2018 Colorado Rare Plant Symposium

By Lisa Tasker; CNHP

Fort Collins saw 80 botanists and members of the Rare Plant Technical Committee (RPTC) descend on the north side of town to attend the 15th Annual Colorado Rare Plant Symposium in mid-September. Each fall this meeting of botanical minds is hosted by the Colorado Natural Heritage Program (CNHP) and held in conjunction with the Colorado Native Plant Society (CoNPS) Annual Meeting. Dina Clark (CU herbarium) provided herbarium specimens of northeast Colorado rare species, the emphasis this year, and presenters encouraged participants to share their relevant observations while learning the latest efforts to conserve Colorado's rare plants.

A cross-section of passionate botanists from professional to amateur are attracted to this meeting each year due to a common interest in conservation of our state's rare plants. Jill Handwerk (CNHP) expertly started out the day with data and photos of rare species with this year's focus on northeast Colorado. Jill later reviewed Colorado's lengthy list of critically imperiled (G1) and federally listed plants along with current conservation efforts. The list of species reviewed is in the table below.

2018 - G2G3 Species NE/Central Colo				
State Scientific Name	**G Rank**	**S Rank**	**USESA**	**USFS/BLM**
Aletes humilis	G2G3	S2S3		
Aletes nuttallii	G3	S1		
Aquilegia saximontana	G3	S3		
Astragalus sparsiflorus	G2	S2		
Bolophyta alpina	G3	S3		
Carex oreocharis	G3	S2		
Draba globosa	G3	S1		
Draba streptobrachia	G3	S3		
Eriogonum exilifolium	G3	S2		USFS
Oonopsis wardii	G3	S1		
Phacelia denticulata	G3	S1S2		
Physaria bellii	G2G3	S2S3		
Potentilla ambigens	G3	S2		
Potentilla rupincola	G2	S2		USFS
Sisyrinchium pallidum	G3	S3		BLM
2018 - T&E&C Species Statewide				
State Scientific Name	**G Rank**	**S Rank**	**USESA**	**USFS/BLM**
Astragalus humillimus	G1	S1	LE	
Astragalus microcymbus	G1	S1	C	BLM
Astragalus osterhoutii	G1	S1	LE	
Astragalus schmolliae	G1	S1	C	

Astragalus tortipes	G1	S1	C	BLM
Corispermum navicula	G1?	S1		BLM
Draba weberi	G1	S1		USFS
Eriogonum pelinophilum	G2	S2	LE	
Eriofonum brandegeei	G1G2	S1S2		USFS/BLM
Eutrema penlandii (edwardsii)	G1G2	S1S2	LT	
Ipomopsis polyantha	G1	S1	LE	
Mimulus gemmiparus	G1	S1		USFS
Oenothera coloradensis	G3T2	S1	LT	
Pediocactus knowltonii	G1	SNA	LE	
Penstemon debilis	G1	S1	LT	
Penstemon grahamii	G2	S1	Proposed T	BLM
Penstemon penlandii	G1	S1	LE	
Penstemon scariosus var. *albifluvis*	G4T1	S1		BLM
Phacelia formosula	G1	S1	LE	
Phacelia submutica	G2	S2	LT	
Physaria congesta	G1	S1	LT	
Physaria obcordata	G1G2	S1S2	LT	
Sclerocactus glaucus	G2G3	S2S3	LT	
Sclerocactus mesae-verdae	G2	S2	LT	
Spiranthes diluvialis	G2G3	S2	LT	
2018- G1 Species Statewide				
State Scientific Name	**G Rank**	**S Rank**	**USESA**	**USFS/BLM**
Aletes latilobus	G1G2	S1		BLM
Aliciella sedifolia	G1	S1		USFS
Astragalus deterior	G1G2	S1S2		
Boechera glareosa	G1	S1		
Descurainia kenheilii	G1	S1		
Draba malpighiacea	G1?	S1?		
Erigeron wilkenii	G1	S1		
Gutierrezia elegans	G1	S1		USFS/BLM
Hackelia gracilenta	G1G2	S1S2		
Ipomopsis ramosa	G1	S1		
Lepidium huberi	G1G2	S1S2		
Lygodesmia doloresensis	G1G2	S1S2		BLM
Oreocarya revealii	G1G2	S1S2		BLM
Oreoxis humilis	G1	S1		USFS
Packera mancosana	G1	S1		USFS
Penstemon gibbensii	G1G2	S1		BLM
Phacelia gina-glennae	G1	S1		
Physaria pulvinata	G1	S1		USFS/BLM
Physaria scrotiformis	G1	S1		USFS

USFS Sensitive Species				
State Scientific Name	**G Rank**	**S Rank**	**USESA**	**USFS/BLM**
Aletes lithophilus	G3	S3		USFS/BLM
Aquilegia chrysantha var. rydbergii	G4T1Q	S1		USFS/BLM
Armeria scabra ssp. sibirica	G5T5	S1		USFS
Astragalus iodopetalus	G2	S1		USFS
Astragalus leptaleus	G3G4	S2		USFS
Astragalus missouriensis var. humistratus	G5T1	S1		USFS
Astragalus proximus	G4	S2		USFS
Astragalus ripleyi	G3	S2		USFS/BLM
Botrychium ascendens	G3	S1		USFS
Botrychium campestre	G3G4	S1		USFS
Botrychium lineare	G2G3	S2S3		USFS
Botrychium paradoxum	G3G4	S1		USFS
Braya glabella var. glabella	G5T5	S1		USFS
Calochortus flexuosus	G4	S2		USFS
Carex diandra	G5	S1		USFS
Carex livida	G5	S1		USFS
Chenopodium cycloides	G3G4	S1		USFS
Cylactis arctica ssp. acaulis	G5T5	S1		USFS
Cypripedium calceolus ssp. parviflorum	G5	S2		USFS
Drosera anglica	G5	S1		USFS
Drosera rotundifolia	G5	S2		USFS
Epipactis gigantea	G4	S1S2		USFS
Eriogonum exilifolium	G3	S2		USFS
Eriophorum altaicum var. neogaeum	G4?T3T4	S3		USFS
Eriophorum chamissonis	G5	S1		USFS
Eriophorum gracile	G5	S1S2		USFS
Festuca hallii	G4	S1		USFS
Ipomopsis aggregata ssp. weberi	G5T2	S2		USFS
Kobresia simpliciuscula	G5	S2		USFS
Physaria pruinosa	G2	S2		USFS/BLM
Machaeranthera coloradoensis	G3	S3		USFS
Malaxis monophyllos ssp. brachypoda	G4G5Q	S1		USFS
Parnassia kotzebuei	G5	S2		USFS
Penstemon harringtonii	G3	S3		USFS/BLM
Potentilla rupincola	G2	S2		USFS
Primula egaliksensis	G4G5	S2		USFS
Ranunculu grayi	G5	S1S2		USFS
Salix arizonica	G2G3	S1		USFS
Salix candida	G5	S2		USFS

Salix myrtillifolia	G5	S1		USFS
Salix serissima	G5	S1		USFS
Selaginella selaginoides	G5	SNA		USFS
Thalictrum heliophilum	G2	S2		USFS/BLM
Triteleia grandiflora	G4G5	S1		USFS
Utricularia minor	G5	S2		USFS
Viola selkirkii	G5	S1		USFS
BLM Sensitive Species Statewide				
State Scientific Name	**G Rank**	**S Rank**	**USESA**	**USFS/BLM**
Amsonia jonesii	G4	S2		BLM
Astragalus anisus	G2G3	S2S3		BLM
Astragalus debequaeus	G2G3	S2		BLM
Astragalus detritalis	G3	S2		BLM
Astragalus duchesnensis	G3	S1S2		BLM
Astragalus equisolensis	G5T1	S1		BLM
Astragalus musiniensis	G3	S1		BLM
Astragalus naturitensis	G2G3	S2S3		BLM
Astragalus piscator	G2G3	S1		BLM
Astragalus rafaelensis	G2G3	S2S3		BLM
Astragalus sesquiflorus	G3G4	S1		BLM
Boechera crandallii	G2G3	S2		BLM
Bolophyta ligulata	G3	S2		BLM
Camissonia eastwoodiae	G2	S1		BLM
Cryptogramma stelleri	G5	S2		BLM
Cymopterus duchesnensis	G3	S1		BLM
Erigeron kachinensis	G2	S1		BLM
Eriogonum acaule	G3	S1		BLM
Eriogonum clavellatum	G2	S1		BLM
Eriogonum coloradense	G2	S2		BLM
Eriogonum contortum	G3	S1		BLM
Eriogonum ephedroides	G3	S1		BLM
Eriogonum tumulosum	G3Q	S2		BLM
Eriogonum viridulum	G4Q	SH		BLM
Frasera paniculata	G4	S1		BLM
Gentianella tortuosa	G3?	S1		BLM
Gilia stenothyrsa	G3	S1		BLM
Lomatium concinnum	G2G3	S2S3		BLM
Lupinus crassus	G2	S2		BLM
Mimulus eastwoodiae	G3G4	S1S2		BLM
Nuttallia rhizomata	G2	S2		BLM
Oenothera acutissima	G2	S2		BLM
Oreocarya caespitosa	G4	S2		BLM

Orecarya osterhoutii	G2G3	S2		BLM
Oreocarya rollinsii	G3	S2		BLM
Oxytropis besseyi var. *obnapiformis*	G5T2	S2		BLM
Packera pauciflora	G4G5	S1		BLM
Pediomelum aromaticum	G3	S2		BLM
Penstemon acaulis var. *yampaensis*	G2	S2		BLM
Physaria parviflora	G2	S2		BLM
Physaria vicina	G2	S2		BLM
Sisyrinchium pallidum	G3	S2		BLM
Sphaeromeria capitata	G3	S1		BLM
Townsendia strigosa	G4	S1		BLM
Trichophorum pumilum	G5	S2		BLM

Susan Panjabi of CNHP presented a new working list of plants of potential conservation interest across Colorado's eastern plains. She is looking for feedback including additions or deletions. Contact her at susan.panjabi@colostate.edu if you'd like to review or comment on the list.

Through a demonstration on SEINet, Steve Olson, botanist for the Pike and San Isabel National Forests and Cimarron and Comanche National Grasslands, revealed some challenges and subsequent suggestions for navigating SEINet data. He discussed how during a project where he analyzed the distribution of plants of the entire Pike/San Isabel/Comanche Grassland using SEINet and investigated over 200 quads, he discovered data gaps and other issues such as common species not being documented. He had a list of suggestions to consider in future SEINet queries and data entries.

Very well received last year, hence repeated this year, was an afternoon review of U.S. Forest Service (USFS) and Bureau of Land Management (BLM) sensitive species led by Tyler Johnson and Carol Dawson, respectively. Changes to the USFS Sensitive Species List are underway as the Regional Forester Sensitive Species List is being phased out, and a Species of Conservation Concern list will now be created. The former contained species with a downward population trend and/or heading towards federal listing, and included species that only had to be suspected of occurring on the Forests. The new Species of Conservation Concern lists will be based on the new USFS Sensitive Species Concept and each Forest will have its own list. To be a Species of Conservation Concern a plant must be native, known to occur on the Forest, ranked as G1 or G2 by NatureServe, and have substantial concern regarding its persistence. Also considered, as written into the USFS manual, are four "indicators of substantial concern": climate change, declining trend in population or habitat, restricted range (disjunct or endemic), and low population on the forest unit. Tyler stated a species does not have to have all four indicators to be considered a Species of Conservation Concern and emphasized the flexibility he sees in this new process. The existing USFS Sensitive Species List will continue to be updated for forests not currently undergoing revision to their management plans.

Carol Dawson announced plans to update the BLM Sensitive Species list with the Field Offices this coming year. The sensitive plant species list is one the BLM must be proactive about regarding conservation and Carol reminded us that there are specific criteria for species making the list noting it was last updated in 2015. She reviewed the status of the latest survey and monitoring data for the BLM Sensitive Species including accounts of negative data and opportunities for future research.

Botanists with the Denver Botanic Gardens provided a wonderful overview of on-going projects at the Gardens. Michelle DePrenger-Levin presented results of demographic monitoring for *Astragalus microcymbus*, *Eriogonum brandegeei*, and *Sclerocactus glaucus.* Overall trends appear stable for *Astragalus microcymbus* and *Sclerocactus glaucus*, but *Eriogonum brandegeei* appears to be in decline since 2011. Alexandra Seglias discussed the successes and pitfalls in seed collection of our rare plant species for genetic preservation.

Notable discoveries this year included *Anemone virginiana,* (tall thimbleweed) found by Audrey Boag, with assistance from Irene Weber, on Jefferson County Open Space. *Campanula aparinoides* (bedstraw bellflower) found on a Douglas County Open Space, by Elizabeth Taylor, Barb Harbach and Cathy Fischer, all volunteer native plant masters conducting a botanical inventory of the site. The species was last found in Colorado in 1862! Several new occurrences of Colorado's federally listed and candidate species were also reported: *Astragalus microcymbus* (skiff milkvetch) in Gunnison County, *Sclerocactus glaucus* (Colorado hookless cactus) near Cameo on the west slope, and *Eriogonum brandegeei* (Brandegee's wild buckwheat) near Salida. Attendees also reported on numerous other observations of rare plant species within the state. The finding of new populations of rare plants every year reminds us that more treasure is yet to be discovered out there on our beautiful Colorado landscapes.

For more information:

All of the information from this meeting as well as previous symposia is available online at the Colorado State University, Colorado Natural Heritage Program (CNHP) website: www.cnhp.colostate.edu.

The Rare Plant Symposium is open to anyone with an interest in the rare plants of Colorado. For more information contact Jill Handwerk at jill.handwerk@colostate.edu and check the CoNPS website (www.conps.org) for details as they become available about next year's symposium.