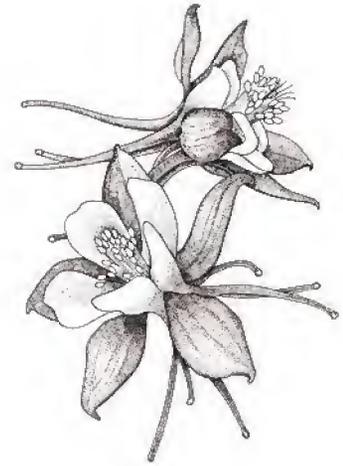


Aquilegia

Newsletter of the Colorado Native Plant Society

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



Conservation Corner

Collaborative Efforts to Conserve Colorado's Rare Plants

By Thomas A. Grant III

In 1992 a diverse group of botanists and ecologists began meeting regularly to discuss the conservation of Colorado's rarest plants. This group became known as the Rare Plant Technical Committee and focused on information sharing, assessing species' conservation status and identifying priorities for management and stewardship. The Technical Committee has made many incredible accomplishments, including the publication and online distribution of the Colorado Rare Plant Field Guide and initiating the Rare Plant Symposia during the CoNPS annual meetings. In response to the numerous emerging threats to Colorado's rare plants, the Rare Plant Conservation Initiative (RPCI) was established in 2007 as an offshoot of the Technical Committee to create a state-wide plan to coordinate, fund, and implement an ambitious strategy to protect Colorado's rare plants.

"The goal of the Rare Plant Conservation Initiative is to conserve Colorado's most imperiled native plants and their habitats through collaborative partnerships for the preservation of our natural heritage and the benefit of future generations."

RPCI Conservation Strategy

To achieve the goals of the Rare Plant Conservation Initiative a broad constituency of participants is necessary. Currently, the initiative consists of members from governmental management agencies, non-profit organizations, botanic gardens, universities, land trusts, and the Colorado Native Plant Society. The RPCI's accomplishments are due to the hard work of the many partners and financial support from the National Fish and Wildlife

Foundation. All organizations and individuals are invited to participate in the Initiative and assist in the conservation of our state's natural heritage. In 2008 and 2009, the Initiative developed the Colorado Rare Plant

Conservation Strategy (Neely *et al.* 2009), which provides detailed information about Colorado's rare plants and the specific threats that these species face in the immediate future. Additionally, the strategy outlines specific objectives and goals for the collaborative conservation of our remaining natural areas and rare plants. The strategy and a brief executive summary are available online at the RPCI and CoNPS websites. Since completion of the Strategy in May 2009, the RPCI has implemented the primary objectives by increasing coordination of rare plant management on public lands, providing management assistance to

(continued on next page)

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energy companies through Best Management Practices (BMP's), implementing community-based Conservation Action Plans (CAP's), and promoting conservation easements with private land trusts. A unifying theme of the RPCI is to bring people together to manage our lands more sustainably and to accomplish this goal by improving our coordination and the quality of information upon which these decisions are based.

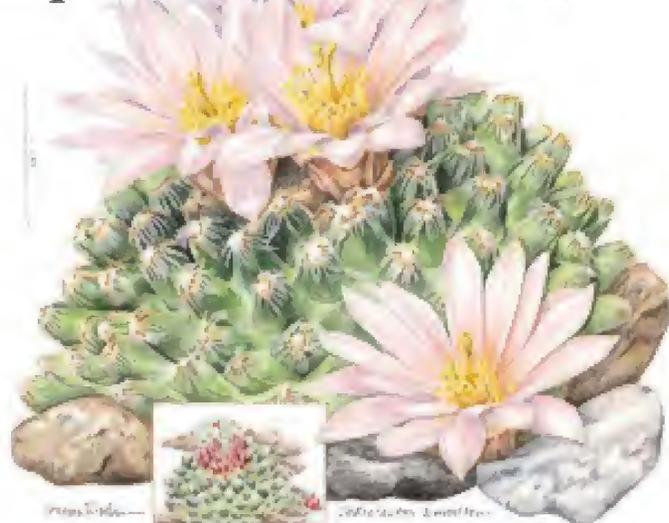
In late 2009, the RPCI established a new structure to facilitate more strategic and effective implementation of the Conservation Strategy. The current focus of the RPCI is to implement the Colorado Rare Plant Conservation Strategy through a Steering Committee and three focal areas or committees: Information, Policy and Conservation. Each of the RPCI's four committees has a charter that directly relates to the over-arching goal of protecting and conserving rare plants and ecosystems through improved research, stewardship and outreach. The Steering Committee coordinates the implementation of the Strategy's six objectives to conserve Colorado's most imperiled native plant species and their habitats. Specifically, the committee facilitates and coordinates RPCI's activities, communications, and long-term planning.

The Information Committee serves as a clearing house for rare plant information and prioritizes surveys, monitoring, and research on imperiled plants. The coordination and standardization of survey and monitoring practices is critical to the efficient conservation and restoration of rare and endangered plant species. All of the RPCI's objectives are based on the premise of reliable, accurate, and defensible information. The Policy Committee's primary goal is to develop a stable and permanent platform in our state government for the coordinated conservation of rare plants. This is being accomplished by advocating for specific state policies in the Department of Natural Resources, a gubernatorial executive order and a state-supported rare plant program. The goals of the Policy Committee are essential to the long-term success of the RPCI, since these objectives focus on building political support and developing agency specific directives or legislation that creates a legal mandate and funding mechanism for the protection of endangered plants.

The Conservation Committee implements the goals of the RPCI by interacting with local communities and implementation of collaborative conservation methods. The CAP's and BMP's coordinate on-the-ground management of valuable natural resources and are based on community and agency input. Conservation Action

RARE

Imperiled Plants of Colorado



Plans have been developed for the five 'Important Plant Areas' recognized by the RPCI: North and Middle Parks, Pagosa Springs, Piceance Basin, and the Arkansas Valley. The action plans identify conservation strategies based on the rare species' viability and known threats to the populations. These documents identify priorities, outline collaborative conservation strategies and serve as a baseline to measure the effectiveness of actions. Additionally, the committee works with land trusts and willing private land owners to establish conservation easements in priority areas. The Colorado Natural Areas Program and the Conservation Committee are currently working with the Colorado Division of Wildlife to integrate rare plants into Colorado's State Wildlife Action Plan (SWAP). The incorporation of plants into the SWAP planning process will be a major achievement for conservation in our state and is critical to establishment of a long-term protection program. Members of the RPCI have also worked with the Rocky Mountain Society of Botanical Artists to develop a traveling art exhibit of rare plant illustrations. Forty original pieces of artwork have been created for the RARE exhibit and the show has been seen by thousands in Denver and Steamboat Springs. The exhibition is now in Durango and will be shown in Manitou Springs from July through September 2010.

Within a few years, the Rare Plant Conservation Initiative has succeeded in creating a framework for the conservation of our state's

conservation, and directly implementing conservation action plans, the RPCI has strategically addressed an incredibly challenging issue during times of increasing resource extraction and population growth. In the long-term, the success of the RPCI will be measured by the continued viability of rare plant species and the public's commitment to the conservation of nature. Please support the goals of plant conservation by continuing to raise awareness of Colorado's rare plants and our responsibility to protect them to your friends, family, and local politicians.

If you have any questions or are interested in participating in the initiative or becoming a partner, please contact one of the committee chairs listed below.

* * *

Thomas A. Grant III is Chair of the CoIPS Conservation Committee and a graduate student at Colorado State University.

Acknowledgements: The author would like to thank Betsy Neely and Susan Panjabi for assistance with the content and editorial review of this article.



Colorado Rare Plant Conservation Initiative

Contact Information for Committee Chairpersons

Steering Committee	Betsy Neely (bneely@tnc.org, 720-974-7015)
Conservation Committee	Susan Panjabi (susan.panjabi@colostate.edu, 970-491-2992)
Information Committee	Carol Dawson (carol_dawson@blm.gov, 303-239-3725) Jennifer Neale (nealejr@gmail.com, 720-865-3562)
Policy Committee	Eric Lane (eric.lane@ag.state.co.us, 303-239-4182) Paige Lewis (paige_lewis@tnc.org, 303-817-8648)
Rare Plant Conservation Strategy Reference	Neely, B., S. Panjabi, E. Lane, P. Lewis, C. Dawson, A. Kratz, B. Kurznel, T. Hogan, J. Handwerk, S. Krishnan, J. Neale, and N. Ripley. 2009. Colorado Rare Plant Conservation Strategy Developed by the Colorado Rare Plant Conservation Initiative. The Nature Conservancy, Boulder, Colorado. 117 pp.
Online References	Colorado Native Plant Society website: www.conps.org Colorado Natural Heritage Program website: http://www.cnhp.colostate.edu/ Colorado Rare Plant Conservation Initiative website: http://conserveonline.org/workspaces/corareplantinitiative Colorado Rare Plant Field Guide website: http://www.cnhp.colostate.edu/download/projects/rareplants/intro.html Rocky Mountain Society of Botanical Artists: http://www.botanicalartists.org/

ENSURING THE MOST AT-RISK STICK AROUND

CoNPS' Involvement in the Legal and Statutory Issues of Colorado's Rare and Endangered Plants

By *Thomas A. Grant III and Josh Pollock*

The purpose of the Colorado Native Plant Society is to encourage the appreciation and conservation of Colorado native plants and their habitats. One method to achieve this goal has been the Society's involvement in legal efforts to secure protection for critically imperiled plants. For many years CoNPS has worked with the Center for Native Ecosystems (<http://nativeecosystems.org/>) and other non-profit organizations to gain legal protection for rare plants. Many of the species listed in this article are threatened by the increasing development and resource extraction on the western slope of Colorado. The following is an update on the species for which CoNPS is currently involved in some form of legal negotiations. For more information on any of these species, please refer to the websites of Center for Native Ecosystems (<http://nativeecosystems.org/>) or the Colorado Rare Plant Field Guide (<http://www.cnhp.colostate.edu/download/projects/rareplants/intro.html>).

***Astragalus debequaeus* (DeBeque milkvetch):**

The Colorado Native Plant Society and others petitioned to list *A. debequaeus* under the Endangered Species Act (ESA) and joined the subsequent lawsuit when the U.S. Fish and Wildlife Service (USFWS) did not meet the deadline required by law. Currently, the USFWS has denied ESA protection for the species, citing insufficient evidence to warrant protection.

***Eriogonum pelinophilum* (clay-loving wild buckwheat):**

The clay-loving wild buckwheat is currently listed under the ESA, but we have been working to expand the Critical Habitat designation for the species. Critical habitat is the geographic area formally protected under the ESA. The USFWS found the expansion of critical habitat 'warranted, but precluded' by other priorities—in other words, the agency agreed that the species needs more protected habitat, but declined to expand the amount of protected area. Unlike animals, rare plants listed under the ESA are not protected on private property.

***Oenothera acutissima* (narrowleaf evening primrose):**

CoNPS was a signatory on the petition to list the narrowleaf evening primrose under the ESA, but the USFWS denied protection, citing that the information presented in the petition was insufficient to warrant listing.

***Penstemon debilis* (Parachute penstemon):**

The Parachute penstemon has been a candidate for ESA protection for over 25 years. This federal designation means that the species warrants protection under the law, but does not yet receive any legal protection. Currently, this species has been consolidated with other candidate species in a long-running, national legal debate concerning the listing of ESA candidate species. CoNPS has supported the listing of the endangered plant throughout these years of legal arguments.

***Penstemon grahamii* (Graham's penstemon):**

The Society supported the listing of this incredibly rare species and the subsequent Notice of Intent and lawsuit when the USFWS reversed its decision to list the species under the ESA. Graham's penstemon was an ESA candidate for listing, but the USFWS withdrew its candidate status, and we are currently involved in an active lawsuit against the USFWS.

***Phacelia submutica* (DeBeque phacelia):**

The Native Plant Society was a signatory on an emergency listing petition for the DeBeque phacelia, but the courts denied the emergency listing claim based on a decision in a separate lawsuit that focused on oil and gas leasing in the South Shale Ridge area. The question of whether to protect it under the ESA in a standard fashion is still before the USFWS.

***Ptilagrostis porteri* (porter feathergrass):**

CoNPS (with Center for Native Ecosystems and other partners) petitioned the U.S. Fish and Wildlife Service to protect the species under the ESA. When the Service didn't respond, CoNPS and partners filed a Notice of Intent to sue and eventually a lawsuit. CoNPS settled the suit with the Fish and Wildlife Service by securing a deadline for the agency's finding. The USFWS determined that the porter feathergrass did not warrant protection under the ESA.

Thomas A. Grant III is a graduate student at Colorado State University and chair of the CoNPS Conservation Committee. chair. Josh Pollock is Conservation Director at the Center for Native Ecosystems.

2010 COLORADO NATIVE PLANT SOCIETY FIELD TRIPS

By Brian Kurzel, Field Trips Committee Chair

Here is the first installment of the 2010 CoNPS field trips offered by a few of our chapters. There will be more trips listed in the next *Aquilegia*, or you may also check www.conps.org for updates.

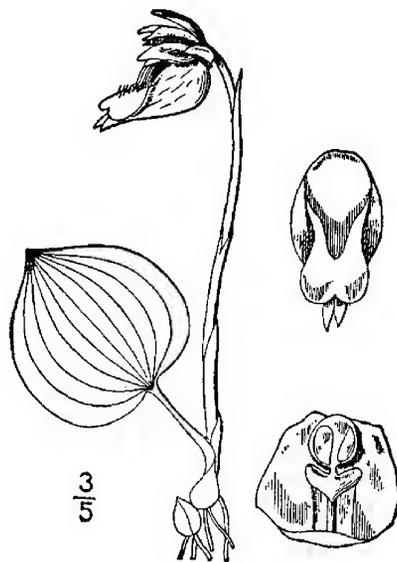
Our goal is to get as many people outside as possible, and there is no shortage of opportunities! Here are a few of tips as you seek to venture out this field season:

- Please sign up for trips early as there may be limits to the number of participants. If full, many trips will also have waiting lists; so even if a trip is full now, get your name on the list and don't give up hope!
- Details on where and when to meet is available on the each chapters website at www.conps.org, or by contacting trip leaders.
- When attending a trip, be sure to bring a lunch, plenty of water, sun protection, bug spray, your favorite plant identification guides, a 10X magnifying glass, and packable rain gear.
- Unless otherwise stated, all trips listed are free and open to members and non-members.
- No pets are allowed on trips.
- Please check each chapter's webpage on www.conps.org to check trip details and to see if any new trips have been added.
- Have fun!

Calypso bulbosa

(Calypso orchid)

USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. An illustrated flora of the northern United States, Canada and the British Possessions. Vol. 1: 573.



METRO-DENVER CHAPTER

MOUNT FALCON PARK

Tuesday, May 25, 5:30 PM

Easy walking through mountain meadows and pine forests with lots of wildflowers.

Leader: Vickey Trammel is past president of the Metro Denver Chapter of the Colorado Native Plant Society. She recently retired from teaching biology at Arapahoe Community College, and is currently conducting ecosystem research at Roxborough State Park.

Equipment: water, sack lunch and jacket. Optional: camera, hand lens, binoculars, and key books.

Contact: Vickey Trammel, 303-795-5643, jrtramb@q.com.

OPEN SPACE HIKE TO SEE CALYPSO ORCHIDS AND *DODOCATHEOI PULCHELLUM* (SHOOTING STARS)

Saturday, May 29, 9:00 AM

There are many great wildflowers here, beginning on a level trail which ascends gradually over several small stream crossings (where the shooting stars hide out) and on approx two miles to a field of about a dozen Calypso orchids close to the trail, which a half mile farther on opens to a wonderful long-distance vista. Total mileage in a loop up and back: four miles.

Leader: Lenore Mitchell has been a Native Plant Master (NPM) Instructor at Lair O'Bear through CSU/Jeffco for the past four years.

Location: Reynolds Open Space Park - approx twenty miles from junction of US 285 and 470.

Equipment: water, snack, jacket. Optional: camera, hand lens and key books.

Contact: Lenore Mitchell 303-934-2691, or lenoremitchell@msn.com

OPEI SPACE WILDFLOWER HIKE

Saturday, June 10, 9:00 AM

Variable terrain from riverside to Ponderosa forest yields a wide variety of wildflowers including the common but fascinating Equisetums which are fern allies and pre-date the angiosperm / flowering plants. In a two hour hike over gentle trails, we'll identify a minimum of thirty blooming herbaceous and shrubby specimens in an enjoyable outing for both novice and avid botanists. The park, which ranges from 6,600 to 7,200 ft elevation, hosts hummingbirds and many other birds, and deer are spotted frequently.

Leader: Lenore Mitchell has been a Native Plant Master (NPM) Instructor at Lair O'Bear through Colorado State University (CSU) Cooperative Extension Service, Jefferson County Office for the past four years.

Location: Lair O'Bear Jefferson County Open Space Park

Equipment: Water bottle, snack, camera and hand lens advised.
Optional: books for keying plants.

Contact: Lenore Mitchell, 303-934-2691,
lenoremithell@msn.com

LOVELAND LAKES: AN ALPINE FLOWER EXPERIENCE Monday, August 2, 7:30 AM

Swamp (alpine), Laurel, Kalmia, Microphylla. A plant list will be provided to participants for the hike. Will return after lunch. Very easy walking.

Leader: Vickey Trammel is past president of the Metro Denver Chapter of the Colorado Native Plant Society. She recently retired from teaching biology at Arapahoe Community College, and is currently conducting ecosystem research at Roxborough State Park.

Location: Loveland Lakes, just west of Loveland Pass.

Equipment: water, sack lunch and jacket. *Optional:* folding chairs, camera, hand lens, binoculars, and key books.

Contact: Vickey Trammel, 303-795-5643, jrtramb@q.com.

NORTHERN CHAPTER

WINTER WOODIES! PART I

February 5, 12:30 PM - 3:00 PM

WINTER WOODIES! PART II

February 12, 12:30 PM - 3:00 PM

Crystal Strouse will lead two winter woody plant identification walks at two City of Fort Collins very special Natural Areas. Winter Woodies Part I will be at a different location than Winter Woodies Part II, and will cover different woody plant species. Come out to one or both sessions and test your winter ID skills and have some winter fun with Crystal. There are botanical surprises at these urban Natural Areas.

Please note: If this trip is canceled due to inclement weather, Crystal will notify you within 24 hours via e-mail.

Leader: Crystal Strouse, Botanist, City of Fort Collins Natural Areas Program

Location: Fort Collins Natural Areas (The specific location will be revealed upon registration.)

Equipment: Dress for the weather. Bring snacks, water, and a hand lens.

Contact: E-mail Crystal at cstrouse@fcgov.com to register, or call her at 970-416-2133.

MIDWINTER GRASS FIELD TRIP February 27, Saturday, 1:00 PM

This will be a non-strenuous visit to one of the city Natural Areas. The focus is grass identification from dry, dead forms. Have you been struggling to learn something about grasses, but get stumped by the jargon? This trip will be different. We'll work from examples, rather than starting with all those technical terms. Each participant will choose one grass. The leader will tell you what it is, and show you the identifying characteristics. If you wish, he will work it through the key (of your choice) with you, to make sense of the specialized terminology. Limited to 10 participants.

Leader: Rick Shory, field botanist, Natural Resource Ecology Lab, Colorado State University

Location: Fort Collins

Contact: For location, items to bring, and to register contact Rick Shory, 970-416-0970 (home), 360-774-6593. (cell), or rickshory@gmail.com.

THE SPLENDOR OF
SHAMBHALA MOUNTAIN CENTER
June 12, 9:00 AM - 3:00 PM

For over 30 years Shambhala Mountain Center has presented yoga and meditation programs in a peaceful valley near Red Feather Lakes. Jim Tolstrup, former Land Stewardship Director of Shambhala Mountain Center, will lead this moderately strenuous hike to see spectacular wildflowers and a campus landscaped with sustainability and native plant conservation in mind. Visitors will also get a tour of the Great Stupa of Dharmakaya, the largest example of Tibetan Sacred Art and Architecture in the Western Hemisphere.

Cost: \$7:00 per person (for a buffet lunch with a vegetarian option) at Shambhala Mountain Center.

Leader: Jim Tolstrup

Location: Shambhala Mountain Center, Red Feather Lakes.

Contact: Call Jim Tolstrup to register: 970- 622-9676.



Great Stupa of Dharmakaya at Shambhala Mountain Center. Photo from <http://www.shambhalamountain.org>.

PLATEAU CHAPTER

MONTROSE - OURAY WEED PULL

Amanda Clements, BLM Ecologist, will lead a yellow starthistle and absinthe weed pull and dig from 9:30 AM to 1:00 PM. Come learn what these highly invasive Colorado noxious weeds look like and how to help control them. Afterwards, we will have lunch and visit the Ouray Hot Springs. Snacks and refreshments will be provided. Free.

Leader: Amanda Clements

Location: Montrose - Ouray

Contact: Gay Austin at austinaceae@frontier.net or 970-641-6264 to register.

SOUTHWEST CHAPTER

BOTANIZE NEAR THE FOUR CORNERS

April 17

*We will spend the day driving roads near the Four Corners and stopping often to study a variety of spring wildflowers: Cryptantha, Astragalus (Locoweeds), Penstemon, Phlox, Calochortus (Sego Lily), Allium (Onions), Erigeron (Daisy Fleabanes), Amsonia, and more. Even if you cannot pronounce the names, you will appreciate the beauty. This trip is slowly paced for ****budding botanists**** and ***avid botanists***.*

Leader: Arnold Clifford

Location: Near the Four Corners Monument

Contact: E-mail webmaster@CoNPS.org or call Al Schneider, 970-882-4647 for information and reservations. We will meet at 8:30 a.m. near the Four Corners. There will be a few bumpy roads, so high clearance vehicles are suggested. Carpools will be arranged.

BOTANIZE THE SHIPROCK

April 22

*We have all seen Shiprock and been thrilled by its jagged beauty. Now come see it up close as we botanize around the base of the rock. This trip is slow-paced for **budding botanists** and *avid botanists*.*

Leaders: Al Schneider

Location: The base of Shiprock

Contact: E-mail or call Al Schneider, 970-882-4647.

RIM OF THE CANYONS SPRING WILDFLOWERS

May 1

*Join the Price family on their farm at the edge of Monument Canyon near Dove Creek for spring botanizing. This trip is moderately paced for ***wildflower enthusiasts*** and **budding botanists**.*

Leaders: Mona, Mike, and Dana Price

Location: Rim of Monument Canyon (near Dove Creek)

Contact: E-mail fivespringsfarm@ftitel.net or call the Prices at 970-677-2514 for information and reservations.

BEAUTIFUL MOUNTAIN

May 29

Arnold is a botanical and geological wonder and a treat to be with. This trip is extra special as he will take us into the Navajo backcountry where we will encounter all sorts of surprises.

Leader: Arnold Clifford

Location: Navajo Reservation

Contact: E-mail webmaster@CoNPS.org or call Al Schneider, 970-882-4647 for information and reservations. We will have bumpy roads, so high clearance vehicles are required. Carpools will be arranged. This trip was cancelled last year due to impassible Mancos Shale roads that were slick from rain. Cancellation is again a possibility.

CANYON COUNTRY WILDFLOWERS

May 22

*This will be an exploratory trip to find early spring wildflowers in this dry canyon country. This trip is moderately paced for **budding botanists** and *avid botanists*.*

Leaders: Judith Franklin, John Godby, and Mary Kemp

Location: Disappointment Valley / Big Gyp Valley / Dry Creek Basin

Contact: E-mail slickrock13@aol.com or call Judith Franklin, 970-564-1042 for information and reservations.

BOTANIZE THE BADLANDS

ALONG NEW MEXICO HIGHWAY 550

June 1-3 (tentative)

Come join the search for unusual plants in intriguing badlands. This trip is moderately paced for ***wildflower enthusiasts*** who want to do some walking.

Leader: To be announced

Location: Between Bloomfield and Bernalillo

Contact: E-mail webmaster@CoNPS.org or call Al 970-882-4647, for information and reservations.



Triteleia grandiflora var. *grandiflora*

<http://www.ubcbotanicalgarden.org>

IN SEARCH OF THE GIANT ONIONS

June 19

*We will be searching for *Triteleia grandiflora* (the Grand Onion) a huge, lovely, and rare plant. We will, of course, enjoy finding other spring wildflowers in the Ponderosas.*

*This trip is moderately paced for ***wildflower enthusiasts***.*

Leader: Cara MacMillan

Location: West of Dolores

Contact: E-mail cgildar@gmail.com or call Cara 970-882-6854 for information and reservations.

LOOKING FOR TRAUTVETTERIA CAROLINENSIS

(TASSEL RUE)

July 10

*Come meet one of southwest Colorado's lesser known beauties, *Trautvetteria carolinensis* (Tasselrue) on the trail to Opal Lake. This trip is moderately paced for **budding botanists**.*

Leader: Susan Halabrin

Location: Opal Lake in the southern San Juan's

Contact: E-mail shalabrin@aol.com or call Susan, 970-749-6143 for information and reservations.

ALPINE WILDFLOWERS

July 17

*We will botanize an alpine area near Silverton. We may cover a fair bit of ground, calling off names of common flora without spending a lot of time on them, but if we encounter something unusual, we will unsheathe the hand lenses and take the time to work through botanical keys. On the 2009 trip, we found 112 species of wildflowers. This trip is moderately paced for ***wildflower enthusiasts***, **budding botanists**, and *avid botanists*.*

Leader: John Bregar

Location: Above Silverton

Contact: E-mail jbregar@durango.net or call John 970-385-1814 for information and reservations.

ANNUAL PILGRIMAGE TO WORSHIP THE WILDFLOWERS

July 24

*About 80 species of wildflowers will be blooming in abundance along the trail from subalpine forest to alpine meadows. Our focus will be on enjoying the overall mass of flowers, not on identifying every species or looking at them in great detail. This trip is moderately paced for ** *wildflower enthusiasts *** who want to do some walking.*

Leader: Travis Ward

Location: Pass Creek Trail

Contact: E-mail tlward@frontier.net or call Travis 970-247-1310 for information and reservations.

WILDFLOWERS OF BRIDAL VEIL FALLS

July 31

*As we wander wide open meadows along Bridal Veil Creek, we will find dozens of species in bloom from the tall and robust *Delphinium* (*Delphinium barbeyi*) and *Cow Parsnip* (*Heracleum sphondylium*) to minute *Buttercups*. The scenery above treeline is magnificent. This trip is moderately paced for *** wildflower enthusiasts*** and **budding botanists**.*

Leader: Connie Colter

Location: Telluride

Contact: E-mail cwcolter@hotmail.com or call Connie 970-728-4678 for information and reservations.

FLOWERS OF THE ALPINE AND SUB-ALPINE ECOTONE

August 14

*Mid-August offers a good opportunity to compare and contrast wildflowers in the alpine/subalpine ecotone. Join us as we explore two easily accessible locations near Wolf Creek Pass. This trip is moderately paced for **budding botanists**.*

Leaders: Charlie King and Susan Halabrin

Location: Wolf Creek Pass

Contact: E-mail shalabrin@aol.com or call Susan 970-749-6143 for information and reservations.

MUSHROOM HUNTING

August 27

*Join recently retired Fort Lewis College Professor of Biology, Page Lindsey, as we hunt for and then eat wild mushrooms. This trip is slowly paced for ***wildflower enthusiasts*** and **budding botanists**.*

Leader: Page Lindsey

Location: To be announced

Contact: E-mail gabi@sjma.org or call Gabi Morey 970-385-1256 for information and reservations.

* * *

Brian Kurzel is Chair of the Field Trips Committee, and a member of the CoIPS Board of Directors. He is a Natural Areas Coordinator for the Colorado Natural Areas Program.

* * *

Poems by Emily Dickinson

(Second Series),

Todd and Higginson, eds.

XXV.

THE MUSHROOM.

The mushroom is the elf of plants,
At evening it is not;
At morning in a truffled hut
It stops upon a spot

As if it tarried always;
And yet its whole career
Is shorter than a snake's delay,
And fleeter than a tare.

'T is vegetation's juggler,
The germ of alibi;
Doth like a bubble antedate,
And like a bubble hie.

I feel as if the grass were pleased
To have it intermit;
The surreptitious scion
Of summer's circumspect...

WELCOME! NEW MEMBERS!

Jamie Bernstein

David Bailey

Beth Brenneman

Karen Caddis

Kathleen Corcoran

Lynn Cudlip

William Preston Cumming

Thad Davis

Jane Harmon

Edith M. Henry

David Inouye

Mary Price

Catherine Reiter

Antone Hodgers & Carol Statland

Sharon Thomas



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The Society is extremely grateful to all who contributed in the past year in support of our activities and programs.

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Janet Coles	Susan Martin	Terence Ryan
Carol and Jeffrey Dawson	Tamara Naumann	Hazel Tuttle
Joyce Dickey	N.L. Osborn	Suzanee Velez
Dragonfly, LLC	Lida Preston	Eleanor Von Bargaen
Mark Gershman	Peter Root	
Jennifer Holter	Joshua Ryan	

2010 WORKSHOPS: UPDATE

While most of the workshops planned for this year have already been held, the following three are yet to take place. Registration information can be found in the previous two issues of *Aquilegia*, or online at www.conps.org.

Individual chapters may also offer workshops. See "Chapter News and Announcements" below.

"THE INVADERS: NOXIOUS WEEDS PRESENT AND NOT YET IN COLORADO"

Leader: Tim D'Amato

Location: CSU Extension Service, Community Room of the Natural Resources Building, 9595 Nelson Road, Longmont, Colorado

Dates: March 6, Saturday, 9:00 AM to 3:00 PM Session 1
March 7, Sunday, 9:00 AM to 3:00 PM Session 2

Noxious weeds classified by law as List A plants must be eradicated on all county, state, Federal, and private lands. Of the 18 plants on the list, nine are not known to exist in Colorado - yet. Tim will show us these plants so we can recognize any early threat to our state. He will share the likely routes of invasion. Other species of concern will be discussed. Stories of weed control successes and failures will also be told.

Tim D'Amato has been involved with weeds since 1986, conducting research or "IWM" - Integrated Weed Management. He is currently Weed Coordinator for Larimer County. Wilderness camping and fishing are serious hobbies. He has a personal interest in protecting the state from the invading hordes!

"NYCTAGINACEAE OF COLORADO"

Leader: Jennifer Ackerfield

Location: Colorado State University, Yates Building (details pending), Fort Collins, Colorado

Dates: March 27, Saturday, 9 AM to 3 PM Session 1
March 28, Sunday, 9 AM to 3 PM Session 2

The small family of plants called Four-O'clock is most attractive when in flower. But the flowers wilt quickly, making identification puzzling when you get home with a disintegrated plant! Recently, Jennifer has studied the five genera of Four-O'clocks found in Colorado. She will share her secret - that critical characters for "Nyctags" identification are on the fruits.

Jennifer Ackerfield is the Collections Manager at the CSU Herbarium. Last year she presented a workshop on Astragalus.

"FOSSIL PLANTS AND INSECTS FROM CENOZOIC COLORADO"

Leader: Dena Smith

Location: University of Colorado, Museum Collections Building (aka Bruce Curtis Building), Room E280, Boulder, Colorado

Dates: April 10, Saturday, 9 AM to 3 PM Session 1
April 11, Sunday, 9 AM to 3 PM Session 2

Colorado has had many climates over its geologic history. Which plants and insects have been present during the Cenozoic Era? This Era is from the end of the Cretaceous and the extinction of non-avian dinosaurs to the present. The diversity of angiosperms in this Era exploded -- it could have been called the "Age of Flowering Plants." Dena will have many specimens for us to see, and she will explain how fossil plants help us understand climate change. She will talk a bit about change during the Eocene through the Oligocene periods.

Dena Smith is the Curator of Invertebrate Paleontology at the University of Colorado. Her research focuses on the interaction between fossil plants and insects; she has on-going field studies in Colorado, Nevada, and Costa Rica.

CHAPTER NEWS AND ANNOUNCEMENTS

BOULDER CHAPTER - *Boulder Chapter programs are held on the second Thursday of each month (September through April) from 7:00 p.m. to 9:00 p.m. All meetings, except as noted, are held at the Community Room at the Boulder REI Store at 1789 28th Street (between Canyon and Pearl). For more information, please email Chapter President Elizabeth Drozda-Freeman at elizabeth.wildflower@gmail.com or call her at 303-586-1810. Please support zero waste: bring your own cup and plate.*

March 11, 2010, 7 PM

"THE VEGETATION MONITORING PROGRAM OF THE BOULDER OPEN SPACE AND MOUNTAIN PARKS 'GRASSLAND ECOSYSTEM MANAGEMENT PLAN"

Presenters: **Marianne Giolitto and Lynn Riedel**

Location: Boulder REI Community Room

Marianne Giolitto and Lynn Riedel will describe the vegetation monitoring program that has been developed for the city of Boulder Open Space and Mountain Parks Department Grassland Ecosystem Management Plan implementation. The Grassland Plan provides viability standards for conservation targets, including Mixed grass Prairie Mosaic, Xeric Tallgrass Prairie, and Mesic Bluestem Prairie, and Wetlands. The GMAP vegetation monitoring program measures the success in achieving the viability standards for vegetation composition. An overview of the sampling design and preliminary data will be presented.

Marianne Giolitto has a master's degree in applied ecology from Indiana University and has worked over the last decade in ecological consulting and wetland delineations in regulated wetlands. She is currently the ecological monitoring coordinator for the city of Boulder Open Space and Mountain Parks Department.

Lynn Riedel has spent her career in natural areas management in Colorado, initially working with the National Park Service. Her academic background is in biology and science education. Over the last 14 years, she has worked as a plant ecologist with the city of Boulder Open Space and Mountain Parks Department.

April 8, 2010

"PROJECT BUDBURST"

Presenter: **Sandra Henderson**

Location: Boulder REI Community Room

Volunteers across the country are welcoming spring by taking part in a nationwide initiative, Project BudBurst, which tracks climate change by recording the timing of flowers and foliage. Operated by the University Corporation for Atmospheric Research (UCAR), Chicago Botanic Garden, and University of Montana, the project is amassing thousands of observations from students, gardeners, and other citizen scientists to give researchers a detailed picture of our warming climate. Please join us to find out more about Project Budburst.

Sandra Henderson, of UCAR's Office of Education and Outreach, is the project's director.

METRO-DENVER CHAPTER - *Monthly meetings of the Metro-Denver Chapter are typically held on the fourth Tuesday of the month (September through May, except November). Beginning January 2009, Chapter meetings are being hosted by the Department of Biological Sciences at the University of Denver (DU), where we will meet in Olin Hall, located at 2190 E. Iliff Avenue. For more information, visit www.conps.org or contact Jannette Wesley (303) 969-2131 (daytime) or (303) 985-5299 (evenings).*

February 23, Tuesday at 7:00 PM

GARDENING WITH NATIVE PLANTS

Presenter: **Gwen Kelaidis Moore**

Location: Olin Hall, University of Denver, 2190 E. Iliff Ave., Room 103

March 23 Tuesday at 7:00 PM

THE HISTORIC ROLE OF FIRE IN FOREST AND GRASSLAND ECOSYSTEMS

Presenter: **Tom L. Thompson**

Location: Olin Hall, University of Denver, 2190 E. Iliff Ave., Room 103

Tom L. Thompson is a forester and the past president of the Society of American Foresters. He will speak about the historic role of fire in ecosystems and particularly focus on the historic understanding and use of fire in managing forests and grasslands. He will discuss the challenges of using fire today, especially those caused by excessive fuel buildup, insect and disease mortality, shifts in climate, and interface with human development. Tom Thompson recently retired as Deputy Chief of the U.S. Forest Service in Washington, D.C.. He also served as Deputy Regional Forester in the Rocky Mountain Region from 1989-2001. Mr. Thompson, a native of Colorado, was with the Forest Service for 37 years and is a graduate of Colorado State University.

April 2010 (exact date to be announced) Tuesday at 7:00 PM

THE GREAT MIGRATION:

MONARCHS OF NORTH AMERICA

Presenter: **Sarada Krishnan**, Director of Horticulture, Denver Botanic Gardens

Location: Olin Hall, University of Denver, 2190 E. Iliff Ave., Room 103

Of all nature's wonders, one of the most fascinating phenomena is the annual migration ritual performed by Monarch butterflies (*Danaus plexippus*) in North America. What is amazing is how these tiny creatures, four or five generations removed, return year after year to the same overwintering grounds in Mexico. Each fall, millions of Monarch butterflies make the trip from the eastern United States and Canada each year to Mexico's southwestern flank of the Transverse Neovolcanic Mountains congregating in the oyamel fir (*Abies religiosa*) forest, ten thousand feet in elevation. No other butterfly performs such an arduous migration feat as the Monarch with some individuals traveling up to 2,000 miles. Sarada's talk will feature the Monarch migration and her recent visit to the Monarch butterfly sanctuaries in central Mexico. Sarada has a Master of Science degree in Horticulture from Colorado State University, with a research focus on the propagation of native Colorado flora specializing in plant tissue culture. She is currently a doctoral candidate at the University of Colorado, Boulder. Sarada is the author of the book "Butterfly Gardening: A Guide for Colorado Gardeners."

May 25, 2010 Tuesday

SPRING HIKE

Time and place to be chosen by members.

NORTHERN COLORADO CHAPTER - Except as noted, Chapter meetings are held on the first Wednesday of the month (October through April) at 7:00 PM, at the Gardens on Spring Creek, 2145 Centre Ave., Fort Collins. Prior to meetings, members are invited to meet at 5:30 PM for dinner with the speaker at Café Vino, 1200 S. College Avenue. If you would like to join us for dinner, please contact Chapter President Pam Smith at 970-223-3453 or pamelas4824@earthlink.net. For more information, visit www.conps.org.

February 11, Thursday, 7:00 PM

JOINT MEETING WITH THE AUDUBON SOCIETY

Topic to be announced.

Note: This is a Thursday evening presentation at the Lincoln Center.

March 3, Wednesday, 7:00 PM

"IMPERILED PLANTS OF NORTHERN COLORADO"

Presented by **Susan Spackman Panjabi**, Botanist with the Colorado Natural Heritage Program at Colorado State University

Susan will be discussing some of Colorado's rarest plant species. Come learn about these threats to these interesting species, and initiatives underway to help assure their long-term survival.

April 7, Wednesday, 7:00 PM

"PLANT BIOGEOGRAPHY OF COLORADO"

Presented by **Lynnel Rubright**, Ph.D., geographer, master gardener and City of Fort Collins Master Naturalist

Come enjoy an evening of exploration of the biogeography of plants in Colorado with Dr. Lynnel Rubright.

PLATEAU CHAPTER - *Chapter activities are scheduled throughout the year. For more information, visit www.conps.org or contact Chapter President Gay Austin at austinaceae@frontier.net or 970-641-6244*

SOUTHEAST CHAPTER - *Activities of the Southeast Chapter are scheduled throughout the year and include field trips and meetings. Meetings are scheduled from Fall through early Spring and are often held at the Colorado State University Extension offices in Pueblo, located at 701 Court Street, Suite C. Those wishing more information can e-mail us at SEtrips@gmail.com and we will add you to our distribution list.*

SAN LUIS VALLEY CHAPTER - *Chapter activities are scheduled throughout the year. For more information, visit www.conps.org or contact Chapter President Hobey Dixon at 719-589-3813 or pixies@amigo.net.*

SOUTHWEST CHAPTER - *The Southwest Chapter explores, preserves, and enjoys the flora of the Four Corners area through activities that are scheduled throughout the year. We welcome new ideas for field trips, activities, and programs, and we especially welcome new members from Colorado, New Mexico, Arizona, and Utah. For more information, visit www.conps.org or contact Chapter President Al Schneider at 970-882-4647. All meetings and field trips are free and open to everyone. Bring a friend. We always have homemade refreshments.*

March 30, Tuesday, 6:30 PM

HERBARIUM TOUR

Presenter: Botany Professor **Ross McCauley**

Location: Fort Lewis College with Botany Professor, Ross McCauley.

NATIVE PLANT MASTER PROGRAM: 2010 COURSES

The Native Plant Master™ Program has announced the 2010 course schedule, including new offerings. These popular courses have a waiting list each year, so those interested are advised to submit applications well in advance of the deadline on March 15. Courses are offered in Jefferson County as well as other locations throughout the state.

Participants in this award-winning program learn identification, ecology and human uses of selected Colorado plants. Many courses include an emphasis on learning to use a botanical key including scientific names and families. Most are held outdoors, but a few are classroom sessions to prepare students for the field. The cost ranges from \$20 to \$90 per course. Those wishing to educate others may apply to become a volunteer. Volunteers who pass three specified courses and satisfy the teaching requirement are certified by Colorado State University Extension as Native Plant Masters.

Courses are open to all except a few advanced courses that have prerequisites. For a course application/schedule, see www.nativeplantmaster.org. Contact Jefferson County CSU Extension directly at plthomas@jeffco.us or call (303) 271-6620. For the latest information on more than 1,000 Colorado plants, browse our website at <http://coloradoplants.jeffco.us>.



Pasque Flower

Courtesy of Jefferson County CSU Extension

WHO'S IN THAT NAME?

Meriwether Lewis

In the last issue of Aquilegia we looked at brief biographies of three early 19th century botanists (Barton, Pursh, and Nuttall) whose names are now often associated with Meriwether Lewis. In this issue, we look at Lewis.



Painting of Meriwether Lewis by Charles Willson Peale from
NPS.gov.

Meriwether Lewis was born in Virginia in 1774 of a father who fought in the Revolutionary War and was a friend and neighbor of Thomas Jefferson. From early in his life, Meriwether acquired skills, had experiences, and met people that molded him into a perfect leader and skilled scientist. From early in life he was an avid outdoorsman, often venturing out on hunting trips (in winter or summer, in daylight or dark) with only his dogs. Meriwether's mother's interest in natural history, especially plants, was a model and inspiration to him. At a young age he became a friend of the Cherokee, a fighter in the Whiskey Rebellion (where he served under Clark), and an officer on the Ohio frontier where he became a shrewd observer of the proper -- and improper - treatment of the enlisted man. He was well known and so highly respected that when Thomas Jefferson became President of the United States, he asked Meriwether Lewis to be his personal secretary and two years later wrote admiringly of him,

"It was impossible to find a character who to a compleat science in botany, natural history, mineralogy & astronomy, joined the firmness of constitution & character, prudence, habits adapted to the woods, & a familiarity with the Indian manners & character, requisite for this undertaking. All the latter qualifications Capt. Lewis has."

In 1803 Jefferson asked Benjamin Barton, famous botanist, University of Pennsylvania Professor, and author of the first United States botany textbook to teach Meriwether Lewis the latest botanical knowledge and techniques for the 1804-1806 Expedition. Eventually Lewis carried a copy of Barton's book on the Expedition and he returned it to Barton inscribed with a note of thanks after the Expedition.

Lewis was an avid naturalist before he studied with Barton; after the studies he was skilled and driven. In the words of Earle Spamer and Richard M. McCourt (on *The Lewis and Clark Herbarium CD* produced by the Academy of Natural Sciences of Philadelphia):

"Meriwether Lewis had the soul of a plantsman. A typical day on the trail found him looking for plants along the Missouri River and in the surrounding Great Plains. Or near a campsite in a mountain meadow of the Rocky Mountains. Or at the salty mouth of the Columbia River where it drained into the Pacific Ocean. In dangerous places and at inopportune times, Lewis collected plants. So long as circumstances permitted, even in improbable situations, he collected. It was not only his duty to collect, it was his passion. Equally remarkable, he wrote with enthusiasm about them in the voluminous journals and in numerous notes on the blotting papers used to dry the plants."

Lewis' descriptions could be brief but were often detailed. The following is from his account of *Clarkia pulchella*, named by Frederick Pursh in honor of expedition co-leader, Captain William Clark:

"...The corolla superior consists of four pale purple petals which are tripartite, the central lobe the largest and all terminate obtusely; they are inserted with a long and narrow claw on the top of the germ, are long, smooth & deciduous. There are two distinct sets of stamens the 1st or principal consists of four, the filaments of which are capillary, erect, inserted on the top of the germ alternately with the petals, equal short, membranous; the anthers are also four each being elevated with it's fillament, they are linear and reather flat, erect sessile, cohering at the base, membranous, longitudinally furrowed, twice as long as the fillament [and] naked, and of a pale purple color: the second set of stamens are very minute, are also four, and placed within and opposite to the

at the base, membranous, shorter than the fillaments, white, naked and appear not to form pollen....This has the appearance of a monopetalous flower growing from the center of a four petalled corollar." (Painting by Frederick Pursh appears with the description on James Reveal's pages on the website, "Discovering Lewis and Clark".)



We can imagine how Lewis worked. He clipped or pruned plant parts or uprooted entire specimens, and placed them in a dry oil-skin bag. Later, laying the plants flat on a specimen page, Lewis sandwiched them between pages made of blotting material. He recorded the collection locality, date, and habitat on the blotter paper itself, along with occasional comments on how the Native Americans ate or used the plants. Lewis then stacked the plants between two boards and tied the plant press together with straps. Lewis probably placed the plant press near the evening fire, where warm air helped dry the collection. Over the course of several days, water was squeezed from the plants, and, once dry, specimens were kept flat and dry in another press.

Much later, other botanists glued the specimens to high-rag content herbarium sheets and stored them in protective cabinets in a museum. Those from the Aylmer Lambert Herbarium in London were mounted in or after 1812. The sheets bear a distinctive watermark (illustrated by Cutright, 1967: 82). The unmounted

specimens found in the American Philosophical Society were mounted in the Academy in 1921 by John M. Fogg, Jr. (Fogg, 1982). If kept dry and free from insects and physical damage, such specimens last for centuries, as Lewis's specimens have for the last 200 years.

Unfortunately much of the botanical collection from the Lewis and Clark Expedition was, after all of Lewis efforts to dry the specimens, lost in varying places and varying ways. For instance, early in the Expedition, Lewis sent Jefferson about 60 specimens; Jefferson in turn sent these for analysis to Barton, who Jefferson had asked to do the botanical descriptions of the Expedition collections, but about half of the sixty specimens disappeared and have never been found.

A far larger loss came with the destruction of the plant collection that Lewis made on the way up the Missouri River in the spring of 1805. Lewis stored hundreds of these specimens in a specially dug cache in the ground, from which he intended to retrieve them on the way down river. The cache was flooded in the spring of 1806 and by the time Lewis opened the cache on July 13th, 1806, fungus had destroyed countless hours of his work on hundreds of specimens. Lewis must have been shattered by the loss. Barton, who had been considered for the Expedition but not asked to participate because of his questionable health and his old age (37), was not able to work on the returned collections -- apparently because of his health and a predisposition to procrastination. Bernard McMahon, renowned horticulturalist, respected scientist, and friend of Jefferson, Barton, and Frederick Pursh, suggested to Jefferson that Pursh would be suited for the job of organizing and describing the collection. It would then fall to Lewis to put everything into an organized narrative. In 1807 Lewis met Pursh, was very impressed, and paid Pursh about \$70 to begin the work. Pursh completed his end of the work in a little more than a year, returned most of the collection to McMahon, took some of the collection to England, and there published the collection (along with many other plants from other collectors) in his 1814 *Flora Americae Septentrionalis*. All but a few of the Expedition specimens which Pursh had taken with him were bought at auction years later and returned to the United States.

The total number of Expedition plants known now is 237, all but eleven (those in the Kew Garden Herbarium in London) are in the Academy of Natural Sciences in Philadelphia -- where both Lewis and Pursh began their Expedition botanical work.

Tragically, Lewis had been feeling increasingly troubled, pressured, and distraught in the years after the Lewis and Clark Expedition and he was unable to fulfill his own and Jefferson's expectations for publishing the results of the Expedition. He completed almost no work on the Expedition narrative. In 1809 he committed suicide.

A number of Colorado native plants honor Lewis in their names: *Lewisia nevadensis*, *Lewisia pygmaea*, *Mimulus lewisii*, and *Adenolimum lewisii*. Many more plants found in Colorado were first found for science by Lewis: *Purshia tridentata*, *Sarcobatus vermiculatus*, *Phacelia heterophylla*, *Lomatium triternatum*, *Gaillardia pinnatifida*, *Balsamorhiza sagittata*, *Anticlea elegans*, *Ribes aureum*, *Erigeron compositus*, *Calochortus elegans* (not found in Colorado, but the first *Calochortus* found for science), *Cleome serrulata*, *Chrysothamnus nauseosus*, *Lupinus pusillus*, *Lupinus argenteus*, *Ipomopsis aggregata*, *Claytonia lanceolata*, *Shepherdia argentea*, *Erythronium grandiflorum*, *Achillea lanu-*

losa, *Grindelia squarrosa*, *Paxistima myrsinites*, *Sambucus coerulea*, *Machaeranthera pinnatifida*, *Lilium philadelphicum* (first western specimen).

There are many books and many on-line sources about Lewis and Clark; three excellent on-line starting points are The Academy of Natural Sciences of Philadelphia web site, Stuart Wier's "Guide to Sources of Information on Lewis and Clark", and "Discovering Lewis and Clark". For the most extensive collection of on-line Lewis and Clark documents see the "American Journal".

(Some of the biographical information about Lewis, Pursh, Barton, and Juttall in this Aquilegia article comes from the above sources.)

Al Schneider is Vice President of CoNPS, serves as its webmaster at www.conps.org, and is a regular contributor to Aquilegia.



Lewisia rediviva (bitter root)

Sheri Hagwood @ USDA-NRCS PLANTS Database

CoNPS ANNUAL MEETING!
DENVER
SEPTEMBER 10 - 12, 2010

An Important Reminder

Whenever you buy anything through Amazon.com, be sure to enter Amazon from our CoNPS bookstore at <http://www.conps.org/bookstore.html>. CoNPS will then receive 5-7% of your purchase price. You do not pay anything extra, nor do you fill out forms - you simply enter Amazon by clicking on any book on our Bookstore page. If every member did this, the Society would receive several thousand dollars from Amazon each year.

Aquilegia! Notes from the Editor The Newsletter Goes Green

A new year, a new volume, a new editor - ingredients for change. *Aquilegia* are also part of our overall effort to be "green."

The most noticeable change in this issue of *Aquilegia*, though, is one that was the least planned, and that is the change from a stiff gray paper to a white paper stock. A word of explanation is in order.

Shortly after the mailing of the last issue, we were informed by our printer, Publication Design, Inc. (PDI), that the paper that we have used for many years is no longer available. In our subsequent discussions, we found an option for a similar paper with 30% recycled content. At the same time, we learned of a high quality paper with 100% recycled content - but in white. No comparable colored papers are available.

While the traditionalist in us favored the gray (which seemed to lend a certain *gravitas*), the twenty-first century part of us clearly pointed to the option of using 100% recycled content. So the latter is what we chose, confident that that is the choice most of our members would favor. Digital printing (with less waste and other environmental advantages) and the option of e-mail delivery of

We will have to find the *gravitas* in the content of what we print.

One other note about our printer. We have been very pleased with the quality that PDI has provided, at less cost than others have charged in the past, and they are an environmentally-conscious business. Their offices are powered by 100% wind energy through Xcel Energy's Windsource program. For additional information on their "Greener Printing for a Greener World", see their website at www.pdidesign.com.

Other changes made in this issue are relatively minor appearance changes, primarily intended to highlight events (such as field trips) and sections (especially of chapter activities).

As always, your comments and feedback are welcome.

Bob Henry
Editor

"I suspect that the child plucks its first flower with an insight into its beauty and significance which the subsequent botanist never retains."

- Henry David Thoreau, Journal (February 5, 1852)



Crocus in snow.

BOOK REVIEW

By Jan Loechell Turner

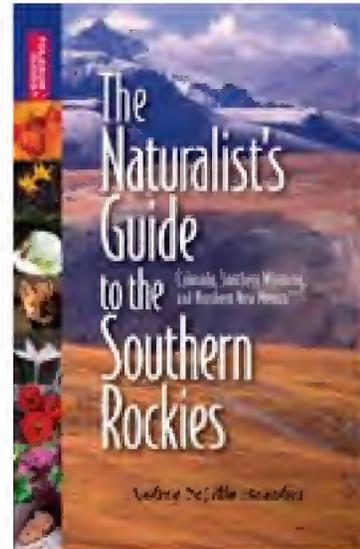
Benedict, Audrey DeLella. *The Naturalist's Guide to the Southern Rockies*. Golden, CO: Fulcrum Publishing, 2008. 656 pages.

If you have wondered how the plants and animals of Colorado survive the harsh conditions of the grasslands, foothills, mountains, subalpine, and alpine environments, *The Naturalist's Guide to the Southern Rockies* will answer many of your questions. Recently Fulcrum republished the book that originally came out in 1991 as *The Sierra Club Naturalist's Guide: the Southern Rockies*. A check of the book reveals that, although the 2008 publication is not called a revised edition, parts of the book have been revised and updated.

It is impressive that so much information is contained in one book. Benedict has an enjoyable writing style and provides the reader with an understandable guide to the natural history and ecology of the region with emphasis on plant and animal adaptations to the environment. Because the book was originally published as a Sierra Club guide, it has the look of that series. It begins with the geography of the region, followed by chapters on the geological history, climate, and weather. An entire chapter focuses on winter, complete with drawings of the ten basic forms of solid precipitation. A bit of human history is sprinkled into the chapters here and there. The bulk of the book is devoted to ecosystems found in the region with chapters on the shortgrass prairie, shrublands, piñon-juniper woodlands, ponderosa pine forests, Douglas-fir forests, mountain grasslands and meadows, mountain wetlands, aquatic ecosystems, aspen forests, lodgepole pine, bristlecone and limber pine, Engelmann spruce and subalpine fir, and the alpine tundra.

The chapters follow a standardized format, each including ecological distribution, physical environment, community characteristics, plant adaptations and descriptions of common plants, a list of common trees, shrubs, and wildflowers (common and scientific name), animal adaptations, life histories of selected animals, a list of common mammals, birds, reptiles, butterflies, and insects (common and scientific names). Photographs and line drawings of representative plants and animals of the ecosystem accompany the text.

The book is quite similar to the 1991 version, but the chapter on shrublands has been subdivided into chapters on specific types of shrublands (semi-desert, sagebrush, mountain shrublands and



Gambel oak woodlands). The Fulcrum version is physically larger than the Sierra Club guide and the inside and outside covers are collections of color photographs. The photographs included in the book are still black and white and the black and white line drawings and maps from the older version are, fortunately, still included.

The extensive list of references, by topic, has been updated. The index is still frustrating to use; it is not as complete as would be hoped for in such an information-dense book and it intentionally excludes scientific names. Within the plant lists contained in chapters on ecosystems, most of the scientific names have been updated to conform with those in the 3rd edition of William Weber's *Colorado Flora* (2001), though *Bouteloua gracilis* (*Chondrosium gracile*) was overlooked. The plant lists include more species than in the previous guide and more plants are described. A couple of trees (cottonwood and hackberry) have been added to the shortgrass prairie plant list. Chapter titles are along the outer margins of the pages, a feature that allows the reader to thumb through the book without referring to the table of contents or the index.

This book is a gem. The original Sierra Club guide is a treasured member of my book collection and one that I consult when hunting for information about plant adaptations or ecosystems in our state. Although it is called a field guide, this 656 page book (well, the old one is actually 578 pages) can serve as a reference book or can be read from cover to cover. It would be worthwhile to take this readable book along on a road trip or camping trip for nighttime reading.

Audrey DeLella Benedict is the founder and director of Cloud Ridge Naturalists, a non-profit organization that leads natural history tours worldwide. She received her B.A. in biology and geology from the University of Colorado and wrote the text for *Valley of the Dunes: Great Sand Dunes National Park and Preserve* (2005).

Jan Loechell Turner is on the Board of Directors of CoIPS, is chair of the Research Grants Committee, and an Associate Professor at the Regis University Library.

Some questions answered in
The Naturalist's Guide to the Southern Rockies

- * What are some plant adaptations for coping with drought or floods?
- * Can conifer trees survive without mycorrhizal fungi?
- * What do piñon and limber pines have in common (wingless seeds) and how are their seeds dispersed?
- * What benefits do mycorrhizal fungi confer upon trees?
- * What competitive advantage do tamarisks have over cottonwoods and willows (higher salt tolerance)?
- * Can aspen trees photosynthesize during the winter (yes, there is chlorophyll in the bark)?
- * What is that pink stuff in the snow at higher elevations?
- * Broomrape and paintbrush can both parasitize the roots of other species, but how are they different? (broomrape has no chlorophyll but paintbrush does).
- * What does a lupine have in common with a mountain mahogany and mountain alder (nitrogen fixing bacteria in/on the roots)?



Shortgrass Prairie, Ordway Preserve, North Dakota (c) 2005 Ron E. VanNimwegen from <http://bioimages.vanderbilt.edu/>

Aquilegia

Newsletter of the Colorado Native Plant Society

Aquilegia is the newsletter of the Colorado Native Plant Society, and is available to members of the Society and to others with an interest in native plants. Four regular issues are published each year, plus a special issue focused on the annual Society meeting held in September of each year. Past issues from 2003 to the present are available on the Society's website at <http://www.conps.org/newsletter.html>.

Deadlines: Submissions to Aquilegia are accepted throughout the year, although deadlines for publication are:

- January 15 (Spring issue, published February 15)
- April 15 (Summer issue, published May 15)
- June 15 (Special Annual Meeting issue, published July 15)
- July 15 (Fall issue, published July 15, published August 15)
- October 15 (Winter issue, published November 15)

Announcements, news, articles, book reviews, poems, botanical illustrations, and other contributions are requested for publication. Articles in a range from 500 to 2000 words in length are welcome, but content is more important than word count. Proposals for periodic columns or content are also welcome. Please refer to a previous edition of Aquilegia for guidelines (these can be readily obtained online - see above). However, you need not be overly precise about format as text will be formatted during editing and layout for consistency of style. Dr. William A. Weber's nomenclature for the scientific names of plants should be followed, italicized and capitalized properly. Please proofread all material carefully and use "spell check". All contributions are subject to editing for brevity and consistency, with final approval of material changes by the author. Other guidance:

Previously published articles submitted for reprinting require permission.

Digital photographs or line drawings are also solicited. Be sure to include credit for images.

Please include author's name, address, and affiliation in all contributions.

Please submit all contributions as Word® attachments to bh.prairieink@gmail.com.

Articles from Aquilegia may be used by other native plant societies or non-profit groups, if fully cited to author and attributed to Aquilegia.

Please direct questions or comments regarding the newsletter the editor, Bob Henry, at bh.prairieink@gmail.com.

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Many members prefer to receive the newsletter electronically via e-mail, and this saves the Society considerable printing and postage expense. If you would like to receive the newsletter by e-mail, please check this box and provide your e-mail address above.

Please deliver *Aquilegia* electronically

MEMBERSHIP CLASS

Dues cover a 12-month period.

Individual (\$20.00) Family / dual (\$30.00)

Senior (\$12.00) Student (\$12.00)

Organization (\$30.00) Supporting (\$50.00)

Lifetime (\$300.00)

CHAPTER

You are free to affiliate with any chapter you choose and to attend the meetings of any chapter.

Boulder Metro-Denver Northern

Plateau San Luis Valley Southeast

Southwest

DONATION

\$ _____ General Fund

CoIPS has two endowment funds in support of small grants-in-aid of research. The John Marr Fund supports research on the biology and natural history of Colorado native plants. Myrna P. Steinkamp Memorial Fund supports research and other activities to benefit the rare plants of Colorado.

\$ _____ John Marr Fund

Mail to: Eric Lane, P.O. Box 200, Fort Collins, CO

80522

Please make checks payable to "Colorado Native Plant Society"

Colorado Native Plant Society

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.



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Colorado Native Plant Society

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<http://www.conps.org>



TIME SENSITIVE MATERIAL

CALENDAR 2010

Details of chapter programs and Society workshops can be found inside or at www.conps.org.

21 Field trips already scheduled for 2010 - See inside!!

CHAPTER PROGRAMS

Boulder Chapter

Mar 11 Vegetative Monitoring Program
Apr 8 "Project Budburst"

Metro-Denver Chapter

Feb 23 Gardening with Native Plants
Mar 23 The Historic Role of Fire
Apr TBD Great Migration: Monarchs of N.A.
May Spring Hike

Northern Chapter

Feb 11 Joint Meeting with the Audubon Society
Mar 3 Imperiled Plants of Northern Colorado
Apr 7 Plant Biogeography of Colorado

Southwest Chapter

Mar 10 Wildflower photo show, Telluride
Mar 30 Herbarium Tour, Fort Lewis College

SOCIETY WORKSHOPS

Mar 6,7 The Invaders
Mar 27, 28 "Nyctaginaceae of Colorado"
Apr 10, 11 "Fossil Plants and Insects from Cenozoic"

BOARD MEETINGS

Feb 20, 9:00 AM Regis University, Denver
Apr 17, 9:00 AM Northern Colorado, site TBD