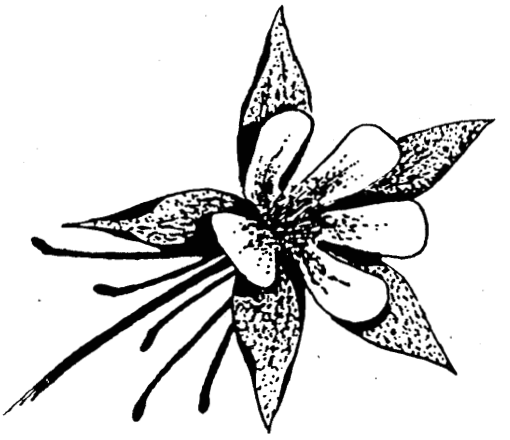
Aquilegia



Newsletter of the Colorado Native Plant Society

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

Volume 16 Number 3 May/June 1992

A Day On the Pawnee: Management Issues On the National Grassland

Sally White
Conservation Committee

By the time the uncertainty of 100% overcast had dissolved into a dry, windy, sunny prairie afternoon, our guided tour of the Pawnee National Grassland had uncovered and laid before us many of the treasures and challenges of the area. And some of its treasures **are** its challenges. We saw one of them at our very first stop--the mountain plover--and this innocent-looking bird set the central theme for the rest of our day. Possibly the next species in Colorado to gain protection from the Endangered Species Act, the plover is central to management decisions on the grassland and clearly on the minds of Forest Service personnel, almost to the exclusion of other concerns. "Forty-five minutes of every hour of every day of everyone's time is spent on the plover." Pawnee District Ranger Jeff Losch told us. This condition seems unlikely to ease until he and his staff of six complete the Mountain Plover Environmental Impact Statement (EIS) now underway.

Our group of about 25 included people with extensive experience with these grasslands: Bud Phillips and Mark Ball (Forest Service), Dean Kanode (Crow Valley Livestock Association), Walt Graul (Colorado Division of Wildlife), Clint Wasser, Ron Ryder and Don Hazlett (CSU), and Rick Brune (CONPS). They shared much of their knowledge with the rest of us, who were there to learn, and to represent groups who would be reviewing the upcoming Mountain Plover EIS and management plan revision. We were charged with sharing our new understanding of grassland ecology and management issues with our respective groups: several Sierra Club and Audubon chapters, the CU Wilderness Study Group, the Colorado Environmental Coalition, The Nature Conservancy, and the Colorado Native Plant Society. The Denver, Fort Collins, and Greeley Audubon Societies along with CONPS organized and sponsored this event. These groups are to be complimented for making so much expertise available and for planning an informative day.

A Rare Bird

Will maintenance and enhancement of habitat for the mountain plover affect Society concerns? The Pawnee National Grassland in northeastern Colorado contains the most extensive plover nesting habitat available in Colorado. Walt Graul's research suggests that plover prefer flat, open areas with high visibility, and thus very low vegetation. Heavy grazing and prairie dog towns are therefore two factors favoring plover. No nest loss has been attributed to trampling by cattle, as plover are adapted to living among large herbivores. Although the plover is of concern in Colorado, immediate threats to

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Pawnee, *continued from front page*

its survival involve habitat loss and pesticide use in its wintering areas in California and Texas. Most of our group, including Forest Service field personnel, recognized that managing 100% of the area solely for plover is inappropriate. That's good news for native plants, and for birds and animals who prefer taller grasses.

Rare Plants and Off-Road Vehicles

Late in the morning, we stopped at the Main Pasture to enjoy a rare sight on the grasslands: relief. The topographic kind. Part of this area is a rough, clay barrens, the best of an unusual habitat type on the Pawnee. It has been used by off-road vehicles for the last 15 years. Bud Phillips (USFS) assured us that "most" ORVers respect the posted boundary markers and the current winter-use-only restrictions (designed to protect nesting plovers). This is the only area on the grassland where ORV use is allowed. One-mile of the full width of the bottom of the draw is open to recreational vehicle use; it is also the only significant clay barrens.

Rick Brune chose this setting to tell us about the two rare plant species known on the grassland: *Parthenium alpinum* and *Cryptantha cana*. About fifteen other species are "possibles." As a management issue, rare and sensitive plants could be in conflict with recreational use here. No one can say for sure because surveys for threatened and endangered species have not been conducted (and no sensitive species program is in place, see *Aquilegia*, Vol. 15, No.6). This is one of the likely habitats for rare plants, and should be surveyed thoroughly before management plan revisions determine the future of ORV use. And if sensitive species are found?, we asked. "It would make my decision (on ORV use) more difficult," replied Jeff Losch. We disagree: it would make his mandate clearer. Rick and I decided to pursue ways the Society could help promote and/or accomplish this formidable task: any of you with ideas (talent? ambition?) are welcome to call either of us--please! This is a subject we all need to know more about, and the Society could make a significant contribution!

Grazing Management

A dominant concern of the day was the grazing itself. Cattle, and their many side effects, may be second only to climate as a pervasive ecological force on the Pawnee. On average, one cow and calf (animal-unit) consumes the "available forage" (i.e., about 2/3 of the native vegetation, according to the Forest Service) on four acres each month of the five-month growing season. Season-

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Aquilegia

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

Articles from *Aquilegia* may be used by other native plant societies or non-profit groups 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 Colorado's native plants. The Society sponsors field trips, workshops and other activities through local chapters and statewide. Contact the Society, a chapter representative, or committee chair for more information.

Schedule of Membership Fees

Life	$250
Supporting	$ 50
Organization	$ 25
Family or Dual	$ 12
Individual	$ 8
Student or Senior	$ 4

Membership Renewal/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 Street
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 submitted on disks (IBM or Mac) are appreciated. Please indicate word processing software and version.

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Committees

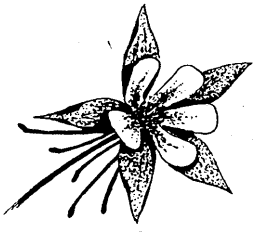
Conservation	Sally White	697-5439
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Hort/Restoration	Dorothy Udall	482-9826
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Publicity	Julia Carlson	752-2738
Workshops	Bill Jennings	666-8348

ANNOUNCEMENTS

If you are interested in a native plant seed exchange...

contact Craig Alseike, 3256 Salem Street, Aurora, Colorado 80011, (303) 366-0587. Craig is interested in organizing a network of interested CONPS members for seed collection and exchange. The exchange would be not-for-profit and seed would be collected from home gardens or other appropriate places, subject to the ***Colorado Native Plant Society Guidelines for Collection of Native Plants for Use in Horticulture, Restoration, Medicinal Preparations ,and Scientific Research***, published on page 9 of this issue of *Aquilegia*.

If you like to grow native plants and would like to participate, send your name, address, phone number, and a list of species you would like to collect or receive to Craig.



If you are interested in a commercial source of native plant seed...

you may want to write for a catalogue from:

Plants of the Southwest
930 Baca Street
Santa Fe, NM 87501

Publications 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 Street
Lakewood, CO 80215

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

Rare Plants of Colorado is available from:

Rocky Mountain Nature Association
Rocky Mountain National Park
Estes Park, CO 80517

for $10.75 including shipping.

Aquilegia
is printed on
100% recycled paper

Three copies of **How to Know the Ferns and Fern Allies** by John T. Mickel are still available. The price is $16 plus $1.05 postage.

Twelve FREE copies of **The Hepaticae (liverworts) of Utah** by Seville Flowers are available for $1.05 in postage!

If you are interested in either of these publications, call or write:

Bill Jennings
P.O. Box 952
Louisville, CO 80027
(303) 666-8348

If you want to take advantage of CONPS discounts on the following publications, contact:

Velma Richards
3125 Monmouth
Englewood, CO 80110
(303) 794-5432

Intermountain Flora, Vol. 1 Vascular Cryptogams & Gymnosperms
$29.60 plus $2 postage

Intermountain Flora, Vol. 3B Fabales
$51.70 plus $2 postage

Intermountain Flora, Vol. 4 Asteridae (except Asteraceae)
$66.15 plus $2 postage

Catalogue of the Colorado Flora
by W. A. Weber and R. C. Wittman
$25.00 plus $2 postage

Rocky Mountain Flower Finder
by Janet Wingate
$3 plus $1.50 postage

Make checks payable to Colorado Native Plant Society.

Position Available

The Dyck Arboretum of the Plains in Hesston, Kansas is looking for a **Manager of Horticulture** to manage and maintain plant collections, displays, grounds, and facilities. The 30-acre arboretum is devoted to the native plants and natural landscapes of Kansas. For details, contact Jim Locklear, Director, Dyck Arboretum of the Plains, Hesston College, P.O. Box 3000, Hesston, KS 67062, (316) 327-8124.

Pawnee, *continued from page 2*

long grazing (mid-May to mid-October) is the standard management practice on the Pawnee's 193,060 acres. Rotation is being tried experimentally in a few pastures. The limited rest afforded the plants in the 3-pasture rotation experiment we saw has already increased plant vigor and drought resistance and allowed other species (especially grasses) to "express themselves" as part of the vegetation. Though it seems simple, rotational grazing is complicated by the need to provide additional sources of water and additional fencing in the subdivided pastures, making implementation on a broader scale problematic. The pasture rotation experiment has thus far shown no effect, negative or positive, on cattle weight gain, according to Dean Kanode.

Although there are small (fewer than 20 acres) exclosures, they are primarily for riparian protection, and none of them is completely or permanently closed to grazing. One exclosure along Willow Creek had been unintentionally heavily grazed, showing considerable damage to shrubs and grasses. We noticed that, left ungrazed, riparian areas are often invaded by Canada thistle, and that cattle do eat selenium-concentrators--*Astragalus bisulcatus* in this case--to the ground. A second exclosure, not yet grazed, provided an excellent fenceline contrast. On one side of the fence, clipped streambanks supported an occasional stunted leadplant (*Amorpha fruticosa*); on the other a lush thicket of leadplant 6-8 ft tall, Russian-olive(!), and willow, with an understory of grasses and other shrubs provided the only significant cover for larger wildlife. The latter exclosure raised discussion of whether more trees and shrubs should be planted on the grassland--not a native vegetation restoration, but simply for their benefits to wildlife. The prospect poses a dilemma: How natural are trees on the original prairie, and are they necessary for native wildlife?

The Society could perform another valuable service, and greatly enhance our understanding, by encouraging the Forest Service to establish a meaningful exclosure system, perhaps totalling a mere 1% of the area, to demonstrate the positive or negative effects of cattle and to tell us what the vegetation potential of the area really is. Despite the absence of definitive evidence, Rick and I were able to discuss this question all the way home (it's a long drive!). His alternative--a control area with grazing by native herbivores--would provide even more interesting data but would be more difficult to implement and require much more acreage (at least, if bison were used). The current grazing arrangement is well entrenched and barely capable of evolution (rotational grazing being a somewhat revolutionary idea requiring considerable planning and paperwork). Visionary approaches to this grassland ecosystem are not likely in our lifetimes.

The grazing leases themselves are a guaranteed property right and any downward adjustment constitutes interference with the allottee's livelihood--a step the Forest Service is not contemplating. How such a system became an irrevocable part of federal land management is a long story in itself, dating to the Homestead Act and the Dust Bowl. For the privilege of making a living on federal lands, ranchers pay $3.42 per animal-unit-month (AUM) to the Forest Service--a total fee of $6.80 per AUM, Dean Kanode amended quickly, noting additional fees to the Crow Valley Livestock Assoc. for the services (fencing, water maintenance, range riders) it provides, and putting the fee closer to the $8 to $13 per AUM charged for private lands grazing rights. The Forest Service and the grazing association are well aware of pressures against public lands grazing, and convinced that the cooperative system at Pawnee is working. Their best defense against a grazing ban is substantive demonstration that ecosystem functions and native diversity are being maintained.

No matter how progressive the livestock association is--or how enlightened their management practices--the ecological effects of cattle are far-reaching, and different in many respects from those of native bison and other herbivores. Grasslands are patchy environments where minor changes in slope, aspect, and soils can create visible differences in vegetation. Patchy, irregular, sporadic grazing may help maintain these patterns. Can confining a number of exotic herbivores in fenced pastures for defined periods of time year after year maintain a natural community of plants and animals?

At Pawnee, the uplands, which constitute 80 to 90% of the area and harbor 50% of its plant diversity, are remarkable for their superficial uniformity. A sod of blue grama and buffalo-grass regularly spotted with prickly pear; this prescription covers the dominant vegetation on most of the area we saw. Rick and I also discussed range condition. He thought some areas should have had more vegetation cover. I was used to Wyoming grasslands with much more bare ground. He assured me flowering plants had been more evident on his other trips there. Abundance of soil lichens was encouraging; they hadn't been trampled out of existence. Still, season-long grazing allows little opportunity for seed production and establishment of new plants, favoring those species with vegetative propagation. Dominance by the two most grazing-tolerant and drought-resistant grasses in Colorado suggests that grazing controls the ecology of Pawnee National Grassland. Occasionally we saw western wheatgrass or needle-and-thread, but where were the other mid-grasses we might expect? Sideoats grama, perhaps, or little bluestem? Are they being suppressed by season-long grazing? The Forest Service doesn't know, and won't know until it changes grazing practices on at least part of the area.

How convoluted are the effects of grazing? Kirk Cunningham (Sierra Club) pointed out one hidden example. Everywhere we looked, of course, we saw cow pies. But where were the dung beetles whose role it is to help biodegrade these ubiquitous beef by-products? We saw many other beetles, but no dung beetles. Kirk reports that Ivermectin, fed to cattle to control internal and external parasites, passes through them in sufficient quantity to kill the larvae of dung beetles that hatch in the toxic feces. Ivermectin is recommended by veterinarians but is somewhat expensive to use. We don't know whether the Pawnee's allottees are treating their herds with Ivermectin. Without the help of the beetles, dung is very slow to decompose in this near-desert environment. This discovery led Australia, having imported cows only to find themselves deep in you-know-what, to import dung beetles a few decades ago to correct the problem. I wonder if they've since imported Ivermectin?

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Field Trip Report

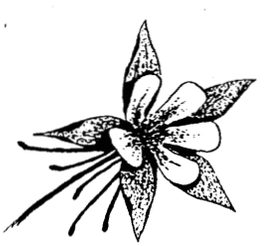
North Table Mountain - lead by Paul Kilburn & Sally White

Report by Bobbie Henig

What a day! What a beautiful day, indeed. After slogging through mud, muck and fog and coming away soaked from scouting the area, leaders Paul Kilburn and Sally White put in a request for a better day for the first field trip of the season. Their request was honored. The sun actually came out that day, the sky was clear, NO RAIN! The day was pleasantly cool for a hefty climb up the mesa. Sally and Paul soon wondered where they had lost control, however, when their charges scattered across the open landscape.

Paul gave us a fine explanation of the geologic history of Table Mesa, pointing out the volcanic formations. He explained the latite rock and we saw the zeolite crystallization within the latite. We learned about 1894 homesteader, Frank Bussert, and about the local farming, ranching, and mining history. We saw big bluestem (*Andropogon gerardii*), a native tallgrass prairie species reminiscent of the original (presettlement) vegetation.

The top of the mesa is quite surprising--one doesn't expect to be treated to wetlands in this area. In addition to the ponds, there are many seeps and three permanent streams which feed the three major valleys of the mesa. We even saw waterfalls! Rick Brune could be found wading in every puddle, scrounging for aquatic plants at Dr. Weber's behest. The group turned up *Limosella aquatica, Juncus bufonius*, several *Eleocharis* species, and *Gratiola neglecta*, among others.



At lunch, Paul asked us for our thoughts on how the mesa should be managed in the future. We learned that Jefferson County Open Space has entered into negotiations with the property owners. We need to express our support to the Jeffco Open Space folks.

Our strength restored, we took off down the hill. Several folks were observed puzzling out a strange plant. Along came another plant seeker..."Oh, you found a bunny-in-the-grass". "Huh? A bunny-in-the-grass? Where did it get that name?" While the group discussed the anatomical features that suggested the name, another plant seeker came along, announcing "You found a bunny-in-the-grass!", only to be met by a burst of laughter.

Carolyn Crawford, keeper of the metallic notebook, recorded 140 species and kept her cool even upon the umpteenth sighting of a particular species. She also brought to our attention several specimens of *Orobanche fasciculata*, a plant that is parasitic on fringed sage (*Artemisia frigida*). One particular hillside was a breathtaking riot of color, thanks to *Oxytropis* and *Castilleja*.We were also pleased to find *Dodecatheon* and not one, but two blooming *Coryphantha vivipara* plants.

A large bull snake caused some excitement at the beginning of the trip. A raven's nest and red-tailed hawk's nest with two nestlings added to the excitement. We saw several of the 200-or-so deer that inhabit the mesa, witnessed the spectacular hover and dive of a kestrel looking for supper, and and finished the day with a moth in the parking lot.

What a day, indeed!

If you haven't been on a field trip yet this summer, sign up now for the Telluride trip!

Saturday-Sunday, July 18-19
Trip Leader: Peggy Lyon

This two-day trip to Telluride will include one day assisting a Youth Environmental Services (YES) team (6 young women between 16 and 18 years old) with identification of plant species in transects on Sunshine Mesa, just outside of Telluride. The YES program is a cooperative effort of the Forest Service, BLM, and The Nature Conservancy. Telluride is an attractive place for a weekend, and Peggy Lyon is hoping to expose the YES crew to some plant enthusiasts so they don't think she's the only weird one around. On the second day we will have a half-day hike in the Telluride area, destination yet to be decided. Further details on this trip will be provided in a subsequent description or after registration.

Meet at 9:00 AM Saturday at the Telluride Institute office on S. Fir St., two blocks south of the main street (Colorado Avenue). Campers can join the YES team on Friday or Saturday at a primitive site on Sunshine Mesa, or can camp in an established campground.

To register, call Jeff Dawson, field trip coordinator in Denver, telephone 303-722-6758 (home) or 303-740-2793 (office).

Workshop Preview - Fall 1992

Before you know it summer will be over (heaven forbid!), and the fall workshop season will begin. It's not too early to plan your fall and register for workshops. If demand is sufficient and the instructor is willing, we will schedule multiple sessions. Drop a postcard or letter to Bill Jennings, P.O. Box 952, Louisville, CO 80027 indicating the workshops for which you would like to register. Be sure to include your name, address, and telephone numeber. You may also register by calling Bill at 303-666-8348.

Also planned for the winter and spring are workshops on the genus *Astragalus*, Taxonomy and Cultivation of North American Rhododendrons, Weed Identification (Dr. Richard Old from Washington State University), Botanical Terminology, and Dendrochronology. Watch for formal announcements in future newsletters.

THE CARYOPHYLLACEAE

leader: Dr. Ronald L. Hartman
Rocky Mountain Herbarium, University of Wyoming, Laramie
Saturday, September 26, 1992

Dr. Hartman will explain identification of plants in the problem genera of the Caryophyllaceae (including the Alsinaceae). Genera to be covered include *Silene, Paronychia, Cerastium, Sagina, Stellaria, Arenaria,* and *Minuartia* in Colorado and Wyoming. Dr. Hartman is an excellent teacher and this workshop also provides an opportunity to see the facilities of the Rocky Mountain Herbarium, the largest herbarium between the Missouri Botanic Gardens (St. Louis) and University of California at Berkeley.



Minuartia obtusiloba
Artist: Janet Wingate

THE MILKWEEDS (ASCLEPIADACEAE)

leader: Carolyn Crawford
Foothills Nature Center, Boulder
Saturday, October 24, 1992

There are nineteen species in two genera in this family in Colorado. In addition, some species that almost reach Colorado will be covered and the related family, Apocynaceae, will be discussed (two species in one genus). Carolyn has been researching and drawing plants in this family for several years and in the past year has taken pains to collect as many species as possible. In addition to the usual pressed specimens, Carolyn has preserved whole flowers in alcohol, so that participants can dissect the flowers and study the structure and unique pollination mechanism.

SHOWY MONOCOTS I

leader: Bill Jennings
Denver Botanic Gardens Herbarium
Saturday, November 14, 1992

In addition to his interest in the Orchidaceae, Bill also likes the lilies and closely related families. There are too many species to cover conveniently in one workshop, so half will be deferred to 1993. This year, we will cover the following genera: *Lilium, Erythronium, Fritillaria, Leucocrinum, Lloydia, Maianthemum (Smilacina), Calochortus, Anticlea (Zygadenus), Toxicoscordion (Zygadenus), Veratrum, Disporum, Streptopus, Hypoxis,* and *Smilax*. In addition, a few species that approach Colorado will also be covered. Most of these genera have only one species representative in Colorado, thus identification is usually straightforward. This will be a fun and easy workshop. For a big challenge, wait till next year when we go through the onions (*Allium*).



Paronychia pulvinata
Artist: Janet Wingate

MONTANE & SUBALPINE GRASSES

leader: Dr. Alan Carpenter
Foothills Nature Center, Boulder
Saturday December 12, 1992

Dr. Carpenter will take us through the fascinating and confusing world of the grasses of the mountains. After covering the terminology necessary to study the grasses, he will distribute numerous specimens for us to dissect and identify. This will be an unique and rewarding workshop, continuing our series on identification of this important group. Every Colorado botanist should have a working knowledge of the grasses.



Lloydia Serotina
Artist: Janet Wingate

HOW WOULD YOU LIKE TO LEAD A WORKSHOP?

Don't know enough about any family, you say? There are a number of plant families in Colorado with only a few representatives, usually too few species to justify a full-day workshop, and we are unaware of anyone working in these groups. We plan to have volunteers study these small groups for two or more summers, then present a mini-workshop, either 2 hours or a half-day (3 hours). The rest of the day would be taken up with an unrelated small family or genus (or two). You could become the local expert in the oak family (Fagaceae), with 5 species in Colorado, or the Alismataceae (5 species), or the Grossulariaceae (13 species) and present your workshop in the fall of 1993 or 1994. Remember, workshop leaders are paid for their efforts ($50). If this interests you, call Bill Jennings 666-8348. Presenting a workshop is not as tough as you think. Besides, no one will know more about the subject than you.

ADOPT-A-RARE-PLANT PROGRAM

The Nature Conservancy, Colorado Natural Heritage Program, and the Colorado Native Plant Society are again co-sponsoring the Adopt-A-Rare- Plant Program in Colorado. The purpose of the program is to gather and update information on selected rare plant species for the Colorado Natural Heritage Program database and to help The Nature Conservancy set prioroties for conservation acquisitions. Volunteers are asked to choose a plant to study, then to try to find out as much as possible about the plant, including visiting known populations. Later, when volunteers feel confident in their ability to identify the habitat, they search for the plant in new areas. At the end of the season, volunteers report on their findings.

At the workshop training session April 25 and 26, participants received a packet of information on how to research and find rare plants. This year, 19 persons attended the workshops. Some elected to adopt plants, and with carryovers from last year, we have 17 volunteers actively searching for their adoptive species. In addition, Chris Pague of the Colorado Natural Heritage Program is inventorying rare plants for Jefferson County. If you would like to participate in the Adopt-A-Rare-Plant program, call Bill Jennings at 666-8348. If you would like to look for plants in Jefferson County, call Chris Pague at 492-3960. There are many rare plants that bloom in July and August. It's not too late to join the search. Colorado's rare native plants need all the help they can get!

Chapter News

Boulder Chapter

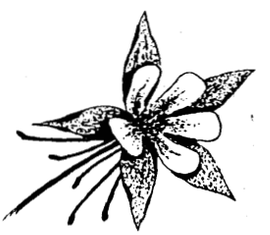
July 18: White Rocks Field Trip
Bill Jennings will lead a field trip through the White Rocks Open Space Preserve east of Boulder. This unusual rock outcrop supports a variety of rare plants and unique plant communities. Meet at 9 a.m. at the Teller Trailhead on the south side of Valmont Road between 75th and 95th Streets.

August 1: *Spiranthes* count
Tamara Naumann will organize volunteers to census the Boulder Open Space population of *Spiranthes diluvialis* near South Boulder Creek. Meet at 9 a.m. at the old Cherryvale Horse Ranch headquarters (turn west from Cherryvale Road 1/4 mile south of the intersection of Cherryvale and South Boulder Road). Wear rubber boots or your worst sneakers. Some of us will stay until afternoon, so bring a lunch and work gloves if you would like to help pull weeds that are encroaching on the orchid's habitat.

September 13: Wetlands Field Trip
Boulder Valley has a few, precious, wetland areas which support a unique variety of plants. Mark Gershman will lead a wetlands tour starting at the Eagle Trailhead on 51st Street just north of Boulder Reservoir. Meet at 1 p.m.

Monthly meetings are held from September through April on the 2nd Tuesday of the month at 7:30 p.m. at the **Foothills Nature Center**, 4201 North Broadway, unless otherwise noted.

Call Alison Peck at 443-0284 if you (or someone you know) are willing to take on the job of Chapter President.



Denver Chapter

September 27: Prairie Moonwort Report
Peter Root will report on his continuing search for the elusive prairie moonwort (*Botrychium campestre*).

Monthly meetings are held from September through May on the last Wednesday of the month 7:30 p.m. at the **Denver Botanic Gardens,** 909 York Street, unless otherwise noted. For more information, call Ron Abbott at 333-6151.

Fort Collins Chapter

July 25: Owl Canyon Field Trip

September 2: Fall Chapter Meeting

Monthly meetings are held from September through May at the **Rocky Mountain Forest and Range Experiment Station,** 240 West Prospect. For more information, call Brian Geils at 482-8607

San Juan Chapter

Peggy Lyon reports that although few members turned out for the chapter field trip to Dominguez Canyon, the tour was a success. A wet spring meant that the gnats were out in force, but the field trippers persevered and were rewarded by the discovery of a large and healthy population of the rare Grand Junction milkvetch (*Astragalus linifolius*) at the Dominguez Canyon trailhead.

Plans for future activities include a field trip on July 18-19 near Telluride for all CONPS members, in conjunction with Youth Environmental Services and the U.S. Forest Service, and an equally exciting expedition to Sunshine Mesa...also in July. Call Peggy (303-626-5526) or Evelyn Horn (303-835-8391) for details.

For more information on San Juan Chapter activities, call Peggy Lyon at 626-5526.

Pawnee, *continued from page 4*

Other Issues

Despite the cooperation, there are problems, not all of which either the ranchers or the Forest Service can control. There is a large number of roads, most of which are on section lines and thus under county, not Forest Service, jurisdiction. Windblown topsoil from adjacent private lands has been known to damage (bury!) fences and vegetation even in recent years. Native grass sod is still being plowed on private lands within the grassland boundary (Pawnee NG allottees are not allowed to plow, even on their own lands). Oil and gas exploration and in-situ uranium mining proposals have and will continue to be issues of concern. Prairie dog towns are limited (usually 300-700 acres at any one time and, according to USFS personnel, naturally controlled by plague), though they are floristically diverse and support other species of concern, including the burrowing owl, which is apparently declining in Colorado. The questions of prairie dog poisoning and predator control were not discussed. Exotic wildlife, recently eliminated from nearby areas (we looked in vain for ibex), were discussed at length. We heard little discussion of native mammals, though we did see a few.

Summary

At Pawnee, we are continuing to tamper with an ecosystem of which (despite 100 years of range research) we have little understanding. Experimental options seem to be limited to various forms of grazing by domestic cattle, and we lack a meaningful basis for comparing the status quo with alternative management regimes. If only a handful of ranchers would try bison.... We have virtually no knowledge of the area before it was plowed, eroded, and "restored." As Rick suggests, we may be trying to restore the grassland to a condition that does not reflect the presettlement condition. After all, the Pawnee National Grassland had already been degraded by practices that lead to the Dust Bowl when the federal government began to manage it 60 years ago. We know the land that was never plowed is subtly different from the recovered lands--because the mountain plover recognize the difference. We know the public is more interested than ever in the "wide open spaces," and that recreational impacts will continue to increase. We don't know how recreational uses (or anything else) will affect the mountain plover, the Swainson's hawks, ferruginous hawks, the rare plants known and unknown, or the swift fox that peeked out of its den as we drove away that evening. For all the limitations of our knowledge, the Forest Service is required to manage this complex system, and the Society will be asked to comment on their proposals.

Acknowledgements

Thanks to Lois Webster and Karen Hollweg (Denver Audubon) for the original concept of an educational field trip to the Pawnee. Sue Kamal (Greeley Audubon) and Ed Butterfield (Denver Audubon) kept the day going smoothly. Many others were involved in planning and executing this event. Thanks also to our experts for taking the time to share their expertise. We learned a lot, but only scratched the surface.

Ethics and Native Plant Collecting

The collecting guidelines published on pages 9-11 of this issue of *Aquilegia* were adopted in final form this spring by the CONPS board of directors. The guidelines are offered by the Colorado Native Plant Society to private, public, and commercial collectors of native plants in keeping with our mission to promote the appreciation and conservation of Colorado's native flora. Dorothy Udall and Tamara Naumann will begin work this fall on guidelines for **USE** of native plant materials. If you have comments or suggestions for the second document in this series, contact Dorothy or Tamara.

COLORADO NATIVE PLANT SOCIETY
Guidelines for Collection of Native Plants for Use in Horticulture, Restoration, Medicinal Preparations and Scientific Research

INTRODUCTION

Increasing interest in the use of Colorado and regional native plants for horticulture, ecological restoration, and medicinal preparations has prompted the Colorado Native Plant Society to develop guidelines for collection of native plants and plant propagules from the wild. The need for ethical and judicious collecting guidelines for research scientists was recognized nearly a decade ago by a group called The Plant Conservation Roundtable. The guidelines published here are adapted from the 1986 The Plant Conservation Roundtable Conservation Guidelines which appeared in the Natural Areas Journal, Volume 6, Number 3, pages 31-32.

The Colorado Native Plant Society is dedicated to the appreciation and conservation of Colorado's native flora. We support the use of native plants in landscaping and ecological restoration. We also recognize the role scientific research plays in the conservation of native plant species and the communities and habitats in which they occur. Responsible collection and use of wild native plants or plant propagules by knowledgeable people enhances public understanding and appreciation of our native flora. We encourage individuals and agencies involved in the collection of native plants to adopt the following guidelines.

The Colorado Native Plant Society's Collection Guidelines are intended to apply to collection of Colorado and regional native plants, plant parts, or plant propagules for use in horticulture, ecological restoration, medicinal preparations, and scientific research.

1. Know which plant species in Colorado and the Rocky Mountain region are Threatened, Endangered, Sensitive, or Species of Special Concern. Such plants should not be collected. If special circumstances exist, such as imminent destruction of habitat (salvage operations), scientific research contributing to long-term conservation of the species, or reestablishment of extirpated populations, use care and judgement in collecting only what is necessary. Contact the U.S. Fish and Wildlife Service for current status information. The Center for Plant Conservation should be consulted before attempting reintroductions.

2. Obtain necessary permits and permission for collecting on public lands. Collecting is prohibited by regulation on some public lands (Open Space lands managed by the City and County of Boulder and National Parks, for example). Other public land management agencies require a Special Use Permit (the U.S. Forest Service, for example). Know and abide by all regulations. Report any illegal collecting that you encounter to appropriate authorities.

3. If you intend to collect on private land, obtain permission from the landowner beforehand.

4. Do not collect indiscriminately, even in large populations. Collect only the minimum amount of plant material necessary. Take into account the cumulative effects of multiple collections on survival and reproductive success of the plant population. Never collect the only plant at a given location. A general guideline is one collection for every 20 to 50 plants.

5. Do not collect whole plants when plant parts (e.g., seeds or cuttings) are sufficient.

6. Know when collection of a voucher specimen is appropriate. Record all data required by the institution where you intend to deposit the voucher at the time the collection is made (i.e., in the field). Herbaria at the University of Colorado (COLO) or Colorado State University (CS) are recommended as primary repositories for plant materials collected in Colorado. If another institution is chosen, it should be a publicly accessible institutional herbarium recognized by the International Association of Plant Taxonomists (listings are published in Index Herbariorum).

7. Collect only if you are (or are accompanied by) a trained individual. Care properly for the specimens you collect, whether they are intended for preparation as herbarium specimens or as propagation materials. Keep a permanent record of your collection activities. Complete records of location, habitat, collectors, and date should be transferred with plant materials whenever they change hands. Collect discreetly so as not to encourage others to collect indiscriminately. Be prepared to explain what you are doing and why.

8. Respect and protect habitat. Avoid trampling vegetation or other sensitive features. Stay on designated trails wherever possible. Do not collect from areas that are vulnerable to erosion (trailside areas, for example). The standard rule is to leave no trace of your visit; avoid damage to the site and its natural and aesthetic values.

9. If you discover a new plant record, notify an appropriate conservation official or land manager. Be cautious in providing site locations of rare plants to others.

10. If you learn that rare or protected plant species or their habitats may be destroyed, notify a Colorado Native Plant Society board member or The Nature Conservancy.

11. Conduct salvage (rescue) projects only in sites that are scheduled for imminent destruction and only in conjunction with appropriate state agencies or conservation organizations. Obtain prior permission of the landowner. Do not collect from portions of the site that will remain in a natural state. Use salvaged plants only for such purposes as relocation, public education, botanical research or documentation, or propagation as stock, not for sale to the public. Document your collections with voucher specimens deposited in a recognized herbarium.

12. Do not purchase wild-collected plants (or plant parts) of rare or protected taxa for any reason. Beware of wild-collected plants advertised in commercial seed and bulb catalogues, or sold in the form of medicinal herbal preparations or other products. Be informed and watchful. The word "wild-crafted", which is found on many medicinal herbal preparations, means the herbs were collected from the wild. If you are not sure that the plants or products came from cultivated material, do not purchase them.

13. When discussing or publishing research results or preparing horticultural promotional or educational materials, describe conservation considerations underlying your collecting techniques.

14. If you are involved in education, teach your students about proper and careful collecting. When taking students into the field, visit only non-sensitive areas, taking care not to trample the site. Avoid frequent visits to the same natural site. For classroom use, collect only those plants both common in the region and locally abundant at the site. Where possible, collect only the portions of a plant necessary for identification, such as leaf, flower, or fruit.

SOURCES OF INFORMATION:

U.S. Fish and Wildlife Service
Colorado State Office
730 Simms Street, Room 292
Golden, CO 80401
(303) 231-5280

U.S. Bureau of Land Management
2850 Youngfield Street
Lakewood, CO 80215
(303) 239-3600

The Nature Conservancy
1244 Pine Street
Boulder, CO 80302
(303) 444-2950

U.S. Forest Service
Rocky Mountain Region
P.O. Box 25127
Lakewood, CO 80225
(303) 236-9431

Center for Plant Conservation
c/o Denver Botanic Garden
909 York Street
Denver, CO 80206-3799
(303) 331-4000

Colorado Natural Heritage Program
c/o CU Museum
Campus Box 315
University of Colorado
Boulder, CO 80309-0315
(303) 492-3960

16 May 1992

Calendar Overview

1992 Field Trips

July 18-19 **Telluride Area**
with Peggy Lyon

1992 Fall Workshops

Sept 26 **The Caryophyllaceae**
with Ron Hartman

October 24 **The Milkweeds**
with Carolyn Crawford

Nov 14 **Showy Monocots I**
with Bill Jennings

Dec 12 **Montane & Subalpine Grasses**
with Alan Carpenter

Chapter Meetings

Boulder Chapter

July 18 White Rocks
August 1 Spiranthes count
Sept 13 Wetlands tour

Denver Chapter

Sept 27 Prairie Moonwort Report

Fort Collins Chapter

July 25 Owl Canyon
Sept 2 1st Fall Meeting

San Juan Chapter

July 18-19 Telluride

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