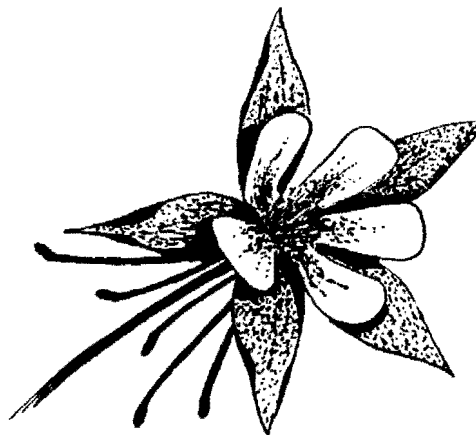


Aquilegia

Newsletter of the Colorado Native Plant Society

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



Volume 12, Number 5

September/October 1988

Rare *Physaria* in New Site

Jim Borland

After learning of its affinity for Niobrara shale outcrops, I began a search of these areas for *Physaria bellii*, one of the world's rare plants found only in Colorado.

The search area to date has been from I-70 south to the mouth of Deer Creek Canyon, an area recently and in the future in the path of the new C-470 highway. Immediately south of I-70 highway construction crews have made it unnecessary to look anywhere, as the new highway and its exit and entrance ramps have obliterated any possible outcrop of the Niobrara Formation.

Although several colonies of a related species, *Physaria vitulifera*, were found south of this area, none of the sought-after *P. bellii* was found until the last site, one-quarter mile north of the entrance to Deer Creek Canyon, was searched. Here, on a small outcrop of apparent Niobrara shale, Rick Brune and I found several hundred specimens. Nearby were growing the only *Stanleya pinnata* I've seen in Jefferson County along with another selenium soil indicator, *Astragalus racemosus*.

Although there are yet a few sites between Deer Creek and I-70 to check, a clear line of sight south of Deer Creek reveals no other obvious outcrops of Niobrara shale. This may be the southernmost location for the species. As with several other known locations, this one is under both private and highway ownership.

Calendar Overview

Additional information about calendar items will be found throughout this issue.

Sept. 10 Edible/Medicinal Plants

Leader: Tina Jones

Sept. 24 Aquatic Plants Workshop

Leader: Dr. Richard G. Walter

Oct. 1 Annual CONPS Meeting

Boulder, CO

Ecology of Colorado Plateau

Nov. 5 Penstemon Workshop

Leader: Gwen Kelaidis

Dec. 10 Carex Workshop

Leader: Dr. David Cooper

Announcements

Monograph Extended

We are pleased to announce that the deadline for our matching funds grant to produce the Rare Plant Monograph has been extended for one year. Anyone who would like to work with the fund-raising committee should contact Eleanor Von Bargen or Elizabeth Otto. Remember, the Society is now solely responsible for finding funding for this important publication.

Our mailings have brought in over \$3000 to date. We appreciate the contributions, and would especially like to thank the Federated Garden Clubs for a recent donation of \$500. Thanks also to those who helped with the last mailing: Sue Martin, Betty Bush, Miriam and Dale Denham, Nancy Lee Pate, Jean Morgan, Velma Richards, Eleanor Von Bargen, Peter Root, and Dorothy Borland.

Correction

In our last issue we published "Forest Management Benefits a Rare Plant" without designating the author. This article was contributed by David C. Powell. We appreciate his contribution and apologize for omitting his name.

It's Your Newsletter!

Most members are pleased that we are now putting out six issues of *Aquilegia* each year instead of the previous four. Unfortunately, there has not been a concurrent increase in the number of contributions submitted for the newsletter. In preparing this issue, we are especially indebted to Jim Borland for his contributions. Without his effort we might have had to publish large outline maps of Colorado or other space fillers.

If you know of interesting natural areas, unusual occurrences of plants, or any aspects of Colorado's botanical history, please put your thoughts on paper (or on disk!) and send them in. We need YOUR contributions.

Just a reminder: The newsletter schedule is bimonthly and contributions are due on the 15th of alternate months, as printed on the back cover. The newsletter is generally mailed in the middle of the next month, as it takes us three to four weeks to receive all articles, and prepare and print the newsletter. Keep this in mind when submitting notices of meetings or other timely material.

Denver Chapter Fall Activities

September 28

This will be a get-acquainted meeting. If you have four or five slides of things you saw or did during the summer, bring them to share with us while you meet the other members.

October 26

This meeting will feature a speaker from The Nature Conservancy. Details should be available at the September meeting.

Note

Denver Chapter meetings are held on the third Wednesday of the month at 7:30 PM in one of the classrooms at the Denver Botanic Gardens and are open to the public.

About CONPS Workshops

Enrollment in workshops is always limited. Contact CONPS workshop coordinator for registration and workshop information: **Bill Jennings, 360 Martin Dr., Boulder, 80303, 494-5159**. Be sure to include your mailing address and phone number if you mail in your registration. Registrants will be notified by mail about two weeks prior to the workshop regarding final location, time, lunch, suggested references, etc. Please register promptly, as workshops tend to fill up fast. However, cancellations sometimes create openings, so you might want to check with Bill up to the night before the workshop if you want to try to register at the last minute.

Winter Workshops

For the winter (1988-1989), we have already received commitments from instructors for workshops on the following topics:

Pre-settlement/Post-settlement Vegetation in the Arkansas Valley; Dr. Dexter Hess

Grasses; Dr. Helen Zeiner

Comparative Features of U.S. Alpine Floras; Dr. Bettie Willard

Pollination Ecology Dr. Boyce Drummond

Composites Dr. Joann Flock

Annual Meeting to be held October 1, 1988

The Annual Meeting of the Colorado Native Plant Society will be held on October 1, 1988 at the CU Events Center and Conference Facility in Boulder, Colorado. Registration will begin at 8:45 AM. The meeting will focus on the ecology of the Colorado Plateau.

The program for the morning will include:

Late Quaternary Paleoeecology of the Colorado Plateau
— Dr. Ken Cole

Geo-botany of the Colorado Plateau
— Dr. John Emerick

Climate and Vegetation of the Colorado Plateau
— Nolan J. Doesken

Ethnobotany of the Colorado Plateau
— Meg Van Ness

Ornamental Uses of Plants of the Colorado Plateau
— Jim Knopf

Beginning at 1:45 PM, there will be field activities. You may choose to see cactus gardening or go to the Boulder tallgrass prairie to compare the plains prairie with the grasslands of the Colorado Plateau. Field activities should be concluded by 3:45 PM.

During the lunch break, box lunches will be provided for those who have preregistered and requested the box lunch. The cost of the box lunch will be \$6.50. There will also be a registration fee of \$3.50 to help defray expenses of the meeting.

There will be a Board of Directors meeting at 4:00 PM following the field activities. All newly elected Board members and continuing Board members need to be present for the election of officers and to conduct other business of the Society.

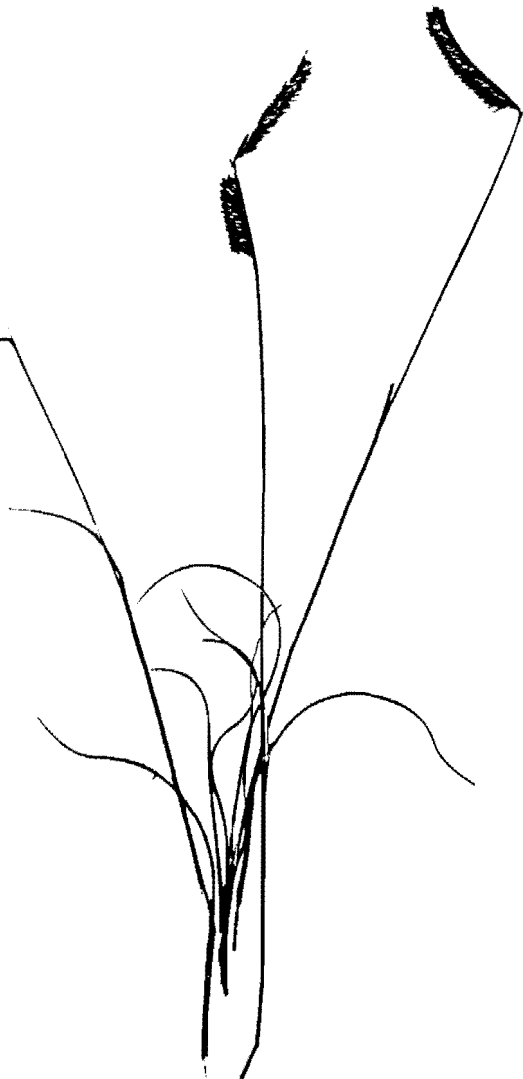
**We are looking forward to seeing all of you at the Annual Meeting.
Be sure not to miss it!**

For further information or to register, please call Eleanor Von Bargen at 756-1400.

Blue Grama — Colorado's State Grass

Bouteloua gracilis

Approximately 65% actual size



Witches' Brooms

Dr. William A. Weber

This summer, for some reason, many people have had their attention drawn to the gigantic witches' brooms on subalpine fir. This was especially true on the Flat Tops where several of our summer courses have radiated out from Meeker. A friend in Ohio sent me a color slide showing this strange "mistletoe" and needed an identification.

The critter responsible is a rust fungus. It produces a "perennial hypertrophy". Jean Meyer's book, *Plant Galls and Gall Inducers* (Borntraeger, Berlin and Stuttgart, 1987), says:

"These are characterized by a mycelium which lives for many years in the infected organ and produces its sporulations each year in the same place, instead of being annual and short-lived. Also, the hypertrophy is always bound up with the parasite and develops with it year after year. This is the case, for example, with *Gymnosporangium sabinae* on various juniper species. It is also the case with the spherical gall ("cauldron") on fir, consisting of a basal hypertrophy from which the witches' brooms arise, caused by *Melampsorella caryophyllacearum* (DC.) Schroeter. As we have mentioned above, some rusts have more or less pronounced organoid effects. The most striking are the witches' brooms, characterized principally by supernumerary ramification (= polyclady), formed of closely-spaced vertical shoots bearing reduced leaves."

The alternate host, if you can believe it, is a species of *Stellaria* (chickweed). The C.U. herbarium contains lots of specimens of the fungus on fir, and also on spruce, but very few specimens of it on the *Stellaria*. You should be able to see little white pustules on the needles when sporulation occurs.

Colorado Xeriscape '88

This conference, sponsored by Xeriscape Colorado! and Metro Water Conservation Inc., has been scheduled for October 27th and 28th at the Airport Hilton Hotel in Denver. "Colorado Xeriscape '88" will focus on the most current information available for landscape water conservation technology. The speakers will share their experience and expertise in this increasingly popular concept.

Registration forms and further information about the conference will be available soon. Contact Kim Hout, c/o Metro Water Conservation Inc., at 695-6387 for additional information.



New Betula Hybrid

Jim Borland

Late last winter Rick Brune and I took a walk along Clear Creek in the vicinity of Prospect Park, to clear our heads and try to shake the doldrums of winter's long visit. Rick showed me several clumps of birches which displayed both pure white and tawny colored bark among the common black-red barked *Betula fontinalis* (River Birch). A call to Dr. William Weber, C.U. Herbarium, revealed that, although he and others had known of these trees for several years, no specimens of the white and tawny barked forms had ever been deposited in the herbarium.

Thinking this might be a slight extension of the range of the known *Betula papyrifera* (Paper or Canoe Birch) and its hybrid with *B. fontinalis*, forming *B. X andrewsii*, I returned several times to take pictures and gather branch, leaf and catkin samples for verification. Later this summer these samples were finally presented to Dr. Weber whereupon he pronounced them *Betula pendula* (European Birch) and hybrids between this and *B. fontinalis*.

Curiously, the hybrid trees, like *B. X andrewsii*, grow until the trunks attain only about 3 to 4 inches diameter before that stem dies. Sprouting usually occurs then, forming a new main stem for the clump.

Part of the problem in attaining all the necessary plant parts for verification was the dramatic differences observed between flowering and fruiting of the three different looking trees. Hybridization is apparently a chancy thing, dependent upon the last flowers of one species and the first flowers of the other.

Rumor has it that a nursery used to occupy land adjacent to this site and probably is the source for *B. pendula*. Further downstream, several other white and tawny stemmed birches can be found as well.

A new flora for Colorado will have to add a new species and a hybrid to the list of native and naturalized species.

A Woody Plant Emporium

Jim Borland

Those of us in the Denver metropolitan area are indeed fortunate that enough foresight was shown by both Jefferson and Denver Counties in setting aside at least a portion of Lookout Mountain for open space and parkland. We are even more fortunate that the Beaver Brook Trail which begins on the low side at Windy Saddle, Windy Saddle Park, provides us with an easy trail which when traveled only one-half mile reveals over 27 species of woody plants within sight or arm's reach. A careful eye will reveal an additional 17 species during the drive down into Golden.

Above the trail, another dozen or so species can also be seen and if over 50 species of woody plants isn't enough, several more are sure to be found off the northwest side of Lookout Mtn., especially near Clear Creek.

Better than the Beaver Brook Trail, in my opinion, is the now defunct jeep trail which starts immediately beside the well traveled trail, but a few feet farther north. Where Beaver Brook Trail goes up at this point, the jeep trail travels down, but not before passing by *Ceanothus fendleri* which forms large mats over rocks and in the grasses.

From the vantage point of the trail's head one can see *Juniperus scopulorum*, *Pinus ponderosa* var. *scopulorum*, *Prunus virginiana* var. *melanocarpa*, *Acer glabrum*, *Rhus glabra* var. *cismontana*, and *Ribes cereum*. A few more steps reveals *Rhus trilobata*, *Rosa woodsii*, and *Rubus deliciosus*.

A bit farther down the trail one encounters one of the few areas where *Prunus pennsylvanica* var. *saximontana* grows in profusion. Preferring rocky soils, this pin cherry spreads underground, forming large colonies of plants, the largest of which is only 7 feet tall. The fruit is only pea-sized, but the taste is very reminiscent of the commercial varieties of sour cherries.

In the next few yards one encounters *Pseudotsuga menziesii*, *Physocarpus monogynus*, *Clematis ligusticifolia*, *Jamesia americana*, *Amelanchier alnifolia*, and oddly for this high, dry area, *Betula fontinalis*. *Salix scouleriana*, the only Colorado dryland willow, also grows in the company of these shade companions.

A seldom seen shrub in the rest of Colorado *Corylus cornuta* can be found on the shadier portions of the trail beneath the Doug firs and beside the *Populus tremuloides*. *Holodiscus dumosus*, *Yucca glauca*, *Mahonia repens*, *Juniperus communis*, *Toxicodendron rydbergii* and *Symphoricarpos* spp. round out the 27 species on this short trail.

Driving down the winding mountain road from the trailhead one should additionally see *Acer negundo*, *Chrysothamnus nauseosus* ssp. *graveolens*, *Populus sargentii*, *Celtis reticulata*, *Prunus americana*, *Opuntia polyacantha*, *Salix amygdaloides*, *Salix interior*, *Salix exigua* and *Crataegus erythropoda*.

Two vines, *Parthenocissus inserta* and *Humulus lupulus* var. *neomexicana* and several sub-shrubs, *Artemisia frigida*, *Eriogonum jamesii*, *Eriogonum umbellatum*, *Eriogonum effusum* and *Brickellia californica* bring the woody plant total to 44 species before one reaches the first human habitation.

Although an exact count was not made of the species along the road to the top, one should find it easy to locate *Quercus gambellii*, *Arctostaphylos uva-ursi*, *Potentilla fruticosa*, *Lonicera involucrata*, *Ribes aureum* and additional species of *Symphoricarpos* and *Salix*.

With only a half mile walk down a trail and a short drive one would be hard pressed to examine and enjoy so many woody species anywhere else. If someone knows of a better location for such pleasure, I sure would like to know of it.

Rocky Mountain Maple

Acer glabrum



Riparian Symposium

A two-day symposium on "Restoration, Creation, and Management of Wetland and Riparian Ecosystems in the American West" will be held November 14-16, 1988 at the Sheraton Inn in Lakewood. Sponsored by the Rocky Mountain Chapter of the Society of Wetland Scientists, the symposium includes sessions on hydrology, geomorphology, water rights, irrigation and land use as well as discussion of biotic aspects of wetland ecosystems. The first two days of the symposium will be devoted to presentation of papers and poster sessions, and the third day offers a half-day field trip to Denver metro area restoration sites.

Registration for the symposium costs \$45 for Society of Wetland Scientists members, \$60 for non-members (advance registration discounted \$5). Send preregistration to Lisa Miller, Rocky Mtn. Chapter, Society of Wetland Scientists, US Fish & Wildlife Service, 2627 Redwing Rd., Fort Collins, CO 80526. Make checks payable to the Rocky Mtn. Chapter, Society of Wetland Scientists.



Colorado Hunting Seasons

Some of us have doubts about multiple use of public lands when it comes to outdoor activities during hunting season. To assist you in planning fall activities, we are publishing the following hunting season dates provided by the Colorado Division of Wildlife.

Archery

Deer, elk, antelope and bear Aug 13 — Sept 20

Muzzleloading Rifle

Deer and elk Sept 9 — Sept 20

Rifle and Associated Methods

Deer and elk (1st season) Oct 15 — Oct 19

Deer and elk (2nd season) Oct 22 — Nov 2

Deer and elk (3rd season) Nov 5 — Nov 11

Plains deer (drawing only) Oct 22 — Nov 2

Late plains deer (drawing only) Dec 1 — Dec 14

Antelope (North of I-70, drawing) Sept 24 — Sept 30

Antelope (South of I-70, drawing) Oct 1 — Oct 7

Bear, fall Concurrent with regular deer/elk rifle seasons

REMEMBER: If you do go out in the woods during these seasons, don't harass the hunters. It's not only unsafe to bother these armed persons, it's now also illegal.

Best Cottonwoods, Lost?

Will sand mining destroy the "best cottonwood stand in the Denver vicinity"? Four miles of cottonwoods could be lost if mining permits are issued for a 1740 acre mineral lease on state-owned land in Arapahoe County approximately four miles east of Lowry Landfill. The proposed project calls for excavation of the flood plain along the Coal Creek channel, adjacent lowlands and upland sites. The State Land Board has already approved project plans; the Mined Land Reclamation Board has given partial approval; and a Section 404 permit application is being reviewed by the Corps of Engineers.

According to the mine plan, from ten to twenty-five feet of materials will be removed from the stream channel. Only 17% of the trees will be directly removed during mining, and proponents believe the remaining cottonwoods will survive in spite of the lowering of the channel. The reclamation plan calls for return to the original grazing use through grass seeding, and replanting of tree clusters (cottonwood, plum, willow, and introduced species such as green ash, Russian olive, and mulberry) in the new creek bottom.

Others anticipate that the lowered channel and resultant twelve foot average drop in the water table are likely to cause mortality of the remaining trees. In a site visit in August, representatives of the US Fish and Wildlife Service, Soil Conservation Service, and wetlands ecologists reviewed the area's ecological values with project proponents and identified their concerns over probable mining effects. A monitoring study to provide early recognition of negative effects was later proposed to the Mined Land Reclamation Board, but funding is uncertain. The State Land Board has expressed no interest in financial participation in a monitoring program.

Conservation of local floras depends on protection of suitable habitat, and riparian systems are rapidly disappearing on the plains near Denver, as they are elsewhere. Surrounding plant communities include sandhill prairie on the uplands, diverse riparian vegetation within the stream channel, and a disturbed understory dominated by smooth brome under the cottonwood canopy itself. Concerns that this important area could be damaged or destroyed have been raised by a few professionals, but the remoteness of the area means few people are aware of the threats.

The State Land Board has said the cottonwoods are a valuable resource and they don't want to destroy them. However, at present, they and the Mined Land Reclamation Board both appear to be accepting the assurances of the project engineer that the cottonwoods will survive the proposed mining over concerns of ecologists. Interested botanists and ecologists may want to contact Rowena Rogers, Chair of the State Land Board, 1313 Sherman St., Denver, CO 80203.

Inventory Projects in Jefferson County

Sally White

As noted in articles elsewhere in this issue, Jefferson County has a wealth of natural features of interest to botanists, as well as important to the general public. The Jefferson County Nature Association (JCNA) was formed in 1987 to identify significant natural areas in the county, and promote their protection through education and research efforts. JCNA members also work with local governments to promote consideration of ecological concerns in land use planning and decision-making.

Although there is considerable designated open space in the county, many areas of special concern are still threatened. This is especially true among the plains ecosystems in Jefferson County, where most development is occurring. In consequence, JCNA has focused initial efforts on the plains areas. Projects in progress include an inventory of remaining plains riparian ecosystems, especially the Cottonwood/Willow Association, and identification of remnant grasslands.

Extensive use of riparian plant communities, especially for grazing, water development and agriculture, has reduced the likelihood of finding well-developed riparian communities this close to an urbanized area. While several areas of cottonwood gallery forest are known, most of these have limited native shrub understory and herbaceous vegetation is dominated by introduced and/or weedy species. A long-term problem in these areas is lack of cottonwood reproduction, suggesting eventual disappearance of the known communities.

Grasslands appear to be an under-appreciated plant community type throughout the Front Range. Remaining short-grass and mid-grass communities in good condition appear to be rare, and many mountain grasslands have been replanted with pasture species. Our efforts have consequently focused on remnant xeric tallgrass prairie communities along Highway 93 in the Rocky Flats area. September and October are good months to observe this grassland type, as the major grass components turn red at this time of year.

An excellent stand of this prairie type occurs just south of the west entrance to the Rocky Flats plant on the east side of the highway. On approximately 200 acres, big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), indiangrass (*Sorghastrum nutans*), sideoats grama (*Bouteloua curtipendula*) and prairie dropseed (*Sporobolus heterolepis*) occur in a community which contains relatively few introduced weeds. Other grass associates include mountain muhly (*Muhlenbergia montana*) and hairy grama (*Bouteloua hirsuta*). In a moist swale near the north end of this site, switchgrass (*Panicum virgatum*) occurs with leadplant (*Amorpha fruticosa*). Switchgrass and big and little bluestems can also be seen in the Hwy. 93 right-of-way throughout this stretch. This area is owned by the State of Colorado and is designated for gravel mining.

JCNA is very interested in obtaining information on any unusual plant communities, riparian areas or grasslands in good condition, and occurrences of rare plants in Jefferson County. For more information on JCNA activities or to share your knowledge of the county, please contact Sally White (home phone 697-5439) or write to JCNA at PO Box 593, Morrison, CO 80465.

Switchgrass

Panicum virgatum

Approximately 50% actual size



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RETURN AND MAILING ADDRESS

Colorado Native Plant Society

P.O. Box 200

Fort Collins, Colorado 80522

Schedule of Membership Fees

Life	\$250.00	Family or Dual	\$12.00
Supporting	50.00	Individual	8.00
Organization	25.00	Student or Senior	4.00

Membership Renewals and Information

Please direct all membership applications, renewals and address changes to the MEMBERSHIP chairperson, in care of the Society's mailing address.

Please direct all other inquiries regarding the Society to the SECRETARY in care of the Society's mailing address.

Newsletter Contributions

Please direct all contributions to the newsletter to:

Peter Root

4915 West 31st Avenue

Denver, CO 80212

Deadlines for newsletter materials are February 15, April 15, June 15, August 15, October 15 and December 15.

There is a special need for short items such as unusual information about a plant, a little known botanical term, etc. Please include author's name and address, although items will be printed anonymously if requested.

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Time Value Material - Mailed on or about September 20