



COLORADO NATIVE PLANT SOCIETY

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

Volume II Number 2

March-April 1978

OFFICERS

President:	Hugo Ferchau
Vice President:	William Harmon
Secretary:	Panayoti Peter Callas
Treasurer:	Kimery C. Vories

BOARD OF DIRECTORS

David Buckner	William Harmon
Panayoti Peter Callas	Karen Hollweg
Gail Evans	J. Scott Peterson
Hugo Ferchau	James Ratzloff
William Gambill, Jr.	William Weber
Libby Goodwin	Dieter Wilken
	Kimery Vories

MEMBERSHIP RENEWALS

A number of Society members have not renewed for the 1978 year. If a RED X appears before your name on the address page of this Newsletter, it indicates that your membership has not been renewed. In order to continue your membership and such privileges as attendance of meetings, field trips and the Newsletter please send your application and membership dues to:

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

SCHEDULE OF MEMBERSHIP DUES

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

The CONPS Newsletter is sent to all other Native Plant Societies in exchange for theirs. Nonmembers may subscribe to the Newsletter for \$4.00.

CORRESPONDENCE

All correspondence and inquiries regarding activities of the Society should be addressed to Panayoti Peter Callas, Secretary, CONPS, 922 12th Street, Boulder, CO 80302.

COMMITTEES

Endangered Species	William Harmon
	Janet Hohn
Education	William Harmon
Environmental Documents	Hugo Ferchau
Funding	Kimery Vories
Horticulture & Rehabilitation	Karen Hollweg
Legislative	Lois Webster
Membership	Sue Martin
Publications	Scott Peterson

NEWSLETTER

EDITOR: Dieter H. Wilken, Dept. of Botany and Plant Pathology, Colorado State University, Ft. Collins, CO 80523.

The editor seeks articles of general interest to all aspects of Society activities. Such articles should not generally exceed 4 typewritten, double-spaced pages, although consideration will be given to longer articles if space permits.

Deadlines for the 6 bimonthly newsletters are the last day of January, March, May, July, September and November.

The editor welcomes comments, recent news items and the open discussion of controversial issues regarding the native plants and vegetation of Colorado.

STATEMENT OF PRINCIPLES, POLICY, AND GUIDELINES
FOR REVEGETATION OF DISTURBED LANDS IN COLORADO

COLORADO NATIVE PLANT SOCIETY

Prepared by Horticulture and Rehabilitation Committee

I. PREAMBLE

Colorado's native plants have successfully demonstrated by their adaptation and survival their ability to withstand the extremes of environmental variation and natural disaster. They have established a natural harmony with particular site conditions and have shown permanence under competition and stress. Each species is not only an entity unto itself, but is also an important participant in overall ecosystem dynamics. Ecosystems artificially dominated by non-native plant species may be less effectively buffered against normal environmental fluctuations compared to native-dominated ecosystems and may exhibit a lack of resilience and a gradually decreasing productivity over the long term, especially under biological pressure from grazing, browsing, wildfire, recreational activities, drought, etc.

In addition to the primary reasoning which favors the use of native species, an additional argument is that these same species generally will not become weedy pests in nearby areas. What plants will not do is as important to recognize as what they will do. An introduced species which is an immediate success in stabilizing a disturbed area may become an eventual problem if it invades areas where it is not wanted. Aesthetic considerations are also not to be ignored. People are sensitive to the fabric of the landscape, and a repair effort which does not provide a natural blending of natives to recreate natural surroundings will prove unacceptable to people who are concerned with recreation and scenic beauty.

The desirable native vegetation of a site is taken to be the potential natural vegetation for the particular site. As used here, the term "potential natural vegetation" will be taken to mean the native climax or long-persisting native subclimax vegetation of the site. For example, aspen stands are long-persisting subclimax units in many areas of Colorado, as are many shrub-dominated types which may be desirable for wildlife management purposes.

Advantages of native plants in reclamation can be summarized as follows:

- 1) Native plants have demonstrated fitness under the long-term climatic conditions of the area to which they are native.
- 2) Native plants have inherent resistance to pests and disease that have co-evolved with the native plants.
- 3) Native plants have higher demonstrated value to more species of native wildlife.
- 4) Native plants represent no serious threat to invade and disrupt adjacent undisturbed areas, whereas many non-natives do pose a serious threat.
- 5) A full spectrum of native plants (the potential natural vegetation, as closely as possible) is likely to make more efficient use of resources of moisture, nutrients, and light than vegetation of a few non-native species. Thus, the native vegetation would have a higher and more diverse overall productivity than the non-native vegetation. The high productivity of the potential natural vegetation is generally accepted as a standard for comparison in most systems of range condition analysis.
- 6) Within the native flora, there exists a very wide spectrum of adaptation to unusual and severe conditions, obviating the need for importation of plant materials for the rehabilitation of severe disturbed sites.

II. POLICY STATEMENT

The Colorado Native Plant Society encourages the use of native species and the reestablishment of potential natural vegetation in rehabilitation of all disturbed sites in Colorado where the projected post-disturbance land use is rangeland, timber resource, wildlife habitat, passive recreation, scenic resource, or other uses where natural vegetation will be the most desirable long-term plant cover. Naturalized species are to be used only within prescribed limits and only where their advantages in quick stabilization can be clearly demonstrated and outweigh disadvantages of the type outlined above. Introduction of plants into Colorado for purposes of reclamation should not occur. Native plants are thought to exist for virtually every extreme situation for which introduced plants might be thought to be desirable.

III. GUIDELINES

For the many complex environmental variations of Colorado, there can be no simple set of rules to list plants and seeds to use in reclamation efforts, but there are certain basic guidelines which should be followed.

When the post-disturbance land use is rangeland, timber resource, recreation, scenic resource, or other uses dependent on natural plant communities, the goal of reclaiming should be the realization of a vegetational cover within the potential natural (climax or long-persisting subclimax) vegetation on the site.

Differing balances of emphasis in post-disturbance management between range, wildlife, timber resources, etc. may necessitate selection of slightly different successional stages. However, the sought-for vegetational cover should be suited to the site, i.e., within the natural successional sequence for vegetation on the site, preferably climax or advanced subclimax. Where disturbance has modified the environment to a point outside the natural tolerance of desirable climax or subclimax species, an earlier stage of succession should be sought. However, in no case should succession be allowed to proceed unaided where this will result in dominance by noxious weeds or persisting naturalized plants and/or in further environmental deterioration. The potential natural vegetation of a site can be determined through reference to U.S. Soil Conservation Service data as well as a variety of maps, journal articles, and books.

Toward the end of establishing the appropriate native vegetation and in full realization of the benefits in initial soil stabilization and microenvironmental amelioration provided by selected non-native naturalized species, it is recommended by the Colorado Native Plant Society that non-native naturalized species not exceed twenty-five (25) percent of the total number of live seed to be sown in any seed mixture for use in reclaiming lands within the State of Colorado to land uses other than industrial, residential, intensive agricultural, or intensive recreation.

To encourage at least a reasonable level of diversity, the Colorado Native Plant Society suggests that no fewer than ten (10) species be returned to the site by way of seeding, use of containerized stock, or transplants. Where it can be documented that fewer than ten species occurred naturally, the lower number will be regarded as the minimum.

It is further recommended that the life form spectrum (of perennial vascular plants) in the potential natural vegetation be represented among the species returned to the site during reclamation. This may involve, in addition to seeding, the use of containerized stock and/or intra-site transplantation. Where the life form spectrum is highly diverse in the natural vegetation, it may be necessary to return more than ten (10) species to the location. In cases of extreme environments, appropriate native seed may not be available and the operator will find it necessary to arrange for custom production or collection of appropriate seed and/or use of custom grown containerized plants.

As a policy, the introduction of plants, either through purposeful introduction or through accidental introduction in mulch materials or seed impurities, to the State for purposes of reclamation should be strictly avoided. Furthermore, the introduction of species across natural barriers within the State (e.g., East Slope to West Slope) should be avoided. Although some post-disturbance substrates are severe, the plant material necessary for their revegetation is likely to be found within the native flora, if thoroughly sought out. The potential disturbance to native floras by the introduction of exotic species for the revegetation of disturbed sites is great and is to be avoided.

Inasmuch as topsoil often includes a diverse source of revegetation propagules (seeds, roots, rhizomes, corms, etc.) that cannot practically be duplicated, it is strongly encouraged that every opportunity be reviewed by developing and regulatory groups for immediate use of as much topsoil as possible following stripping. This means coordinating the sequences of development to allow direct or nearly direct transferral of topsoil from its original location to an area where development has been completed. This may not be feasible in some small, one-stage developments. Potential native seed in topsoil does not obviate the need for seeding or other means of actively encouraging the return of native plants to disturbed sites.

IV. DEFINITIONS

Native: A member of the indigenous and/or endemic flora of the State of Colorado as designated in Weber and Johnston (1976) or corrections thereto.

Non-native Naturalized: A plant listed in Weber and Johnston (1976) or corrections thereto as adventive.

Introduced Species: Plant species not in the indigenous or naturalized flora of the State of Colorado as listed in Weber and Johnston (1976) or corrections thereto.

V. REFERENCES CITED

Weber, W. A. and B. C. Johnston. 1976. Natural History Inventory of Colorado. I. Vascular Plants, Lichens, and Bryophytes. Univ. of Colo. Museum, Boulder, CO 80309.

The Horticulture and Rehabilitation Committee welcomes constructive criticism of this document, which will serve as a policy statement of the CONPS. The membership is requested to send such criticisms to: Mark Phillips, 11843 Billings, Lafayette, CO 80026. The policy statement and criticisms will be considered at the next meeting of the Board of Directors.

A KEW RULE

Several members recently provided me with their comments regarding the stratification (a method of treatment) of native plant seeds to insure high levels of germination. All of these comments remind me of the practice at the Kew Botanical Gardens in England. This Rule is taught to all horticulturists receiving their education at Kew. The rule is:

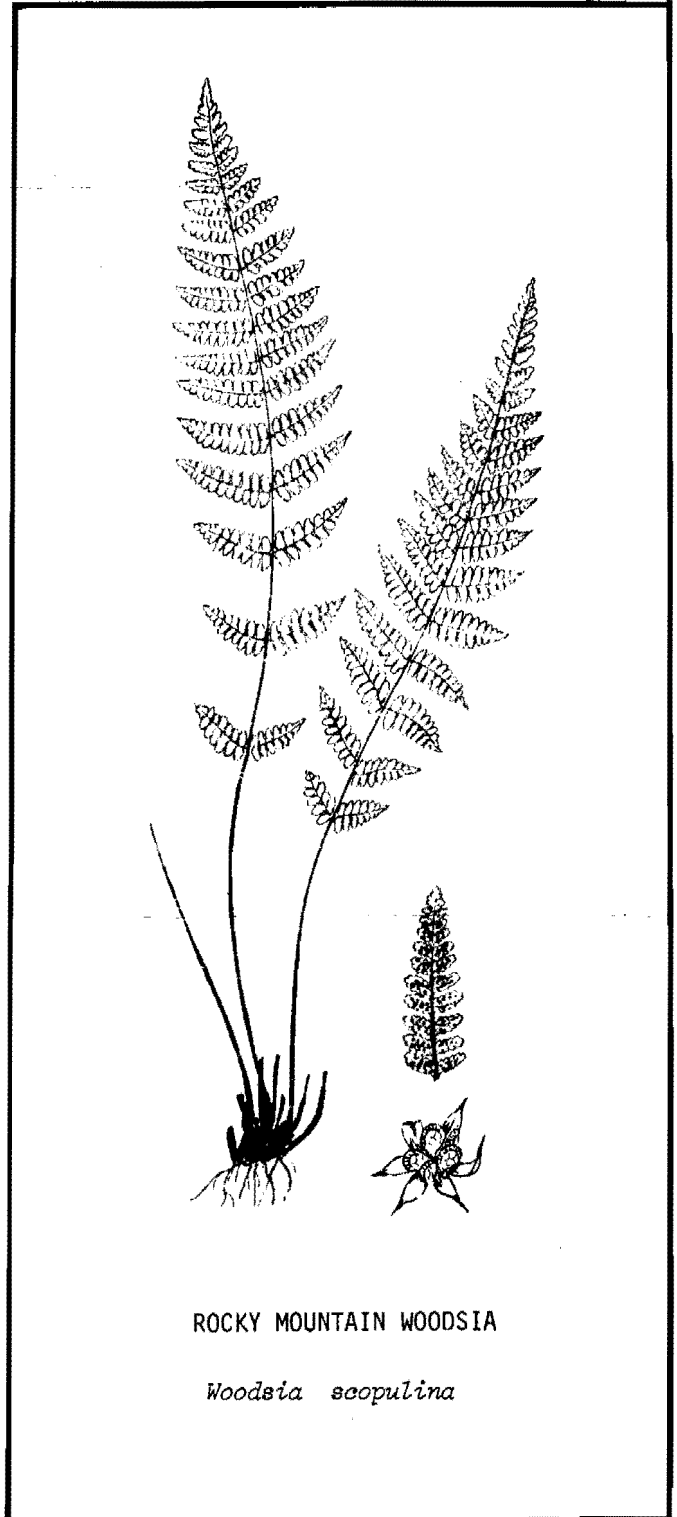
When in doubt about the germination requirements of any seeds of shrubs and trees, stratify at ca. 5° C (=35° F) for 3 months.

When combined with correct collecting methods, the rule almost appears infallible. The following correlaries are essential:

1. Collect ripe, fresh fruit.
2. Remove, as soon as possible, the pulp or dry fruit wall.
3. Allow seeds to dry in a dim, well-ventilated environment.
4. Prepare a mixture of 50% aquarium sand and 50% milled sphagnum. Soak this mixture in water for several hours and then squeeze the excess water with your hands.
5. Mix the seeds with the moistened sand-sphagnum mixture, place in a plastic bag or glass jar and store the container in the refrigerator for about 3 months.

I offer the following comments. I tried this method with several seed collections, including NINEBARK (*Physocarpus monogynus*) and GOLDEN CURRANT (*Ribes aureum*). The NINEBARK seeds germinated after about 10 weeks and showed about 80% germination. The GOLDEN CURRANT seeds germinated after only 8 weeks with nearly all producing roots. A word of caution: Either the seeds or the seedlings should be lightly dusted with a fungal inhibitor prior to potting, otherwise many will damp off. In addition, forget about the bagged or jarred seeds for at least 2 months. Seeds are "bashful" particularly when "sleeping". They have the ability to become stubborn and resist the desire to awaken if they are disturbed. This method is a general one and undoubtedly exceptions will be discovered. Only patience and perseverance will result in finding the right conditions for a particular plant species.

---Editor

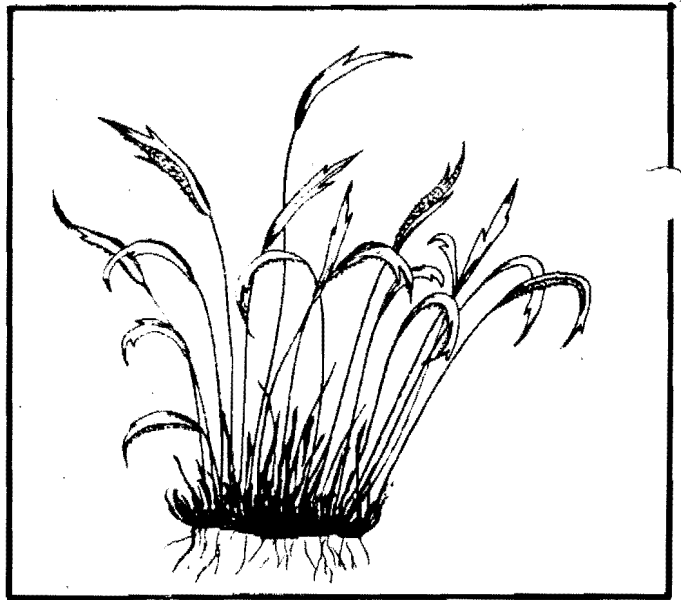


OUR NEGLECTED FERNS

As the flowering season approaches in Colorado, we anxiously anticipate our first foray into the field. We are usually overcome by the rich diversity of flowering plants and many of us, including amateur and professional botanists, tend to neglect the fern element of Colorado's rich flora. Many of us are familiar with the typical fern, an herbaceous plant with fleshy underground stems (rhizomes) and much-dissected leaves (fronds) often bearing the small, brownish spore producing structures (sporangia) which are often aggregated into clusters (sori). Some of us may be familiar with the more common natives like the BRITTLEFERN (*Cystopteris fragilis*), the ROCKY MOUNTAIN WOODSIA (*Woodsia scopulina*), the LADY FERN (*Athyrium filix-femina*), and the BRACKEN (*Pteridium aquilinum*). The HORSETAILS (*Equisetum* species) and LITTLE CLUB MOSSES (*Selaginella* species) also are commonly encountered and recognized; these are taxonomic allies of the ferns. However, there exist in Colorado over 50 species of ferns and fern allies and many are easily overlooked and consequently neglected, particularly when one's winterized eyes are confronted with the colorful diversity of spring and summer. Several of our ferns are extremely rare, such as ANDREW'S SPLEENWORT (*Asplenium andrewsii*), only known in the entire world from White Rocks near Boulder. Although treated as *Asplenium adiantum-nigrum* in our widely used identification manuals for Colorado, botanists have recognized the differences of the White Rocks population since Aven Nelson described the new species in 1904. Other ferns, like the BRACKEN and the BRITTLEFERN are relatively common and often observed.

One of our less common ferns is the highly distinctive FORKED SPLEENWORT or GRASS FERN (*Asplenium septentrionale*). The GRASS FERN is aptly named, both in the scientific and vernacular senses. "Septentrionale" means "of the north" and refers to the sporadic distribution of this species throughout the northern hemisphere. The common name GRASS FERN refers to the narrow, scarcely divided fronds, similar in general appearance to that of a grass or sedge. It is known from only a dozen localities in most of the western states with the exception of Colorado. Relative to herbarium records, the GRASS FERN is only known from about a dozen localities along the Front Range from Grey Rock in Larimer County to near La Veta in Huerfano County. At several of these localities, however, the GRASS FERN is abundant and undoubtedly is expected to occur elsewhere in the state.

I first encountered the GRASS FERN last December while climbing Arthur's Rock in Lory State Park west of Fort Collins. December! Yes, December is an excellent month to search out the GRASS FERN! First, December is one of our driest winter months, with little snow or ice cover.



Second, it is about the time when I acquire the extreme symptoms of that syndrome peculiar to field botanists, one in which deprivation of a favorite pastime leads to longing stares at the foothills and the anticipation of the first sign of Spring. Third, and certainly most important, the GRASS FERN is evergreen! Consequently, in December the GRASS FERN represents a green element in the relatively drab winter landscape with little competition for the visual sense from other herbaceous plants. On Arthur's Rock and Horsetooth Rock near Ft. Collins, the GRASS FERN may be found in shaded crevices of cliffs and larger outcrops, usually on the exposed eastern or northeastern faces. At Grey Rock, in Poudre Canyon, the GRASS FERN occurs in crevices and beneath large boulders. From these observations, I surmise that a combination of relatively abundant moisture, provided by the seepage channels in large rocky outcrops, and protection from midday and afternoon insolation offer hospitable conditions for the establishment and maintenance of GRASS FERN populations.

A friend of mine, more accustomed to recognizing showy and colorful flowers, was introduced to the GRASS FERN on that December day. Two weeks later he returned from a hike in the Vedauwoo or Devil's Playground in the hills between Laramie and Cheyenne and brought me a small specimen of the GRASS FERN. Naturally, he was justifiably proud of his personal discovery elsewhere of this species. My friend's experience also exemplifies that intuitive process by which one can recognize a particular set of environmental parameters and associate that unique combination with a given habitat. At the next opportunity, attempt to "tune in" to the ferns and fern allies of Colorado and their respective habitats. You may be rewarded by discovery of the GRASS FERN and some of its uncommon allies and you may discover that ferns are not as uncommon in Colorado as one might think.

---Editor