



Aquilegia coerulea

COLORADO NATIVE PLANT SOCIETY

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

NEWSLETTER

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SCHEDULE OF MEMBERSHIP DUES

Life	\$250.00
Supporting	50.00
Society	25.00
Family	12.00
Individual	8.00
Student & Retired	4.00

\$ MEMBERSHIP DUES \$

Renewal memberships are now necessary for all members who joined the society before July 1, 1977. To join or renew your membership, please fill out the following form and mail with your remittance to:

Sue Martin (Membership Chairman)
Colorado Native Plant Society
4700 Venturi Lane
Fort Collins, Colorado 80521

Please indicate if you are or desire to be a member of either the Boulder or Fort Collins chapter.

Membership in the Society is open to all individuals concerned with conservation of the native flora. Activities include efforts to bring public attention to the varied and unique habitats of the Colorado landscape and the need to conserve all elements of the native Colorado flora. Additional benefits of membership include informative publications and organized field trips in addition to meetings. Local chapters presently exist in Boulder and Fort Collins and conduct activities on a regional basis. The Society can achieve its primary goal only through active participation of all who are interested in an appreciation of native plants.

MEMBERSHIP APPLICATION

Name: _____

Street: _____

City: _____ State: _____ ZIP _____

Membership: _____ Chapter Affiliation _____
(Optional)

THE YELLOW LADY'S SLIPPER ORCHID

Cypripedium calceolus

by William A. Weber

One of the really endangered species in the Colorado Flora, but unfortunately not eligible for the Federal Protected list because it happens to grow in other parts of the world, is the Yellow Lady's Slipper, Cypripedium calceolus L. It is so well-known that no description or drawing is necessary here. In fact, recognition is not the purpose of this article. Many of the known colonies of this orchid are on private land and they have been protected by the land-owners for many years. Those few colonies still present on public lands might best be left unpublicized if they are to survive. Certainly, the Yellow Lady's Slipper should never be collected, picked, or taken into the garden any more if it is to continue to survive in the wild state in Colorado.

J. D. Lovis, writing in *The Naturalist*, pp. 55-57, 1976, discusses the problems of conservation of this orchid (another subspecies of C. calceolus) in England, where there is only one known remaining small colony as well-protected as it can be, yet in real danger of extinction for other reasons. Lovis writes: "There is no doubt that the population of Cypripedium calceolus in this country is now far below a viable minimal level. This means that unless it can be assisted to increase its population size, it will certainly become extinct from natural causes, even if the hand of man does not (as past experience makes only too likely) first apply the coup de grace. Unlike Ophrys apifera (Bee Orchid), C. calceolus is not adapted for self-pollination. Isolated plants have no chance of being pollinated, simply because of the lack of a pollen source. Even where two or three flowers occur in proximity, the chance of pollination is low. Like other orchids, Cypripedium pollen is transferred in sticky masses--an all or nothing tactic. The likelihood of seed being set naturally in this country is therefore very remote."

Lovis goes on to point out that climatic fluctuations sometimes encourage, sometimes discourage flower production as well as vegetative performance. Inevitably for small populations, the net results are usually decrease and extinction. Slugs damage the plants, and while seeds in a single capsule are astronomically numerous, it is often 6 to 10 years before a seedling can be noticed in the field. In the English colony, it is certain that the entire "last population" is a clone, so that the plants are all genetically identical and unable to "cross"-pollinate, since they are mostly self-incompatible, and although seeds are sometimes set, these have never germinated. A lot of study has gone into trying to develop germination, but at the moment it appears that the only practical solution is to find another population and artificially cross the plants.

Young plants of Cypripedium can be mistaken for lots of other broad-leaved monocots, and rumors have been rife that there are, indeed, other colonies of Lady-Slipper in England, but all

leads have checked out negatively. Now the problem is, in England's conservation-minded public, there just might be a colony of Cypripedium somewhere and it is being kept secret. As long as the plants do not flower the secret can be easily kept, but once in flower someone, possibly unscrupulous, will learn about it, and the curtain falls on the population. So the Nature Conservancy Council is in the position of having to beg the people not to sit on these colonies in silence, but to inform the Council so that cross-pollination programs can be put in effect, and the Council must go out of its way to assert its moral character in the matter.

The last sentence of Lovis' article is telling. "Anyone who is in possession of knowledge of a second colony and does not now inform the Nature Conservancy Council should realize that they will have contributed towards, and must bear some of the responsibility for, the ultimate disappearance of this species from Britain just as effectively as if they had cut the flower and put it in a vase or a plant press, since they will have just as certainly deprived the plant of the opportunity of setting seed, which is the only way in which it may be saved."

It is very likely that the Colorado populations, small as they are, are going the way of the British colonies and ultimately survival will depend on the same measures.

STATEWIDE SPRING MEETING

When: April 8, 1978 - Saturday

Where: Denver Botanic Gardens Conservatory Building (1005 York Street)

General Theme: Photographing Wildflowers of Colorado

- 10:30 Pre-meeting
Informal interchange; tables with information and exhibits can be viewed.
- 11:00 Short business meeting conducted by Hugo Ferchau, President of CoNPS.
- 11:15 Guest speaker: Vernon Tomppert, noted Colorado Wildflower Photographer
Subject: Wildflower Photography
- 12:00 Adjournment for lunch
- 1:00 Guest speaker: Jean Siddell, organizer of the Native Plant Society of Oregon
Subject: Information Gathering on Threatened and Endangered Plant Species
- 2:00 Workshops
 - A) Photography of Wildflowers for the Novice
 - B) Advanced Photography of Wildflowers
 - C) Volunteers for the Protection of Endangered Species
 - D) Plant Identification for the Amateur Botanist

A meeting of the BOD will convene at approximately 3:30 to finish the mid-year meeting.

ENDANGERED AND THREATENED PLANT SPECIES
IN COLORADO: SUMMARY OF THE LAW AND RECENT
DEVELOPMENTS

by Barry C. Johnston

The Endangered Species Act was signed into law in the last days of 1973. Among other things, it defines "endangered species" as: "any species which is in danger of extinction throughout all or a significant portion of its range... 'plant' means any member of the plant kingdom, including seeds, roots, and other parts thereof... 'threatened species' means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."

The Endangered Species Act, in a later Section, requires that species be listed as threatened or endangered, because of any of five factors:

1. the present or threatened destruction, modification, or curtailment of its habitat or range;
2. overutilization for commercial, sporting, scientific, or educational purposes;
3. disease or predation;
4. the inadequacy of existing regulatory mechanisms; or
5. other natural or manmade factors affecting its continued existence.

Natural factors leading to the extinction of species are mentioned, but the great emphasis of this Act is on factors under the control of mankind. Indeed, the first sentence of the Act, which sets out some of the reasons for its enactment, cites species that "have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation."

There has been some confusion, since the Act does not take the usual biological definition of Species, but instead uses the term "species" to include subspecies of animals. In a later regulation, both subspecies and varieties of plant species are included within the term "species." It is to be noted here that the word "variety" is taken in the sense of formal, accepted international taxonomic usage, and not in the sense of horticulture.

There are only two areas where this Act may be enforced. First, import and export of endangered or threatened species are prohibited without a proper permit; and interstate sale and commerce in endangered or threatened species are prohibited without a proper permit. There have been no Colorado plant species so listed, so this provision has had no effect as yet.

The species in the Smithsonian Report were apparently intended to be officially listed as threatened or endangered fairly soon. However, the Smithsonian had shown considerable regional bias in preparing these lists. The Rocky Mountain states (New Mexico to Montana) were particularly poorly done. In fact, I have been unable to find one person currently living in Colorado and working with Colorado plants (professionally or otherwise), who was consulted in the preparation of the Smithsonian lists. Of course, there has been input from Colorado citizens (professional and otherwise) since then;

this Society was formed in part to remedy this shortcoming evident in early lists.

The second area of enforcement is more important in Colorado now, and that is Section 7 of the Act, which requires that all Federal agencies having land-management responsibilities to further the purposes of the Act by "carrying out programs for the conservation of endangered species and threatened species..." This means that listed species growing on Federal lands must be protected by the Federal agency having jurisdiction.

The Act says nothing about species growing on land in private ownership, and, except of course for interstate and international commerce, makes no restrictions whatsoever on a private owner. However, if that private owner later becomes involved in a Federal program involving his land, conservation measures may be undertaken by the appropriate Federal agency, but only within the scope of the agreement between the landowner and that Federal agency. The Act prescribes no penalty whatever for individuals not involved in commerce or trade in listed species.

Section 7 of the Act not only provides for the protection, by Federal agencies, of threatened or endangered species, but also provides for the protection of such a species' habitat, if that is threatened. Such a habitat is called "critical habitat"; the ideas of what this term means have been clarified in later Regulations. Even though earlier Regulations were apparently biased in favor of animal populations, later Regulations have included terminology that also applies to plants.

The concept of "critical habitat" is, of course, more biologically realistic, since small changes in a species' environment (including climate, soils, and associated species) can cause drastic changes in its population size. The presence of such terms in the Act, moreover, underscores the fact that the Act is obviously intended to preserve endangered species or threatened species, by preserving their native populations and habitat. Artificial propagation and horticulture are not discouraged, but the obvious intention of the Act is to preserve the natural, native populations.

The Act directed the Smithsonian Institution, within one year of passage of the Act, to prepare lists of threatened and endangered species of plants; this was published as a Report to Congress in mid-December, 1974. The first part of this document was a report, generally well-written and worth reading, although of course having no legal standing. However, this report (of thirty pages) has been the source of several misconceptions about threatened and endangered plant species (which will be discussed later). The second part of the Smithsonian Report was five lists: Commercially Exploited Species, Extinct Species; Endangered Species; Threatened Species; and Hawaiian Species in three categories. The first two lists, Exploited Species and Extinct Species, have no official status under the law; most of them were later merged into lists of endangered or threatened species.

Apparently the situation for Colorado was true in other parts of the United States, for the Smithsonian Report came under widespread criticism from many quarters. The botanical community complained that there were several species on Colorado's list that do not grow in Colorado; in addition, there are a number of species that should have been included on the list that were not. Some commercial concerns, particularly timber and mining, objected strongly to the whole idea of endangered or threatened species of plants.

The lists contained in the Smithsonian Report were reprinted in the Federal Register in July, 1975, but as a proposed rule only. About a year later, a revised list of endangered species was published, again as a proposed rule only. This means that in Colorado we have no plant species that currently are officially designated as endangered or threatened. When this revised list of endangered species was published, June 1976, very few of the species listed therein for Colorado had been studied enough to warrant their being officially designated. Since that time, some of these species are receiving the study they deserve, largely through the efforts of the U. S. Forest Service and some districts of the Bureau of Land Management in Colorado.

Several Federal agencies in Colorado are actively studying the plant species on the various proposed lists, even though none of these species has any legal status as yet. There are two general reasons for this work: first, because some of these proposed species may some day be officially designated; second, because those same Federal agencies are being called upon to provide the information on the basis of which species will be either dropped from the proposed list or else recommended for official designation as threatened or endangered. So far, these programs have been largely informational, providing data about habitat and distribution of proposed species; for only a few species has any action been contemplated.

FIELD TRIP

23 April, Saturday - Enchanted Mesa

A field trip to view the wildflowers of the Enchanted Mesa will be sponsored by the Boulder Chapter and led by Dr. David Bruckner. Please meet at 9:00 a.m. at the Table Mesa Branch Library near Broadway and Table Mesa Drive (across from King Sooper) in Boulder. A similar trip last year provided those present a chance to see quite a number of species. Bring a lunch if you wish.

MORE ON GROWING THE NATIVES

by Lloyd Hayes

If you are interested in starting woody plants a world of information is already available for species that have been used for wood, erosion control, windbreaks, wildlife plantings and similar uses. See USDA Agriculture Handbook No. 450. Prepared by the U.S. Forest Service and published by the Government Printing Office, it is titled "Seeds of Woody Plants in the United States." Its vii plus 883 pages are packed with useful information.

The information is summarized by general with tabular data for species.

The nature of the information available is indicated by subheadings and table headings. For the genus Shepherdia (Buffaloberry), for example, subheadings are:

- Growth habit, occurrence and use
- Flowering and fruiting
- Collection of fruits
- Extraction and storage of seeds
- Germination (including pre-germination treatment)
- Nursery practice
- Literature and other data sources cited

Tables show:

- Nomenclature, occurrence and use
- Phenology of flowering and fruiting
- Number of seeds per pound
- Germination test conditions and results.

Much additional information is presented for more studied genera such as Pinus and Quercus.

As most readers will know, many plant seeds require cold stratification. My experience has been that results obtained from natural stratification, obtained by planting seeds in the fall and letting them over-winter in the ground, is hard to duplicate by stratification in refrigerators. Leaving seed in the ground over winter may be impractical where seed-eating rodents are abundant, but it should work well in most urban back yards.

In sowing wild plant seeds avoid mulching them with natural plant remains. Many plants produce germination inhibitors that may be leached from their dead remains by water. Rain, melting snow, or sprinkler irrigation water can leach the inhibitors from mulch material and carry them to the seeds beneath. Some of the inhibitors have a surprisingly depressing effect on the germination of their own, or other kinds, of plant seeds. Leachates from fresh pine or juniper litter have a strong depressing effect on the seeds of some grasses. Conversely, leachates from some grass litters can have a similar depressing effect on the seeds of conifers. If a mulch is needed it is safer to use inorganics such as sand or vermiculite.

Four of the members of the Horticulture and Rehabilitation Committee met on Thursday, January 26, 1978 to discuss a proposed policy statement concerning the use of natives in reclamation in Colorado. Because there were only a few members of our committee present and because we felt that we wanted input from the Board in designing this statement, we decided to develop some directives for the statement to be presented to the Board. The following are some of the ideas we would like to see incorporated into our statement.

- * We would like to encourage the establishment of a diverse plant community thus a minimum for the number of species utilized in a reclamation plan should be set (e.g., 10 or 12 species must be used at minimum).
- * We would like to encourage the use of natives; thus, limits should be placed on the amount of naturalized plant material that can be used in a reclamation plan (e.g., 25 percent by weight of the seed mix can be naturalized species, or 60 percent of the budget spent for plant materials must be for natives).
 1. A determination of naturalized or native will be based on Weber and Johnston, 1976.
 2. The limits set have to be suitable to both seed and transplant material.
- * The plant species chosen for reclamation must reflect the native plant community of that site. If a site is presently dominated by a naturalized flora, natives must still be utilized in the reclamation plan.
- * We would like to encourage the use of fresh topsoil resources because of its source of seed material. Thus, operations where topsoiling and stripping are going on concurrently will be encouraged.
- * We strongly discourage the introduction of plant materials for the purposes of reclamation which are not already found in the state and the introduction of species across natural barriers (e.g., east slope to west slope) should also be avoided.
- * The statement will hinge on the commercial availability of native plant materials. However, we would like to encourage custom production or the collection of native plant materials in the form of seed or on-site transplanting.
- * We do not intend the statement to dictate land use policy in that, if the "best" post mining disturbance land use is agriculture, the land should be reclaimed with that purpose in mind.

Comments concerning this proposed policy statement should be sent to:

Mark Phillips
11843 Billings
Lafayette, CO 80026

The Horticultural and Rehabilitation Committee of the CoNPS hopes to further appreciation for the state's native plants by encouraging Coloradoans to grow natives, and by gathering and disseminating knowledge to this end. By growing natives in their gardens, yards, parks, etc., Coloradoans will

Learn more about native plants,

Reduce consumption of, and dependence on resources such as water and fertilizer for landscape maintenance.

Create greater harmony between the urban landscape and its natural surroundings.

In addition, the Committee will help in rehabilitating disturbed natural environments by providing all available information to those interested in re-establishing native plant communities. In re-vegetation, we encourage the use of species that were native to the area.

We suggest the following procedure for those interested in gardening with natives:

1. Study the native plants to learn more about their natural history and growth requirements.
2. Attempt to grow those natives best adapted to the soil and climate of the site you wish to plant. Remember, a building may create many interesting microclimates.
3. Select plants grown from seed. This results in stronger, healthier plants and helps preserve the genetic variation in the species. Transplanted, collected plants rarely thrive.
4. Collect seed from abundant species. Care should be taken so that local seed sources are not depleted and local stands of natives are not damaged. Avoid collecting seed of rare or endangered species.
5. Insist on knowing the source of plant material when purchasing native plants or seeds.
6. Take the responsibility to share your findings on germination and growth requirements of native plants with others through the CoNPS or similar organizations committed to increasing knowledge of the state's flora.

To facilitate growing natives and accumulating data about their growth, the Horticultural and Rehabilitation Committee will establish a seed exchange, serve as a central depository for information from growers throughout Colorado, and disseminate information to interested growers and the general public.

BOARD OF DIRECTOR'S MEETING

(Abstract of the Minutes)

A meeting of the BOD was convened at 7:45 p.m. on February 6, 1978. The following BOD members were in attendance: Hugo Ferchau, Bill Harmon, Panayoti Callas, David Buckner, Libby Goodwin, Jim Ratzloff, Dieter Wilken, Scott Peterson, William Weber and Karen Hollweg. The following society members were also present: Janet Hohn, Barry Johnston and Mark Phillips.

1. The first topic discussed was the statewide spring meeting of the general membership. Bill Harmon stated that after consulting with members of the Education Committee, that they decided to accept the responsibility as host for the affair. Scheduling of this meeting is shown elsewhere in this newsletter. The BOD approved the scheduling of this meeting, which will consist of two speakers and several workshops. Vernon Tomppert, a noted Colorado Wildflower photographer, will be the featured speaker of the morning presentation. The BOD then approved the expenditure of funds to bring the afternoon featured speaker, Jean Siddell, to Denver. Ms. Siddell has been instrumental in the Oregon program to gather field data on threatened and endangered plant species, and the guidelines that she will present will be an invaluable assist to the comparable activities of CoNPS.
2. The Endangered Species Committee, co-chaired by Janet Hohn and Bill Harmon, then gave a report on their committee activities. The following goals of that committee were presented to the BOD, discussed and accepted:
 - A. To identify Colorado's threatened and endangered plant species which qualify as candidates for the Federal Register List and to participate in the preparation of status reports.
 - B. To coordinate field inventory of Colorado's threatened and endangered plant species through circulation of an approved field survey form to members of the society and other interested people.
 - C. To generate geographic distribution maps based on data compiled from completed field survey forms.
 - D. To establish better public awareness both inside and outside of the CoNPS regarding threatened and endangered plants.
 - E. To work in harmony with the legislative committee.

Secondly, a draft of the field survey form was presented to the BOD, discussed, and approved for distribution to the membership. Thirdly, the current working list of threatened and endangered plants of Colorado was presented. This list contains those species deemed most crucial for study and review by the Society. The BOD suggested improvements and approved sending the list to the general membership to elicit further information. Finally, the BOD suggested that the Committee generate a general policy statement concerning Threatened and Endangered Plant Species to be adopted by the Society.

3. The next item on the agenda was a report from

the Legislative Committee given by Libby Goodwin. The following goals were presented to the BOD, discussed and accepted.

1. To review introduced Federal and State legislation which might be thought to be of concern or pertinence to the CoNPS and, if appropriate following review, to make recommendations to the BOD for action.
2. To discuss ideas for needed legislation pertinent to CoNPS and recommend same to the BOD for action.
3. Continued support of the Natural Areas Program passed by the 1977 General Assembly, including support for increased funding.
4. Make a concerted effort to lay the groundwork for a Colorado Endangered Plant Species Act, including, but not limited to, the following:
 - request the Governor's endorsement of State cooperation with Fish and Wildlife Service
 - request study by legislative interim committee
 - educate legislators about CoNPS, Endangered Species Act of 1973, Colorado plant species in critical status, etc.
 - work closely with Endangered Species Committee and be able to act as educated liaison between the E.S. Committee and the legislature
5. Review all State statutes pertinent to native plants, including the columbine, and decide whether any changes are needed.
6. Keep informed on proposed amendments to the State's Mined Land Reclamation Board's powers to see whether these affect revegetation with native plants and recommend action necessary.
7. Keep informed on the U.S.F.S. RARE II Wilderness review process to see whether endangered species are affected and recommend action if necessary.

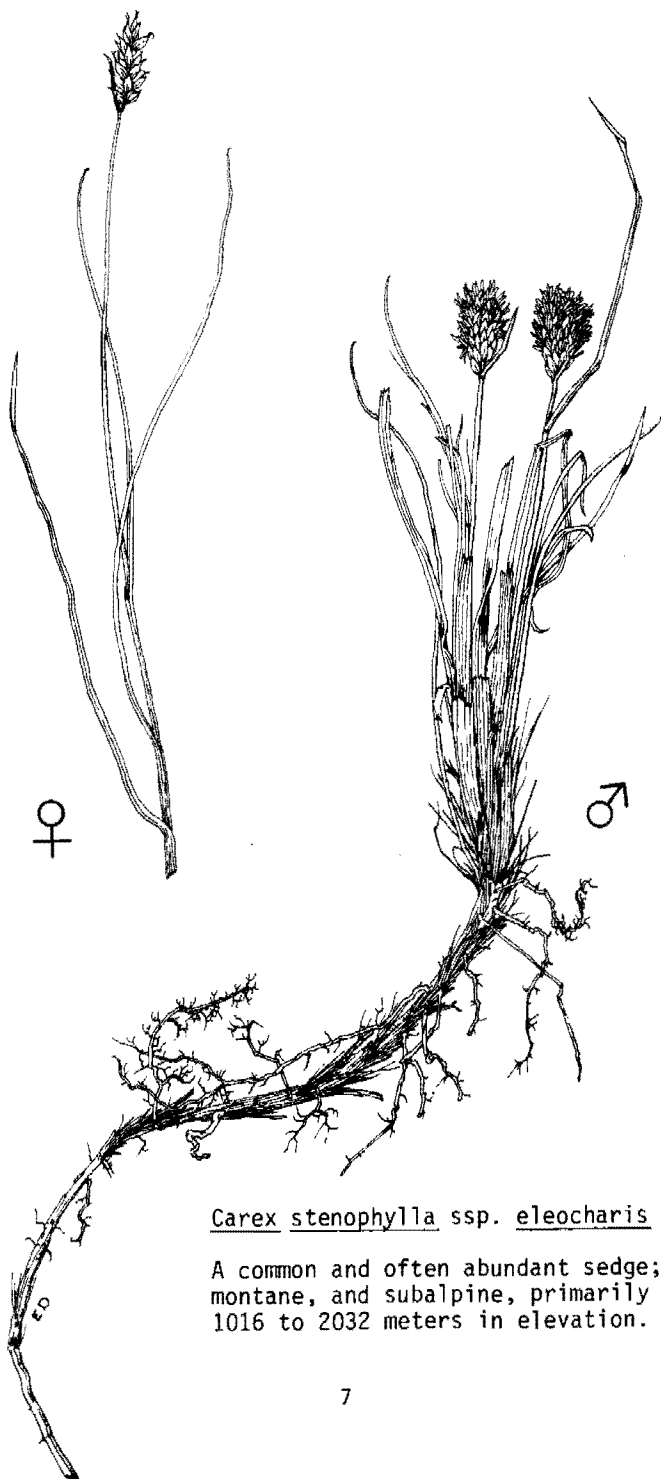
Libby next spoke of the possibility of CoNPS joining the Colorado Open Sapce Council (COSC)--a coalition of environmental and nature oriented organizations within Colorado --either as a member or a cooperator. The BOD debated the suggestion and voted to join as a cooperator for one year, which would allow CoNPS attendance at COSC Board Meetings and give our society time to decide whether "Member" status would prove advantageous to CoNPS. Additional support was approved for the COSC Lobby and receipt of her Environment Bulletin that is issued on a weekly basis.

Lastly, Libby presented various letters for BOD approval that were drafted by the committee to be sent to various governmental officials in support of the Colorado native flora and our threatened and endangered species.

4. The Horticulture and Rehabilitation, represented by Karen Hollweg and Mark Phillips, presented a statement of policy for BOD approval regarding revegetation of disturbed land in the state. The BOD agreed to review

the policy statement and act upon it at the next BOD meeting. Karen Hollweg stated that she would resign as chairperson of this committee as of April 8, 1978. She reported that a replacement would be present at the next Board meeting for approval by the BOD.

5. The Publications Committee, represented by Scott Peterson, reported that Anne Bliss had resigned as Editor of the CoNPS Newsletter, and that the Committee was actively searching for a new editor. A nominee will be presented at the next Board meeting for BOD approval.
6. The next official meeting of the BOD is slated for 4:00 p.m., April 8, 1978, following adjournment of the Spring Meeting. An unofficial meeting of the CoNPS officers and those persons organizing the Spring Meeting workshops will occur at 7:00 p.m. on March 13, 1978 (Monday) at the CSU Herbarium.



Carex stenophylla ssp. eleocharis

A common and often abundant sedge; plains, montane, and subalpine, primarily from 1016 to 2032 meters in elevation.