1S2)

Gina Glenne: A new population was discovered north of known sites.

Mo Ewing: I saw the Yank's Gulch population this year.

Jessica Smith: I saw this with *L. congesta* (= *Physaria congesta*) at Ryan's Gulch.

Sclerocactus glaucus (G2G3/S2S3)

Carol Dawson: The BLM Uncompahgre field office is finding new populations.

Rea Ortner: We found about 100 new individuals Colorado River Field Office.

Gina Glenne: We had a bioblitz this year and found about 300 new individuals. We did get rained out one day so there are more out there to find.

Jill Handwerk: Mit McGlaughlin is still working on the genetics of *S. glaucus*.

Sclerocactus mesae-verdae (G2/S2)

Don Hazlett: It was a target species for our Navajo land surveys, but according to Ken Heil it does not occur anywhere south of the San Juan River.

Spiranthes diluvialis (G2G3/S2)

Gina Glenne: We had a bioblitz this year and found about 2,000 individuals along the Roaring Fork River Valley. Probably will be considered as new parts of the area's previously-known site, so as parts of a new "metapopulation" rather than new discrete populations.

Steve Popovich: What was the ownership?

Gina Glenne: Private, BLM, and USFS. Some of the properties had easements.

Megan Bowes: We have two main sites, one on South Boulder Creek. We are operating under the assumption that the population will survive despite letting the hydrology fluctuate during 2013 flooding.

Lynn Reidel: I am not sure what is going on with the population in Golden.

David Steinmann: The Boulder and Golden populations, according to Bill Jennings, are declining.

Megan Bowes: Lynn Reidel does rope counts at the Boulder populations every year and shares that info with U.S. Fish and Wildlife Service and the Colorado Natural Heritage Program.

Gina Glenne: The landowner at a known site along the Roaring Fork would not let us get access to survey.

Dina Clark: Megan, do you think the *Dipsacus* population is affecting *Spiranthes diluvialis*?

Megan Bowes: Yes.

2:30 pm

Announcements and Awards

Megan Bowes: There is parking off Broadway for CoNPS Happy Hour. The Eaton Humanities Building is where we will be meeting tomorrow. All field trips are on for Sunday except the Four Mile Canyon trip. Please let me know if you have questions.

Erica Christensen: I work with Jennifer Kessler with Boulder County. We have a new Species of Concern list for Boulder County and a series of maps. We would love to have your input.

Steve Popovich: Just a reminder to begin applying for plant collecting permits for next field season. There is a U.S. Forest Service closure on much of the Forest Service lands along the Front Range due to road, trail and land instability from flood damage. I have a map of the closures. Rocky Mountain National Park is now open in both directions. The Peak to Peak Highway is also open. Other Forest Service news is that Wayne Padgett retired and Nancy Shaw also retired. There is a new version of the

USFS Region 2 Sensitive Species list, effective August 24, 2013. The only change to the list is the addition of *Astragalus iodopetalus*. No taxa were removed. Steve Olson was a recipient of a USFS Award for excellence in Botany Partnership Development, which was well-deserved for his constant public outreach and field tours. Nancy Shaw received the Asa Gray Life-time Achievement Award, a prestigious and well-earned career-spanning achievement award. Robert and Jane Dorn will be celebrated at the Rocky Mountain Herbarium. Following this meeting, I will be stepping down as the moderator for the Rare Plant Symposium, after ten years of happily serving in that role and working with CNHP behind the scenes to pull it all together each year. I am proud to see how far we have come since our inception and that I was able to be present for all symposia thus far. If you are interested in taking on the role of moderator or in helping out, let Jill Handwerk know. As a parting gift, I have secured \$9,000 in Forest Service funding for CNHP to update the information presented from all past symposia. Jill will discuss the other products that will result from the funding.

Jill Handwerk: We are excited to have the funding to update the slides and post all the minutes online. The minutes are available on our website by year, and on the Rare Plant Guide research tab by species. Updated slides will be presented in the next symposium.

It is because of Steve Popovich that we have this event. He conceived the idea and helped bring it to fruition in the mid-2000's. We would like to thank him with an award for his service over the last 10 years.

Steve Popovich: I have one more announcement. Mit McGlaughlin could not be here because of a death in the family. He has some updated information on *Sclerocactus glaucus*.

Susan Spackman-Panjabi: We are working on an update for the *Rare Plant Guide*. We are asking everyone for photographs of the plants we are including.

To celebrate the symposium's 10th anniversary, Steve P. and Jill H. handed out customized anniversary coffee mugs and served three cakes.

3:00 pm

Statewide G1 Species and SE Colorado G2

Presenter: Jill Handwerk

Aletes latilobus (=Lomatium latilobum) (G1G2/S1)

No updates.

Aliciella sedifolia (G1/S1)

Tim Hogan: Went to Sheep Mountain to check out suitable habitat identified by Barry Johnston. I visited and it was very unlikely to harbor an occurrence, and I could not find any individuals.

Susan Spackman-Panjabi: Has it been seen since 2007?

Tim Henson: I think someone has seen it since then.

Astragalus deterior (G1/S1)

Bernadette Kuhn: I saw this at Mesa Verde National Park in June 2013.

Astragalus lonchocarpus var. hamiltonii=A. hamiltonii (G4T1/SNA)

No updates.

Boechera glareosa (G1/S1)

No updates.

Botrychium lineare (G2?/S1)

Steve Popovich: Dr. Donald Farrar still has in queue to publish the *B. campestre* group taxonomic re-alignment. It keeps getting pushed back because other very interesting and recent *Botrychium* findings in Europe and elsewhere are proving influential to our taxonomic re-alignment dispositions. *Botrychium* seems very naturally gifted at challenging our current concepts of speciation and placing things in neat taxonomic boxes!

Botrychium tax. nov. "furcatum" (G1G2/S1S2)

Steve Popovich: The species description is done and reviewed, and the illustration and most plates have been nearly finalized. But publication has been delayed another year because Ben Legler was able to find this summer what might be a new population of one of "furcatum"'s putative parents, which itself is a new diploid species (!). This site has not been genetically confirmed. If confirmed in summer of 2014, plants at the new site represent better morphological range of variation of this parent, and which we plan to submit for publication in 2015 if the new site can serve as the type. Right now we don't have a good type site or feel for range of variation in this parent. New sites of this parent plant are very difficult to find despite intense searches the last three years in the Bighorn Mtns of WY, the only place it's been found so far. We want to wait to get such representation into our manuscript because we need to accurately address differences between "furcatum" and this parent.

Cirsium scapanolepis (G1G2Q/S1)

No updates.

Corispermum navicula (G1?/S1)

Melissa Islam: I visited both Jackson County sites. This year there are hundreds of individuals at both sites. We are still working on determining if *C. navicula* is a distinct species. We are studying this taxon and may do greenhouse experiments. Based on morphology the plants on the dunes look different than *C. americanum*.

Descurainia kenheili (G1/S1)

No updates.

Draba malphigiaceae (G1?/S1?)

Jill Handwerk: Peggy Lyon observed this species in 2012, but it looks very similar to the co-occurring *D. spectabilis*. She collected specimens and donated them to the CSU herbarium.

Draba weberi (G1/S1)

No updates.

Erigeron wilkenii (G1/S1)

No updates.

Eriogonum brandegeei (G1G2/S1S2)

Michelle Deprenger: In 2011, the vegetation at the site we visited was very dry and crispy. The number of individuals (1,000,000) on the slide seems high. You may need to change that.

Gutierrezia elegans (G1/S1)

No updates.

Hackelia gracilentia (G1G2/S1S2)

Bernadette Kuhn: Renee Rondeau was going to survey for this species in Mesa Verde National Park. It was not the best year for it, so she focused on other species. Peggy Lyon and I updated occurrence data on this species in 2011 and 2012.

Jennifer Ackerfield: I saw this at Mesa Verde National Park in 2011.

Lygodesmia doloresensis (G1G2/S1S2)

Jessica Smith: I saw this during the 2013 field season.

Mimulus gemmiparus (G1/S1)

Jonathan Huey: We are waiting on a report regarding reintroduction sites from Mark Beardsley at Staunton State Park.

Jill Handwerk: A park bench was built in the middle of a population in RMNP. We have contacted the staff at RMNP and are working to get the bench removed.

Steve Popovich: In 2012, the Forest Service committed to revisiting all known Forest Service sites and preparing a status report for USFWS to provide information for their review process of the species. Mark Beardsley and Dave Steingraeber visited the three known sites on Forest Service land in Colorado. The

Forest Service populations contain approximately 90+ percent of all individuals for the species. Results showed how numbers change over time, some of the challenges in trying to define and count populations, and that the continued viability of the species is not assured. I brought copies of the report to hand out to those interested.

Steve Olson: At Hankins Gulch a few plants escaped the site and were growing in the creek bed. The population looks similar to numbers from last year.

Pat Murphy: That site is at a beryllium seep, if it is of any interest.

Rea Ortner: How are Beardsley and Steingraeber estimating numbers of individuals in the report?

Steve Popovich: A good question. In the interest of time, its best described in the report, please reference that.

Oreoxis humilis (G1/S1)

No updates.

Penstemon gibbensii (G1G2/S1)

No updates.

Physaria pulvinata (G1/S1)

Jessica Smith: I saw this species at known sites this year.

Denise Wilson: Carol English found a new site for this in 2013.

Physaria scrotiformis (G1/S1)

No updates.

4:00 PM

SE Colorado G2G3 Plant Species

Presenter: Bernadette Kuhn

Asclepias uncialis ssp. uncialis (G3G4T2T3/S2)

Jill Handwerk: Carol English visited 2 populations in Chacuaco Canyon in 2013.

Cleome multicaulis (G2G3/S2S3)

Pam Regensburg: The Baca National Wildlife Refuge has a huge population of this species.

Bernadette Kuhn: Big Spring Creek, in Great Sand Dunes National Park, has a known occurrence of *Cleome multicaulis*. The National Park Service has now officially designated this site as a National Natural Landmark.

Delphinium ramosum var. alpestre (G4T2/S2)

No updates.

Draba exunguiculata (G2/S2)

No updates.

Draba grayana (G2/S2)

No updates.

Draba smithii (G2/S2)

No updates.

Herrickia horrida (G2?/S1)

No updates.

Nuttallia chrysantha (G2/S2)

No updates.

Oenothera harringtonii (G3/S3)

No updates.

Oonopsis foliosa var. monocephala (G3G4T2/S2)

No updates.

Oonopsis puebloensis (G2/S2)

No updates.

Oxybaphus rotundifolius (G2/S2)

No updates.

Penstemon degeneri (G2/S2)

Jill Handwerk: Carol English visited an occurrence in southeast Park County.

Physaria calcicola (G3/S3)

Jill Handwerk: Carol English found four populations in southeastern Colorado.

Ptilagrostis porteri (G2/S2)

No updates.

Telesonix jamesii (G2/S2)

No updates.

4:15 pm

SW Colorado G2G3 Species

Presenter: Bernadette Kuhn

Astragalus anisus (G2G3/S2S3)

No updates.

Astragalus cronquistii (G2/S2)

No updates.

Astragalus equisolensis (G5T1/S1)

No updates.

Astragalus iodopetalus (G2/S1)

Jill Handwerk: Peggy Lyon looked for this species in the Gunnison area, but did not find it. Barry Johnston visited a known site in 2012. Photo on the slide show may be incorrect.

Jennifer Ackerfield: There is only one specimen at the CSU herbarium.

Steve Popovich: This is the species added to the USFS Sensitive Species list last August.

Astragalus naturitensis (G2G3/S2S3)

Joe Statwick: Peggy Lyon could not find *A. naturitensis* individuals at known sites this year.

Astragalus piscator (G2G3/S1)

No updates.

Astragalus rafaensis (G2G3/S1)

Joe Statwick: I am working on screening microsatellites (genetics study) for this species and *A. linifolius*.

Boechera crandallii (G2/S2)

No updates.

Camissonia eastwoodiae (G2/S1)

Jill Handwerk: Peggy Lyon visited occurrences by the Utah border in 2013. Joe Leahy, an Adopt-A-Rare-Plant volunteer, updated several historic occurrences.

Castilleja puberula (G2G3/S2S3)

No updates.

Cirsium perplexans (G2G3/S2S3)

Gay Austin: I saw this species in Cimarron, CO in 2013.

Draba graminea (G2/S2)

No updates.

Erigeron kachinensis (G2/S1)

No updates.

Eriogonum clavellatum (G2/S1)

No updates.

Eriogonum coloradense (G2/S2)

Jill Handwerk: Carol English reported seeing this species at Black Mountain Natural Area.

Lepidium crenatum (G2/S2)

No updates.

Lomatium concinnum (G2G3/S2S3)

Gay Austin: I saw this species in Cimarron, CO in 2013.

Lupinus crassus (G2/S2)

Jill Handwerk: Adopt-A-Rare-Plant volunteers updated three historical records.

Machaeranthera coloradoensis (G3/S3)

Jill Handwerk: Carol English found an occurrence on State Land Board Land in South Park in a montane grassland.

Gay Austin: I saw this at Chocetopa Park.

Leah Lentz: The Mosquito Range Heritage Initiative staff found this on the trail to Mt. Sherman.

Oreocarya osterhoutii (G2G3/S2)

No updates.

Physaria alpina (G2/S2)

Leah Lentz: This species is very common in the Mosquito Range.

Physaria pruinosa (G2/S2)

No updates.

Physaria rollinsii (G1/S1)

Gay Austin: I have found numerous sites in the Gunnison Basin. It is fairly common there. I should turn in element occurrence data.

Physaria vicina (G2/S2)

No updates.

Puccinellia parishii (G2G3/S1)

Gay Austin: What is suitable habitat for this species?

Bernadette Kuhn: Alkaline wet areas.

Salix arizonica (G2G3/S1)

Gwen Kittel: I would like to go visit the one known occurrence.

Steve Popovich: One of the rarest plants in Colorado although more common elsewhere. The enclosure protecting it on Forest Service land could have opposite effect if people cut the fence and corral their horses there, hope the enclosure is being monitored. Someone should check its status with the Forest Service. This is a good site to adopt for monitoring by volunteers and possibly conducting more surveys in the area with assistance of the Forest Service.

Thelypodopsis juniperorum (G2/S2)

No updates.

Townsendia glabella (G2/S2)

No updates.

4:30 pm

NW & Central Colorado G2G3 Species

Presenter: Bernadette Kuhn

***Anticlea vaginatus* (G2/S2)**

No updates.

***Astragalus debequaeus* (G2/S2)**

Joe Statwick: Peggy Lyon collected seeds. The known sites were in good shape with lots of flowers and fruit.

***Carex stenoptila* (G2/S2)**

No updates.

***Ipomopsis aggregata* ssp. *weberi* (G5T2/S2)**

No updates.

***Ipomopsis globularis* (G2/S2)**

No updates.

***Limnorchis zothecina* (G2/S1)**

No updates.

***Mertensia humilis* (G2/S1)**

No updates.

***Nuttallia rhizomata* (G2/S2)**

Carol Dawson: The population at Anvil Points looks fine.

***Oenothera acutissima* (G2/S2)**

Mo Ewing: I was searching for this in the northeastern part of Colorado, but did not find it.

***Oxytropis besseyi* var. *obnapiformis* (G5T2/S2)**

No updates.

***Penstemon fremontii* var. *glabrescens* (G3G4T2/S2)**

No updates.

Penstemon scariosus var. cyanomontanus (G4T2/S2)

No updates.

Physaria parviflora (G2/S2)

No updates.

Saussurea weberi (G2G3/S2)

Tim Hogan: There should be a dot on the distribution slide for the known locality in the Sangre de Cristo Range.

Thalictrum heliophilum (G2/S2)

Jessica Smith: I saw this species on top of Mt. Callahan at a known site.

Thelypodium paniculatum (G2/SH)

Susan Spackman-Panjabi: Jill Handwerk and I went looking for a known site represented by a herbarium specimen for this species at Phantom Ranch. We looked for the species, and realized that the specimen was misidentified.

4:45 pm

Conservation Priorities

Presenter: Steve Popovich

Steve Popovich: This summer contractor Brian Elliott relocated both *Festuca hallii* historic occurrences on the Roosevelt National Forest and generated a nice findings report. *Ipomopsis ramosa* found by Al Schneider is considered a distinct species by Deiter Wilken, although this is debated by others and Ron Wittmann told me he is not sure this is a distinct species. We should all keep looking for *Packera mancosana*, another species found by Al Schneider. Mit McLaughlin's student is doing a genetic study of *Cryptantha gypsophila* and *C. paradoxa*.

Jerry Bresowar: Yes, I am working on that genetic study using microsatellites, and should be finished next year.

Steve Popovich: This summer Brian Elliott also conducted focused surveys funded by my Forest for rare lichens, and he found a new occurrence (or extension of a known site) of *Xanthoparmelia idahoensis*. He found it along powerline corridors in the Kremmling area. He also found *Circinaria rogeri* (*Aspicilia fruticulosa*, misapplied) and *Dermatocarpon reticulatum*, "vagrant form". These are vagrant lichens of sagebrush-steppe. If you would like to see specimens, I brought a few with me. The *Xanthoparmelia* is only known from about four sites globally (two in US), the *Circinaria* from roughly 20, and the vagrant form of *Dermatocarpon* is found in other western states but new to Colorado, and was first found by myself several years ago in the same area. As far as we know, these are truly rare taxa and should be of high conservation priority in Colorado until we know more, especially the *Xanthoparmelia*. I think these deserve priority proactive survey work in outyears because some or all of the sites may be subject to

imminent destruction by planned powerline corridor “sagebrush mowing” clearing operations by Western Area Power Authority (WAPA) this fall, winter or spring. WAPA is waffling on protecting these sites, and at last conversation, was not committed.

Pat Murphy: It seems important to prioritize genetic work for some of the more cryptic species that are rare in Colorado. *Sisyrinchium pallidum* needs to be evaluated, as it seems to have few characters that separate it as a distinct species.

Marika Majack: I am a new graduate student under Leo Bruderle and I am focusing efforts on aquatic species in Colorado, especially *Pomatogeton*. They seem underrepresented in most herbaria, and perhaps those that may be rare deserve more attention. I am willing to conduct additional surveys for inventory of aquatics if there is an interest and funding mechanism.

Pam Regensburg: Denver Botanic Gardens have added a dozen or so aquatic specimens to their collections.

Susan Spackman-Panjabi: I would like to check on the number of historic occurrences for *Hackelia gracilentia*. *Machaeranthera coloradoensis* would be a good species to do a genetic study on, as it occurs across a huge elevation range and on a variety of substrates. Focusing on *Physaria rollinsii* data collection would be helpful, to evaluate whether or not it really is a G2.

Bernadette Kuhn: Did the plans for building the geothermal plant on top of a known *P. rollinsii* site happen?

Gay Austin: I do not think so.

Steve Popovich: *Asclepias uncialis* may be losing pollinators. Pollinator and pollinator habitat loss is a large and growing concern globally and the Forest Service is becoming more engaged in pollinator conservation. We have not found any sites of *Asclepias* on the Pawnee National Grassland since the one site with a few plants was found on adjacent private property in 2004 despite intense proactive survey efforts. No plants have shown above-ground presence at the known site on private property since 2004. We have since stopped proactive surveys for *Asclepias* due to focusing our limited crew resources elsewhere on the Forest.

Steve Popovich: I think it is important to visit and assess known sites of plants that may have been impacted by the recent flood events from Clear Creek to the Poudre Canyon. Top of list would be T&E plants such as *Spiranthes diluvialis*, especially its type site near Golden. It’s too early to tell if flooding has impacted plants, but I think we should look and maybe there could be flood recovery money available next year for T&E plant assessments.

Mo Ewing: I agree, it would be good to prioritize species that occur along streams on the Front Range in light of the recent flooding. *Spiranthes diluvialis* would be a good species to focus on.

Gwen Kittel: I am interested in visiting the known occurrence of *Salix arizonica*.

Dina Clark: I think it would be useful to re-evaluate some of the G3 species that occur on the plains and piedmont. They may be rarer than we think, especially those that grow in wet habitats.

Wendy Brown: We should consider prioritizing high-elevation rare plant species due to climate change.

Tim Hogan: Specimens are an important part of documenting populations of rare plants. We should continue to document our work and plant occurrences by collecting specimens, especially if we consider such species a conservation priority and in light of climate change. If the species go away, their documentation is critical for posterity to know where they once occurred.

Denise Wilson: Permit protocols are often confusing and challenging.

Steve Popovich: I will discuss permit application processes tomorrow. There will be a new CoNPS policy and web-based training and workshops to learn the permit request process for plant collecting.

2013 Meeting Attendees

Last Name	First Name	Affiliation
Ackerfield	Jennifer	Colorado State University Herbarium
Allison	Larry	CoNPS
Allison	Pam	CoNPS
Ambler	Kelly	CoNPS
Austin	Gay	Bureau of Land Management
Barton	Dawn	West Elks Ecological Consulting
Bates	Thomas	U.S. Forest Service
Bowes	Megan	City of Boulder
Bresowar	Jerry	University of Northern Colorado
Brown	Wendy	CoNPS
Browning	Don	CoNPS
Cepeda	Joseph	CoNPS
Clark	Dina	University of Colorado Herbarium
Coverson	Darnisha	Bureau of Land Management
Dawson	Carol	Bureau of Land Management
DePrenger-Levin	Michelle	Denver Botanic Gardens
Dewalt	John	CoNPS
Erdman	Jim	CoNPS
Ewing	Mo	CoNPS
Femmer	Steve	CoNPS
Gee	Daniel	CoNPS
Goshorn	Mary	Denver Botanic Gardens
Gray	Connie	High Plains Environmental Center
Greer	Ginni	Mosquito Range Heritage Initiative
Handwerk	Jill	Colorado Natural Heritage Program
Hayes	Robert	CoNPS
Hazlett	Don	CoNPS

Hazlett	Marta	CoNPS
Hogan	Tim	University of Colorado Herbarium
Houston	Heather	CoNPS
Huey	Jonathan	Colorado Natural Areas Program
Hunter	Theron	CoNPS
Islam	Melissa	Denver Botanic Gardens
Jordan	Leslie	CoNPS
King	Judy	CoNPS
Kittel	Gwen	NatureServe
Koski	Ronda	Colorado State University
Krening	Phil	Bureau of Land Management
Kuhn	Bernadette	Colorado Natural Heritage Program
Larson	Denise	ERO Resources
Lentz	Leah	CoNPS
Macleod	Christina	CoNPS
Majack	Marika	Student of Leo Bruderle/UC Denver
Murphy	Pat	CoNPS
Neale	Jenny	Denver Botanic Gardens
Olson	Steve	U.S. Forest Service
Popovich	Steve	U.S. Forest Service
Redecka	Nathan	Bureau of Land Management
Regensburg	Pam	Denver Botanic Gardens
Richardson	Mary	CoNPS
Riedel	Lynn	City of Boulder
Ring	Jeanne	CoNPS
Sherrod	Susan	Biohabitats
Shorrocks	Donna	National Park Service
Smith	Jessica	Colorado Parks and Wildlife
Spackman-Panjabi	Susan	Colorado Natural Heritage Program
Statwick	Joe	Denver Botanic Gardens
Steinmann	David	Colorado State University
Temple	David	Colorado Parks and Wildlife
Thompson	Jeff	CoNPS
Weber	William	CU Prof. Emeritus, CoNPS
Wenzell	Katherine	CoNPS
Whalen	Patricia	CoNPS
Wilson	Denise	CoNPS
Wittmann	Ronald	CoNPS
Yarborough	Steve	Tetratich
Zielinski	Ann	CoNPS