

8th Annual Colorado Rare Plant Symposium

G1 Plants of Colorado; Current Conservation Status and Needs

September 30, 2011; 9:00 am-4:00 pm

3rd Street Center

520 South Third Street

Carbondale, Colorado

Meeting Minutes

Sponsors: CoNPS, CNHP, DBG, CU Herbarium, USFS, USFW

Recorders: David Anderson, Katie Dykgreve, Bernadette Kuhn

Introduction and Ground Rules (Moderator - Steve Popovich, USFS)

The first symposium was held in Steamboat Springs in 2004, and covered Colorado's entire 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 (2006) was held in Colorado Springs and covered imperiled (G2) plants species of southeastern Colorado. The fourth symposium (2007) was held in Boulder and covered the imperiled and vulnerable (G2 and G3) species known from the northeast quadrant of Colorado. The fifth symposium (2008) was held in Montrose, and covered the imperiled (G2) species known from the southwest quadrant of Colorado. The sixth symposium (2009), held in Loveland, consisted of a review of listed species; G1 species; G2 species from southeastern Colorado; G2 and G3 species from northeastern Colorado; and G2 species from southwestern Colorado. In addition, G2 plants from northern and central Colorado were introduced. The seventh symposium (2010), held in Denver, focused on G1 plants of Colorado. Current conservation status and needs of the G1 species were covered. This year, the symposium is focused on conservation efforts and status reviews of the threatened and endangered plants of Colorado.

Goals:

1. Exchange knowledge about botany
2. Foster exchange of information
3. Strategize conservation efforts and prioritize Colorado species in most need of conservation
4. Review results of past symposia

Review of T&E Plants of Colorado; Current Conservation Status and Needs (led by Jill Handwerk)

Here is a slide of where we have had the Symposium in the past years.

We will start on our review. Last time we did an in depth review of T and E was 2004. Since then there have been changes to the T and E list. *Botrychium lineare* was a Candidate, but now is not. We also have a few species that are now candidates such as *A. schmolliae* and *A. microcymbus*. We added 3 new species to the T and E list: *Ipomopsis polyantha*, *Penstemon debilis*, and *Phacelia submutica*. Let's get started.

Here is a map of the listed species and their distribution across Colorado.

Mo Ewing: Are they all G1 species?

Jill: Not necessarily. It's based on threats.

1. *Astragalus humillimus* Status: Endangered

Jill: *Astragalus humillimus* is our first species. It is on Native American land, and is endangered. It is hard to get access to these areas, and there are 4 occurrences which are all historical occurrences. The X on the slide represents EO's that has not been visited for 20 years or more. Here is a slide of the plant in fruit, photo from Gina Glenne.

Ellen Mayo: New Mexico has just finished a five year review of it.

Mary Goshorn: I see that it was last seen in 1998. That means that all are not historical.

Jill: Good point. When you see that on a slide, it may mean that we have not put it into our database. We will double check.

Brian Kurzel: Someone may have sent information in that is not in the database yet.

Jill: Bernadette tried to contact the Utes but was not able to gain access.

Ellen Mayo: They prefer not to work with the Natural Heritage Program.

Gina: They have a pipeline project that they are working on down in New Mexico.

Jill: We have a policy about private land data that we fuzz the data, and we license it.

Steve P: We have not had representatives from NPS or tribes attend symposia because of their concerns regarding data sensitivity.

Gina: The USFWS is trying to get a policy where that info would not be subject to FOIA.

Jill: Our database is protected from FOIA because the database is considered as ongoing research.

Barry: I suggest that there should be a more centralized group that could make individual agreements with individual groups. If this is done through CONPS, this could make it more palatable to the Tribes.

Jill: Al Schneider might be able to get down there and do surveys. At CNHP we can mark data as sensitive.

2. *Astragalus microcymbus* Status: Candidate

Jill: *Astragalus microcymbus* is a candidate species, last observed in 2010, but in 2011 there was a bio blitz. Gina, do you want to discuss?

Gina: We found a lot of plants and a lot more polygons, and we found new populations in Cebolla Creek and Wildcat Creek. Found a new site to the west, and found more plants to the south of the known range. We are fuzzy on the true conservation status of this species.

Jill: We have a photo of this.

Jenny: We have some lousy photos.

Barry: Is this species palatable?

Gina: Yes. Some consumption near salt blocks but very little overall. But they are on steep hillsides, so cattle usually avoid it. But rabbits like to eat it.

Barry: What about elk and deer in winter range?

Gina: The plants are underground when the elk and deer are grazing, so they are protected.

Gina: Cheatgrass seems to be the biggest threat to this one. We are finding many new populations of cheat grass in the area.

3. *Astragalus osterhoutii* Status: Endangered

Jill: *Astragalus osterhoutii* in the Middle Park Conservation Plan. Last observation was 2009.

Brian Kurzel: Worked with the State Land Board on the Idiot's Hill population to mitigate ORV impacts keeping folks on trail and away from *A. osterhoutii*. Working with OHV advocates in Kremmling. We put up an interpretative sign. Incorporating the local OHV community has helped us to move forward.

Gina: Idiots Hill is growing in with weeds. Good that there is vegetation growing there now but concerned about weeds.

Brian Kurzel: We talked about purchasing the parcel. Thankfully the weeds are far from the plants.

Carol Dawson: Horse Gulch is our monitoring site.

Peter Gordon: Last year was a great year for seedlings in our monitoring site at Horse Gulch site.

Steve P: Some of you have heard about the Windy Gap powerline project. It will not be going through *Penstemon penlandii* or *Astragalus osterhoutii* habitat. Surveys by Pat Murphy have confirmed that no plants are within the corridor. Gore Pass transmission line does go through habitat. Trying to re-permit the line with allowances to add a road and widen it. This one could have impacts to both species, but impacts may be greater for *Penstemon penlandii*. TriState is the owner of this powerline. It will adversely impact some *Penstemon cyathophorus*.

Gina: The Gore Pass Powerline project would go through *Astragalus osterhoutii* and *Penstemon penlandii* habitat. TriState is the company. Would impact thousands of *P. penlandii* individuals.

Brian K: Went out with Kemper wildlife manager to look at management. CDOW person is keeping an eye on a location on state land and it has been doing fine. Kemp Rees SWA's state wildlife manager.

Gina: This species and *P. penlandii* will be getting a 5 year review in 3 years.

Steve P: Be aware when doing BLM and Forest Service projects *Xanthoparmelia idahoensis* and *Aspicilia fruticulosa*- two extremely rare lichens in this area. Roger Rosentreter (BLM, Idaho) and I relocated a site recently containing both of these north of Kremmling based on old, vague label data.

Gina: *Penstemon penlandii* site- has what will probably be described as a new *Phacelia*.

4. *Astragalus schmolliae* Status: Candidate

Jill: Bernadette Kuhn and Dave Anderson did work at Mesa Verde; put in 82 monitoring plots and resampled demography plots from 2003. Also did resamples of transects from 2001 and 2003. Lots of data this year; will be working on it this winter.

Bernadette: some plots were helicopter seeded for fire restoration; lots of *Bromus tectorum* coming in. The Park Service used many different grass species in seed mix.

Dave: There are a lot more adults in demography plots in the 2003 plots. There were not many fruits this year due to frost.

Barry: Did they sprout after the fire?

Dave: They did survive and come back after fire. But the drought knocked it back worse than the fire did. But about 1/3 of the plants were not there in 2003.

Ellen: Bryan Wender and I are working on a management plan for *Astragalus schmolliae*. We are forming a working group, so Dave, Bernadette, and whoever else is interested should contact Bryan Wender.

5. *Astragalus tortipes* Status: Candidate

Jill: Last visited in 2000 by M. Colyer.

Ellen: There is a new housing project that may come up near plants. The plants are far enough away that it might not directly impact plants, but increased development for sure.

Jill: Here is a photo. All these slides are posted online.

6. *Eriogonum pelinophilum* Status: Endangered

Jill: Monitoring is ongoing at the Wacker Ranch.

Peggy: And Larry Allison helped.

Carol: We will be doing a big project regarding *Eriogonum pelinophilum* looking at grazing issues in 2012 at BLM- will have a substantial program to do this.

Christine Taliga: Dr. Vince Tepedino is doing some pollination work.

Gina: He did the work in the 90's. But the paper just was published. Brian Kurzel is working on fencing. There will not be sheep on Fairview ACEC. The model airplane club would like to fence their area too. There are powerline projects that will not have impacts to plants. This is called the Montrose Station. They moved the powerline over, and avoided impacts.

Peggy: Have you heard more about the proposed hwy bypass?

Gina: We are giving them a shapefile for their purposes. We didn't do critical habitat for that area but can provide GIS data

Brian K: Partners for Fish and Wildlife provided funds for the fences at Wacker.

Gina: The Partners program is a great source of funding for plant projects- they are excited about funding plant projects. This will be important for *E. pelinophilum* because it lives on the edges of Montrose.

Ellen: Dickson Pratt is doing weed management work on this species that is successful. Except with *Halogeton*.

Gina: If you have plants on private land, that project can provide money for fencing, etc. There might be projects in the Mosquito Range.

Ellen: There is a CoNPS volunteer doing steady weed work, Dickson Pratt.

Gina: Karolina Hayduk may be authoring a paper soon on *Eriogonum contortum*, *E. clavellatum*, and *E. pelinophilum* genetics. Her research team was also looking at conservation genetics across the populations, and at some issues of the distinctness of *E. pelinophilum* from another entity.

7. *Eutrema penlandii* Status: Threatened

Jill: Denise Wilson did a lot of work on Mosquito Range Heritage Initiative (MRHI).

Denise W: This is a joint project with BLM, USFS, and USFW; we found 13 new locations of *Eutrema*. We mapped about 95 occurrences of rare plant species tracked by the Colorado Natural Heritage Program. We had a lot of help from Sheila Lamb from USFS.

Steve Olson: The MRHI folks also expanded known populations.

Gina: In the Mosquito's there are lots of species that have not been mapped thoroughly. We are trying to get standardized monitoring across populations and agencies. This is great fieldwork.

Denise W: I have a report that is being edited. It's up to Carol Doyle as to how it is distributed.

Gina: We have found sites at Weston Pass that are totally dry at the end of the season.

Barry: There are probably water chemistry requirements.

Mary Goshorn: We collected seeds at Weston Pass last year.

Denise W: Later in the season, we have observed *E. penlandii* individuals “bolting” - the stems elongate and the plants become over 6 inches tall, making them easier to observe.

8. *Ipomopsis polyantha* Status: Endangered

Gina: We did outreach with the Town of Pagosa Springs and Archuleta County, which bought 97 acres, which is 50% of the entire *I. polyantha* population.

Brian K: We are working with consultants to do surveys on private land. We also worked with CNAP funding for a landowner who had to fence out a neighbor’s livestock. That was an NRCS partner project.

Christine Taliga: This was a nice project with NRCS involvement.

Andy Kratz: Is there an experimental population?

Gina: We are in the process of proposing critical habitat for this species and two others. With the skyrocket, there are two unoccupied sites that are proposed for critical habitat for *I. polyantha*. Those sites could host experimental populations. Haven’t received any comments on this yet.

Barry: My comments were submitted on Sept 26th.

Gina: The problem is that most of the Mancos Shale is not on Federal lands.

Andy: There is so much on private land. Since the FS does have some Mancos Shale, it would be great to introduce it on FS land.

Gina: The Eight Mile Mesa site looks great because it has the best unoccupied habitat. The O’Neil site does not look as promising. There is a private land owner who owns 500 acres, with a lot of IPPO occupied habitat. The site does have a housing development plan. They have not said no to us in terms of selling the land. This is very expensive but we are talking with this land owner about acquiring or conserving their property.

9. *Lesquerella congesta* Status: Threatened

Jill: We developed a model in 2005, then reworked it to get a tighter habitat distribution. We used 1:24,000 geology layers to tighten up the model. In May, we had a ‘bioblitz’, we ground truthed 61 points- less than 10 were positive. Haven’t analyzed yet, but points to the problem being the coarseness of the geology layer. Model was much smaller, and points were selected to be within 750m of a road, which also skewed. Important to think about this when using habitat models in general.

Brian K: There is ongoing research about oil and gas impacts to this species and *P. obcordata*. By next spring we should have reports about pollinators, oil and gas, etc. That will help guide conservation efforts in the future.

Peter Gordon: The BLM is setting up a monitoring plot and will start collecting data next year at the eastern portion of one of the largest EOs.

Brian K: Carla, one of our volunteers collected data on a *Lesquerella (Physaria) congesta* plot.

Peter Gordon: Ours will be long term demographics on these plots.

Jenny: We are doing a genetic study. We collected seed last year.

Jacob Davidson: Exxon Mobil owns most of the mineral rights in Dudley Bluffs and is developing a surface use plan for the area and seeking info from the BLM and USFWS. They are also developing a long term management plan for the area.

Gina: The leases predate the ACEC. So we are working to develop a plan to minimize impacts- they have been amenable to that. Of most concern is that they want to expand the yellow fence pad. There are so many projects going on that could impact this species. We have been requesting their plan of development so we can see their big picture of well pads. They have been somewhat amenable.

Jacob Davidson: They want to expand the Yellow Fence pads. There are also other projects for wells that close, including a reverse osmosis.

Gina: There are so many projects in this habitat.

Ellen: You are calling this *Physaria*, not *Lesquerella*?

Jill: Yes.

Dee: When the wind shifted in this area, I got a headache from the chemicals in the air. Could these be impacting the pollinators? Is their air quality monitoring being done?

Brian K: I will tell the monitoring crew about this. But there is no study on this yet.

Jill: The Conservation Action Plans (CAPs) identify threats and look at possible solutions. CAPs have been developed for eight botanical hotspots, one of which is for *L. congesta's* habitat. These are available on the CNHP website. There is one for the Piceance, and they are on the CNHP website.

BREAK 10:22 to 10:48

10. *Oenothera coloradoensis* ssp. *coloradoensis* Status: Threatened

Jill: Crystal Strouse has visited occurrences this plant this year on City of Fort Collins properties.

Crystal: The city of Fort Collins is working with holders of mineral rights on Soapstone Prairie and Meadow Springs, and is willing to do some concessions and work with them. Oil and gas companies are already conducting seismic testing at Meadow Springs. We have finished surveys for this species this year. We have a total of 200 acres on Soapstone, and we found a new population at Soapstone this year. About 10,000 total plants, possibly approaching 15,000. We had a burn we did with TNC, and I am seeing an increase in number of individuals. We did that because the vegetation was getting very decadent.

Jenny Ramp-Neale: We collected seed at Soapstone. Peter Raven is getting tissue from us to look at the genetics.

Jill: Pam and I visited the Chambers Preserve site this year. The plants are still there, but there are a lot of weeds.

11. *Pediocactus knowltonii* Status: Endangered

Barry: I found it north of the state line in CO in 1978.

Jill: With advent of GPS this site appears to be in New Mexico now.

Scott: We have potential habitat in CO for this species.

Gina: It is in an area of high oil and gas development. On CO side it is all private lands.

Barry: Mostly a collection problem; most is on the CO/NM border. On the day I took the photo, there was a guy there who wanted to collect about ten of them. This was about 20 years ago.

Ellen: We are keeping it on the list for CO because there are power lines in the area where we can look for suitable habitat.

Scott Smith: Some cactus collectors think this is a juvenile of *Pediocactus simpsonii*.

Mitch McGlaughlin: There is a paper on genetics of this species by Charles Butterworth. He has been developing population level markers for this group.

Peggy: There are some areas around Navajo Lake that look like good habitat. We should survey this more thoroughly.

Brian K: Is that on the Navajo Lake State Park?

Peggy: Yes.

12. *Penstemon debilis*

Status: Threatened

Jill: This is threatened, and critical habitat is being proposed for this.

Gina: Critical habitat comment period is closed, but the economic analysis will be open for comment.

Peter: The monitoring plot we are doing with Nicola and Paula, I did population study at Anvil Points and the numbers look good.

Mary Goshorn: Nicola and I went to the Occidental Petroleum Company (OXY) site and collected seeds.

Barry: Is it restricted to a formation?

Gina: Mainly Green River, but there are others.

Carla DeYoung: No, it is all found within the Green River Formation.

Brian K: We have a proposal to do more surveys for this species and for introduction for this species. Should find out this fall if this will take place. We have monitored on OXY lands for the last three years. Populations are generally stable, with a small downward trend. On Mt. Calahan and the saddle, populations are stable.

Brian K: The town of Parachute was going to make a *P. debilis* statue.

13. *Penstemon penlandii*

Status: Endangered

Mary Goshorn: We collected seed last year.

Gina: The BLM is mapping it. Some sites are in pasture lands.

Peter: BLM second year for plots. Two of them new with first year for data collection; plan on long-term monitoring to see how populations are doing. Amazing to see how many individuals are actually there. There are plots that are near road. We have 4 monitoring plots with Megan McGuire. This will be a long term project.

Carol: Amazed at high numbers of individuals and are going to put in new large plot.

Jill: We have an estimated 8,600 individuals, but that count is likely very low. We could use some refined spatial data because there are many similar mapped polygons for the species occurrences that are slightly offset.

Brian: Kremmling BLM has a proposed ACEC for area.

Gina: Included in the ACEC proposal is a travel management plan to close roads, except for one right above population.

Gina: There are some spots that are on the southern side that are on pasture land.

Scott: I saw *Physaria parvula* there.

Gina: Found *Phacelia*, such strange area that it's hard to document all of the species that occur there.

Jill: Bernadette didn't have any success with gaining access for surveys from private landowners in the area.

Bernadette: Most landowners know it's a listed plant. Just not interested in allowing surveys.

14. *Penstemon scariosus* var. *albifluvis* Status: Candidate

Jill: There are three occurrences now- a new one was reported by Robert Fitz right on the CO/UT line.

Mary Goshorn: We collected seed for this population.

Jill: There is more in UT than in CO.

Gina: There is a lot of private land that needs to be searched.

Jill: We don't have a lot of data for this species.

15. *Phacelia formulosa* Status: Endangered

Jill: Oil and gas is a threat in North Park. We have thirteen occurrences now.

Gina: The Laramie River population might be a different species. Duane Atwood is looking at this, along with DBG.

Jill: Two new occurrences in North Park in 2010.

Gina: Probably potential for more. Could do a bioblitz for it.

Carol: We are using frequency sampling to see if we can see increases in our plots. We have two sites on BLM and one at Arapahoe National Wildlife Area.

Gina: There is one ACEC with this species on it but BLM is planning on expanding the boundaries, and the plan is available for public comment.

Brian K: I observed this species on state land, and there was grazing nearby and thistles. Didn't see grazing as much this year.

Ellen: 5 year review will be released this fall.

Brian K: There was a recent TNC conservation easement for this species on private land last year.

Gina: This would be an ideal project for the Partners program if there are areas near Walden that need attention. Bob Timberman is ready and willing on to be involved.

16. *Phacelia submutica* Status: Threatened

Jill: It has been on candidate list for a long time. Now it is threatened, there are 8 historical occurrences.

Carla De Young: Two of the occurrences are not *Phacelia submutica* out of Rulison.

Gina: Designating critical habitat takes a lot of funding. The bulk of protection happens through listing, and critical habitat is the icing on the cake. But we are doing critical habitat now because USFWS has lost battles in court.

Barry: I am not sure designating critical habitat is justified. I submitted my comments. DeBeque is two words.

Ellen: No it's not. It is one word- DeBeque.

Barry: OK.

Barry: I would like to see a few changes with how they draw lines for critical habitat.

Jill: *Oenothera coloradoensis* ssp. *coloradoensis* has critical habitat.

Barry: We need to discuss how critical habitat overlays with predicted habitat.

Gina: Critical habitat can be revised.

Gina: USFWS has lost a lot of court cases, so not doing critical habitat is not an option. We outline things called primary constituent elements. If you are in an area with these, you could have habitat. The listing in itself creates the paperwork, not the critical habitat.

Brian K: If you include pollinators, critical habitat creates a lot more complications.

Gina: Yes, but that is just one of the elements.

Nicola R: Tell me how you could get a lawsuit if you want to put a road in.

Gina: (Explains how lawsuits happen because USFWS did not do critical habitat). It was more in the listing process.

Barry: If we are going to designate critical habitat, we need to do it right.

Jill: You want a buffer area.

Barry: Trespass cattle are affecting one occurrence on FS, and ATVs are affecting another. The rest of the populations are in badlands that are hard to get to. Deer are also a problem. There is an inactive lease near one of the sites. The deer population is a big problem. I have not been to the White River side.

Gina: The biggest value of Critical Habitat is a polygon on the ground. That educates people.

17. *Physaria obcordata* Status: Threatened

Jill: We did habitat modeling for this species in 2011, and went to 36 points for ground truthing. We found about 5 that were positive hits out of the random points. These were adjacent to new sites, and were sub populations, not new Eos.

Mo Ewing: I found that the Yanks Gulch population was much higher on the slope than what the polygon indicates. How do you want us to map these polygons?

Jill: We revise polygons based on what info we get from the observers. Sometimes we add to an existing polygon, or we replace polygons. I don't delete things unless I know they need to be replaced.

Mo: If I can get owner's approval to get onto a site, can you provide the data?

Jill: We would have to see about the landowner permission.

Jill: Here is a photo. You can see the heart shaped fruits.

Jill: We need better geology layers, so if anyone can get those from oil and gas, we need finer scale geology maps.

Peggy: Often we ended up in greasewood, but you could see habitat in the area.

Gina: We covered a lot of ground.

Mo: How big was the area you looked at each point?

Jill: We looked in a 30 meter radius from the point.

Brian K: The research on pollinators and oil and gas should be coming out this winter. There is a population on Piceance SWA, and they are spraying leafy spurge by hand. We are having good results getting rid of leafy spurge.

Jenny Ramp-Neale: Jacob do you want to talk about the roller chopping project?

Jacob: A large area might be surveyed for the species in advance of a potential roller chopping project.

Gina: The oil and gas companies are paying for juniper thinning to help ungulate populations.

Carol: Zoe stopped this- got a reprieve to give us time to see what is there.

Jacob: The project is going to cover a large area and be very costly.

Brian K: This is a DOW project. I have been hearing more about this, and hopefully if we combine our agencies, I can help consult and advise.

18. *Sclerocactus glaucus* Status: Threatened

Jill: We revised the rank to G2G3/S2S3. It is now just known from CO, due to a revision in taxonomy. There are a lot of historical EOs. We don't just use the # of EOs to rank, but other parameters like threats, last observed dates, etc. Added red X's to map- these are unrankable due to lack of information about them. Many were along the transcontinental pipeline where some were transplanted, and we don't know the status of those populations.

Barry: Trampling by deer are the primary problem for this on Forest Service lands.

Mitchell: We are looking at population genetics. I did a short report that suggested hybridity with *S. parviflorus*. There is hybridization, but much more limited than I first reported. 2-5% are hybrids. Almost all populations near DeBeque appear to be pure.

Anna: What about the Horse Mountain population?

Mitch: That population was a 2-5% hybridity. We are hoping to sample more *S. parviflorus* near Rabbit Valley. 4 genetic populations: Delta, Delta/GJ, DeBeque cluster, and another DeBeque cluster. There is more work to be done. The hook character is good for identification in the field, but not very reliable with genetic characters.

Jenny: We have 11 monitoring plots. We have to crunch the numbers. We are taking height and weight measurements and photographing each plant. We collected seed from Delta populations.

Carol: The BLM Field office is focusing on grazing issues- they are going to set up plots to examine this.

Gina: Mitch-do you have a feel for if these are actual species?

Mitch: Yes. *S. parviflorus* looks like a distinct species, and *S. glaucus* has some substructure.

19. *Sclerocactus mesa-verdae* Status: Threatened

Jill: The monitoring report from Karin Decker has been submitted to Western N. American Naturalist in 2011 for publication. Occurrences last visited in 2005.

Mitch: The genetic markers I have developed in my lab will work with this species. With this distribution, I don't know if this is a conservation genetics question, but it would be good to know if it is a distinct species.

Gina- pipeline and powerline projects in NM next year.

Ellen: Brian Elliott will be doing surveys next year for this.

20. *Spiranthes diluvialis* Status: Threatened

Denise W: I attended a meeting in NM and it might be delisted.

Gina: We have been working on a delisting decision since 2002. The species is handled out of UT, but they have had staff turnover, so it might be awhile.

Crystal: Too wet in the Fort Collins Natural Areas and none in wetland this year. We have seen a decline in flowering forbs due to heavy fuels in the occupied areas. Plan with TNC for prescribed burn to reduce fuel and install restoration plan.

Scott and Steve P: The City of Golden site had only 17 plants blooming this year up Highway 83 Clear Creek Canyon, willows are dead, change in hydrology. Lots of trampling, dogs, etc. This is the type locality and is important to conserve.

Jill: Colorado Native Ecosystems founder is now the mayor of Golden, so there is opportunity to talk to him.

Christine: There is a lot of recreational use at Clear Creek Canyon.

Pam Smith: I mapped more plants at Clear Creek this summer and saw more than 17 plants and found more plants downstream. Frank Kuntz found more up Indian Gulch. What was the original number of plants?

Denise Wilson: There were 243 in 2008.

Steve P: Has seen it persist in Salt Lake City area where it is heavily trampled by horses.

Pam: The Wheatridge site had a fence put in, and now there are a lot less plants. So I would be careful with fencing.

Andy: John Proctor has another site on WRNF he found this year.

Steve P: I think it is good to survey a couple of years in a row, as they don't come up every year.

Andy: There is a site on White River National Forest where horses have eaten the plants down.

Ellen: There is now a fence there.

Ellen: John Proctor has a full time volunteer that is helping find orchids.

BREAK until 1:30 p.m.

Review of progress on species presented in previous symposia – Colorado G1, G2, and selected G3 species

G1 Species of Colorado (led by Jill Handwerk)

21. Aletes latilobus

Jill: Last updated in 2009

Mary: Collected seed in 2010 for this species.

22. Alicia sedifolia

Barry: Now up to three occurrences- the third is in the same general area as other two. Enormous amount of potential habitat. Not convinced that Purpus collected in the Sheep Mountain where it is known from. Takes about 4.5 hours to hike to the occurrences.

23. Astragalus deterior

Jill: Bernadette and Peggy conducted surveys in Mesa Verde. Peggy found several new sites this year.

Ellen: At least one area found in 2011 was overwhelmed with cheatgrass.

Peggy: Some old specimens were mislabeled.

Peggy: Looks like cheat grass is excluding *A. deterior* in some areas.

Steve P: A paper is out now on how cheatgrass is changing soil attributes.

Brian: Is NPS also doing a management plan for *H. gracilentia* and *A. deterior*?

Ellen: No, but we can encourage it.

24. *Astragalus lonchocarpus* var. *hamiltonii*

Jill: This species is now believed to have been erroneously documented in Colorado. There was one occurrence documented in the Colorado portion of Dinosaur National Monument, however, Tamara Naumann reports it has been determined to be *A. lonchocarpus*.

25. *Boechea glareosa*

Jill: There have been no field surveys to study this species. Potential project for someone. Also found in Utah. There are only three collections in herbaria.

Don Hazlett: Attended St. Louis meetings where I learned that within *Tragopogon* and *Boechea* there is a hybrid mix polyploid speciation. Interesting group from hybrid point of view.

Dave: Is John Lovell (CSU) working on this species?

26. *Botrychium lineare*

Steve P: There are about 50 known sites now for Colorado, and range wide it is more common, so it is no longer a candidate. Taxonomic alignment work is underway on all the *campestre-lineare* group of moonworts with strap-like thin leaves. There is probably more of this species because the more we look, the more we find.

27. *Botrychium* tax. nov. "*furcatum*"

Steve P.: This will be subsumed as *Botrychium campestre* var./ssp. *lineare* under the *campestre-lineare* re-alignment. Although more common than we thought, it is still important to conserve this group of moonworts.

28. *Cirsium scapanolepis*

Jill: Many botanists question of validity of this taxon.

29. *Corispermum navicula*

Jenny: Looking for funds to work on this species. Looking at seeds we cannot differentiate these from other *Corispermum* species. Recently described in 1995. We want to get samples from another population.

Brian: Kremmling resource management plan revision- ACEC proposed on North Dunes?

Ellen: Won't try to list until genetics are resolved.

30. *Cryptantha gypsophila*

Mitch: Looking at whether this is distinct from *C. paradoxa*.

Gina: One problem is that we don't know if it has been looked for in UT.

Mitch: We will look in UT. The gap in *gypsophila*'s distribution is where the type of *paradoxa* was collected- very suspicious.

Peggy: Looked at a Paradox Valley site in 2010 and found both kinds of leaf pubescence on the same plant.

Mitch: Pubescence changes with age- *gypsophila* morphology appears on old *paradoxa* plants.

Jill: This plant falls within the Big Gypsum/Dry Creek Conservation Action Plan area.

31. *Cryptantha paradoxa*

Mitch: The description of this species was based on some very minor morphological characters.

Jill: This one has a CAP for Big Gypsum and Dry Creek.

32. *Descurainia kenheili*

Jill: This is known only from the type locality. No photo. Specimen is at the San Juan herbarium.

33. *Draba malphigiaceae*

Jill: Known only from the type locality.

Peggy: This species is questionable. No photo exists of the species.

34. *Draba weberi*

Jill: There was a single occurrence known globally, but Bernadette Kuhn found another in 2010, which has been verified by Al-Shebaz. In 2011 USFS staff found what appears to be a third site.

Steve Olson: Found the second occurrence in a totally different habitat.

Jill: Added to USFS Sensitive Species List.

35. *Erigeron wilkenii*

Jill: Peggy, Dee, and I may have found another occurrence in Dinosaur National Monument this year.

36. *Eriogonum brandegei*

Jill: Part of a CAP in the Arkansas Valley.

Gina: This is included in the petition of 206 species from Wild Earth Guardians.

Gina: All occurrences are on BLM land.

Brian K: There were 8 or 9 species that had positive findings for the first round. How many of the 206 petitioned species had positive findings?

Gina: Five of them were in CO. *Astragalus hamiltonii*, *P. gibbensii*, *Draba weberi*, *Corispermum navicula* are the species being investigated now by USFWS in CO.

Ann Zielenski: We have a work weekend coming up. We still need a lot of volunteers. SE chapter of CONPS is restoring five areas where vehicles are damaging occurrences. October 21-23 will do work on this.

37. *Gutierrezia elegans*

Jill: Last observed in 2009. People have probably seen it since, I just don't have the data.

Brian K: It is not FS Sensitive, but is on FS land.

Steve P: Al Schneider thinks there are more new species in the area where he found this species.

38. *Hackelia gracilentia*

Jill: Peggy saw lots in Mesa Verde National Park.

Peggy: The plants were dried up when I did surveys in June.

39. *Lygodesmia doloresensis*

Jill: Gina found some by her house this year in Grand Junction. In a natural sandy blowout area, near Colorado National Monument; may be in the monument but not sure.

Gina: Peggy would appreciate this site, as it is in a sandy blowout area not near a road.

Brian K: What is the status of the Gateway Travel Management Plan?

Anna Lincoln: We have made a preliminary decision.

Brian K: When will that be published?

Anna Lincoln: I am not sure. It will be put out for public comment.

40. *Mimulus gemmiparus*

Steve O: The biggest population was trampled by people. The past couple of weeks, I went out there. The trail has been rerouted, and the old trail obliterated. The flow of traffic will follow the rerouted trail away from the site, so hopefully it will not be impacted anymore. We decided it was worth our effort to go through the NEPA process and take credit for doing good things for the species.

Scott: The population on Guanella Pass is still there.

Brian K: Mark Beardsley and Dave Steingraeber are working on a research project for this species.

Brian K: Staunton State Park will be open to the public in 2012.

41. *Oreoxis humilis*

Steve O: We have monitoring plots in the Devil's Playground area. I still think that there is just one population that stretches 18 miles. It does not care for closed turf, but likes an exposed gravelly area.

Jill: Dee Malone surveyed for this last year.

42. *Penstemon gibbensii*

Jill: Some folks visited these last year.

Gina: Wyoming Fish and Wildlife had a negative finding on petition to list this species.

43. *Physaria pulvinata*

Jill: Last observation in our database is from 2009, but it has been seen since. It occurs in the same area as *Gutierrezia*.

Brian K: We are in the process of developing interpretive signs for Miramonte. We worked with land managers to use hand cutting of junipers for sage grouse to lessen impacts to individuals at Miramonte State Wildlife Area.

Andy K: I would like to encourage folks from agencies to advertise our success stories. On our website we have a place for good acts. This is important advertising. We should promote our success stories.

Jill: We can post these to our blog.

Mo: I have a column in Aquilegia and I could write about Miramonte for the newsletter.

BREAK FOR 10 minutes

Review of G2 Plants of SE Colorado (led by Pam Smith)

44. Asclepias uncialis

Pam: There was a new record added to UT on USDA plants. It is an annual plant, which causes a lot of issues in surveying. Here is a photo from Steve Population.

45. Cleome multicaulis – No new information.

46. Delphinium ramosum var. alpestre

Scott Smith: I saw this in Fremont County this year.

Pam: Are you going to turn in an EOR?

Pam: Bill Jennings is not so sure that this is *D. ramosum*. USDA database does not reflect this.

47. Draba exunguiculata

Denise W: One new one at Hoosier Ridge.

Scott Smith: I saw a new occurrence near Georgetown.

48. Draba grayana

Jill: (Explains Adopt a Rare Plant Program). This year we trained just over 30 people. We have been getting results, and we are getting info back. We had 17 species we set people out to look for. I hope it will be successful, and we continue.

49. Draba smithii

Pam: Steve O'Kane found a new site in NM near Taos.

50. Herrickia horrida

Pam: Jill relocated historical site near Lake Dorothy.

51. *Lesquerella calcicola*

Pam: Our volunteers are working on this one.

Dave: Tass Kelso found some this year.

52. *Nuttallia chrysantha*

Brian K: One population is at Pueblo State Park. The water pipeline is going to be moved potentially through this habitat. We might be able to salvage a few of these with the CoNPS SE chapter.

53. *Nuttallia densa*

Pam: This is one impacted by the Over the River project.

Andy: Should we add art as one of the threats?

Mo: The project is going to run 5.8 miles along the river. I think this species grows in the gravelly area. There are going to be 9100 holes drilled.

Carol Dawson: The governor of Colorado told the BLM that he wants the project. That and the Roan Plateau are going to be the biggest litigation we have ever seen.

54. *Oenothera harringtonii*

Pam: This is one our volunteers are looking at.

Jill: A historical site has been updated, I also visited a site last year.

Andy: We dropped this from USFS Sensitive Status.

Steve O: My guess is that numbers are down from the drought.

55. *Oonopsis foliosa* var. *monocephala* – No new information.

56. *Oonopsis* “*puebloensis*” – No new information.

Pam: Covered in the Arkansas Valley CAP. Jen Ackerfield has it in her flora as a valid species although it has not been published yet.

57. *Oxybaphus rotundifolius*

Pam: Also covered in the Ark Valley CAP. No rank change. New populations have been discovered, but threats are high.

58. *Penstemon degeneri*

Steve O: In the Oak Creek campground, there are hundreds of plants and it is in open Ponderosa pine. Very locally abundant, but known from only 3 counties.

59. *Ptilagrostis porteri*

Pam: Ben Legler found it in NM at Vermejo Ranch.

Steve P: I confirmed with Ben that it is a very small site and that there are probably no other undocumented sites nearby.

Barry: No more peat mining as a threat?

Brian K: I don't think that is a threat.

Dave Anderson: I reshot photos at Farish, and the site is very overgrown and I am concerned about the viability of that population.

60. *Telesonix jamesii*

Steve O: According to FNA, the NM records are in question, citing bad material. At this point it is only in the Pikes Peak area, Staunton, and RMNP.

Review of G2/G3 Plants of NE Colorado (led by Pam Smith)

61. *Aletes humilus*

Pam: Declining in Boulder according to Rich Scully.

62. *Aletes nuttallii* – No new information.

63. *Aquilegia saximontana*

Pam: Scott Smith and I found a new occurrence on the Pike National Forest near Wellington Lake. Half of our occurrences are historical. An Adopt a Rare Plant volunteer is looking for this species.

64. *Astragalus sparsiflorus*

Pam: Rich Scully is working on this species as a volunteer.

65. *Bolophyta alpina*

Steve P: The populations on the Pawnee National Grassland are doing well. No new sites found on Grassland, but we have not conducted surveys for it in several years. Most suitable habitat on the Grassland has been surveyed, but there are probably some additional sites.

Andy: The first slide needs to be updated to reflect USFS distribution.

66. *Carex oreocharis*

Dave A: Found more at Farish in El Paso County.

67. *Draba crassa*

Denise Wilson: It is very common in some places.

68. *Draba globosa*

Scott Smith: Saw it this year.

69. *Draba streptobrachia*

Gina: We saw it this year in the Mosquito's.

70. *Eriogonum exifilifolium*

Pam: Check on status, it might not be USFS Sensitive any more.

71. *Heuchera hallii*

Pam: We decided not to track this anymore because of the large number of occurrences now documented, and the low threats to the habitat. Everyone here seems to support that.

72. *Nuttallia sinuata*

Steve P: Does Jennifer Ackerfield separate these?

Pam: She treats it as a variety of *N. speciosa*.

Steve P: Found a new site on the Roosevelt NF. A pipeline staging area was going to go near it- decision was made to go through it and "take" all the plants. Will try to collect seed.

73. *Nuttallia speciosa*

Crystal: I still have two new occurrences one at Coyote Ridge and one at Soapstone. Dina Clark verified.

74. *Oonopsis wardii* – No new information.

75. *Phacelia denticulata*

Crystal: Found at Red Mountain and Soapstone. Found in the trail disturbance area.

76. *Physaria bellii*

Pam: It is not in Jefferson County, only the hybrid and *P. vitulifera* are found there.

Jill: We are not tracking the Jefferson County sites as *P. bellii*. We may track *P. vitulifera*, and the hybrid of the two species.

Brian K: That makes *P. belli* that much more rare.

Crystal: We have a powerline threat to *P. bellii* at Pineridge Open Space. A small corner of population would be completely obliterated if the powerline proceeds as planned.

77. *Potentilla ambigens*

Pam: Large plants. Elk like to eat this plant.

78. *Potentilla rupincola*

Pam: Last seen in 2009 by Rich Scully.

Tom Bates: Didn't find any this year during project surveys on Arapahoe-Roosevelt NF. Last time we found more was in 2009. We look every year when we are in suitable habitat.

79. *Sisyrinchium pallidum*

Crystal: New population at Soapstone of 300 plants.

Pam: I have had trouble identifying this from *S. montanum* occasionally.

Scott: I have seen this in 3 different SWAs this year.

Review of G2 Plants of SW Colorado (led by Peggy Lyon)

80. *Astragalus anisus*

Peggy: Bernadette found in 2010 and 2011 in Curecanti National Recreation Area.

Barry: Some plants are muciform, with banana shaped pods that look like *A. iodopetalus*. I found some this summer. It is very palatable.

Peggy: Known from Ute Mountain Ute land.

81. *Astragalus equisolensis* – No new information.

82. *Astragalus naturitensis*

Barry: I found it re-sprouting abundantly after fire. It is on USFS land also.

Peggy: Found lots of it in South Shale Ridge area.

83. *Astragalus piscator*

Peggy: Included in Gateway Conservation Action Plan (CAP). I saw it in 2010 in the Gateway area.

84. *Astragalus rafaensis*

Peggy: Lots of new sites north of occurrences on this map. Lots of confusion taxonomic confusion between this species and *A. linifolius*.

85. *Camissonia eastwoodiae*

Anna Lincoln: We found it north of Grand Junction.

86. *Castilleja puberula*

Peggy: New EOs from Boulder inventory to be added.

87. *Cirsium perplexans*

Peggy: I think it is a weedy species.

Barry: They are very successful. Dropped from FS and BLM Sensitive lists.

88. *Draba graminea*

Peggy: Saw it this year. Not on FS or BLM sensitive lists.

89. *Erigeron kachinensis*

Peggy: There is a new record on the Palisade near Gateway that Lorraine Yeatts found.

90. *Eriogonum clavellatum*

Peggy: This is very close in morphology to *E. pelinophilum*.

Gina: Specimens were collected for genetic study from the Coons Wash area.

91. *Eriogonum coloradense*

Peggy: Dee Malone saw it in 2008.

Barry: It occurs in a wide variety of habitats.

92. *Lepidium crenatum*

Peggy: I found thousands of them around the entrance to Mesa Verde this year.

93. *Lesquerella pruinosa*

Barry: Another Mancos Shale endemic.

Peggy: We have had ongoing monitoring for this for several years.

94. *Lesquerella vicina*

Peggy: Last seen in 2008. I tried to find it in 2010, but could not relocate it.

95. *Lomatium concinnum*

Peggy: Lots of it in Montrose area.

96. *Lupinus crassus*

Peggy: Common in the Paradox Valley. Gunnison occurrences are misidentified.

97. *Machaeranthera coloradoensis*

Peggy: Probably more common than we had thought, it used to be a G2, now a G3.

Barry: Saw this recently.

Steve P.: There is a population outside of Walden. We found another possible site on old railroad grade west of Rollins Pass but plants unconfirmed.

Gay: Also in Gunnison Basin.

Andy: Is that on the Routt? There is no dot.

98. *Physaria alpina*

Peggy: Endemic to Colorado. Found at Weston Pass in 2010.

Denise: Nine more EOs found in 2011.

Gina: A population of miles and miles long at Horseshoe Cirque.

99. *Physaria rollinsii*

Bernadette: Mapped a lot of *Physaria rollinsii* in the Curecanti Area.

100. *Puccinellia parishii*

Peggy: Found more at Miramonte Reservoir.

101. *Salix arizonica*

Andy: We have had problems with people thinking our enclosure is a horse pasture.

Steve: This still remains one of the rarest plants in Colorado, with only site known being within the enclosure.

102. *Thelypodopsis juniperorum*

Bernadette: Looked for it this year in Black Canyon National Park and didn't find it.

103. *Townsendia glabella*

Peggy: Lots in the Pagosa Springs area. Turning up in many places in Archuleta Co.

104. *Townsendia rothrockii*

Scotty and Barry saw it this year.

Review of G2G3 Species of Northern Colorado (led by Peggy Lyon)

105. *Anticlea vaginatus* – No new information.

106. *Astragalus debequaeus*

Peggy: This may become a G3.

107. *Boechera glareosa* – No new information.

108. *Carex stenoptila* – No new information.

109. *Ipomopsis aggregata ssp. weberi* – No new information.

110. *Ipomopsis globularis*

Denise: 3 more sites found by MRHI in 2011.

Jill: This species is in the Adopt a Rare Plant program.

111. *Lesquerella parviflora*

Peggy: Common in the Piceance Basin area.

112. *Limnorchis zothecina*

Peggy: We documented two new EOs at Dinosaur National Monument in 2011.

113. *Mentzelia rhizomata*

Gina: This species has been added to BLM Sensitive Species list.

114. *Mertensia humilus*

Bernadette: I found it this year in North Park.

115. *Oenothera acutissima* – No new information.

116. *Oxytropis besseyi* var. *obnapiformis* – No new information.

117. *Penstemon grahamii*

Peter: We have been to Raven Ridge occurrence every year since 2009.

Gina: This is now proposed as a threatened species again, was initially declined but was then overturned in court, so it is now proposed threatened again.

118. *Penstemon fremontii* var. *glabrescens*

Peggy: We found about ten new sites in the Piceance Basin in 2010.

119. *Penstemon scariosus* var. *cyanomontanus*

Peggy: We found hundreds of individuals at Dinosaur National Monument in 2011.

Saussurea weberi

Scott Smith: Saw it in the Sangres, close to where Tim Hogan found it, 0.75 miles away.

Denise: 5 more sites found from MRHI surveys.

120. *Thalictrum heliophilum*

Scott Smith: Ann Henson saw this species and wrote an article in *Aquilegia* for it.

Adjourn

Jill: I want to thank everyone for all their data and photos.

Steve P: Thank you all for participating. This year we have about 45 attendees, and have averaged about 40 to 55 people annually.

List of Participants

Name	Affiliation
Allison, Larry	CONPS
Allison, Ruth	CONPS
Anderson, David	CNHP
Anderson, Stacey	CONPS
Austin, Gay	BLM
Bates, Tom	USFS
Chandler, Jonathan	HDR Consulting
Clark, Dave	Audubon Society
Corrigan, Megan	Rocky Mountain Wild
Davidson, Jacob	Colorado Parks and Wildlife
Dawson, Carol	BLM
DePrenger-Levin, Michelle	DBG
DeYoung, Carla	BLM
Dykgreve, Katie	CNHP
Eddy, Benjamin	HDR Consulting
Ewing, Mo	CONPS
Flory, Jeffery	CONPS
Glenne, Gina	USFWS
Gordon, Peter	BLM
Goshorn, Mary	DBG
Handwerk, Jill	CNHP
Harrison, Phillip	CONPS
Johnston, Barry	USFS
Kratz, Andy	USFS
Kuhn, Bernadette	CNHP
Lincoln, Anna	BLM
Lyon, Peggy	CNHP
Malone, Delia	CNHP
Mayo, Ellen	USFWS
McGlaughlin, Mitchell	UNC
Neale, Jenny	DBG
Olson, Steve	USFS
Popovich, Steve	USFS

Rechel, Eric	Mesa State College & Desert Ecosystem Analysis and Restoration
Richardson, Mary	CONPS
Ripley, Nicola	Betty Ford Alpine Gardens
Schiltz, Melissa	DBG
Smith, Pam	CNHP
Smith, Scott	CONPS
Strouse, Crystal	City of Fort Collins Natural Areas
Taliga, Christine	USDA/NRCS
Tasker, Lisa	EM Ecological
Taylor, Mary	BLM
Wilson, Denise	Mosquito Range Heritage Initiative
Winder, Sama	BLM
Zielinski, Ann	CONPS