Aquilegia

Newsletter of the Colorado Native Plant Society

"... dedicated to the appreciation and conservation of the Colorado native flora"

Volume 30 Number 5 **November - December 2006**

2006 CONPS Annual Meeting The Arkansas Basin and Beyond: 10,000 Feet of Flora

Doris Drisgill

About 100 members of the Society met on the spacious campus of the University of Colorado at Colorado Springs on September 8-10 2006 for the 30th Annual Meeting. The emphasis of the meeting was the unique flora of Southeastern Colorado. We had the pleasure of more than a dozen interesting speakers'who shared their fields of expertise with us.

The Colorado Rare Plant Technical Committee met in fast-paced sessions on Friday to discuss recent research and conservation strategies about 20 rare plants known to occur in Southeastern Colorado. On Friday evening, we had programs on Zebulon Pike's bicentennial and regional geology followed by a social hour. The Southeast Chapter arranged programs on the regional flora all day Saturday, concluding with a campus field trip starting at the meeting room door. We toured pinion/juniper/ponderosa forest on the scenic ridge above campus, before dropping down to the relict tall grass prairie in the valley.

Sunday field trips included: shortgrass prairie of the Chico Basin Ranch, a working ranch preserved and owned by the State of Colorado; foothills ecosystem of Aiken Canyon Preserve, a Colorado State Natural Area; ruins of the historic Pikes Peak Alpine Laboratory via the Manitou and Pikes Peak Cog Railway, the setting for a great deal of plant research during the early part of the last century.

The Southeast Chapter greatly enjoyed hosting a group of such brilliant and passionate people. There was something for anyone interested in native floras so plan to attend the 2007 Annual Meeting in Boulder next September.

Denver Botanic Gardens Discount Membership

Contact Denver Chapter President Naomi Nigro for details and coupon.

The 3rd Annual Rare Plant Symposium in Review

Dave Anderson, CNHP

Wow, what a great symposium we had this year! It was the best attended yet, and there was much interesting discussion and new information. We had a diverse crowd in attendance, much of when traveled *en masse* to lunch together - it was one of the largest mass migration events of botanists I've ever seen. I wish I had brought my camera for that part - there were about 30 of us sitting along one long table at the campus dining hall.

Many of you might be unfamiliar with the Rare Plant Symposia, so I'll start with some background information followed by a summary of this year's meeting.

Background

The rare plant symposia in Colorado are a structured but informal forum for discussing Colorado's rare plants. The symposia bring experts together from throughout the state and elsewhere to share what they know about Colorado's rarest and most imperiled plant species. This knowledge is incorporated in the datasystem of the Colorado Natural Heritage Program (CNHP) and is used to inform conservation efforts, adjust conservation status ranks, and identify opportunities for further research and survey efforts.

At Colorado Rare Plant Symposia, we have discussed a subset of Colorado's rarest plants each year. The symposia begin with a review of progress made towards conserving species discussed in

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the previous year. This is followed by the "meat"- a section divided into timed ten minute blocks dedicated to each species on the list *du jour*. Each species is first introduced to the group with an overview in a powerpoint presentation, followed by any information the attendees can offer. Priorities and objectives are set at the end of each symposium for these species, which are revisited at the following year's symposium to determine if progress was made.

In 2004, we started with the endangered, threatened, and candidate species in Colorado that are listed under the Endangered Species Act. In 2005 we focused on G1 species (critically imperiled, generally known from no more than five occurrences worldwide) that were not covered in 2004. In 2006 we shifted our focus to Colorado's G2 species. These species are considered imperiled, at high risk of extinction due to very restricted range, very few occurrences worldwide (often 20 or fewer), steep declines, or other factors. Colorado is home to 76 G2 species, which is too much to cover in a single day no matter how much coffee we order, so in early 2006 the Rare Plant Technical Committee decided to spend the next four years reviewing one quarter of these species each year. In 2006, we started with those for which the center of their range is southeast Colorado to coincide with the location of the CONPS Annual Meeting.

The rare plant symposia are planned and hosted by the Colorado Rare Plant Technical Committee. They have been sponsored by the U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, University of Colorado Herbarium, and the CNHP. Since the first symposium in 2004, they have been held in concert with the CONPS annual meeting to make it easier for CONPS members to participate. CONPS has helped greatly by covering costs of the venue and snacks each year.

The 2006 Rare Plant Symposium

This year, as in previous years, Steve Popovich (Botanist, Arapaho Roosevelt NF) and Jill Handwerk (Botany Information Manager, Colorado Natural Heritage Program) introduced the symposium and set the ground rules. Many people shared important updates on other rare taxa, such as *Eriogonum pelinophilum*, *Penstemon grahamii*, *Lesquerella congesta,* and other species that are threatened by oil and gas development, residential development, and other activities. *Gaura neomexicana* ssp. *coloradensis*, *Draba weberi*, possible new *Botrychium* species and *Spiranthes diluvialis* were also discussed.

The main part of the program was emceed by Susan Spackman Panjabi. She presented an introduction to each of our nineteen target species (Table 1), and then moderated discussions of any new information the attendees had to offer.

Highlights from 2006

Several factors conspired to make this year's symposium a big success. The focus was local for many of those attending, so there were many people who had something to offer. Also, 2006 was a phenomenal year for rare plant discoveries, partly because of the heavy monsoon in southeast Colorado, which made some of the more fickle rare plants (like *Oxybaphus rotundifolius*) easier to find even into August and September. There were also several ambitious rare plant survey efforts and other research projects undertaken in this area in 2006 at Fort Carson Military Reserve, Pinyon Canyon Maneuver Area, and in the Arkansas Valley. There were some interesting insights offered about some species. One species that will be getting a big "demotion" is *Grindelia inornata*, a classic example of a plant species to which no one had really paid much attention (it looks a great deal like the curlycup gumweed, *G. squarrosa*). It was formerly ranked G2, but information presented this year suggests this species should probably be ranked G3 or G4, and it may soon be dropped from CNHP's list of tracked species! *Grindelia inornata* illustrates well the power of information sharing and survey work for adjusting the conservation priorities for rare plant species. Information shared at this year's symposium also suggests that some other G2s may be more common than current data suggest, like *Delphinium ramosum* var. *alpestre*, *Lesquerella calcicola*, *Telesonix jamesii*, and *Oxybaphus rotundifolius*, although it isn't yet clear whether new information will result in any changes in G rank for these taxa. Some big mysteries remain, like the current status of *Herrickia horrida* and *Delphinium robustum*. I hope that having discussed these species at the symposium this year piques your interest and gets you out to help solve some of Colorado's botanical mysteries! We are far from a complete understanding of Colorado's rare flora, leaving plenty of opportunities to make some important findings.

Concluding Remarks

The minutes from the Symposium will be posted on the CNHP website (www.cnhp.colostate.edu/reports.html) for free download by the end of the year. The slideshow will also available for download, which includes lots of nice range maps, photos of rare plants, and summary information.

Table 1. G2 species covered in the 3rd Annual Rare Plant Symposium.

Species	**Conservation Status Rank**
Asclepias uncialis ssp. *uncialis*	G3G4 T2T3 S2
Cleome multicaulis	G2G3 S2S3
Delphinium ramosum var. *alpestre*	G2 S2
Delphinium robustum	G2? S2?
Draba exunguiculata	G2 S2
Draba grayana	G2 S2
Draba smithii	G2 S2
Grindelia inornata	G2 S2
Herrickia horrida	G2? S1
Lesquerella calcicola	G2 S2
Nuttallia chrysantha	G2 S2
Nuttallia densa	G2 S2
Oenothera harringtonii	G2 S2
Oonopsis foliosa var. *monocephala*	G2G3 T2 S2
Oonopsis puebloensis	G2 S2
Oxybaphus rotundifolius	G2 S2
Penstemon degeneri	G2 S2
Ptilagrostis porteri	G2 S2
Telesonix jamesii	G2 S2G2S2

Which wildflower guide to choose?

Jan Loechell Turner

It's a bit late in the season for a discussion of wildflower guides, but it is an irresistible subject for me. Which are the best guides for Colorado hikers?

An attractive, spiral-bound pocket guide to wildflowers of the high country is photographer David Dahms' inexpensive *Rocky Mountain Wildflowers*. The photography is beautiful and although, for most species, only a close-up of the plant is included, the arrangement by color makes the guide easy to use. Over 119 commonly seen flowers (out of over 2,000 species in Colorado) are included, so you have a good chance of finding at least a close relative of the plant you are attempting to identify. Another pocket book of the same size and format, also called *Rocky Mountain Wildflowers*, is by botanist Ronald Taylor. Originally published in 1978, the third edition of Taylor's book was published in 2002. As is typical of books authored by Taylor, it is filed with fascinating plant ecology and other information in addition to color photos.

I would not want to part with the two volume set by G.K.Guennel (rhymes with tunnel), *Guide to Colorado Wildflowers*. Volume 1 is subtitled Plains & Foothills and Volume 2, Mountains. Plants don't recognize these boundaries, so you will find both books indispensable no matter where you are hiking in Colorado. Although these paperbacks aren't cheap ($24.95 each) and the photography is not as outstanding as Dahms', these books contain more plants than Dahms' guide and are often in my rucksack when I am out botanizing. Plants are grouped first by color and then by plant family. In addition to a photograph and watercolor, descriptive information can be found for each plant.

Dichotomous keys are like a roadmap. Each couplet consists of choices (for example, flower red or flower yellow). You select the one that seems closest. This can be a challenge since it may be a feature that is difficult to determine. With luck, you will be guided to the identification of the plant. If one route doesn't lead you to the proper plant, try a different route in the key. Janet Wingate, Curator of the Herbarium at the Denver Botanic Gardens, has created a useful, simple key to flower families (and a number of species) in the foothills, *Rocky Mountain Flower*. With Loraine Yeatts, she has also produced *Alpine Flower Finder*. The books are not comprehensive, but are a good introduction to plant identification by keying, made easier by Wingate's line drawings. These books are a great aid to familiarize yourself with the characteristics of plant families. Once you can recognize plant families, it is much easier to correctly identify the species.

For comprehensive dichotomous keys, William A. Weber's books, *Colorado Flora: East Slope* and *Colorado Flora: West Slope* are the place to turn. An older, smaller guide by Weber, *Rocky Mountain Flora*, is geared for the Front Range and does not have the updated plant names. Weber's books are for serious botanists, contain technical terminology (a glossary is included), and require the use of a hand lens or stereoscopic microscope. There are some sections of illustrations, but these are not picture guides. Basic descriptive information such as the flower color, size of plant, leaf shape, etc. are often lacking in keys. Although formal descriptions of the plants are not included, Weber's books contain interesting information about some of the genera, species, and plant families, which is a plus. H.D. Harrington's out-of-print classic, *Manual of the Plants of Colorado*, is the most recent manual for Colorado, containing descriptions of all of the then known plant species in the state. Although no longer in print, the book is available as a CD from CONPS. It is a huge, heavy book to be used for reference, not for toting in the field.

A number of botanists that I know got their start with Ruth Ashton Nelson's book, *A Guide to Rocky Mountain Plants*. It has recently been updated by Linda and Richard Beidleman and Beatrice Willard under the title, *Plants of Rocky Mountain National Park*. It has line drawings and a dichotomous key but is really geared more to the flowers of Rocky Mountain National Park.

Pamela Irwin and her husband, David, have produced a series of wildflower hike books, *Colorado's Best Wildflower Hikes*, good companions to the guides mentioned above. The books are not wildflower guides, but hiking books with discussions of where and when to find interesting and beautiful flowers in bloom. Colorado Mountain Club recently published a book, *Rocky Mountain Flora*, by Jim Ells, a retired CSU horticulture professor. It is a large paperback with numerous illustrations. Like Guennel's books, it is arranged by flower color. Locations where each plant may be seen are also included.

So, how do you decide which book you should purchase? If you are a beginning plant enthusiast, you may want to start with Dahms' or Taylor's pocket guides and then decide if would like to learn more. Next, try playing with keys in the Wingate/Yeatts books. If you are becoming hooked, add Guennel and, if you are really serious about it, you must have Weber's Colorado Flora books, which are the only books that will have all of the species of plants that you may encounter. In some cases, it can be challenging to see the features that Weber uses to distinguish species, so it is handy to have picture guides like Guennel, to help figure out if you are on the right track. Botanists, like librarians, tend to be ardent book collectors. Hopefully this article will give you a start in building your wildflower guide library. Happy botanizing!

Book Review

Jan Loechell Turner

Colorado Wildscapes: Bringing Conservation Home. Audubon at Home in Colorado. Boulder: Audubon Colorado, 2005. $12.95

In September, Connie Holsinger of Audubon Colorado presented a CoNPS workshop on wildscaping and introduced participants to this useful book. Wildscaping is "creating healthy diverse habitats that include native plantings to feed, shelter, and nurture wild creatures." Filled with color illustrations, Colorado Wildscaping provides information on building, designing, and maintaining a wildscape habitat.

Landscaping ideas for five wildscape regions (plains grassland, piñon-juniper woodland, ponderosa pine forest, spruce/fir/aspen montane, and the riparian/wetlands wildscape zone) are introduced with examples of gardens by "Habitat Heroes" for each region. These examples can inspire the reader to convert their yard into a wildlife habitat of native plants that will attract wildlife throughout the year in harmony with the soil, climate, and water needs of the region.

The Resources section includes lists of recommended native flowers, shrubs, and trees by wildscape region. Also contained in this section is a list giving the scientific name of plants discussed (by common name) in the text of the book.

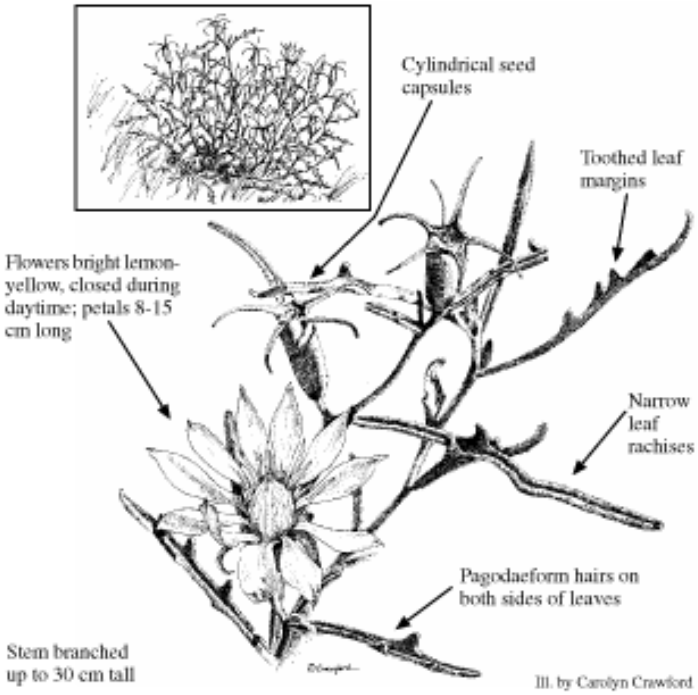
The National Wildlife Federation has their Backyard Wildlife Habitat Certification Program and has published books on gardening for wildlife, but Audubon's Colorado Wildscapes is distinctive because of its focus on our state and the use of native plants in creating a wildlife habitat. This reasonably priced book would make a great holiday gift. How perfect to curl up in a chair on a winter day and plan a wonderful backyard habitat of native plants for the coming spring.

Colorado Wildscapes may be purchased in person at CoNPS workshops and meetings. If you wish to purchase this book online, first go to the CoNPS website (www.conps.org) and click the "Buy from amazon.com" link. This way your purchases will benefit CoNPS.

After the rain

Mikl Brawner

Drooping clusters of purple-black chokecherries
Dancing with frothy white sprays of Virgin's Bower,
Meeting massive slabs of rock
jutting from the hillside;
Bird calls cutting through the quiet air
Last night's track of raccoon
In the smooth mud
After the rain.



Nuttalia densa *Arkansas Canyon Stickleaf*

New Workshop Microscopes Have Arrived!

Mary Ellen Ford, Workshop Coordinator

With the incredibly generous assistance and able guidance from Keith Anderson (the father of CONPS member Dave Anderson) who is retiring from the microscope sales and service business, the Society has purchased the perfect workshop microscopes. Keith was able to provide us a great deal (70% of the usual selling price) on ten Swift stereo microscopes wi th zoom magnification (10X, 20X, 40X); cordless top and bottom illumination (rechargeable); and a 360 rotatable head. Workshop participants will now be able to delimit variation of trichomes, venation, and leaf margin dentition. E ach microscope has its own carrying case to facilitate transport to the workshops.

Treasurer Denise Culver creatively freed up temporary funds from the Society's general coffers. The Microscope Fund will repay the "loan" over time from the portion of the workshop registration fees designated for microscope purchase and from contributions. If you wish to contribute to expedite microscope repayment, please send a check payable to CONPS Microscope Fund, c/o Mary Ellen Ford, 2133 13th Street, Boulder, CO 80302.

Mapping and Census Survey of *Townsendia glabella* A. Gray: Mesa Verde National Park, Southwest Colorado

Lynn M. Moore, Windom Floristics

Townsendia glabella A. Gray is an endemic member of the Asteraceae, restricted to southwestern Colorado. There are documented occurrences of *T. glabella* in Montezuma, La Plata, and Archuleta counties. *Townsendia glabella* is rare throughout its limited range. The center of distribution for *Townsendia glabella* appears to be in Archuleta County, near Pagosa Springs, Colorado. There are only five records for the species in the Colorado Natural Heritage Program (CNHP) database, of which two are historic, from 1930 and 1941, two are unranked, and one is ranked A with 200 individuals. An A ranked occurrence has the size, condition quality, and landscape context to be considered a population with excellent viability. *Townsendia glabella* was re-discovered on private land adjacent to MEVE in 2004 by Peggy Lyon for the Nature Conservancy. Over 700 individuals were observed at that time. The population found in MEVE is the farthest known western occurrence and is an A ranked occurrence. The next largest documented population of this species was estimated at 200 individuals in Archuleta County. In 2005, Lyon discovered an additional occurrence near Pagosa Springs and she believes this occurrence to be the largest known population of *T. glabella* to date.

Mesa Verde National Park has negotiated a land acquisition that contains a portion of this population. The Nature Conservancy has been working with Mesa Verde National Park to acquire approximately 200 acres of the Henneman Ranch with the ultimate goal of adding it to the park so that this species can be better protected from future threats of development. The landowners support the proposition. The Mesa Verde National Park Natural Resource Office needed to map and census this population in order to help support the land acquisition. The purpose of this survey is to provide a more precise map of the location of this species within and adjacent to the MEVE NPS land boundary and provide a estimate of the numbers of individuals occurring in the target area.

Methods

This study is a species-specific intensive survey. Consequently the target area was restricted to the boundary region between the Henneman Ranch and MEVE. Inventory and mapping were accomplished by pedestrian surveys. All data was entered into a GIS/GPS data logger (Trimble GeoExplorer 3). Location data was recorded by satellite using Trimble GPS and supplemented with personal observations and directions when possible. Spatial data was differentially corrected. Habitat characteristics noted include aspect, elevation, landscape position, geologic formation, dominant tree cover, large fire history, soil characteristics, and vegetation cover (including tree, shrub, forb, grass, nonvascular, and bare ground). Slope was recorded using a clinometer at each of the sites at the point where the GPS position was taken and generally as a downhill measurement. It is expressed here in degrees and was recorded in 5 degree increments. Census data recorded at each site included a count (estimated if population was large and generally inaccessible to count accurately), species cover, area of census, reproductive status including numbers of individuals flowering, fruiting, vegetative, or present as seedlings. Additionally, invasive species and percent cover of each invasive was documented. Evidence of predation from mammal grazing or insects was also noted. Other possible threats noted include fungal attacks, drought, construction, erosion, or deposition.

Vegetation cover, species cover, and invasive cover were recorded using a modified version of Braun-Blanquet cover classes. Cover classes used in this inventory are R = rare (0-1 plant), 0 = <5% cover, 1 = 5-10% cover, 2 = 10-25% cover, 3 = 25-50% cover, 4 = 50-75% cover, and 5 = >75% cover.

Results

The results of the inventory yielded 18 occurrences located along the boundary between the Henneman Ranch and MEVE. Six of the occurrences were located on the Henneman Ranch and the remaining 12 were located on MEVE NPS lands. Four of the occurrences were relatively large and consisted of 100 or more individuals. Table 1 presents the ownership, occurrence ID number, and census data for the mapped locations. A total of 1,189 individual plants were estimated to occur in the target area. There are approximately 471 individuals located on NPS lands. The remaining 718 are located on the Henneman Ranch, including the largest occurrence in the survey area.

Most of the observed individuals were either fruiting or flowering (502 with flowers, 250 with fruiting heads). The remaining 447 individuals were vegetative. Table 1 shows the reproductive status of the observed individuals present at each site. No seedlings were observed.

Habitat data collected at the site showed that *Townsendia glabella* is restricted to the Smokey Hill Member of the Mancos Shale (oyster bed). The 18 occurrences occurred either directly on the mapped formation or indirectly on the alluvium surrounding the oyster beds. This geologic formation forms a prominent oyster bench about 300 ft thick and approximately 900 ft above the base of the Mancos Shale. In the field, the soil type appears as a light colored small gravelly surface held together by a clay matrix in which ancient oyster shells can be discerned.

The *Townsendia glabella* occurrences were all located on more or less gently sloping terrain. Most of the locations were on top of small ridges and a few of the occurrences were situated on the side of these hills. Slope was generally 0-5 degrees but varied up to 10 degrees. The individual plants were widely spaced and sometimes occurred along the sides of small shallow washes that drain the benches formed by the oyster beds. All but one of the occurrences were on south, southeast, to southwest facing slopes. The individual plants at one location were facing north. Elevation was consistent across all 18 locations and varied 30 m (100 ft) from 2,119 to 2,148 m (6,950 to 7,050 ft).

"**Mapping** " continues on page 6

"**Mapping**" continued from page 5

The vegetation in the surrounding area consists of piñon-juniper woodland dominated by piñon pine and Utah juniper (*Pinus edulis-Juniperus osteosperma*). Area tree cover was estimated to be 10-25%. Associated shrubs include Gambel oak (*Quercus gambelii*), serviceberry (*Amelanchier utahensis*), and sagebrush (*Artemisia tridentata*). *Townsendia glabella* occupies the openings within the piñon-juniper woodland. These openings are sparsely vegetated (50-75% bare ground) with widely spaced clumps of grasses and scattered forbs such as Indian ricegrass (*Oryzopsis hymenoides*) and squirreltail (*Elymus elymoides* subsp. *elymoides*). Typical forbs that are present in these openings include twin bladderpod (*Physaria acutifolia*), Fort Wingate milkvetch (*Astragalus wingatanus*), *Alyssum* sp., and *Eriogonum* sp. Occurrence numbers 9 and 10 were located close to the edges of the openings and one individual was rooted in duff beneath a juniper tree.

Table 1. *Townsendia glabella* survey results, including occurrence number, land ownership, count, size of occurrence, species cover class, and reproductive status.

Occurrence ID Number	Ownership	Size of Occurrence	Count	Abundance (% Species Cover)	Number Vegetative	Number Flowering	Number Fruiting
1	Private	5869 sq m	700	5-10%	200	300	200
2	NPS	1883 sq m	150	< 5%	75	50	25
3	NPS	1238 sq m	100	5-10%	50	50	0
4	Private	1m x 1m	3	< 5%	1	2	0
5	Private	5m x 5m	2	< 5%	0	2	0
6	Private	1m x 1m	1	Rare	0	0	1
7	NPS	30m x 30m	7	< 5%	2	4	1
8	NPS	1m x 1m	1	Rare	0	1	0
9	NPS	5m x 5m	12	< 5%	7	2	3
10	NPS	5m x 5m	6	< 5%	4	2	0
11	Private	25m x 25m	6	< 5%	3	3	0
12	Private	1m x 1m	6	< 5%	4	2	0
13	NPS	30m x 30m	25	< 5%	14	6	5
14	NPS	20m x 20m	25	< 5%	15	10	0
15	NPS	20m x 20m	10	Rare	5	5	0
16	NPS	30m x 30m	30	< 5%	15	10	5
17	NPS	5m x 5m	5	< 5%	2	3	5
18	NPS	30m x 30m	100	5-10%	50	50	5

Discussion

The purpose of this report is to present the results of a species-specific survey of *Townsendia glabella* within a small, defined geographic area. *Townsendia glabella* is a caespitose perennial with bluish-white ray flowers. It can be confused with *T. incana*, an abundant and common member of the genus. The two species can and do co-occur. One occurrence is documented with 10 plants that grew around and among *T. incana*. *Townsendia glabella*, despite its name, is not completely glabrous. It can have small, sparse hairs along the edges of the leaves and on the stems. The pubescence can be uniform and occur all over the stems and leaves. Additionally the leaves of *T. glabella* are wider, more oblanceolate to almost spatulate in some individuals. Townsendia incana is characterized by having copious amounts of hair on the leaves and stems, giving a cinereous appearance to the leaves and stems. The stems of *T. incana* in fact are very densely covered and it is difficult to see any of the stem surface if at all. The leaves of *T. incana* are narrower and more lanceolate in outline.

The observations of various levels of pubescence on *Townsendia glabella* indicates that possibly it is breeding with its more abundant counterpart and/or the natural variation within *T. glabella* is not fully understood. Peggy Lyon has speculated that these two species may hybridize. The surface of the stem is visible and it is not densely white hairy, nevertheless these hairs may cause some confusion in identification. The presence of these hairs may indicate some degree of cross breeding with *T. incana*. Additionally, Lyon's 2004 survey along the west side of the main entrance road into the park revealed some individuals of *T. glabella* that consistently became more hairy and the leaves more narrow as the survey continued.

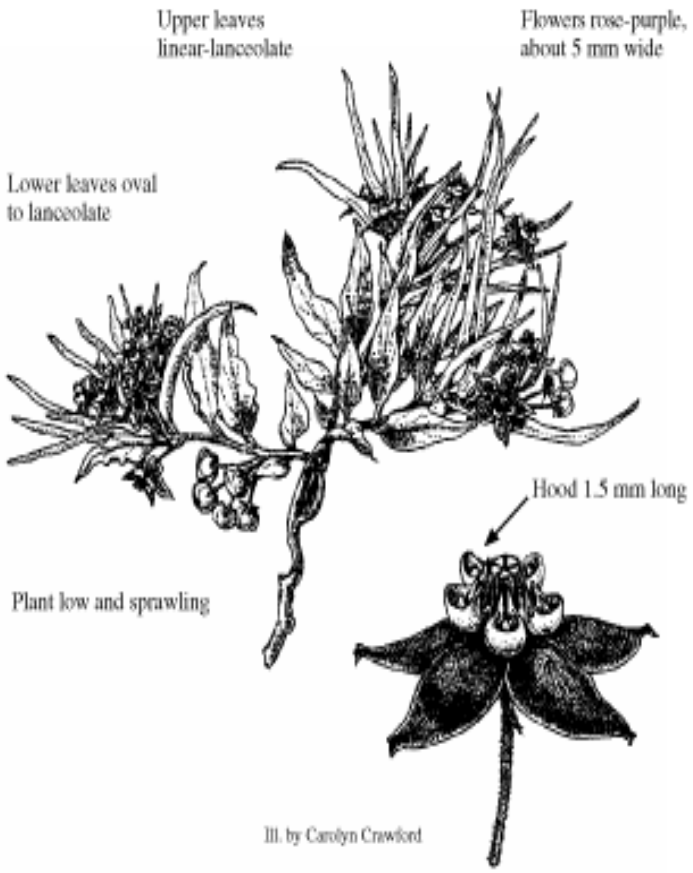
Townsendia glabella is restricted to the Mancos Shale in southwest Colorado. In MEVE, it is restricted to the Smokey Hill Member (oyster beds). The locations in Archuleta and La Plata County also occur on the Mancos Shale, but the specific member was not determined. *Townsendia glabella* is known to occur with *Ipomopsis polyantha*, a United States Forest Service (USFS) sensitive species. During a species survey and monitoring project for *I. polyantha* numerous individuals of *T. glabella* were located in the Pagosa Springs area. It was during these surveys in 2005 that Lyon discovered a population of *T. glabella* that was significantly larger than the MEVE occurrence, consisting of thousands of individuals. A recent USFS Region 2 species assessment report, written by Anderson in 2004, states that *T. glabella* as a common associate species of *I. polyantha*. The species assessment for *I. polyantha* did not report a specific member of the Mancos Shale where these two species co-occur.

The results of this survey showed a significant number of individuals of *Townsendia glabella* occurring on both the Henneman Ranch and on MEVE NPS lands. Because the population of *T. glabella* is essentially centered across both the Henneman Ranch and MEVE it would benefit the conservation of this species to place the entire population under MEVE protection. The land acquisition would consolidate the land holdings and ensure the protection of this rare endemic species. Further surveys of the Smokey Hill oyster beds within the park would help to further define the extent of this population.

Acknowledgements

Windom Floristics would like to thank the Colorado Native Plant Society Myrna L. Steinkamp Fund for providing financial assistance in support of this project. Peggy Lyon of the Colorado Natural Heritage Program shared her field results and Susan Spackman Panjabi provided element occurrence ranking definitions. The Mesa Verde National Park Natural Resource Office provided permits, access information, and maps of the area. George San Miguel provided valuable support in procuring the funding and specific information about the land acquisition. Much gratitude goes to Marilyn Colyer of the Natural Resource Office for sharing her knowledge of the geology and habitat information for Mesa Verde National Park. Thank you to Jan Loechell Turner for reviewing the report.

WORKSHOPS



Asclepias uncialis *Dwarf Milkweed*

Registration is mail-in only and requires payment at the time of registration. The fee for attending a workshop is $20 per session for members only. Non-members must join CONPS to register for a workshop. The registration fee is non-refundable.

Participation is often limited and registration is processed in the order received. If the workshop has already been filled, you will be notified, your check will not be deposited, and you will be added to the waiting list if that is what you desire.

To register, please mail your check, payable to CONPS for $20 per workshop, along with the following information: title and date of the workshop(s), your name, address, telephone number and email address. Registration can only be processed with all of this information. Please use the registration form provided.

Mail registration form to
Mary Ellen Ford
2133 13th Street
Boulder, CO 80302

For those who need to cancel at the last minute, we appreciate your $20 contribution to CONPS and ask that you call or email Mary Ellen (303-449-7334 or Fordmaryel@aol.com) so she has the opportunity to fill your spot.

GYMNOSPERMS
Leader: Leo P. Bruederle
Location: Downtown Denver Campus of the University of Colorado at Denver and Health Sciences Center North Classroom Building 3419
Only Session: Saturday, December 9, 2006
Time: 9 am to 3 pm

Gymnosperms, specifically conifers, dominate the landscape of much of Colorado, and, in fact, they form the basis by which we classify many of Colorado's communities and ecosystems. This workshop will introduce participants to the North American families of gymnosperms, as well as those families and genera that are important to the Colorado flora. Additionally, participants will obtain experience keying our native species, with an eye toward ready identification in the field.

INTRODUCTION TO GRASS TRIBES WITH EMPHASIS ON THE WHEAT/BARLEY TRIBE
Leader: David Buckner
Location: Foothills Nature Center, Boulder
First Session: Saturday, January 13, 2007
Second Session: Sunday, January 14, 2007
Time: 9 am to 3 pm

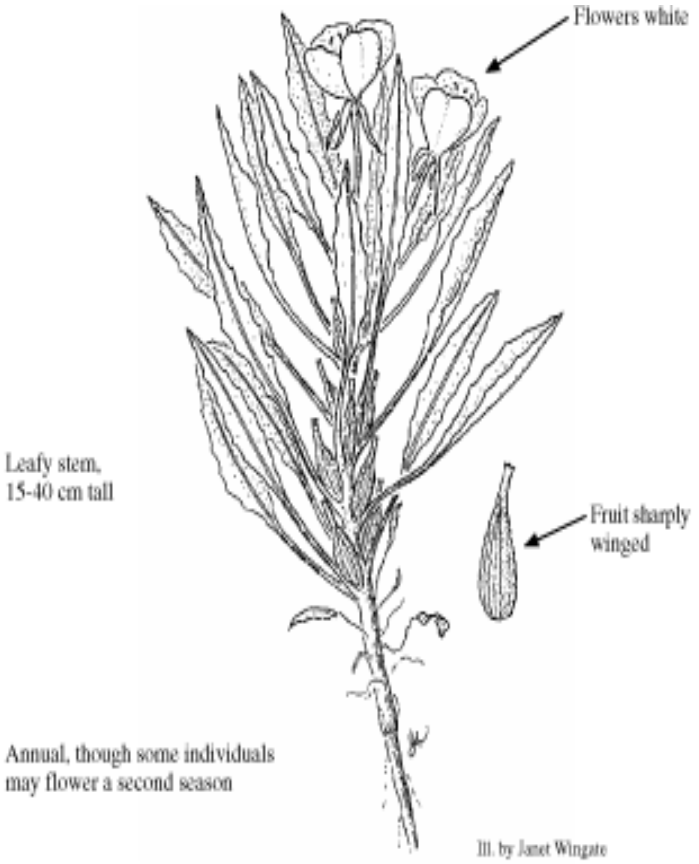
Participants will be led through the basics of grass floral structure and nomenclature (along with side trips to ecology, evolution and domestication). This iteration of the workshop will include special emphasis on the wheat/barley tribe and a more detailed treatment of the prominent native species of this group - for example wheatgrasses and wildryes (but also including squirrel tails, barleys, etc.). Class members will have available mounted specimens for review as well as collected materials for dissection.

***POTENTILLAS* OF COLORADO**
Leader: Rich Scully
Location: Foothills Nature Center, Boulder
First Session: Saturday, February 10, 2007
Second Session: Sunday, February 11, 2007
Time: 9 am to 3 pm

Potentilla species are notoriously difficult to separate, partly because hybridization sometimes results in a continuum of variation. Photographs will show the identifying characters between the Colorado species of *Potentilla*, as well as the closely related genera *Drymocallis* and *Comarum.* An expanded key will be provided and pressed specimens will be available on which to practice identification skills. We will discuss how to distinguish commonly confused species or otherwise deal with uncertainty in identification.

Workshops will be held each month from September through May along the Front Range. Most workshops will be held in Boulder but we are actively seeking members from the West Slope, Fort Collins, Denver and Colorado Springs who would be willing to coordinate one or two workshops a year in those areas. Contact Mary Ellen Ford if you are interested (Fordmaryel@aol.com or 303-449-7334).

ANNOUNCEMENTS



Oenothera harringtonii *Arkansas Valley Primrose*

New on the CONPS Website

Be sure to check your CONPS web site for chapter programs, new workshops, and the new Botanical Slide Shows on "*Botrychiums* of Colorado" and "Orchids of Colorado".

And while you are on the web site remember to start your holiday Amazon shopping by entering Amazon through the CONPS Bookstore at http://www.conps.org/bookstore.html . CONPS will then receive 5-7% of anything you purchase on Amazon.

Aquilegia via Email

Aquilegia is available via email as an Adobe document. File size is typically 2-3 MB and fast internet connections are needed to download or view it. Send your email address to Eric Lane, eric.lane@ag.state.co.us.

Aquilegia Submissions

Submit contributions for Vol. 31, No. 1 by Dec. 30, 2006 to kimberly.regier@cudenver.edu as an MS Word or rtf document. Alternatively, mail submissions to Kim Regier, Biology Dept, Campus Box 171, PO Box 173364, Denver, CO 80217-3364.

If you have a great idea for a new column for *Aquilegia*, please let me know!

New Wildflower Website

Andy Kratz

In July, the USDA Forest Service launched a new web site for Celebrating Wildflowers. Every Region, Forest, Grassland and Prairie contributed to the content of this new site. Emphasis areas include: Pollinators, Beauty of it All, Native Gardening, Just for Kids, Teacher Resources, and Plant of the Month to name a few. There is even a collection of high quality photos available for download as computer "wallpaper." This new web site also serves as a gateway to an enormous amount of botanical information provided by our national partners (including a link to the CONPS web site). The majority of our partners are reciprocating with links to the new Forest Service web site, which will dramatically increase the traffic to this new site and will also emphasize the close working relationship with our public and private partners. The site highlights wildflowers, but actually serves as the primary web site for botanical matters in the Forest Service. A number of additional modules (such as rare plants, native plant materials, ethnobotany, lichens, ferns and other botanical subjects) are under development and will be posted to the site as they are finalized. The URL for the web site is: http://www.fs.fed.us/wildflowers/

Become a Native Plant Master

Native or noxious? Distinguishing native plants from noxious weeds is just one of the skills that participants learn in the Native Plant Master program, sponsored by Colorado State University Cooperative Extension. The field-based courses are held on local open space parks and other public and private lands. Courses focus on plant identification with an emphasis on scientific names and families, ecology, landscaping, ethnobotany and other human uses. The text used is *Colorado Flora: East Slope* and *Colorado Flora: West Slope* by Weber and Wittmann.

Registration is limited. Applications are due for all county programs by March 15, 2007. The cost is $90 per course and each course is made up of three, four-hour sessions. Courses are offered at $50 per course to participants who agree to teach at least 10 people per year for each course taken in public programs about Colorado plants. Participants who pass three courses and satisfy the teaching requirement become certified Native Plant Masters.

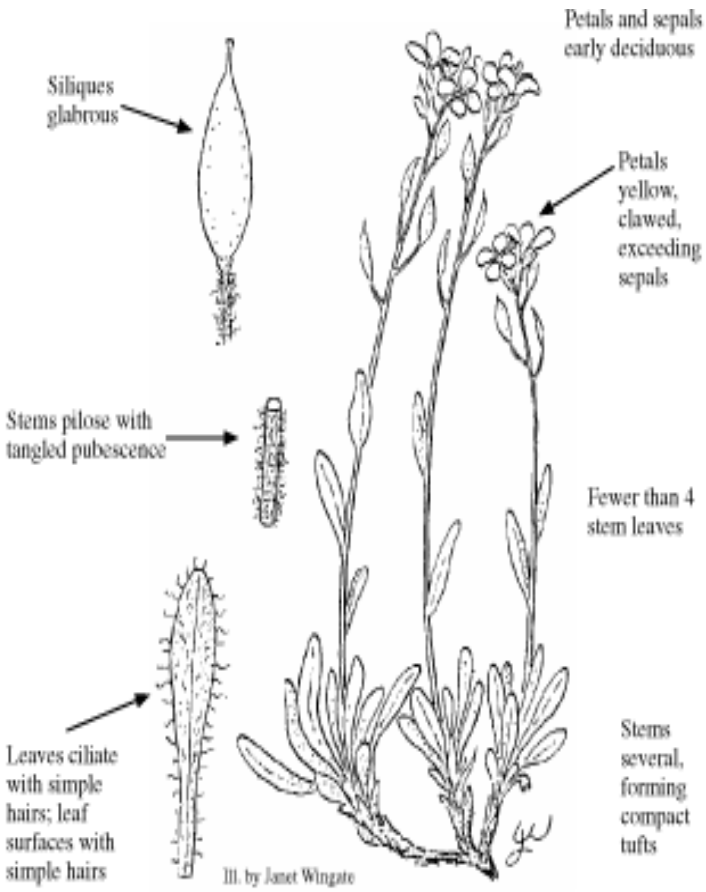
Registration and course information is available for each county program at (303) 271-6646 (Jefferson and Gilpin counties), (970) 328-8630 (Eagle County), (970) 565-3123 (Montezuma County), (970) 327-4393 (San Miguel and West Montrose counties), (970) 244-1836 (Mesa County), (970) 522-3200 (Logan, Morgan and Washington counties) and (719) 406-4616 (Pueblo County).

Plant identification made easy... the Orwellian way!

Dr. Bill Weber

"'Imagine what it would do to any and all aspects of human interactions with wild plants if you could walk up to any plant anywhere -- seedling, sapling, 40 m tree, grass, root, pressed leaf, or fallen log -- and know in a few seconds its scientific name. That capacity would transform far more than the science of plant biology, the conservation of plants, and the superficial ways we currently make use of the incredible diversity of form, physiology, genetics and chemistry of plants. It would be to plants what the printing press was to stories, education, science, law, medicine, and communication (Janzen, 2005).' Once fully developed, DNA barcoding has the potential to completely change not only how biologists understand and monitor diversity, but also, as emphasized by Janzen, the relationship of the general public to nature. When a hand-held DNA 'barcoder' (portable DNA sequencing device) becomes available in a few years, the new technology will help many non-scientists, whether they are in the field, garden, or market, to quickly and inexpensively identify known species and retrieve information about them. If implemented successfully, bar-coding will provide a vital new tool for appreciating and managing the Earth's immense and changing biodiversity [from Cowan et al., DNA barcoding of land plants, in TAXON 55:611--616. 2006]."

Don't hold your breath though. It won't give you common names!



Draba grayana Gray's Peak Whitlow-Grass

New Members

CONPS would like to welcome the following new members: Lynn Albers & Dennis Laird, Deb Babcock, Beth Brenneman, Bill Brenneman, Suzanne Brody, Leigh J Burbank, Jack & Martha Carter, Jeff & Gabry Cornell, Lee Curtis, Bill Debow, Kam Ford, Paula Fornwalt, Alix Gadd, Bob & Karen Gemmill, Ann Getches, Renae Giefer, Jenny Glendinning, Gail Gordon, Philip & Gayle Gronemeyer, Ed Haas, Rod & Carolyn Sue Hall, Pam Hamamoto, Deborah Henson, Connie Holsinger, Jo Nell How, Kevin Kovacs, Amy Hunnicutt & Daniel Levine, Charles S Miller, Catherine Moravec, Nancy Mulvany, Jennifer Neale, Steve Olson, Megan Paden, Andrew Philpott, John Powell, Thomi Quackenbush, Bonnie Rozean, Joanie Schneider, Julianne Seieroe, Linda Smith, Celia & Robert Southwick, Deby Stabler, Chris Story, Mel Tessene, Kent Timmerman, Brian Vanden Heuval, and Signe Wheeler.

UCDHSC Herbarium Incorporated into Kathryn Kalmbach Herbarium at DBG

Jan Wingate

The University of Colorado at Denver and Health Sciences Center (UCDHSC) Herbarium has been incorporated into the Kathryn Kalmbach Herbarium (KHD) at Denver Botanic Gardens (DBG). The UCDHSC collection consists of over 2,000 well documented and well prepared specimens. The most prominent collectors are Emily L. Hartman and Mary Lou Rottman, former professors at UCDHSC and dedicated alpine researchers. A few of the numerous alpine areas documented in the collection are Boreas Pass, Horseshoe Basin and Mount Bross of the Mosquito Range; Cinnamon Pass, Engineer Pass, Ophir Pass, Burns Basin and Stony Basin of the San Juan Mountains; Hermit Pass, Music Pass and Horseshoe Lake of the Sangre de Cristo Mountains; Taylor Mountain, Monarch Pass, Cottonwood Pass, Tin Cup Pass and Cumberland Pass of the Sawatch Range; Owens Pass, Gunsight Pass and Baxter Basin of the West Elk Mountains; and Mount Baldy Basin of the Elk Mountains. The collection contains a very good representation of the alpine flora of Colorado plus rare plants such as *Papaver radicatum* subsp. *kluanensis* and *Parnassia kotzebuei*. Species from lower elevations are also well represented in the collection.

The UCDHSC specimens are a wonderful addition to the KHD collection. They document many new areas for KHD, increase the alpine representation and bring KHD's total collection to over 42,000 specimens. Label data from the UCDHSC specimens will soon be available online, or come see the collection in person. Visitors are always welcome.

CHAPTER NEWS

Plateau Chapter

Contact Chapter President Jeanne Wenger at (970)256-9227, stweandjaw@acsol.net or Gay Austin, austinaceae@frontier.net or (970)641-6264, for meeting information.

November 18
Potluck & Meeting, Saturday, 10:00 - 1:30.
Come to the Plateau Chapter Fall Potluck & Meeting and meet a rare CO native plant! The clay-loving buckwheat lives **only** in western Colorado. Bring a dish to share and the chapter will provide something to drink. There will be drawings for matted color photos of this rare plant as well as other stunning photographs of native plants. A $2 admission will get you one chance to win and you may purchase more tickets. Location: Mesa State College in Grand Junction, Wubben Science Hall Building (Weldon Lecture Hall).

Boulder Chapter

Monthly meetings are the second Thursday of the month at 7 PM at the City of Boulder Open Space and Mountain Parks offices in the north building conference room, 66 South Cherryvale Road. From South Boulder Rd., go south on Cherryvale 1/10 mile and turn west onto a lane to the offices. For schedule information, contact Chapter President Deby Stabler, (303)902-4679 or debystabler@yahoo.com.

November 9
Ethnobotany in Foreign Places
Ethnobotany is the study of the interaction of plants and people. In this presentation, ethnobotanist Trish Flaster will talk about her experiences working with farmers to build sustainable supply of medicinal crops in Nicaragua and Sri Lanka. Native plants and cultural biodiversities of foreign lands will be examined as a special subject relating to botanical and cultural preservation.

December 7
Efforts to Preserve Colorado Rare Plants
The Colorado Natural Areas Program (CNAP) is a statewide government program that works cooperatively to protect Colorado's best natural features. Come learn what CNAP is doing to protect native plants and plant communities, and learn how to get involved in a project to save an endangered Colorado endemic.

January 11
Plants in the Boulder Creek Watershed
A Pre-Spring Appetizer! Boulder creek...it's just a river, but one that flows through an enormously rich variety of habitats. Join us for a photo-trek to discover more about our river system and the plants growing in the various habitats the river crosses on its way from the Indian Peaks to the beginning of to the beginning of prairie.

February 8
Local Tallgrass Prairies
Boulder's Tallgrass Prairie and South Boulder Creek state natural areas support some of the best-preserved stands of native tallgrass prairie in eastern CO. Boulder Open Space ecologist Lynn Riedel will give an overview of these prairies and their significant plant communities. Boulder naturalist Steve Jones will show close-up images of flowering grasses, wildflowers, beetles, butterflies, amphibians, and other wildlife.

Southwest Chapter

For news and activities, contact Chapter President Al Schneider, 970-882-4647, webmaster@conps.org.

Fort Collins Chapter

Monthly meetings are held on the first Wednesday of the month at 7 PM at the Gardens on Spring Creek, 2145 Centre Ave., Fort Collins. Dinner with the speaker will be at 5:30 PM at Avogadro's Number on Mason Street. Please contact Denise Culver the day before if you will join us for dinner, (970)686-7428 or dculver@lamar.colostate.edu.

December 6
If Trees Could Talk
Peter Brown, Rocky Mountain Tree Ring Research Institute

February 7
Colorado Natural Areas Program
Brian Kurzel, Colorado Natural Areas Program
Come learn what CNAP is doing to protect native plants and plant communities, and learn how to get involved in a project to save Eriogonum pelinophilum, clay-loving buckwheat, an endangered CO endemic.

March 8
Rare Plants, Plant Communities, and Birds of Soapstone Ranch
Crystral Strouse, City of Fort Collins Open Space/Natural Areas and David Hanni, Rocky Mountain Bird Observatory Note: Meeting held in conjunction with the Fort Collins Audubon Chapter at the Lincoln Center Columbine room with social at 7:00 and the presentations start at 7:30.

April 11
Ecology of Blue Grama - CO's State Grass
Renée Rondeau, CNHP

Metro-Denver Chapter

Monthly meetings are held Sept. through April at 7 PM in the Waring House Main Room (unless otherwise noted) at the Denver Botanic Garden (the mansion just south of the main entrance on York Street). To enter, head south on York past the Gardens main entrance. Make an immediate right into parking lot that says "Staff Parking." Members are invited to join speakers at 5:30 PM at Angelo's, 620 East 6th Ave (between Pearl and Washington) in Denver. For more information, contact Chapter President Naomi Nigro, (303)366-6033 or Naomi4CoNPS@hotmail.com.

December 12 Gates Hall
Secret Little Places in Common Open Spaces, **Vickey Trammell**
Our Holiday Celebration! Please bring a dessert to share! Sometimes things happen to people and they can't do what they used to do or hike as far as they want. Sometimes family obligations use up the time that used to be spent in the mountains. But all is not lost. Common, easy to get to and easy to walk in open spaces have some surprises, if you will take the time to look!

January 30
Botrychium, Peter Root

February 27
Jennifer Neale will be discussing her work involving the development of conservation planning tools. Through her work with native Hawaiian species, Jennifer aims to develop conservation tools that incorporate both genetic and ecological data. This talk is for beginners as well as experienced botanists.

Colorado Native Plant Society

Aquilegia

The Colorado Native Plant Society is a non-profit organization dedicated to the appreciation and conservation of the Colorado native flora. Membership is open to all with an interest in our native plants, and is composed of plant enthusiasts both professional and non-professional.

Please join us in helping to encourage interest in enjoying and protecting Colorado's native plants. The Society sponsors field trips, workshops, and other activities through local chapters and statewide. Contact the Society, a chapter representative, or committee chair for more information.

Schedule of Membership Fees

Life	$250
Supporting	$50
Organization or Corporate	$30
Family or Dual	$20
Individual	$15
Student or Senior	$8

Membership Renewal/Information

Please direct all membership applications, renewals and address changes to Eric Lane, Chair of Membership, Colorado Native Plant Society, P.O. Box 200, Fort Collins, CO 80522. Please direct all other inquiries regarding the Society to the Secretary at the same address.

Aquilegia is published four or more times per year by the Colorado Native Plant Society. This newsletter is available to members of the Society and to others with an interest in native plants. Articles for *Aquilegia* may be used by other native plant societies or non-profit groups, if fully cited to author and attributed to *Aquilegia.*

Articles from 500 to 1500 words in length, such as unusual information about a plant, are welcome. Previously published articles submitted for reprinting require permission. Digital photographs or line drawings are also solicited. Please include author's name and address, although anonymity may be requested. Articles must be submitted electronically.

Please direct all contributions to the newsletter to:
Kim Regier
E-Mail: kimberly.regier@cudenver.edu

Officers

President	Leo Bruederle	303-556-3419
Vice-President	Alice Guthrie	3036513127
Secretary	Kim Regier	303-556-8309
Treasurer	Denise Culver	970-686-7428

Board of Directors

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Sarada Krishnan (09)	Denver	303-465-4274
Jan Loechell (09)	Golden	303-458-4262
Laurel Potts (09)	Gypsum	970-524-3377

Chapter Presidents

Boulder	Deby Stabler	303-902-4679
Fort Collins	Denise Culver	970-686-7428
Metro-Denver	Naomi Nigro	303-366-6033
Plateau	Jeanne Wenger	970-256-9227
Southeast	vacant	
Southwest	Al Schneider	970-882-4647

Standing Committees and Chairs

Conservation	Sarada Krishnan	303-465-4274
Education and Outreach	Megan Bowes	303-561-4883
Endowment	Vacant	
Field Studies	John Proctor	970-723-8204
Field Trips	Steve Yarbrough	303-233-6345
Finance	Denise Culver	970-686-7428
Horticulture and Restoration	Laurel Potts & Lisa Tasker	970-328-8633 970-948-4857
Media	Boyce Drummond	970-690-7455
Membership	Eric Lane	303-239-4182
Rare Plant Monograph	Eleanor Von Bargen	303-756-1400
Research Grants	Jan Turner	303-458-4262
Sales	Denise Wilson	303-642-0510
Workshop	Mary Ellen Ford	303-449-7334

MEMBERSHIP APPLICATION AND RENEWAL FORM

Name(s) _____

Address _____

(Address) _____

City _____ State _____ Zip _____

Phone _____ E-mail _____

MEMBERSHIP CLASS:
Dues cover a 12-month period.
___ Individual, $15.00
___ Family/dual, $20.00
___ Senior, $8.00
___ Student, $8.00
___ Corporate, $30.00
___ Supporting, $50.00
___ Lifetime, $250.00

Chapter (Circle one): Boulder Ft. collins Metro Denver Plateau Southeast Southwest

In addition to my membership, I have included $_____ as a contribution to the John Marr Fund (endowment in support of small grants-in-aid of research), $_____ as a contribution to the Myrna P. Steinkamp Memorial Fund (endowment in support of small grants-in-aid of research), or $_____ as a general contribution to the Society.

CONPS IS A NON-PROFIT ORGANIZATION — DUES AND CONTRIBUTIONS ARE TAX-DEDUCTIBLE

Colorado Native Plant Society

CALENDAR 2006 - 2007

CHAPTER EVENTS

Boulder Chapter

December 7	Efforts to Preserve Colorado Rare Plants
January 11	Plants in the Boulder Creek Watershed:
February 8	Local Tallgrass Prairies
March 8	To be announced

Metro-Denver Chapter

December 12	Secret Little Places in Common Open Spaces
January 30	Botrychium.
February 27	Development of Conservation Planning Tools
March 27	To be announced
April 24	To be announced

Ft. Collins Chapter

Dec 6	If Trees Could Talk…….
February 7	Colorado Natural Areas Program
March 8	Rare Plants, Plant Communities, and Birds of Soapstone Ranch
April 11	Ecology of Blue Grama - CO's State Grass

Plateau Chapter

November 18	Fall Potluck & Meeting

SOCIETY FIELD TRIPS

January 13	Winter Botany at White Ranch Leo Bruederle, 303-556-3419 leo.bruederle@cudenver.edu.

BOARD OF DIRECTORS MEETINGS

November 11	Golden, CO
February 10	Golden, CO
April 14	Golden, CO

SOCIETY WORKSHOPS

November 18&19	*Populus L.* (Salicaceae)
December 9	Gymnosperms
January 13&14	Introduction to Grass Tribes
February 10&11	*Potentillas* of Colorado
March 17 & 18	Euphorbiaceae in Colorado
April 21 & 22	Vegetation Zones and Rare Plants of the Front Range
May 19 & 20	Trees and Shrubs of Colorado

TIME SENSITIVE MATERIAL

Colorado Native Plant Society
P.O. Box 200
Fort Collins, Colorado 80522
http://www.conps.org