

Colorado Native Plant Society



NEWSLETTER

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APRIL-JUNE 1981

"DEDICATED TO THE APPRECIATION AND CONSERVATION OF THE COLORADO FLORA"

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SCHEDULE OF MEMBERSHIP FEES

LIFE	\$ 250.00
SUPPORTING	50.00
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NEWSLETTER ARTICLES

Please direct all contributions and articles to the EDITOR, Beth Painter, in care of the Society's mailing address.

Deadlines for the quarterly NEWSLETTERS are the last day of February, May, August and November.

MEMBERSHIP RENEWALS AND INFORMATION

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

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

Field Trips

June 27-28 North Park - Steamboat Springs Area

The Fort Collins Chapter and the Horticulture and Rehabilitation Committee are sponsoring a trip to visit one of the few known localities of the cascade azalea (Rhododendron albiflorum Hook.) in the mountains west of Walden in Jackson County, and to visit the Energy Fuels coal strip mine near Steamboat Springs to learn about revegetation practices. Field trip leaders will include Mark Phillips, Janine Savaloni, and Scott Ellis.

The Rhododendron portion of the trip will begin at 9:30 AM on Saturday, June 27, at the county road - Hwy. 125 junction approximately 0.5 miles west of Walden on Hwy. 125. Since parking is limited at the trailhead, participants will be asked to carpool from the meeting site. The field trip will consist of a 6 mile roundtrip hike with an elevational gain of approximately 900 ft., beginning at about 9000 ft. Although the Rhododendron population is the principal goal, a variety of other wildflowers characteristic of Lodgepole-Douglas Fir and Spruce-Fir forests will be encountered. Participants should bring along a sack lunch and clothing appropriate for cool mornings, warm days, and the possibility of rain. Since the entire walking portion of the field trip will be in the Mount Zirkle Wilderness Area, plant collecting will not be permitted.

The revegetation portion of the trip will begin at 12 noon on Sunday, June 28, at the Energy Fuels Mine main gate. The mine is located approximately 10 miles west of Oak Creek. Oak Creek is approximately 20 miles south of Steamboat Springs. Kent Crofts, Reclamation Supervisor, will discuss revegetation methods used on the mine. Topics discussed will include topsoiling, species selection, reseeding, mulching, and transplanting techniques. This trip offers an unusual opportunity to see the entire revegetation process on an active coal mine.

Camping is severely limited in much of North Park. The nearest Forest Service campgrounds are Trail Creek and Denver Creek along Highway 125, south of Willow Creek Pass (Arapahoe N. F.), Walton Creek along Highway 40, west of Rabbit Ears Pass (Routt N. F.), and Aspen and Teller City, south of Gould (Routt N. F.). KOA campgrounds are located along highway 14 near Gould, and in Steamboat Springs. Several motels are available in both Walden and Steamboat Springs. A relatively primitive campground, primarily for RV campers is located at South Delaney Buttes Reservoir, west of Walden on Road 314. Potential participants

should notify Mark Phillips, 11842 Billings, Lafayette 80026 (665-2618), Scott Ellis, 1011 W. Mountain Ave., Ft. Collins 80521 (493-6069), or Janine Savaloni, Ft. Collins (482-3607). Participants will be sent further instructions and maps prior to the field trip. Participants should indicate whether they wish to be present on one or both days.

--- Scott Ellis

July 25-26 Aspen, Colorado, area

The Fort Collins Chapter is sponsoring an informal, no-leader field trip to the vicinity of Aspen, Colorado, July 25-26. Participants will assemble Friday night, July 24, at the group campsite at Maroon Lake Campground, White River National Forest. Nearby subalpine and alpine areas will be visited Saturday and Sunday. Saturday night camping will be wherever the group finds itself, as the Maroon Lake site could not be reserved for that night. Participants must arrange their own transportation and provide all food, water, and camping needs. Be prepared for a dry camp and no open fires. REGISTRATION IS A MUST to obtain further information and directions. Call (during work hours) Sue Martin (482-7717 Fort Collins) or Scott Peterson (623-1913 Denver).

--- Sue Martin

July 11 Mt. Lincoln & Cameron Bowl

The last of the three CoNPS field trips for 1981 will be to Cameron Bowl. This alpine bowl lies on the shoulder of Mt. Lincoln, a 14,000 foot peak near Hoosier Pass. The field trip will be led by Louise Roloff, a member of the Society and a forty-year veteran of the Colorado Mountain Club. She has led wild flower trips for many organizations and has hiked extensively in Summit County for twenty-five years. An accomplished wild flower photographer, she will lead us to one of her favorite "very high" country bowls.

Panayoti Callas, a CoNPS member and curator of the Rock-Alpine Garden at the Denver Botanic Gardens, will give a short "trail-head" lecture to start us off thinking tundra ecosystem. The elevation is high, but the hike will be modest.

For more information about the trip or to register for it call Bob Heapes at 779-0888 or 841-3978 (before 9 pm please).

---- Bob Heapes

Recent Events

FORT COLLINS CHAPTER

On April 29, the Fort Collins Chapter was treated to a special Grasses Workshop, led by Genny Bryant, a CoNPS member and professor in the Department of Botany and Plant Pathology at Colorado State University. With the able assistance of Society members Kirby DeMott and Clair Semmer, Genny instructed 25 participants on the fundamentals of grass structure, then led the group through an examination of 25 common grasses of Colorado. Microscopes and hand lenses were put to work as major structural features and important key characteristics were pointed out for each grass. Slides (many taken by Paul Bryant) of each grass species in its typical habitat and close-ups of floral structure augmented the presentation. The meeting was a big success, as evidenced by many Fort Collins members now babbling enthusiastically of panicles, spikelets, ligules, florets, lemmas, and other esoterica!

Dr. Ralph Dix, Professor of Ecology in the Department of Botany and Plant Pathology at C.S.U., presented the March 25 Fort Collins Chapter program, "The Perception of Colorado Landscapes: Their Uses and Abuses". Dr. Dix introduced the recorded, multi-media program, then afterward led a discussion about some of the pressures now affecting Colorado ecosystems. All agreed it was a most thought-provoking evening.

The Chapter is cosponsoring a field trip, with the Horticulture and Rehabilitation Committee, to the North Park and Steamboat Springs Area June 27-28 and sponsoring a field trip to the Aspen area July 25-26. It is requested that reservations be made with the trip planners. For more information, see the FIELD TRIP column.

--- Sue Martin

REPORT ON THE ROXBOROUGH STATE PARK FIELD TRIP

Forty-four people attended the field trip, about evenly divided between Colorado Native Plant Society people and Denver Botanic Garden people, who cosponsored the trip. We were fortunate that Saturday, May 30, was the first nice day in about two weeks. Everyone was delighted to see the sun.

Our guides for the field trip were Susan Kraner, the state ranger at the Park, and Vicky Trammell, who has been working on the botany of the Park for about four years. Because of the large

number in the group, we broke into smaller groups, and Velma Richards, Berta Anderson, and Mary Edwards came forward, as usual, to help. We all owe them many thanks, not only for this trip but for their help on past trips.

Roxborough Park is over 700 acres of spectacular scenery, topped by huge outcroppings of Lyons sandstone embedded in green valleys, creating spectacular views from many aspects. The hike was through high grass and on cliff tops and was unusual and varied.

Seventy-one species of plants are included on the list compiled for the trip. The highlight of the longer trip was obviously Ribes americanum, considered rare in Colorado and Roxborough is one of the few places in the state where it's been found.

I wish to thank Mary Edwards and Diana Mulleneaux for taking such thorough notes and for reducing them to a nice, neat plant list.

This was the first time we tried a joint field trip with the Denver Botanic Gardens, and it was indeed a pleasure to meet so many nice so many nice people from that group.

---Bob Heapes

PLANT LIST FROM THE COLORADO NATIVE PLANT SOCIETY-DENVER BOTANIC GARDENS FIELD TRIP TO ROXBOROUGH STATE PARK

<u>Achillea lanulosa</u>	Yarrow
<u>Agoseris glauca</u>	False Dandelion
<u>Alyssum minus</u>	Wild Alyssum
<u>Amalanchier alnifolia</u>	Serviceberry, Juneberry
<u>Antennaria parviflora</u>	Pussey-toes
<u>Arabis drummondii</u>	Rock Cress
<u>Astragalus dastglottis</u>	Purple Milkvetch
" <u>drummondii</u>	Drummond's Milkvetch
" <u>flexuosus</u>	Wiry Milkvetch
<u>Brassica rapa</u>	Field Mustard
ssp. <u>campestris</u>	
<u>Camelina microcarpa</u>	Camelina
<u>Cardaria draba</u>	White-top
<u>Castilleja sp.</u>	Indian Paintbrush
<u>Cerastium arvense</u>	Mouse-ear
" <u>nutans</u>	Nodding Chickweed
var. <u>brachypodum</u>	
<u>Cercocarpus montanus</u>	Mountain Mahogany
<u>Chorispora tenella</u>	Blue Mustard
<u>Collinsia parviflora</u>	Blue-eyed Mary
<u>Crateagus erythropoda</u>	Hawthorn
<u>Delphinium nelsonii</u>	Nelson's Larkspur
<u>Dryocalis fissa</u>	Sticky Cinquifol
<u>Ellisia nyctelea</u>	Ellisia
<u>Equisetum arvense</u>	Field Horsetail
<u>Eriogonum divergens</u>	Spreading Fleabane
<u>Erodium cicutarium</u>	Storksbill
<u>Eriogonum umbellatum</u>	Sulphur flower
<u>Erysimum asperum</u>	Wallflower
<u>Gallium boreale</u>	Bedstraw, Cheevers
<u>Gaura coccinea</u>	Butterfly Weed, Scarlet Gaura

<u>Hydrophyllum fendlerii</u>	Waterleaf
<u>Iris missouriensis</u>	Wild Iris
<u>Juncus arcticus</u> ssp. <u>ater</u>	Arctic rush
<u>Lathyrus leucantheus</u>	White Peavine
<u>Linus lewisii</u>	Blue Flax
<u>Lithospermum incisum</u>	Narrowleaved Puccoon
<u>Lupinus argenteus</u>	Lupine
<u>Malva neglecta</u>	Cheeseweed
<u>Mertensia lanceolata</u>	Chiming Bells
<u>Microsteris gracilis</u>	Microsteris
<u>Oenothera coronopifolia</u>	Cutleaved Evening Primrose
<u>Oxalis dillenii</u>	Wood-sorrel
<u>Oxytropis lambertii</u>	Lambert's Locoweed
<u>Penstemon secundiflorus</u> " <u>virens</u>	Sidebells Penstemon Blue-mist Penstemon
<u>Phacelia heterophylla</u>	Scorpionweed
<u>Plantago lanceolata</u>	English Plantain
<u>Podospermum laciniatum</u>	False Salsify
<u>Prunus virginiana</u> var. <u>melanocarpa</u>	Western Chokecherry
<u>Ranunculus macounii</u>	Buttercup
<u>Ribes americanum</u> (rare)	Wild Black Current
<u>Rhus trilobata</u>	Skunkbrush
<u>Rubus deliciosus</u>	Boulder Raspberry
<u>Scutellaria brittonii</u>	Skullcaps
<u>Scrophularia lanceolata</u>	Bunny-in-the-grass
<u>Sedum lanceolatum</u>	Stonewort
<u>Senecio fendlerii</u> " <u>integerrimus</u>	Fendler's Senecio Early Spring Senecio, Groundsel
<u>Sisyrinchium montanum</u>	Blue-eyed Grass
<u>Sphaeralcea coccinea</u>	Cowboys' Delight, Copper Mallow
<u>Taraxacum officinale</u>	Common Dandelion
<u>Thermopsis divaricarpa</u>	Golden Banner
<u>Thlaspi arvense</u>	Fanweed, Pennycress
<u>Townsendia grandiflora</u>	Easter Daisy
<u>Tradescantia occidentalis</u>	Spiderwort
<u>Tragopogon dubius</u>	Salsify, Goatsbeard
<u>Verbena bracteata</u>	Bracted Vervain
<u>Vicia americana</u>	American Vetch
<u>Viola canadensis</u> " <u>nuttallii</u>	White Violet Nuttall's Violet Yellow Violet
<u>Vitis riparia</u>	Wild Grape
<u>Zygadenus venenosus</u>	Wand Lily, Death Camas

--- Bob Heapes

NEWS FROM THE HERBARIUM AT BOULDER

Work is in progress on a Colorado Flora, West Slope, which will cover the area west of the Continental Divide and have the format of the present Rocky Mountain Flora. The Rocky Mountain Flora will also be reconstructed to include all of the area east of the Continental Divide. Family treatments are being accumulated, and new plates are being drawn for the new volume, which will be the first

illustrated handbook of plants for the western slope and greatly needed right now because of the attention the area is receiving from developers and environmentalists. Suggestions and new information are welcomed.

The herbarium received a bequest from Mrs. Katherine Crisp, a long-time member of the Botany Club of Denver, who studied under Prof. Cockerell and Prof. Ramaley and was devoted to the Herbarium and to education in general. We were one of seven donees. With part of the money from Mrs. Crisp's bequest we purchased a MICOM word processor and are using this to compose the new floras. We have also produced a file of the Herbarium's collection of over 13,000 color transparencies and are able to make selective serches of the file for plant families, areas, people, and other catagories of slides. We have also purchased a Bowen Illumitran which enables us to make superior copies of color slides and make these generally available. We are always anxious to enlarge this collection, and we hope that amateurs will lend some of their best slides to us, especially those slides of species unrepresented in the collections, for copying and storing in this file. We shall try to arrive at some reasonable arrangement for providing printouts of files and photocopies as we develop the program. I anticipate that film-and-tape lectures would be more easily developed through this film library.

We have recently produced a working catalog of the flora of Mesa County, including Colorado National Monument, for our use in completing work on the floristics of the area and we are in the process of producing a similar one for Moffat County. These can be made available at cost plus a reasonable handling charge.

The Inventory of the Colorado Flora is being revised, and we have produced a working update for the second edition.

A list of three-letter acronyms for the families of plants has been compiled, and a "short list" of acronyms of Colorado Families is on disk for those who wish to have it for preparing labels for their collections. Adding an acronym to a label greatly facilitates the filing process in the Herbarium.

Thank you, Mrs. Crisp, for doing a wonderful thing, not only for the Herbarium's operations, but potentially for all Colorado botanists!

--- Bill Weber

Feature Articles

A NATURALIST'S APPROACH TO BIOLOGY continued

The first half of this article appeared in the last issue of the NEWSLETTER and is from an article by D. B. O. Savile entitled "A Naturalist's Approach to Biology", which appeared in *The Canadian Field-Naturalist*, Volume 94, pp. 105-107.

Apart from an orderly approach, needed for any occupation, the main qualification for the amateur, as for the professional, is enthusiasm for the unknown and appreciation of it. Albert Einstein, whose centennial we also celebrate this year, once said "The most beautiful experience we can have is the mysterious...Whoever can no longer wonder, no longer marvel, is as good as dead, and his eyes are dimmed." Of a physicist Einstein once said he "couldn't understand how anybody could know so much and understand so little." (You may recall that Pooh made a similar remark about Rabbit.) How well that expresses success in natural history: to interpret what we see, and not merely to record data. And how exciting it is when we achieve an understanding of some unexplained character of an organism. Understanding does a lot more than provide intellectual satisfaction, however. When we understand the function of a character we are warned that, because it is useful, it may have evolved more than once, and organisms that possess it are not necessarily related.

Some disciplines do need costly and complex equipment, but many do not. A visitor once asked Einstein if he might see his laboratory. Einstein obligingly reached into his pocket and proffered his fountain pen. It is the mind (including the imagination) behind the pen that counts.

If the naturalist with broad interests keeps assembling the conclusions from his observations, he will often find he is well into a piece of formal biological research. He need not be ashamed. Many biologists are eminently respectable. It is only the rabid specialist, like a biochemist who does not think of his materials as being derived from living evolving organisms, to whom the distinction between biology and natural history seems absolute. The blending of the two fields is not only inevitable; it is highly desirable, for it forces us to accept multidisciplinary studies, to which we shall return in a moment.

We cannot draw a sharp line between amateur and professional studies of either of these fields. If a professional business man -- doctor, engineer, or chartered accountant -- studies birds he does so as an amateur, although he brings a disciplined mind to bear on his hobby. But if a professional mycologist, with no training in ornithology, studies birds he may find

his amateur status questioned. After all he probably dissected a frog in elementary zoology. If he then goes and studies flowering plants he has had it. He's a Pro, unless he can convince his critics that Robert Whitaker and Lynn Margulis are right, and fungi are not plants but form a separate kingdom. It is all very confusing and the inquisitive naturalist may say, as Christopher Robin once did: "I'm feeling rather funny and I don't know what I am."

A correspondent in *Science* stated some years ago that it had been impossible for anyone in the last century to encompass more than one discipline. Perhaps he was trying to excuse his own mental myopia. If he had ventured to peer over the edge of his rut, I wonder what he would have made of D'Arcy Wentworth Thompson, that renowned classicist, mathematician, and zoologist.

The mushrooming of most fields of biology is making it increasingly difficult to keep up with all the literature and techniques of a major discipline. We hear that specialization and the team approach are the answer. Although this combination can yield good results, it is often imperfect. Complete specialization is neither necessary nor desirable.

We must usually specialize to some extent in our main discipline; but that is no reason for us to ignore the rest of the living world. We see too much of this sort of thing in North America: ecologists who fail to distinguish between superficially similar plants and seem undismayed at the chaos wrought by their ignorance; systematists ignorant of all but one or two families of organisms; and others who erect phylogenies of organisms with no useful fossil record, without bothering to learn, from vertebrate paleontology, how evolution actually operates. Among some of my fellow mycologists in North America my own diverse interests have been viewed with some suspicion, as if it were traitorous to look at any organisms but fungi. On visits to Europe, on the contrary, I have found the opposite view: that fungi should not be studied out of context with their environment. Several European mycologists have been deeply involved with flowering plants, such as Petrak doing the first monograph of North American thistles, Mannfeldt revising the northern blue-grasses, and Kukkonen studying the evolution of the sedges.

The specialist has been unkindly defined as someone who learns more and more about less and less until he finally knows all about nothing. More seriously we can say that he accumulates data that he fails to understand. The team approach is often necessary but is really a partial solution. At its worst the team of specialists is like the blind men trying to describe an elephant. They likened it respectively to a wall, a tree, a snake, a spear, a fan, and a rope. In the study of a complex biological

system someone must be adventurous enough to move all round the elephant; and nearly all biological systems are complex, far more so than many physical or chemical systems.

Of course a team is needed when several complex techniques must be used; but, unless some team members can see the problem from other viewpoints than their own, crucial points can be overlooked and progress is slow and uncertain. Over 30 years ago Marston Bates wrote an account of jungle yellow fever in South America, in which he showed that the spectacular success of the project was largely owing to everyone in the group working in at least one discipline in addition to his own. Thus they were quickly able to see the complete picture of the parasite, its vectors, the forest workers, and the natural hosts. Not long afterwards some of us, involved in the ecology of the northern biting flies, reached a similar conclusion: it paid us to mind each others' business.

Natural mechanisms that aid in such important processes as dispersal of non-motile plants and fungi often stare us in the face for years, while we stare uncomprehendingly back at them. The elucidation of the splash-cup mechanism that disperses the little peridioles (or "eggs") of the bird's-nest fungi took many years of observation by many naturalists before it was finally worked out by Harold Brodie and Reginald Buller. The story is told in some detail in Brodie's delightful book *The Bird's Nest Fungi*, but the mechanism was first described by him in a paper in *Canadian Journal of Botany* in 1951. With their eyes finally opened, several people soon showed the same device in various bryophytes and flowering plants. I demonstrated it in 1952 in *Chrysosplenium* (Golden Saxifrage) and *Mitella* (mitrewort), and sent a note to *Science*, which in those days still deigned to recognize organismal biology as a scientific field. I thought that *Tiarella*, which includes our foam-flower and is closely related to *Mitella*, was more primitive because it lacked the splash-cup, but to keep my note as short as possible I fortunately omitted the reference to *Tiarella*. The note appeared in March 1953; and less than three months later Jim Calder and I were standing one drizzly day, taking our first look at the British Columbia coast forest at Bridal Falls. As I looked at the capsules of *Tiarella trifoliata* I saw the odd one flicker as a drip hit it. Bending down and depressing the long projecting lower valve of the capsule, I found that a seed usually rolled down it, ready to be flipped out as the valve snapped up on release. Objects are ridiculous only when we do not understand them. As I looked, the comic field-biologist who regularly patrols some 20 to 40 km² can easily run a breeding bird census. He can locate almost every nest except those of Snow Buntings and Hoary Redpolls, which nest mostly in boulder talus; and for them he can count singing males per unit length of talus. As the birds depend ultimately on plant productivity, their

densities allow a meaningful comparison with low-arctic closed tundra.

No organisms exist in complete isolation. Plants depend on bacteria, fungi, or even blue-green algae for their nitrogen supply. Most plants must have symbiotic mycorrhizal fungi for good growth. Saprophytic fungi speed the decay of dead plants; and parasitic fungi attack living plants. Their relationships with various animals are similarly complex.

Despite an immense amount of skilled work we still do not fully understand the relationship of obligate parasites, such as the rusts, with their host plants. The broad outline of the process of co-evolution of rusts and their hosts, however, has become increasingly clear in recent years, but only through a consideration of various aspects of both hosts and parasites, and in natural populations little affected by human activities. We now know that a rust in its evolutionary youth, when it is genetically flexible, may occasionally jump to an unrelated but ecologically associated plant species that is also young and genetically flexible, and evolve into a new rust species. Only a good understanding of the geography, ecology, and systematics of the organisms involved could allow the interpretation of this complex relationship. It is definitely not a job for the desk-bound specialist, but rather for the field-naturalist.

After I retired I took more than a year to study adaptive changes that occur in rust fungi in response to various environmental stimuli, including seasonal aridity, spore-eating insects, host tissue structure, dispersal problems, or the perpetually saturated atmosphere of tropical rain forest. I was then able to rationalize the classification of the rusts, abandoning various pet characters that we now see to have evolved repeatedly in response to particular evolutionary pressures. Thus when I was asked to review the whole topic of using data from parasitic fungi as aids in higher plant classification (a path bestrewn with pitfalls for the unwary specialist), I was able to bring to it a heightened understanding, especially of the rust fungi. Consequently the last year and a half, although often hectic, and involving lots of healthful exercise (my attic groove being three flights above the library stacks), has also been decidedly productive. Lineages established in the rusts have given us much firmer information on the relative ages of origin of various genera, tribes, or families of plants than was previously possible; and relative age is fundamental to the phylogenetic classifications at which we aim. There is no future to deriving family B from family A, when the parasite data emphatically show A to be younger than B. A few of these conclusions will scandalize some of my phanerogamist colleagues. Otherwise my only regret over this multidisciplinary undertaking is that I have had to correct several enthusiastic taxonomic deductions by others in

cont. on last page

Announcements

GROWING NATIVES

Remember when the Horticulture and Rehabilitation Committee was giving out little packets of native seed? Hopefully, by now, you have gotten these in the ground and can report your success to us. To jog your memories a bit we are publishing the list of names of people who took seed. Please send a note to Mark Phillips, 11843 Billings, Lafayette CO 80026, concerning your successes and/or failures. Please include such information as propagation technique, seed treatment, any special problems you may have had, and where they are growing now and how well they are doing.

Lori Webster
Virginia Dionigi
Tom Eamon
Harold Weissler
Eleanor Van Bargaen
Douglas Amy
Dave & Linda Overlin
Moras Shubert
Chris A. Blakesler
Nancy Pick
Clara Frobige
Sue Tabar
Jeff Pecka
Gail A. Boyd
Sandra Westendorf
Genny Bryant
Eleanor H. Hillard
Jo Ann Barker

Walter J. Ruzzo
Karl Hess
Gayle Ebel
Mary Jane Foley
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Dr. William Gambill
Beth Painter
Dr. F. M. Brown
Doris Osterwald
Phill Showalter
Pete Wikoff
B. McCoy
Kara Fredrickson
Eric White
M. Steinkamp

--- Mark Phillips

ST. VRAIN STUDY GROUP

A group of people interested in plants, birds, insects, geology, and all other natural history fields is organizing to begin a comprehensive study of the ecosystems in the St. Vrain drainage, Boulder County. If you are interested in taking part in this interesting and challenging endeavor, please contact Mike Figgs, 1340 S. Bross Lane, Longmont, CO 80501 (772-6975).

--- Scott Peterson



HELP!!! VOLUNTEERS NEEDED

The CoNPS Publicity Committee still needs a chairperson for 1981. We are seeking a person who can attend most Society functions and activities and turn them into effective, favorable publicity. We also would like to publicize forthcoming Society activities and newsworthy accomplishments of our committees. If you could chair (or work on) a Publicity Committee, please contact Lloyd Hayes, 105 Palmer Drive, Fort Collins CO 80525.

--- Lloyd Hayes

SLIDES NEEDED

The Horticulture and Rehabilitation Committee is trying to put together an educational slide show on the use of native plants in landscaping. WE NEED YOUR SLIDES. If you have any nice slides of natives used successfully in a landscape setting, especially the less commonly used plants, please let us make a copy of your slide. Contact Robin Phillips (Denver-Boulder area) 665-2618 or Scott Ellis (Fort Collins area) 493-6069.

--- Robin Phillips

this field that turn out to be based on mis-determined plants, misdetermined parasites, or false ideas of close relationships between fungi.

A NOTE ON THE BUSH MORNING GLORY

The bush morning glory, *Ipomoea leptophylla*, grows on the sandhills of eastern Colorado. Hot pink flowers, 2" to 3" long, grace its branches, and like most colorful flowers, the trumpet-shaped blossoms produce nectar to attract pollinating insects. But the bush morning glory is unusual in that other parts of the plant also produce nectar. The unfolding leaves bear nectaries at the junction of blade and petiole, and other nectar-producing glands are found on the outer surfaces of sepals.

These extra nectaries attract insects. If an ant colony is near a bush, steady streams of workers collecting nectar move along the branches. The ants either scare off or kill beetles, caterpillars, grasshoppers, and other insects that feed on green tissue. The plant gains protection from herbivorous insects by supplying nectar to the ants, and the most vulnerable tissues receive the most attention. Ants concentrate around the sepals, which cup developing ovaries, and on the young, tender leaves. Not every bush has a complement of ants, but those that do produce more seed. This is a mutualistic relationship which benefits both the shrubs and their insect guardians.

--- Paul Moran

ALPINE ON THE PRAIRIE

Out in the Pawnee Grasslands, just north of Keota, at an elevation of not more than 5500 feet, I was amazed to stumble on a little spot of alpine tundra. You remember the land on either side of Trail Ridge Road, just after reaching treeline. It is arid and rocky with little vegetation except in early summer, when the typical alpine mat plants occupy the spaces between the rocks. Just such a spot of terrain is what I found on top of a hillock there on the plains. (R59W T10N Sec. 33 (corner 32-33)).

The ground was dry and gravelly between the rocks, but the crown of the hillock was covered with typical alpine-appearing grasses, all dwarfed with matted foliage. Also there were *Arenaria fendleri* and *Minuartia obtusiloba*, a low and very hairy *Cryptantha*, *Paronychia pulvinata*, *Lesquerella alpina* (*subumbellata?*), *Eriogonum flavum* var. *flavum*, *Astragalus spatulatus*, *Hymenoxys acaulis caespitosa*--at least, if they were not these alpine species, they gave very good imitations.

I have since learned that such outcrops at lower elevations are not so very unusual--they are called "disjuncts." But for me, it was a fantastic discovery. I can hardly wait to get out there again this year to be sure that I wasn't dreaming and to identify the species more carefully.

--- Berta Anderson



EDIBLE PLANT RECIPES

These recipes are also from Karen Wiley Eberle. We plan to continue this column in the newsletter as long as we have recipes to share. If anyone in the Society has recipes they would like to share, please send them to the editor.

Asclepias speciosa - "showy milkweed"

Milkweed Buds

4 cups of milkweed buds (gathered before they open)
2 T. butter
salt, pepper

Cook flower buds in boiling water for about 12-15 minutes with several water changes. Pour off cooking water, add butter, salt, and pepper. Serve hot. Serves 4.

Tragopogon dubius or *T. porrifolius* -
"oyster plant"

Oyster Soup

Wash and scrap the roots. Rinse in cold water. Slice or dice them, and boil until tender; add milk, butter, parsley, salt and pepper. Finely chopped onion may be added, if you wish. Simmer for about 45 minutes, until thickend. Serve hot.