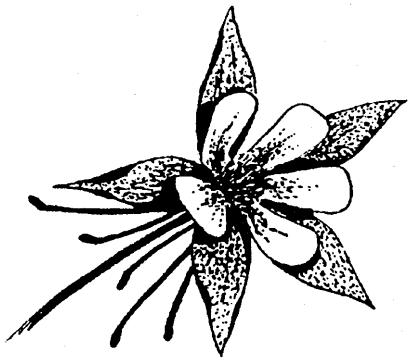
Aquilegia



Newsletter of the Colorado Native Plant Society

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

Volume 16, Number 1 **January/February 1992**

Update on Wetlands Changes

Mark Gershman

"My position on wetlands is straightforward: all existing wetlands, no matter how small, should be preserved."

So stated then-candidate Bush in an attempt to woo potential voters as the environmental president. However, in August of last year the Bush administration released a set of proposed revisions to the federal rules that changed the way wetlands were delineated in the field. By revising these criteria for wetland identification, the administration effectively removed about half of the lower 48's 100 million acres of wetlands from the protection afforded under the Clean Water Act.

The action was not truly a redefinition of wetlands. The federal government's definition of wetlands has not changed:

> The term "wetlands" means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

This definition establishes three separate criteria: soils, vegetation and hydrology. In 1989 the four agencies involved in wetland regulation [the US Army Corps of Engineers (COE), the Environmental Protection Agency (EPA), the Fish and Wildlife Service (FWS), and the Soil Conservation Service (SCS)] agreed to a set of technical criteria to describe wetland soils, vegetation and hydrology. The resulting document replaced the separate methodologies being employed by each agency (often with conflicting results). The Federal Manual for the Identification and Delineation of Wetlands was the result of a team of scientists working to provide an objective means of determining which areas were wetlands, and where wetlands began and ended.

The proposed changes to the Manual were a response to pressures from the development community. There was a strong sentiment that the Manual had been adopted without public review or comment. In many places throughout the country the application of the techniques contained in the Manual required developers to seek a permit from the COE before they could fill wetlands. Although the Corps typically grants permission to applicants, many developers were concerned that they would be required to mitigate the impacts of their project by either selecting another site, by changing the design, or by creating compensatory wetlands elsewhere – all potentially costly alternatives.

– continued on page 4

Contents . . .

Goodbye...and Hello!

With this issue, Peter Root and I are retiring as *Aquilegia* editors. A new committee being assembled by Tamara Naumann will be producing your next issue – and many more, we hope. See details below on sending future contributions.

In exchange for the joys and challenges of newsletter production, I'll be taking on a new role with the Conservation Committee. Please call if you'd like to help out. Perhaps some of our loyal newsletter helpers will find new work there as well: Many thanks to Peter, Velma, Gayle, Gary, Peter, and Julie for all their efforts. And thanks to all of you for the opportunity of newsletter work! May Tamara and her new crew enjoy bringing fresh outlooks and new success to *Aquilegia*!

– Sally White

Reader Comprehension Quiz

Things you've learned from recent issues (true or false)

_ You can make an emergency hand lens from a piece of grass and a drop of sunscreen.

_ Plant adoptive parents care for plants at home.

_ Klamathweed (*Hypericum* sp.) might offer a cure for AIDS.

_ About 12% of North America's native plants may be threatened, but less than 1% are protected under the Endangered Species Act.

_ Calcareous fens have little botanical interest.

_ Fertilizer is not recommended for establishing blue grama turf.

_ Bindweed is easy to get rid of.

_ The 1991 annual meeting focused on the rainforests of Colorado.

_ *Asclepias uncialis* is our smallest milkweed.

_ Blemishes on Earth's satellite are called "moonworts."

Aquilegia

Aquilegia is published six times per year by the Colorado Native Plant Society. This newsletter is available to members of the Society and others with an interest in native plants. Contact the Society for subscription information.

Articles from *Aquilegia* may be used by other native plant societies if fully cited to author and attributed to *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 the variety of native plants in Colorado. The Society sponsors field trips, workshops and other activities through local chapters and statewide. Contact the Society or a chapter representative or committee chair for more information.

Schedule of Membership Fees

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

Membership Renewals/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:

Tamara Naumann
940 Quinn
Boulder, CO 80303

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

Short items such as unusual information about a plant, a little known botanical term, etc. are especially welcome. Camera-ready line art or other illustrations are also solicited.

Please include author's name and address, although items will be printed anonymously if requested. Articles may be submitted on disks (IBM-compatible, 5.25-in. or 3.5-in. DS/DD) if desired; Word Perfect or DOS format text files preferred; please indicate word processing software and version used and enclose hard copy.

Announcements

Dues are Due!!

Check your mailing label to see if you are "Paid thru 1992." If not, a check in the mail to us will ensure you continue to belong to the only organization in Colorado dedicated to native plants! Also, you'll continue to receive *Aquilegia*!

Cloud Ridge Seminars

In 1992, Cloud Ridge Naturalists again offers a variety of seminars with appeal to botanists, including a field trip to the Gore Range with Dr. William Weber in July. Cloud Ridge offers complete experiences, often including transportation and lodging. Class sizes are limited, so register early. Seminars are classified as suitable for families and by level of physical ability required. For details on educational trips planned this season, please contact:

Audrey Benedict
Cloud Ridge Naturalists
8297 Overland Rd.
Ward, CO 80481
(303)459-3248 or (303)443-8204

CONPS Exhibit at Garden & Home Show

Information on the Colorado Native Plant Society and its activities was exhibited at the Colorado Garden & Home Show in early February. Arrangements for the exhibit opportunity were made by Publicity Chair Julie Carlson.

Parts of the educational display on Colorado grasslands (also featured at the annual meeting in November) were included in the exhibit. We appreciate Rick Brune's efforts in preparing the text and photographs for the grassland exhibit.

Additional displays on the Society and native plant conservation are planned for the coming year. ♣

Boone Symposium on Idaho Botany

On March 27th, a special session of the Idaho Academy of Sciences Annual Meeting will focus on "interpreting Idaho's botanical heritage and planning for the future." Symposium speakers, including Dr. Ron Hartman, Dr. Pat Packard, Dr. Barbara Ertter, Dr. Doug Henderson, Mr. Bob Mosley, and Dr. Karl Holte, will cover topics related to Idaho floristics. Following the symposium, the annual banquet will feature a public keynote address by Dr. Arthur Cronquist of the New York Botanical Gardens.

Paper sessions to accompany the Boone Symposium on Idaho Botany are being solicited. Send abstracts on topics related to Idaho floristics by March 7th to:

Dr. Eric Yensen or Dr. Don Mansfield
Dept. of Biology
Albertson College of Idaho
2112 Cleveland Blvd.
Caldwell, ID 83605 ♣

Aquilegia

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Reprints Available

The Prairie Garden, by Rick Brune, is a compilation of practical prairie-garden know-how, collecting Rick's articles for *Aquilegia* in one handy reference. The 12-page booklet, with a new list of selected references, is available from the Society or the author for $3 plus $.75 postage. Order directly, and make checks payable to, either:

Colorado Native Plant Society
P. O. Box 200
Fort Collins, CO 80522

or

Rick Brune
2060 Garland St.
Lakewood, CO 80215

For information on quantity discounts, please call Sally White at 697-5439. ♣

Native Landscaping Project Proposed

The Jefferson County Conference Center on Lookout Mountain has requested the assistance of CONPS members in planning and implementing a new landscaping project focusing on native plants of the area. The Conference Center is a historic mansion located at about 7500 ft. in a ponderosa pine woodland setting. Its original gardens have been long neglected and a complete renovation is planned.

If you would like to participate in this project, please contact Carol Dawson at (303)722-6758. ♣

Annual Meeting '92

The theme of the fall annual meeting this year will be wetlands. This topic is critical to the conservation of Colorado's flora, and the meeting is a learning opportunity we should all look forward to.

Tina Jones is leading a committee to plan arrangements and speakers. Please contact her at 759-9701 if you would like to help. ♣

Wetlands, *continued from front page*

The biggest impact of the revisions to the Manual deals with the hydrology criterion. For example, an area can only be a wetland if the soil is saturated or flooded during the growing season. The term "growing season" is meaningful only with regard to species which demonstrate dormancy at some point in their lifecycle. Many native upland plants and agricultural crops have a clearly defined growing season. Information about the growing season for wetland plants makes it clear that many species are actively growing throughout the year – much longer than the growing season indicated by the Soil Conservation Service for crops.

Even if the definition of growing season could be adjusted to be meaningful for wetlands, the requirement that an area be flooded or saturated to the surface is completely arbitrary. In the past, a well drained soil could have wetland hydrology if the water table was as deep as 18 inches below the surface. The depth to water table required was a function of the texture of the soil. The proposed revisions require that an area be flooded for at least 15 days or saturated to the surface for at least 21 days during the growing season. Studies have indicated that seven consecutive days of saturation are needed for soil to lose enough oxygen for wetland plants to flourish. No attempt was made to justify the science behind the 21-day requirement.

Not only would the proposed change result in a halving of the wetland acreage in Colorado, it would remove from federal jurisdiction the most valuable wetland types. According to a letter report prepared by Dr. David Cooper for Region VIII of the EPA, "In Colorado, the hydrologic regime criteria in the proposed manual would remove from jurisdiction many of the most functionally valuable wetlands; wet meadows which provide critical water quality control, and shrublands and forest on floodplains that provide the most valuable wildlife habitat, streambank stability which creates fish habitat, aquatic food chain support and flood retention functions."

Since release of the proposed changes there has been an outpouring of public comment. The deadline for public comment was twice delayed. In December, the EPA, COE, FWS, and SCS agreed to upgrade the wetlands delineation manual from an administrative rule to a regulation. This means that public review of revisions is not up to the administering agencies – that future revisions will be guaranteed public review.

Comments about the proposed manual changes were due to the EPA by January 21, 1992. There have been indications that the Bush administration may moderate its recommendations. It may prove fortunate for wetlands that the changes will be announced around the time George Bush announces his candidacy for re-election to the office of (environmental?) president. ♣

Reminder

These changes and other wetlands topics will undoubtedly be discussed at the 1992 CONPS Annual Meeting. See page 3 for information on how to get involved in planning this important event.

Chapter Meetings

Boulder Chapter

Meetings are held on the second Tuesday of the month at Foothills Nature Center, 4201 N. Broadway, Boulder. Contact Alison Peck, 443-0284, for meeting information.

March 10: Western Slope Watershed Plant Communities. Gwen Kittel will present a slide show and talk on the results of surveys of the Yampa, San Miguel, and Dolores Rivers conducted as part of the Nature Conservancy's emphasis on Colorado's riparian ecosystem.s.

April 14: Weed Management and IPM. Tamara Naumann will discuss Integrated Pest Management (IPM), a method of controlling insect, disease, and weed problems using "least-toxic" practices. What are the alternatives to using toxic herbicides for control of invasive weeds? Come and find out!

May 12: Annual Picnic. Location to be announced

Denver Chapter

Meetings are held at 7:30 p.m. on the fourth Wednesday of the month at the Denver Botanic Gardens. Contact Ron Abbott, 333-6151, for meeting information.

March 25: Vernal Equinox Potluck Celebration. Loraine Yeatts will briefly discuss how to use the UTM mapping grid. Then we'll eat!

April 22: Some Thoughts on Global Warming and Ecosystem Responses. Dr. Harvey Nichols.

1991 Annual Meeting: A Look at our Grassands

Gayle Weinstein

The Grasslands: A Threatened Community was the topic for the November 1991 annual meeting. Held in conjunction with the Denver Museum of Natural History, this timely topic paralleled the museum's newly remodeled dioramas of Colorado's ecosystems and the Smithsonian's travelling exhibit, the Tropical Rainforest. About 150 people came to enjoy the museum and the Society's meeting topics.

Topics covered grasslands' history, man and animal dependency on the grasslands, loss of community/clashes in value systems, and better management and vision for today and tomorrow. The speakers were Dr. Jane Bock (University of Colorado), Dr. David Armstrong (University of Colorado Museum), Joyce Herold (Denver Museumof Natural History), Dr. Ed Guerrant Jr. (Berry Botanic Gardens), and Bill Floyd (Pawnee National Grasslands).

From the 100th meridian west to the Rocky Mountains is the Great Plains, once consisting of short to midgrass prairies. But today, in the cities, we have inadvertently replaced an existing biome (the grasslands) with trees from the eastern forests. Animals that lived in the grasslands find it difficult to remain and are displaced by contenders from eastern woodlands. Indigenous plants are supplanted by Eurasian species. As population continues to increase, development and agriculture take a mounting toll on the natural ecosystems. Plant communities that were once part of a larger, unified system become remnants, and flora and fauna become extinct or replaced.

Today, people are learning more about the tropical rainforest and the global consequences of its destruction. Yet, the grassland is still an enigma. In fact it is the most abused biome in the world, even though it has supplied the most productive cultivated land on earth and given the world its most important food crops: wheat, corn and rice.

These changes have eliminated many ecosystems. Different demands have and will continue to be placed on the grasslands and natural resources. To preserve what is left, we need to learn now that vision and discretion are more fitting than the old way of doing things. If we neglect the grasslands as a community, there will be less for everyone.

Today we have to look at our ecosystems, learn about them, and respond to them. We need to recognize the differences in biomes and ecosystems. Each system must be managed with vision and awareness that what we do today affects something tomorrow.

We as a native plant society will be called upon to make some choices. The nature of our goals must be stronger. We must work together to maintain them and work for a better future. ♣

CONPS Accomplishments for 1991

- Contributed $500 to Nature Conservancy's "Adopt a Rare Plant Program"
- Contributed $1000 to Nature Conservancy for Purchase of High Creek Fen
- Contributed $500 to Floristics Survey of the Flat Tops, White River Plateau and vicinity (see report, page)
- Developed exhibit on Using Native Plants in the Landscape
- Expanded number of workshops on native plants
- Conducted field trips (spring through summer)
- Initiatied plant survey at Golden Gate State Park
- Prepared and distributed list of "Suggested Native Plants for Horticultural Use in Northeastern Colorado"
- Reprinted **The Prairie Garden** by Rick Brune
- Revised CONPS Bylaws
- Prepared statement on ethics with regard to collecting native species
- Responded to three hundred plus inquiries on native plants and CONPS

♣

Workshops — 1992 Season

Botanical Illustration III
Saturday, February 22, 1992

Leader: Carolyn Crawford

Our workshops on Botanical Illustration remain popular, and Carolyn Crawford has agreed to present a second advanced workshop. Dissection and drawing of flowers and flower parts will be the emphasis of this workshop.

In addition to the techniques of colored pencil and pen & ink, Carolyn will demonstrate her main medium, pastel pencil. A guest instructor is tentatively planned.

To be held at Foothills Nature Center, Boulder.

How to Know the Families
Saturday, March 21, 1992

Leader : Miriam Denham

Are you bewildered by the huge variety of spring and summer wildflowers you see in Colorado? You want to be able to identify the plant, but you're not really sure how to use a botanical key? How can you tell if it's a monocot or a dicot? How can you decide whether it's in the borage family or the figwort family? Here's your chance to clear up **all** your botanical problems (well, some of them, anyway). Miriam Denham will tell us how to identify the most frequently encountered plant families and explain their special characteristics and terminology.

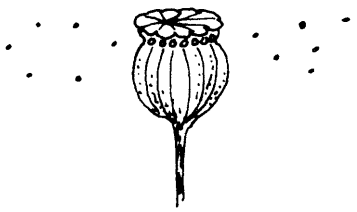
To be held at the Foothills Nature Center, Boulder.

Colorado Ferns
Saturday, April 4, 1992

Leader: Peter Root

Pteridophytes are the ferns and similar plants which are called fern allies. The main emphasis of this workshop will be identification of the ferns and fern allies of Colorado. The relationships of the various groups will also be discussed. There are about 45 species of true ferns in the state, and other than bracken and a few others, most are seldom seen. Participants will find John Mickel's *How to Know the Ferns and Fern Allies* to be helpful.

To be held at the herbarium, Denver Botanic Gardens, Denver.



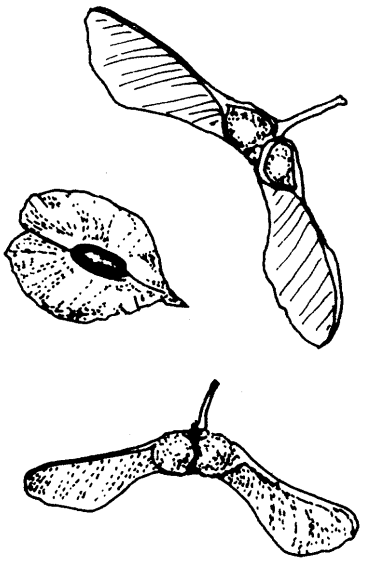
Adopt-a-Rare-Plant Workshop
Saturday, April 25, 1992

Leaders: Betsy Neely, Tamara Naumann, and Bill Jennings

The Nature Conservancy, Colorado Natural Heritage Program, and the Colorado Native Plant Society are developing a volunteer-based program to update the rare plant species database and to help with the Nature Conservancy project selection process. At this training session, participants will see specimens and photographs of some of our rare plants, will learn how to use an herbarium effectively, and will learn when to take and not to take specimens and how to prepare them. We'll also learn how to take good photographs and record the correct information to document a new site. After lunch, we'll visit a nearby site where *Physaria bellii* is found.

Even if you don't plan to adopt a plant, this workshop provides a useful outline of the techniques to use when searching for rare plants. Looking for rare plants is the world's most frustrating occupation, so find out what you need in your information arsenal before venturing into the wilderness.

To be held at the Foothills Nature Center, Boulder. ♣



Registration for Workshops

Please mail in your registration this year. Jot down the workshops for which you wish to register, include your name, address and phone number, and send the note to: **Bill Jennings, PO Box 952, Louisville, CO 80027.** Be sure to include your mailing address and phone number. Registration order will be first come, first served, by the date on your letter, or postmark if no date is included.

Please register promptly, as workshops tend to fill up fast. If demand is sufficient, multiple sessions will be scheduled if the instructor is willing. Registrants will be notified by mail about two weeks before the workshop regarding session date, location, lunch, supplies, suggested references, etc.

Unless otherwise noted, the fee for **each** full-day workshop is $8 for members and $16 for non-members ($8 for membership and $8 for the workshop). Please hold payments until the day of the workshop.

It takes time and effort for instructors to plan workshops. We need your suggestions for other workshops, and your feedback on whether you found them informative. ♣

Exotic Threat: Purple Loosestrife

Mark Gershman

Imagine a horror film wherein the wicked monster achieves its tragic schemes by effecting a beautiful disguise – and you have the purple loosestrife. *Lythrum salicaria* is an attractive tall herbaceous perennial with bright magenta to purple flowers – but it takes over wetlands. Endemic to Eurasia, loosestrife established itself in the wetlands of northeastern North America by the early part of the nineteenth century.

No one was concerned about the dispersal of purple loosestrife for many years, and well-meaning people were introducing it as a medicinal herb and ornamental garden plant. Because of its long blooming season, beekeepers planted it for honeybees. By the 1930's, purple loosestrife had become an aggressive weed in the hayfields that flank the St. Lawrence River. Its impacts to agriculture, however, pale in comparison to the loss of native plant and wildlife habitat throughout the continent. The endemic flora of the St. Lawrence floodplain was obliterated by loosestrife and an exotic flowering rush (*Butomus umbellatus*). The decline of *Scirpus longii* in the northeast has been attributed to the invasion of loosestrife; and *Eleocharis parvula* in New York is thought to be immediately threatened by the weed. Although few studies have been conducted to quantify the effect of loosestrife, the authors of a Fish and Wildlife Service Research Report on the spread, impact and control of the plant noted "the replacement of a native wetland plant community by a monospecific stand of an exotic weed does not need a refined assessment to demonstrate that a local ecological disaster has occurred."

Typically purple loosestrife first occurs in small numbers on a site for a number of years, then the population explodes. Each mature plant is capable of producing millions(!) of seeds which can be transported over water. Loosestrife is brittle and is also capable of reproducing vegetatively from parts which are broken off and dispersed to suitable habitat.

Colorado hasn't yet developed extensive problems with loosestrife as other states have. It is widely distributed in local gardens, and sold by nurseries in Boulder and elsewhere. Only two "wild" populations of purple loosestrife are known in Boulder County. Both the populations are on land owned and managed by the City of Boulder: a large population at Coot Lake, and a smaller stand along the shoreline of South Boulder Creek between Valmont Road and Arapahoe Road. Mountain Parks and Open Space staff have been monitoring and working to control these populations. Because the plants grow in wetlands, city workers have concentrated on removing the aboveground portions of the plants to prevent seed set and effectively shorten the plants' growing season.

Some research indicates that small populations can be controlled by repeated cutting. The Fish and Wildlife Service and the Department of Agriculture are working on biological control agents for loosestrife, and some use of leaf-eating beetles and root mining weevils may be tried in Boulder this year.

Members of the Colorado Native Plant Society interested in helping to control purple loosestrife or those who have seen other infestations can contact Mark Gershman (441-3270), Tamara Naumann (441-3440) or Dick Lyman (441-3408). People are needed to help cut plants in late summer. It is wet, sweaty and rewarding work. Members can also help control this plant by discouraging its sale and learning to recognize it in the wild. ♣

Review of Draba Workshop

Carolyn Crawford

The Colorado Native Plant Society, in conjunction with the Rocky Mountain Chapter of the American Rock Garden Society, was able to bring Dr. Robert Price to Denver to present a talk and two workshop sessions. His specialty is *Draba*, a genus of mostly low, mat-forming plants of the mustard family (Brassicaceae) particularly noticeable in many of the alpine tundra areas of the West. Many of the species found in Colorado are rare or endemic. Dr. Price is a near-native Coloradoan, who attended George Washington High School in Denver, Cornell University, University of Wisconsin - Madison, and University of California - Berkeley. His master's thesis was on the taxonomy of *Draba* in Colorado, while his doctoral work was in *Erysimum*. He is currently at Indiana University.

On the evening of January 10, prior to the workshops the following two days, Dr. Price presented a slide show of many of the species of *Draba* found in the Rocky Mountains and in the Sierra Nevada of California. In addition, he showed slides of the associated species and general habitat. This program, held in Mitchell Hall at the Denver Botanic Gradens, was attended by about 100 persons. Many of the showier mat-formers are well suited to the rock garden, and Dr. Price was quick to point out which species he felt were most appropriate for cultivation. Most species of *Draba* have long taproots and are unlikely to survive transplantation. However, Dr. Price has performed germination tests on *Draba* seeds, finding substantial percentage germination in nearly every species. Interestingly, the pollen in some species is infertile, yet the species always sets fruit, apparently parthenogenetically, based on his experiments.

Demand for the workshop was sufficient that two sessions were held. Dr. Thomas Ranker, curator of the herbarium of the University of Colorado generously made a classroom/laboratory available for the workshop. The lab was well equipped with both dissecting and side-arm microscopes to observe the small details that characterize species of *Draba*. Dr. Price provided a handout that listed all the species currently recognized for Colorado. The best keys to the species are the ones in **Colorado Flora: West Slope** and **Colorado Flora: East Slope**, primarily because they were written for Dr. Weber by Dr. Price.

The main features necessary to observe to key a *Draba* correctly are flower color (white or yellow); number of leaves on the flowering stem (cauline leaves); whether these leaves have teeth; the kinds of hairs on underside of the basal leaves (spectacular shapes under high magnification); the shape of the fruit (length and width); and the length of the style. Dr. Price slowly and carefully walked us through the keying procedure for several species before turning us loose on a number of "unknowns". The unknown species were pressed, dried, but unmounted specimens that attendees could examine from every angle. This instruction was invaluable, and by the end of the workshop, most attendees felt confident that they could key species correctly.

Some problems were noted in the key. The very first choice requires that the user measure the length of the style and determine if it is longer or shorter than 0.15 mm (**West Slope Flora**, p. 176). This is a very short length to measure, even under a microscope, and subject to substantial error. In general, if the style is obvious to the unaided eye, it's longer than 0.15 mm; if you must use the hand lens or scope to confirm its presence or measure it, it's probably shorter than 0.15 mm.

Some specimens proved particularly troublesome to key, mainly because of a lack of leaves on the flowering stem (appearing scapose) when they were normally leafy-stemmed species. Users of the key should be aware that couplet 1, on group I (**West Slope Flora**, p. 176), which asks the user to observe the presence or absence of cauline leaves, is not always reliable. In the field, as many plants a possible over as large an area as practical should be examined to confirm the presence or absence of cauline leaves. Cauline leaves are sometimes absent or very inconspicuous on *Draba cuneifolia* and *Draba reptans*.

At couplet 11a, group II (**West Slope Flora**, p. 178), where *Draba crassa* is reached, the first part of the identification calls for noting that the leaves are semi-succulent. On pressed specimens, the leaves dry nearly translucent and are absolutely not succulent. This feature can be observed only on live plants. The best identifying characteristics are the leaf hairs, which are on the margins (ciliate) with the leaf surface hairless (glabrous).

All attendees were pleased with the workshop and impressed by Dr. Price's knowledge and teaching ability. The genus *Erysimum* is Dr. Price's oth area of expertise, and we hope invi him back to sort out this group. ♣

Artist Honored

Carolyn Crawford

We are pleased to report that Marj Leggitt, who was co-leader of last fall's workshop on botanical illustration, will have two pieces of her botanical artwork shown in the 7th International Exhibition of Botanical Art and Illustration at the Hunt Institute for Botanical Documentation in Pittsburgh.

The Institute, which is at Carnegie-Mellon University, houses the largest permanent collection of botanical artwork in the world. Once every 4 to 5 years mounts an exhibition featuring some of the best illustrators from around the world. Marj will have two pieces in the show, her illustrations of trumpet creeper (*Campsis radicans*) and Arizona walnut (*Juglans major*) from Jack Carter's upcoming book **Trees and Shrubs of New Mexico**. Marj also illustrated Jack's previous book, **Trees and Shrubs of Colorado.**

Congratulations, Marj! ♣

Review of Apiaceae Workshop

Bill Jennings

Dr. Ronald Hartman, curator of the Rocky Mountain Herbarium at the University of Wyoming, presented a workshop to CONPS on September 28 on selected genera in Apiaceae. Dr. Hartman has specialized in the parsley family and has published numerous articles on the family.

At the workshop, he explained the terminology used for keying the parsleys, particularly fruit morphology. The fruit is a schizocarp, which consists of two one-seeded mericarps, more or less suspended by a caryophore, the dry, wiry remnant of the vascular strand. The size and shape of the dorsal wing, intermediate wing, and lateral wing (if present) on each mericarp are important in determining species.

Dr. Hartman made keys available to the attendees and had 50 "unknown" plant specimens in plastic sleeves. The unknowns were herbarium sheets with the labels blanked out, but with a photocopy of the label and specimen inserted on the opposite side. Dr. Hartman gave these 50 photocopies to me. Readers of *Aquilegia* wishing to have a complete set of 50 photocopies of specimens of Apiaceae, should write a note to Bill Jennings, P.O. Box 952, Louisville, CO 80027. Although these will be second-generation photocopies, key features can be distinguished surprisingly well for most species.

Significant differences in nomenclature exist between Hartman's work and the books of Weber and Harrington. Dr. Hartman developed a comparison chart to enable translation between the species as interpretated by various workers.

Dr. Hartman prepared a display of the activities carried out by the Rocky Mountain Herbarium, and this and the rest of the herbarium were seen during the tour. Rocky Mountain is now the largest herbarium between St. Louis (Missouri Botanic Garden) and California (Jepson Herbarium at Berkeley). Handouts entitled "The Rocky Mountain Herbarium – Purpose and Goals" and "Status Report on the Rocky Mountain Herbarium" were passed out to attendees. The three floras of Robert Dorn (Montana, Wyoming, and Black Hills of South Dakota) were available for sale and most participants purchased copies.

All in all, this was an excellent workshop, with good information presented by Dr. Hartman and a helpful opportunity to key unfamiliar species in this family. ♣

Official Listing for Spiranthes

On January 17th, 1992, the U.S. Fish & Wildlife Service published the official listing of *Spiranthes diluvialis* (Ute ladies' tresses) as threatened under the Endangered Species Act. According to the Federal Register notice, the new status will take effect February 16th. The USFWS Regional Office cited the reopening of the comment period, the need to collect more data on the distribution of the species, and the effort to handle other regulatory packages with more urgent deadlines (e.g., the black-footed ferret and Kanab ambersnail rulings) as factors in the delay of this listing. In December, the *Spiranthes* listing package was forwarded to Washington with a request to "expedite this rulemaking" because of the expectation of a lawsuit being filed after January 19th (see *Aquilegia*, Vol 15#6).

In September 1985 *Spiranthes diluvialis* was listed in a notice of review as a Category 2 candidate species. Its status was changed to Category 1 in February 1990, thanks in part to work by Society member and orchidologist Bill Jennings and others in defining its biological vulnerability and potential threats.

Among the potential threats continuing to affect Ute ladies' tresses are habitat destruction, possible overutilization, inadequate protection for existing populations, and low reproductive capacity. Changes to the ground water regime in its range are also likely to affect its numbers. ♣

Colorado's newest threatened species:

Spiranthes diluvialis
Ute ladies' tresses

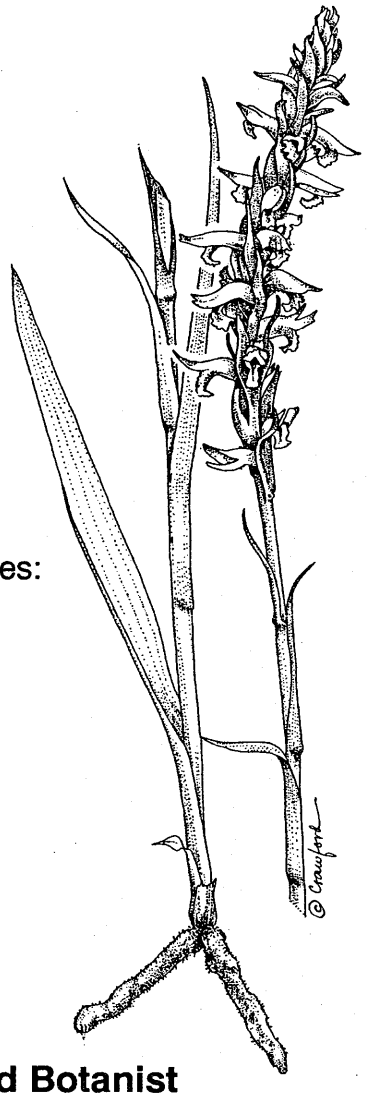


Illustration by Carolyn Crawford; shown approx. two-thirds life size.

Avian Observations of a Nose-to-the-Ground Botanist

Tim Hogan

An old friend once told me that it's a good idea to take both a birder and a botanist along on field trips—the one keeps you from bumping into trees, while the other keeps you from stepping into holes. We all know how difficult it is to do more than one thing at a time in the field. A singular focus seems necessary to really see the object of our interest. The more time we spend out, the better our chances of being graced with those rare observations that give meaning to the naturalist avocation. Sometimes these observations are not what we have come looking for.

One August 15th, I was looking at plants in one of my favorite haunts on the north side of Green Mountain in the Boulder Mountain Parks. As I started out that morning I was greeted by the raucous calls of an unknown bird. I was able to pick it out as it flew from perch to perch in the open forest, so I took out my glasses to see what I could see. I wasn't too surprised to discover that it was one of the young goshawks whose nest I'd stumbled on a month before. I was amazed to see how rapidly it had grown and a bit curious about all the noise it was making. I figured it was simply the juvenile way of all species.

A little later I saw what I had not come looking for. I was sitting on a rock trying to key out a grass when the young delinquent again let out a cry. Glancing up from my important *Poa*, I noticed another bird flying in from the corner of my vision. I watched in silence as the two approached each other; among a flurry of flapping feathers, the second bird banked away from the young one. I could now see it was an adult goshawk with a small bird in its talons. Suddenly it dropped its prey and the young hawk deftly plucked it out of the air.

A moment later the woods were quiet and the drama was over. It seemed I had just been privy to a rare exchange of information between mother and child. This is the way a young hawk is taught to hunt. I had witnessed its apprenticeship.

The rest of the day was consumed with botanizing in the quiet canyon. As I approached the trailhead that afternoon the cry of the juvenile hawk once again came from the woods and I wondered how much longer before stealth and quiet would replace its raucous ways. ♣

Books of Interest

Reviewed by Jim Borland

Weeds of the West, *Tom D. Whitson, editor. The Western Society of Weed Science (in cooperation with the Western U.S. Land Grant Universities Cooperative Extension Services). 630 pages; paperback, $19.00.*

Highlighting approximately 300 species with generally excellent photographs and text describing distinguishing characteristics, this book has already been touted as an excellent source. Although the undertaking and completion of such a massive project as this is highly commendable, the included text is not without faoul and is particularly not agreeable to native plant enthusiasts.

The authors established the following minimum criterion for a weed: "A plant that interferes with management objectives for a given area of land at a given point in time." In addition, the authors considered a plant's abundance, and its ability to reproduce, compete, spread rapidly, and prove toxic to livestock or humans.

Given this rather broad approach, we should not be surprised to find at least a few Colorado native plants on the list. In fact, more than 90 species are listed! As nativity to a state or to the nation is not mentioned for each plant, and as no control measures are mentioned for any plant, the usefulness of this book is severely limited, aside from its assistance in identification.

Colorado readers might be surprised to learn that four species of *Artemisia* (sagebrushes), *Yucca glauca* (plains yucca), *Tetradymia canescens* (horsebrush), *Xylorhiza glabriuscula* (desert aster), *Prosopis glandulosa* (common mesquite), *Iris missouriensis* (wild iris), *Sphaeralcea coccinea* (cowboy's delight), and *Typha latifolia* (cattail) made the list, among many other natives. On the bright side, both *Eleagnus angustifolius* (Russian olive) and all *Tamarix* species (saltcedars) are also included. Curious, considering that older weed literature usually contains many species, that only one *Astragalus* is listed (*Astragalus bisulcatus*, two-grooved milkvetch).

The cover photograph depicts western mountains and a hayfield with grazing cattle as a backdrop to a traditionally symbolic old wooden wagon wheel surrounded by what appear to be two species of rabbitbrush and a sagebrush in the close foreground. After studying it, I cannot decide whether the original western landscape or the cowboy culture is the favored view. Because there is little guidance between the covers, readers will have to decide for themselves.

Roadside Wildflowers of the Southern Great Plains. *Craig C. Freeman and Eileen K. Schofield, 1991. University of Kansas Press. 280 pages; paperback, $17.95.*

Area covered: eastern Colorado, all of Kansas, the northwest two-thirds of Oklahoma, Texas panhandle, small northeast corner of New Mexico, and southern strip of Nebraska.

Arranged by bloom color, each of approximately 235 native and introduced species is represented by a color photograph and the occasional black-and-white illustration of key identifying features. Text includes information on identification, bloom period, habitat, and additional comments. ♣

An Unusual Horsetail

Peter Root

A couple of years ago I found a specimen in the Rocky Mountain Herbarium of an unusual *Equisetum* with cones at the tips of green, branching stems. It was filed as *E. pratense* but didn't look quite right. I made a photocopy of it and finally decided it must be an unusual form of *E. arvense*. *Equisetum arvense* is widespread and highly variable and a form like this has been described. It is probably a response to very cold spring weather that kills the normal fertile stems.

There are specimens of this form in the herbarium at Boulder which were collected on the north side of Hoosier Pass in Summit County. I visited this site in July and found the aberrant form growing on the exposed bank of a roadside ditch. Nearby, in more sheltered habitats, there were thousands of normal stems of this species. Later that month, I saw this unusual form in three locations in Horseshoe Park in Rocky Mountain National Park.

I believe that plants of this form have been misidentified as *Equisetum pratense*. The keys in both of Weber's Colorado floras use the characteristic of 4-angled branches to separate *E. arvense* from *E. pratense*. *E. arvense* in Colorado often has 3-angled branches and this unusual form could seem to be *E. pratense* to someone who has not seen it before. Actually, *E. pratense* is quite different in the texture of its branches, the shape of branch teeth, and the color of the plant. It probably has not been found in Colorado yet, but it is something to look for in cool, shaded locations in the mountains. ♣

Calendar Overview

1992 Workshops

Feb 22 **Botanical Illustration**
at Foothills Nature Ctr, Bldr.
Carolyn Crawford

Mar 21 **Know the Families**
at Foothills Nature Center
Miriam Denham

Apr 4 **Colorado Ferns**
at Denver Botanic Gardens
Peter Root

Apr 25 **Adopt-a-Rare-Plant**
at Foothills Nature Center
Neely, Naumann, Jennings

Denver Chapter Meetings

Feb 26 Aspens

Mar 25 Vernal Equinox Potluck

Apr 22 Global Warming

Boulder Chapter Meetings

Mar 10 West Slope Riparian Communities

Apr 14 Weed Mngt. & IPM

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