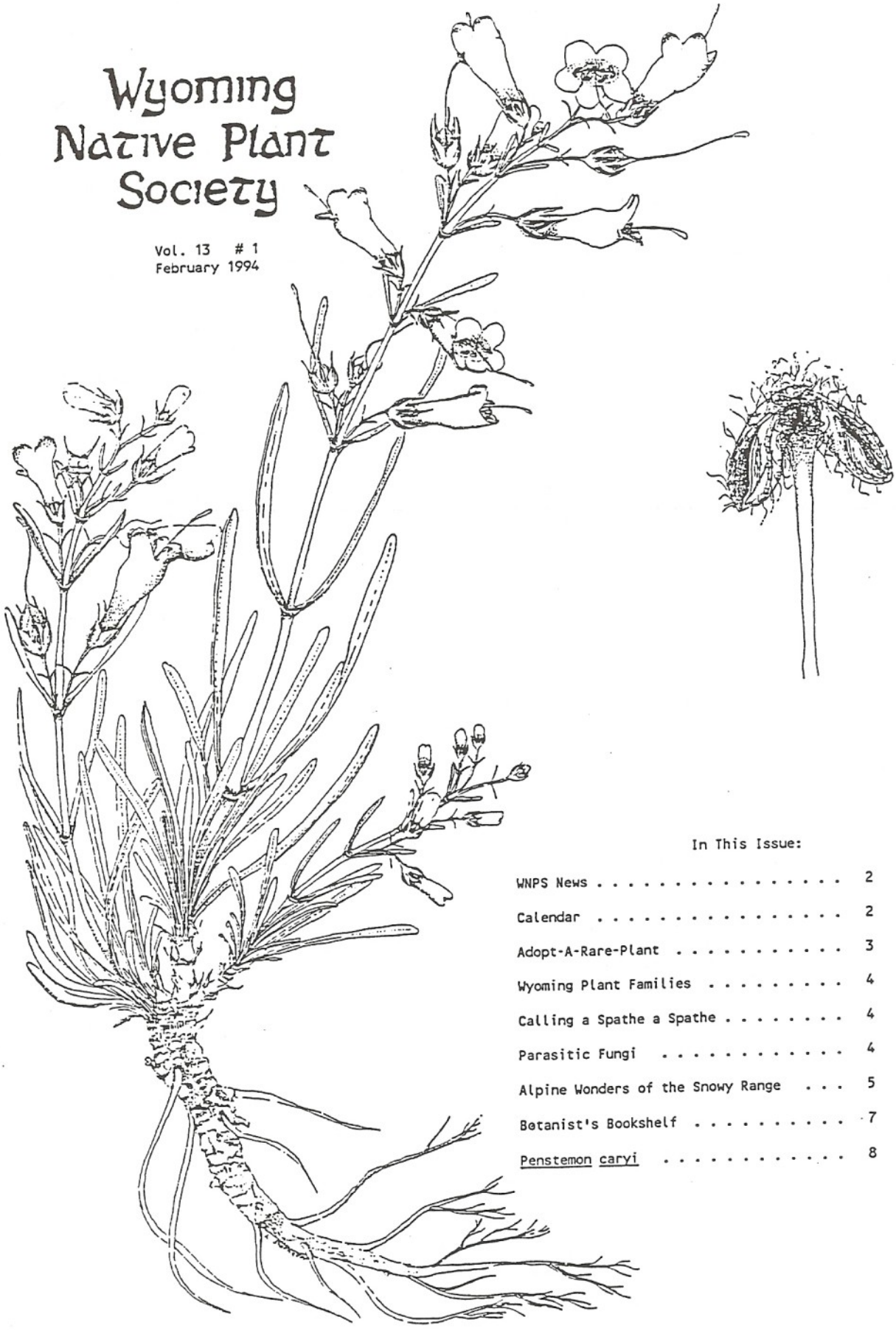
Wyoming Native Plant Society

Vol. 13 # 1
February 1994



In This Issue:

WNPS News 2
Calendar 2
Adopt-A-Rare-Plant 3
Wyoming Plant Families 4
Calling a Spathe a Spathe 4
Parasitic Fungi 4
Alpine Wonders of the Snowy Range . . . 5
Botanist's Bookshelf 7
Penstemon caryi 8

WNPS NEWS

Name Contest: Since its inception in 1981, the Wyoming Native Plant Society has never had an official name for the newsletter. Other plant societies have nifty names like Aquilegia (Colorado), Mentzelia (Nevada), Fremontia (California), or Kelseya (Montana) for their newsletters. Although Oxytropis nana has served as our mascot for the last twelve years, no one has ever suggested the name "locoweed" or "Oxytropis" for our title. The time has come for WNPS to adopt a worthy name for our newsletter.

The WNPS Board is sponsoring a contest to "name the newsletter". If you would like to nominate a native plant, send a brief explanation of your choice to the Secretary by March 15, 1994. The Board will select five nominees and place these on the Spring ballot for members of the Society to choose. The winning entry will be the Society's new mascot and namesake of the newsletter. The winner will receive a one-year free membership and a valuable prize.

Scholarship: The WNPS student research scholarship is available to any junior college, undergraduate, or graduate student studying the native flora of Wyoming. Projects may deal with taxonomy, floristics, ecology, range management, forestry, physiology, mycology, or other botanical disciplines. For 1994, one to three scholarships will be awarded in the amount of $100 to $300 dollars. Applications, including a brief description of the research project and methods, are **due March 15, 1994.** Winners will be announced in the May newsletter.

Elections: Once again, nominations are needed for Society offices. If you have a candidate in mind, or can cajole someone into volunteering to run, please send that person's name to the Secretary before March 15, 1994.

New Members: Please welcome the following new members of WNPS: Nancy Arkin, Moose; Sandy Floyd, Boulder, CO; Carla Galloway, Los Altos, CA; Julian Hadley, Petersham, MA; John Hamann, Butte, MT; Jean Oxley, Laramie; Jim Ozenberger, Jackson; Carlos Palaci, Laramie; Tony Patterson, Northridge, CA; Robin Romberg, Laramie; TNC Tensleep Preserve, Ten Sleep.

Treasurer's Report: Balance as of 28 January 1994: General Fund $438.30, Scholarship Fund $181.00. Total funds: $619.30. WF

* *
Attention WNPS Members: Your articles about Wyoming native plants or illustrations are welcome in the newsletter! Deadline for the May issue is 15 April 1994.
* *

Wyoming Native Plant Society

President: Phil White
Vice President: Barbara Amidon
Secretary/Treasurer: Walt Fertig
Board Members: George Jones
Jennifer Whipple

Contributors to this issue: John Baxter (JB), Robert Dorn (RD), Walter Fertig (WF), Phil White (PW), Linda Shoemaker, Isobel Nichols.

CALENDAR

15 February: Play Native Plant Jeopardy with the Teton County Chapter, 7:30 PM at the Jackson Hole Alliance Building, 40 Simpson St. Call Diane (739-1863) or Katy (733-1078) for more information.

17 February: Dr. Robert Dorn will present a free public slide lecture on the topic "Should Rare Plants be Protected?" Dorn is the author of **Vascular Plants of Wyoming, The Wyoming Landscape 1805-1878, Wyoming Birds** (coauthored with his wife, Jane Dorn) and numerous other books on the flora of Montana, the Black Hills, and pteridophytes. He has extensive experience studying rare species in Wyoming over the last two decades. This lecture will take place at 7 p.m. at the Albany County Public Library in Laramie and is sponsored by the WNPS. PW

15-17 March. Second annual Wyoming Rare Plant Conference. The US Forest Service, BLM, US Fish and Wildlife Service, and WY Natural Diversity Database are sponsoring a three day meeting at the Riverton Holiday Inn to discuss rare plants of the state. A training seminar will be given on how to conduct rare plant inventories, establish monitoring programs, and develop habitat management plans and conservation strategies. Dr. Richard Scott of Central Wyoming College will give a presentation on his ongoing research on alpine plants of the Rocky Mountains. The meeting will also include a forum on the status of Wyoming's approximately 80 federal candidate and designated Sensitive species. This meeting is open to the public and interested WNPS members are encouraged to attend. For additional information on the conference, please contact Walt Fertig c/o WNPS.

Upcoming University of Wyoming Botany Seminars (all seminars are held in the Classroom Building, room 117 at 3:10 PM).

4 February: Diana Tomback, Univ. of Colorado, Denver, will discuss "Ecology of whitebark pine".

11 February: Ned Freedman, Univ. of Georgia, will discuss the "Origin of flowering plants".

18 February: Dan Tinker, Univ. of Wyoming, will discuss "Landscape-scale heterogeneity in lodgepole pine serotiny".

25 February: Dick Scott, Central Wyoming College, will discuss his research on alpine plants of Wyoming.

18 March: Kathy Doyle, Univ. of Wyoming, will discuss "Post-fire succession in northwest Wyoming".

29 April: Jonathan Hughes, Univ. of Wyoming, will discuss "Putative hybridization between two varieties of goldenweed (Oonopsis foliosa).

Upcoming Field Trips: (More details in the May newsletter) **18 June:** Field trip in the Ashenfelder Basin of the northern Laramie Range. **10-12 June:** Montana Native Plant Society annual meeting/field trip in the South Pryor Mountains in southern Montana. WNPS members are invited to participate.

July: Annual WNPS meeting and field trip, Teton National Park. Tentatively scheduled for weekend of July 8-10.

Adopt-A-Rare-Plant

There are approximately 250 rare species and varieties of plants in Wyoming tracked by The Nature Conservancy's Wyoming Natural Diversity Database (WYNDD). Each summer WYNDD botanists conduct active field surveys for an average of 10-25 of these species. For the remainder of the rare species of the state, basic research and monitoring is sorely needed.

WYNDD and the Wyoming Native Plant Society (WNPS) are teaming up to sponsor an adopt-a-rare-plant program for interested WNPS members and supporters. Volunteers are being sought to adopt a species in their local area and gather basic information about it. The information that is needed includes: population size, vigor, habitat characteristics, flowering time, pollinators, or any other facts that could be important in helping to ensure the continued survival of the adopted species. This information will be used to update the records stored by WYNDD.

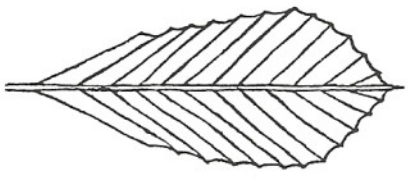
WNPS and WYNDD will provide volunteers with a "starter kit" which will include illustrations, a non-technical biography (with descriptions of the plant and its habitat), location maps of known sites, and simple, easy to use observation sheets.

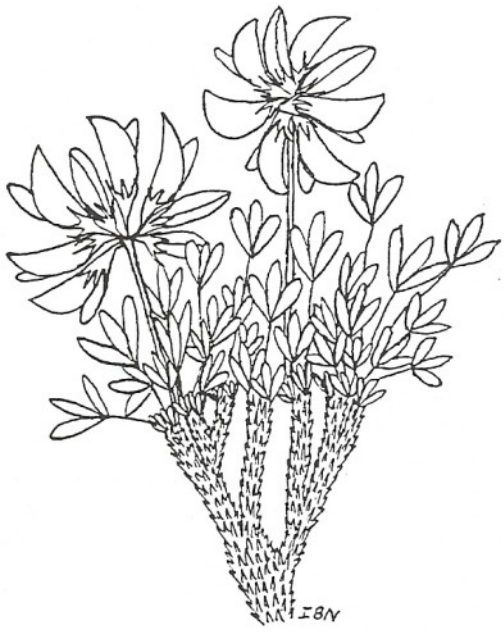
The adopt-a-rare-plant program is intended to provide WNPS members with a hands-on means of contributing to the conservation of a local, rare species. Volunteers do not need to be professional taxonomists to adopt a plant. All it requires is a desire to learn about your adoptee and an enthusiasm for getting outdoors.

No matter where you live or spend your summers, there is a rare plant needing adoption near you. The following is a small, and incomplete, list of potential plants to adopt:

Casper: Many-stemmed spider-flower
Alpine fever-few
Cheyenne: Three-fingered milkvetch
Colorado butterfly plant
Jackson: Brown's peony
Alpine lady-fern
Laramie: Laramie false sagebrush
Rocky Mountain snowlover
Riverton/Lander: Barneby's clover
Desert yellowhead.
Rock Springs/Green River: Green River greenthread
Sheridan: Soft aster
Mountain lousewort

If you are interested in volunteering for the adopt-a-rare-plant program, need help in picking an "adoptee", or would like additional information, please contact Walter Fertig of the WYNDD (745-5026). WF





Barneby's clover (Trifolium barnebyi) is an example of a rare species in need of adoption. This member of the pea family is endemic to Fremont County, where it is found only on reddish-cream outcrops of the Nugget Sandstone. Populations occur on BLM lands and in the Wyoming Nature Conservancy's recently purchased Red Canyon Preserve. The plant is recognized by its sprawling, matted growth form, veiny toothed leaves, and whitish pea-like flowers.

Trifolium barnebyi was recognized as a distinct species by Wyoming botanists Robert Dorn and Bob Lichvar in 1981 (it previously had been considered a variety of T. haydenii, an alpine species of northern Wyoming and southern Montana). Hollis Marriott mapped and censused populations in 1986. Since then, monitoring of these plants has been sporadic. A good re-census is needed to determine population trends and set management goals.

The illustration was provided by Isobel Nichols, an aspiring botanical illustrator from the University of Wyoming. WF

Family 20: Ericaceae, Heath Family

This is the twentieth largest family of flowering plants in Wyoming with 24 species. The family is rather diverse making it difficult to characterize using only a few characteristics. It is sometimes divided into several families. About half of the species are shrubs, over a third have evergreen leaves, many species have urn-shaped corollas (see figure), a few are saprophytes lacking green leaves, the anthers often open by terminal pores, the styles are usually solitary, and the locules are usually 4-10. Some representatives include bearberry (or kinnikinnick), wintergreen, laurel, Labrador tea, heath, pyrola, and blueberry or huckleberry. Eleven of the fourteen genera are represented by only a single species in Wyoming. Our largest genus is Vaccinium (blueberry or huckleberry) with six species. Many of our species tend to grow under dense stands of conifers. A good example is the low huckleberry with red berries that forms dense carpets under lodgepole pine and spruce-fir in the mountains.

This concludes our survey of the twenty largest flowering plant families in Wyoming. These twenty families account for about 75 percent of our species. The remaining 25 percent are represented by 103 families. Twenty-five of these families are represented by a single species in Wyoming. RD

Flower of Pterospora, Pinedrops (x 2)

Illustration at Right: Skunk cabbage (Lysichiton americanus), Wyoming's only native plant with a spathe and spadix. This member of the Arum family is known only from Yellowstone NP and was last observed in 1894. WF

COLLECTIONS OF PARASITIC FUNGI
IN 1992 AND 1993

During 1992 and 1993 conditions in southeastern Wyoming were favorable for the development of parasitic fungi, especially powdery mildews and rust fungi. Collecting during this period yielded the following new records for Wyoming:

Powdery mildews

Erysiphe cichoracearum on Gaillardia aristata, Machaeranthera canescens, Rudbeckia hirta, and Lygodesmia juncea.

Erysiphe polygoni on Hesperis matronalis.

Rust fungi

Puccinia excursionis on Erigeron peregrinus
Puccinia phystostegiae on Physostegia parviflora
Puccinia redfieldiae on Redfieldia flexuosa
Puccinia subnitens on Mentzelia sinuata
Puccinia xanthii on Iva xanthifolia
Uromyces giganteus on Krascheninnikovia lanata (syn. = Ceratoides lanata, Eurotia lanata). JB

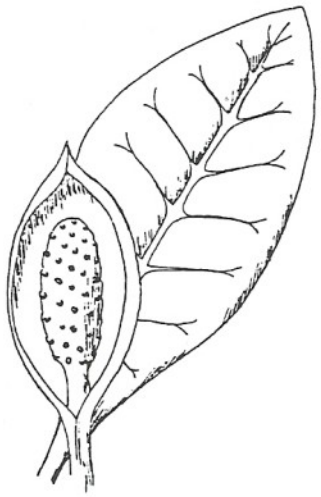
Calling a Spathe a Spathe *

By John "Barney" Baxter

No man could fashion on a lathe
A thing as lovely as a spathe,
A spathe in woodland shadows bathed,
A spathe that shelters all unscathed,
A spadix, slender tender spike
of flowers small and all alike.

Missiles are made by fools with lathes,
But only God can fashion spathes.

* (with apologies to Joyce Kilmer, New Jersey poet who wrote "Trees" and for whom Camp Kilmer, New Jersey was named. Camp Kilmer was the scene of a 1943 beer drinking contest between Private R. McMeen and Private J. Baxter, US Army Air Force).



ALPINE WONDERS OF THE SNOWY RANGE

By Walter Fertig

"Exotic", defined by Webster as "strikingly different or unusual" is a word that is not often used to describe regions of Wyoming, especially to those who live here. Exotic, however, is an appropriate term to describe the alpine areas that crown only the highest peaks of the state's mountain ranges. These wind-blasted realms of snow, rock, ice, and dwarf plants, stand high above the forests and sagebrush grasslands more familiar to the denizens of lower altitudes. The alpine world is not readily accessible to most people, and its natural treasures are thus poorly known and rarely experienced.

One alpine area that is easily accessible is the Snowy Range of southwestern Albany County and adjacent Carbon County, Wyoming. The Snowies are located midway between Laramie and Saratoga along state highway 130. This road is open just during the snow-free months of summer and early fall. (Perhaps "snow-free" is a misnomer; snow may fall at any time of the year in these high mountains.) The highway itself reaches only as high as the upper subalpine zone, a land of Engelmann spruce/subalpine fir forests, rocky meadows, and numerous lakes and ponds. To reach the exotic world above timberline requires a short hike and climb in the direction of Brown's Peak (11,722 ft), Sugarloaf (11,398 ft) or Medicine Bow Peak (12,013 ft).

The Snowy Range is named for its surface layer of sparkling, sugar-white quartzite that gives the peaks a snowy appearance from a distance. These quartzite rocks are conservatively estimated to be 2 billion years old! Of course, the Snowies could just as easily be named for their nearly year-round snowpack resulting from the 150 inches of precipitation that may accumulate during the winter. Large patches of snow typically persist throughout most of the summer in low-lying depressions and lee slopes out of the ever-present wind.

Several different plant communities can be recognized in the Snowies. Large areas of rolling, lawn-like meadows called turfs are a common feature of the alpine zone. Turfs are often dominated by alpine avens (Geum rossii), Rocky Mountain sagewort (Artemisia scopulorum), and a rich variety of sedges, grasses, and showy forbs. This community usually develops in areas where some soil is present and winter snow cover is low. Low-lying areas with deeper snow accumulation foster the development of wet meadow communities occupied by wetland plants such as marsh marigold (Caltha leptosepala), American globeflower (Trollius laxus), plainleaf willow (Salix planifolia var. monica), and various sedges. Wet areas with bare soil below melting snowfields also have their own distinct community, often dominated by crusts of non-vascular plants.

Areas of bare rock also have unusual communities. Talus slopes, boulder fields and crevices in rock outcrops are home to plants such as mountain sorrel (Oxyria digyna), Colorado blue columbine (Aquilegia coerulea) and brittle fern (Cystopteris fragilis). Fellfields, the rocky pavement-like areas on windy ridgecrests, are inhabited by rock-hugging cushion plants. The mat-forming growth form adopted by these species is an adaptation to reduce water loss in this locally dry environment. Common cushion plants of the Snowies include moss campion (Silene acaulis), cushion phlox (Phlox pulvinata), and arctic sandwort (Minuartia [Arenaria] obtusiloba).

Geum rossii. Drawing by Dorothy Leake, from Williams (1993)

Perhaps the most bizarre plant community in the Snowies, however, is the upper timberline. This broad, transition zone between the forested subalpine and the treeless alpine is inhabited by a dwarfed, twisted "krummholz" stand of Engelmann spruce (Picea engelmannii) and subalpine fir (Abies lasiocarpa). These forests in miniature are often restricted to sheltered sites, such as depressions or the lee side of boulders.

The alpine peaks of the Snowy Range are inhabited by a large number of unusual plant species that are rare or absent from other alpine areas of Wyoming. This is largely the result of barriers that have prevented many alpine plants from migrating between the Snowies and the high peaks of mountain ranges elsewhere in the state. To the north, east, and west, the Snowies (or more correctly the Medicine Bow Range, of which the Snowies are a part), are surrounded by grasslands or desert basins unsuitable to high elevation plants. Only to the south, in the Colorado Front Range, does similar alpine habitat occur without intervening barriers. Thus floristically, the Snowy Range shares many more alpine species in common with the mountains of central Colorado and northern New Mexico than it does with similar mountains of Wyoming.

One of the most unusual rare plants of the Snowies is the Rocky Mountain nailwort (Paronychia pulvinata). This cushion plant is found in fellfields and exposed slopes where it blends into other cushion species. It produces solitary, petal-less, greenish-yellow flowers that are

completely immersed among the leaves. Often it appears to have no flowers at all. In Wyoming, this member of the pink family is found only in the Snowies and on the summit of Elk Mountain.

Equally limited in distribution is the Rocky Mountain snowlover (Chionophila jamesii). The name Chionophila is derived from the Greek for "snow beloved" and accurately describes this species' preference for habitats below late-lying snowfields. It fares best on wet, bare soil, otherwise inhabited mostly by nonvascular plants. The greenish-white flowers of Chionophila resemble snapdragons that have been flattened from the top and bottom.

Two of the more common species of Erigeron in the Snowies, blackheaded daisy (E. melanocephalus) and pinnate fleabane (E. pinnatisectus), are otherwise extremely rare outside of the Medicine Bows and Sierra Madre. Blackheaded daisy, characterized by its solitary flower heads and dark purple, woolly involucres, is found on a variety of moist habitats in the lower alpine and subalpine zones. Pinnate fleabane is easily recognized by its pinnately divided leaves and ciliate petioles. It is primarily a species of rock outcrops and ledges, although it may also be found on turfs.

One of the most beautiful and rarest species in the Snowies is the golden saxifrage (Saxifraga serpyllifolia var. chrysantha). This inhabitant of windy fellfields sends up small, golden-yellow flowers on short stalks from a mat of small basal leaves. Until a small population was located in 1993, the golden saxifrage had not been documented in the Snowy Range since 1926.

Two other rare species of the Snowies have avoided being relocated in recent years. American alpine lady fern (Athyrium distentifolium var. americanum) is known from several historical records in the Sugarloaf Mountain area, but has eluded detection since 1934. According to Nelson's "Vascular Plants of the Medicine Bow Range" it is found on rocky talus slopes and along rushing streams. Patterson's sagewort (Artemisia pattersonii) is an even greater mystery. This species was reported for the Snowy Range by Wiens and Richter in a 1966 paper. It is similar to the common Rocky Mountain sagewort (A. scopulorum), but can be distinguished by having fewer flower heads and leaves that are only once-pinnately divided (instead of twice or more in A. scopulorum). Unfortunately, no specific location information is provided by Wiens and Richter, and this regional endemic plant has not been relocated since.

Medicine Bow Peak and the other high summits of the Snowy Range have long been recognized for their rich diversity of arctic-alpine and southern Rocky Mountain regionally endemic alpine species. In 1984, this area was strongly recommended for designation as a special interest area by the Wyoming Natural Areas Needs Workshop. Medicine Bow National Forest in 1985 incorporated this recommendation into its ten-year land and resource management plan. The Medicine Bow Peak Special Botanical Area (SBA) was established to protect the unique botanical features of the summits of Medicine Bow Peak, Lookout Peak, and Sugarloaf Mountain.

Unfortunately, the boundaries of the SBA were never formally established in the 1985 Forest Plan. The perimeter can only be inferred from the supplemental Management Area Map as the site in the vicinity of Medicine Bow Peak managed under prescription 10C. To ensure the long-term protection of the numerous rare species and interesting communities of the SBA, these boundaries need to be maintained (or even expanded) and clearly defined.

Medicine Bow National Forest is currently preparing to update its Forest Plan and is soliciting public comments on issues of concern. WNPS members have an opportunity now to help ensure that this unique and "exotic" area is provided long-term protection.

Erigeron melanocephalus. Drawing by W. Fertig

Artemisia pattersonii. Drawing from Hall and Clements (1923).

BOTANIST'S BOOKSHELF

A Field Guide to the Ecology of Western Forests, by John C. Kricher, ill. by Gordon Morrison. 1993. Houghton-Mifflin, Boston, MA., $16.95, 554 pp., illus.

A Field Guide to the Ecology of Western Forests is the latest title in the Peterson Field Guide series. It represents a departure from the typical field guide format in that its focus is on the interpretation of the natural world, rather than the identification of individual species. Kricher's field guide is unusual in that it covers a range of living creatures, from birds and mammals to flowering plants and trees. The book also differs from other guides in that it is written entirely in prose rather than short snippets of descriptive phrases.

Early chapters of the book discuss general principles of ecology and describe the more typical large mammal and bird species of the west. Later chapters focus on each of the major forest regions of the west, from the boreal forest to the California chaparral, and from the Great Plains to the Rockies. Each chapter includes a description of the area, a discussion of indicator plants and animals, and a brief section on representative areas to visit. Interspersed throughout the book are essays on a variety of subjects, ranging from succession on Mount St. Helens to the diversity of chipmunk species in the Sierras. Far from being esoteric discourses, these essays serve to subtly introduce the reader to lessons in ecology and conservation.

Without reading like a dry textbook, this field guide provides an outstanding, non-technical introduction to the study of plant and animal ecology. It is recommended reading for naturalists who wish to go beyond knowing just the identity of western plants and animals and who wish to learn why the natural world looks and behaves the way it does. WF

A Utah Flora, second edition. Stanley Welsh, N. Duane Atwood, Sherel Goodrich, and Larry Higgins, ed. 1993. Brigham Young Univ. Press, Provo, Utah, $ 65.00, 986 pp.

Originally published in 1987, **A Utah Flora** has been revised to include newly described taxa, new state records, and range extensions that have resulted from the considerable botanical field work that has been done in Utah in the last decade. Nearly 3000 native and 682 introduced taxa are treated in the new book, an increase of 4.7% since 1987. The second edition follows the same general format of the original and includes user-friendly technical keys, full species descriptions, and an excellent glossary. This work is clearly the most complete and current treatment of the flora of Utah and is a valuable reference to botanists in western and southern Wyoming.

There are, however, a few changes that could have been made to make this volume even more useful for the Wyoming audience. Wyoming is omitted from the range-wide distribution given for many species, such as Cymopterus longipes, Lomatium bicolor, Phacelia demissa, P. tetramera, and Parrya nudicaulis (to name just a few). These distributions may not have been known when the first edition appeared, but with the subsequent publication of Dorn's **Vascular Plants of Wyoming** in 1988 and 1992 this information should have been available to the authors. Indeed, Dorn's recent floras are not even cited in the references. In addition, the treatment of the genus Arabis, particularly the oxylobula and holboellii complexes, is confusing and may not be applicable to Wyoming material.

These, however, are minor drawbacks. This book is an important reference for the professional or advanced amateur botanist of Wyoming and Utah. WF

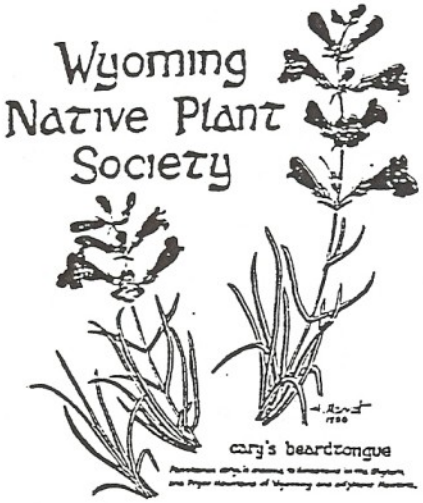
On the Cover:

Cary's beardtongue
(Penstemon caryi)

Cary's beardtongue is endemic to the Bighorn Mountains of Wyoming and the Pryor Mountains of southern Montana. It is restricted to sparsely vegetated, calcareous rock outcrops and rocky soils within sagebrush, juniper, Douglas fir, and limber pine communities. The flowers of this attractive perennial are bluish-purple and glabrous. Beardtongues are named because of their densely hairy fifth stamen, which lacks developed anther sacs and is completely sterile. The four pollen-producing stamens of Penstemon caryi are straw-colored and conspicuously wavy-hairy. This feature of the stamens, combined with the plant's narrow, linear leaves and glabrous inflorescence will distinguish it from similar Penstemons of the Bighorns. Cary's beardtongue blooms from May to June (occasionally into July).

In 1993, Cary's beardtongue was listed as a candidate species for potential protection under the Endangered Species Act by the US Fish and Wildlife Service. Although its range is limited (being found only in Big Horn, Sheridan, and Washakie Counties in Wyoming), this species presently appears to be secure. Additional surveys are needed to determine its abundance, total distribution, and threats. The Nature Conservancy's Tensleep Preserve protects numerous scattered colonies of this plant and is an excellent place to observe this, and several other rare species of the Bighorns.

The cover illustration was drawn by Rock Springs artist Linda Shoemaker, a recent graduate from the Botany Department of the Univ. of Wyoming. WF



Wyoming Native Plant Society
1604 Grand Ave., Suite 2
Laramie, WY 82071

If a "93" is after your name on the address label, this is your last issue. Renewals are $3.00 for regular members and $1.50 for seniors and students.