



Castilleja

The Newsletter
of the Wyoming
Native Plant Society

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Celebrating Wildflowers

by Andy Kratz
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Rocky Mountain Region

Celebrating Wildflowers is an effort first developed by the Forest Service in the Pacific Northwest. It has become a nation-wide program sponsored by the Forest Service, Bureau of Land Management, and National Park Service. *Celebrating Wildflowers* is a season-long festival highlighting wildflower education, interpretation, and restoration activities on the 550 million acres of land managed by these agencies. The goal is to develop partnerships to increase public awareness of our wildflower heritage and to promote the conservation of botanical resources. These partnerships have included a wide range of groups from corporations to private non-profit organizations, and from school children to state government.

During 1994 in Wyoming, the Forest Service sponsored 2 school presentations, 7 wildflower walks, 4 slide shows, 4 wildflower displays, and 3 outdoor programs. 1995 holds great promise for building on this successful program. The Wyoming Native Plant Society can join forces with the Forest Service to co-sponsor some events on the state's nine national forests. Besides getting to know each other better, there is a real advantage to co-sponsoring field trips, slide shows, or other events: publicity!

Celebrating Wildflowers is a program which can bring together many different people and organizations with common interests. We can all work together to promote public appreciation and conservation of the Wyoming flora. For information on how to co-sponsor such an event with the Forest Service, please call Andrew Kratz at (303) 275-5009, or send correspondence to USDA Forest Service, PO Box 25127, Lakewood, CO 80225.

Celebrating Wildflower Events in Wyoming
Medicine Bow National Forest: A field trip to

explore high country wildflowers will be held in the Snowy Range sometime in early July (at press time the final date had not been selected). For more information, please contact Joe Harper, Medicine Bow National Forest (307) 745-2300. A "Walk when the moon is full" is scheduled for May 13 in the Vedauwoo area of the Forest. Wildlife sounds and native plant aromas will be featured in this event to coincide with the "lupine moon". For more information, please contact Ms. Traute Parrie at Medicine Bow NF (307) 745-2431.

Contact your local Forest Service or BLM office to find out about wildflower events in your area this summer.



Above: *Potentilla subjuga*, an alpine cinquefoil species known from the Absaroka and Medicine Bow mountains in Wyoming. This species belongs to a confusing complex of low, usually woolly-pubescent species of cinquefoils primarily found at higher elevations. Ill. by W. Fertig.

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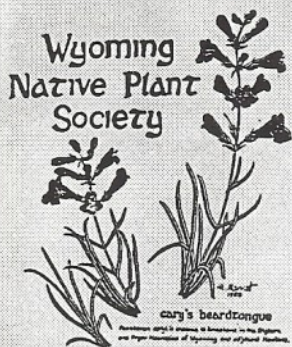
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Contributors to this issue: Arnold Tiehman(AT), John Baxter (JB), Walter Fertig (WT), Andy Kratz, Claire Leon, Peter Lesica, Jill Walford (JW).

Attention WNPS Members:

Your articles about Wyoming native plants or art work are welcome in the newsletter! We are especially looking for articles on native plant lore, cultivation of natives, and interesting places to visit. Information on local activities of interest to members is also appreciated. Deadline for the October issue is 10 September 1995.



WNPS NEWS

Annual Meeting: Due to considerations of weather, the annual meeting has been postponed to Saturday, June 17, 1995. This year's meeting and field trip will take place in the Red Desert country of central Wyoming. Please meet at the 14 mile rest area on highway 187 north of Rock Springs at 9:00 AM. Following a brief (?) business meeting, we will travel on the Tri-Territory road to the Boar's Tusk and Killpecker Sand Dunes (see article in this issue). From the dunes, we will travel to Steamboat Mountain to explore high desert shrub and cushion plant communities. We will finish the day exploring Bush Rim and its unusual cushion plant and shale barren communities and hopefully see the large-fruited bladderpod (*Lesquerella macrocarpa*), one of the state's many rare endemics. Camping for Saturday night is available almost anywhere in the basin (it's almost all public land). Some nice spots can be found among the aspens on Steamboat Mountain or near Chicken Springs on the east end of Bush Rim.

For those who are interested, a shorter trip is planned for Sunday, June 18 in the badlands surrounding Oregon Buttes and Continental Peak. The latter is a Wilderness Study Area with an unusual flora and odd geological features. This route will take us to Highway 20 (between Farson and South Pass City) in the vicinity of historic South Pass (see map of itinerary on page 3).

We hope to have Dennis Knight, author of *Mountains and Plains* (reviewed in this issue) and Bob Dorn along as expert guides on the flora and ecology of the Red Desert.

For those who will be arriving Friday night, lodging is available in Rock Springs and free camping is available on BLM lands. A pre-field trip camp-out is planned on BLM land on the rim of White Mountain, about 2 miles south of the 14 mile rest area. To reach this site, take county road 14 (located just south of the rest area turn-off on the opposite side of the road) and proceed west for 3 miles to the junction with county road 53 (the White Mountain Rd). Turn left and continue for about 3.5 miles.

NOTE: Please be certain to bring plenty of water, food, and other necessities and have a full tank of gas. There are no services available in the desert. Also the roads we will be on are improved dirt roads that are fully passable unless very wet. Our itinerary may be subject to change if the weather is not cooperative.

Shirley Mountain Field Trip: A field trip to the Shirley Mountains of northern Carbon County is scheduled for Saturday, July 15, 1995. The Shirley Mountains are an isolated uplift of forested, calcareous rock surrounded by dry basins. The flora is relatively poorly known, but contains one of our rarest species, the Laramie false sagebrush (*Sphaeromeria simplex*). Please meet at the BLM campground at the northeast end of the mountain at 9:00 AM. From the campground, we plan a motor loop over the mountain and down through the adjacent Shirley Basin to explore vegetation of selenium beds (a trip of about 25 miles on dirt and gravel roads - weather permitting!). To reach the campground, take state highway 77 (a paved loop road off of highway 487 between Casper and Medicine Bow). Proceed to county road 102 (the road leading to the tiny town of Leo and Kortess Dam). Continue on County Road 102 for 8.5-9 miles to the campground (following BLM signposts). As always, be sure to have adequate supplies and gas.

Membership Renewal/Elections: Renewal notices and ballots were enclosed with the last issue of *Castilleja*. Members with a "96" on the mailing label are paid through June, 1996. For others, renewals are due by the annual meeting to remain in good standing. Ballots will not be accepted past the date of the annual meeting.

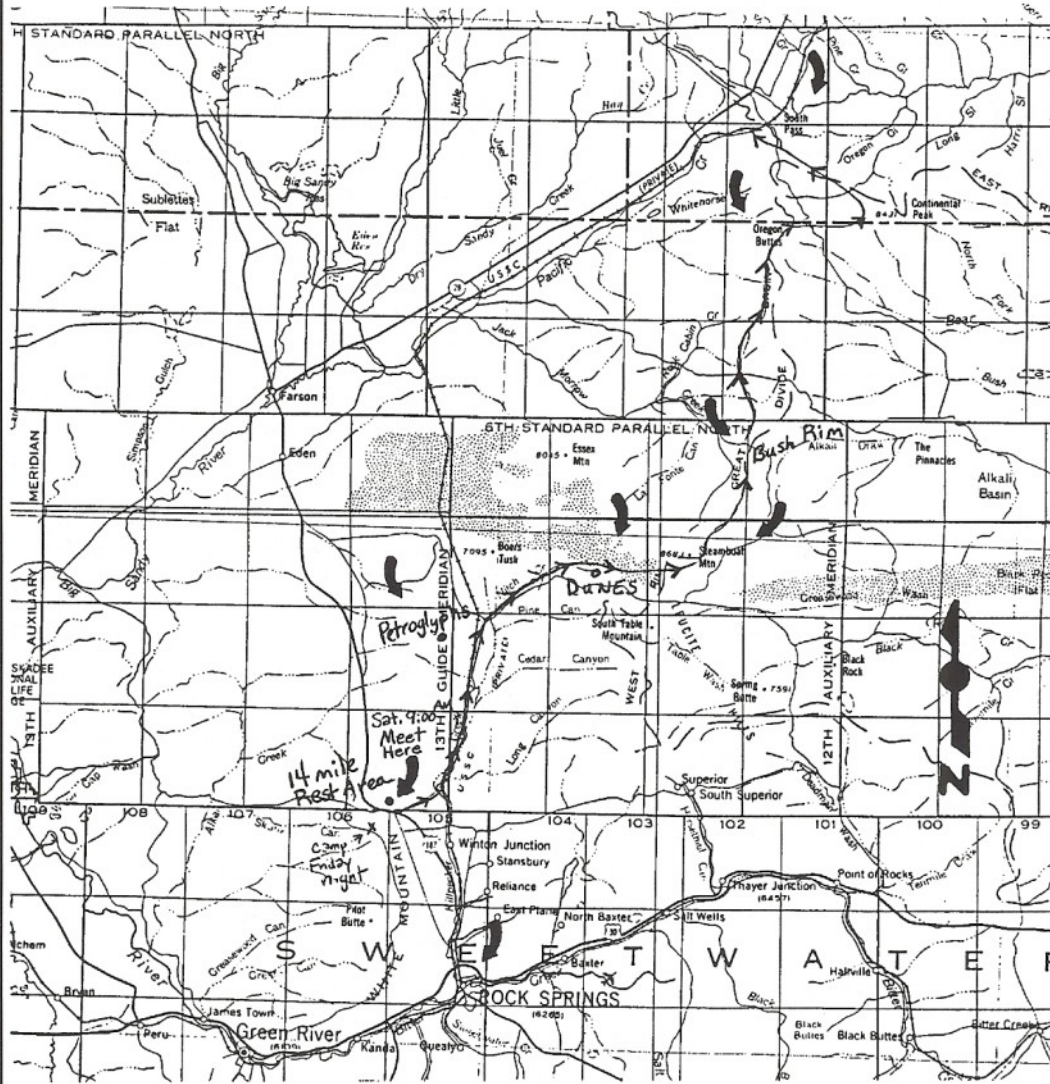
Appreciation: The Board would like to thank all WNPS members who generously donated to the annual scholarship fund. Thanks to your generosity, the fund has increased from \$1 on March 25 to \$261.00 (and growing). This will allow the society to continue its tradition of awarding grants to promising college botany students for their field research.

New Members: Please welcome the following new members of WNPS: Shelley James (Laramie & Nedlands, Western Australia), Ron Kass (Springville, UT), Carol Scheid (Laporte, CO), Sally Witzel (Sheridan).

We're looking for new members: Do you know someone who would be interested in joining WNPS? Send their name or encourage them to contact the Society for a complimentary newsletter.

Treasurer's Report: Balance as of 30 April, 1995: General Fund \$698.00; 1995-96 Scholarship Fund \$ 261.00. Total Funds: \$959.00. WF

Map & Itinerary for the 1995 WNPS Meeting/Field Trip in the Red Desert



Meet at the 14 mile Rest Area on highway 187
north of Rock Springs at 9:00 A.M. on
Saturday, June 17.

NOTE:
The date has been changed from June 3 (as
reported in the March issue) to June 17!!!



The Identification of Grasses

*(reprinted from Kelsey, the newsletter
of the Montana Native Plant Society)*

Here's a timely poem for the blooming (and keying) season. I don't know who wrote it, it was passed on to me several years ago and is best read after several hours laboring over a dissecting scope with an unidentified member of the Poaceae.

- Peter Lesica

A grass can be "glumey" in more ways than one

When its classification remains to be done:
You pull off the parts, and soon feel your age
Chasing them over the microscope stage!

You peer through the lenses at all of the bracts
And hope your decisions agree with the facts;
While your oculist chortles with avid delight
As you strain both your eyes in the dim table light.

You are left on the horns of quite a dilemma
When you count the nerves on the back of the lemma
Then you really get snoopy and turn each one turtle
To see if the flower is sterile or fertile

And then the compression - no problem is meaner-
Is it flat like your wallet or round like a wiener?
"How simple" you think, "for a mind that is keen."
But what do you do when it's halfway between?

You probe and you guess how the florets will shatter,
For you know later on it's certain to matter.
You long for the calmness of labor that's manual
When the question arises: "Perennial or annual?"

And that terrible texture, the meanest of all,
Is one of the pitfalls in which you may fall:
"Cartilaginous" maybe - or is it "chartaceous" -
Has even the experts exclaiming "Good gracious!"

Then you wail as you wade through the long tribal key
"Oh, why must this awful thing happen to me?"
"Grasses are easy," our teacher declares
As he mops off a brow that is crowned with grey hairs!

Editor's Note: Stuart Markow informs me that this poem was originally published by H. D. Harrington.

Native Plants and Roadside Revegetation in Wyoming

By Claire Leon

At the annual meeting of the Wyoming Native Plant Society last July, a committee was formed to find out what criteria are used in the planting of wildflowers along state highways.

Concern had been expressed about the use of non-native species in the annual mix. Conversations with officials of the Department of Transportation revealed that these mixes are used if the seed has been financed by people in the local area, and if there is a local seed source available. The Department feels that under these circumstances seed is needed which will provide a good show the first year, so the local people who have contributed to the project can see some immediate results. These annuals are not expected to reproduce themselves, but are rather a "one-shot" thing used until the perennials in the mix take over.

The following are some criteria used to determine the mixes used in the Roadside Revegetation Project:

1. The species must be adapted to the climate.
2. Availability of seed.
3. Whether the mix will readily establish itself to the site.
4. Whether it will attract wildlife.
5. Whether it will be aggressive in spreading to private land.
6. The need to be cognizant of how the aspect of the site has been changed.
7. Wherever possible, native seed will be utilized.
8. Grass seed is also utilized for initial colonization.

If you have questions concerning the Roadside Revegetation Project in Wyoming, you may contact John Samson, the agronomist in charge of Highway planning with the Wyoming Department of Transportation.

We look forward to hearing your comments at the Annual Meeting this summer.



Wyoming's Surprising Killpecker Dunes

By Walter Fertig

When people think of Wyoming landscapes they typically conjure up visions of mountain peaks, conifer and aspen forests, rolling plains, or sagebrush grasslands. But sand dunes? Yet surprisingly, Wyoming has one of the largest shifting sand dunes in North America, covering an area of nearly 170 square miles north of Rock Springs and Interstate 80. These dunes, called the Killpecker Dunes, can rise to heights of 150 feet and even cross the Continental Divide.

The sands comprising the Killpecker dunes originated from the Big Sandy and Little Sandy creeks in the southwestern Wind River Range. Winds from the west funneled the sand grains through the narrow gap of the volcanic Leucite Hills and on across the Red Desert Basin. Dunes continue onward across the Continental Divide as far as the Ferris and Seminoe Mountains. Finer particles of silt and clay were probably dispersed even further.

Shifting sand dunes present many challenges to plants. High winds can literally sand blast delicate leaf and stem tissues or desiccate plants through transpiration of precious moisture. Moving sand can also quickly bury and suffocate plants. In addition, sand is a relatively infertile substrate, offering little in the way of nutrients for plant growth.

Nevertheless, many plant species have become adapted to exploit the dune environment. Once established, these species can modify their habitat in such a way that additional species may be able to move in. Over time, a restless sand dune can be tamed by plants into a stabilized dune.

The first species to colonize a moving sand dune typically have long rhizomes that can grow up or down to maintain leaves and stems above the shifting surface of sand. These species often also produce numerous shoots to reduce the likelihood of complete burial of the plant. Many pioneers harbor nitrogen-fixing symbionts which gradually improve the nutrient-deficient soils. Common early successional plants in the Killpecker Dunes include Indian ricegrass (*Oryzopsis hymenoides*), needle-and-thread (*Stipa comata*), western wheatgrass (*Elymus [Agropyron] smithii*), alkali cordgrass (*Spartina gracilis*), rusty lupine (*Lupinus pusillus*), and scurfpea (*Psoralidium tenuiflorum*).

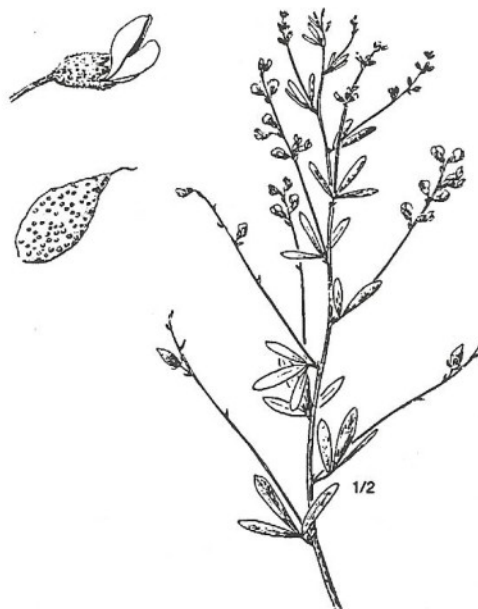
As the cover of pioneer species increases, subtle changes begin to occur in the dune environment. Continued plant growth results in the addition of organic matter to the soil. Plant roots bind the sandy soil in place. Denser plant growth also reduces wind speed, resulting in less sand movement. As dunes

become stabilized, new species such as bitterbrush (*Purshia tridentata*), big sagebrush (*Artemisia tridentata*), silver sagebrush (*A. cana*), and rabbitbrush (*Chrysothamnus spp.*) may become established, changing the character of the plant community.

The processes that lead to the creation of a stabilized dune can also be reversed through periodic disturbances, including drought, fire, heavy grazing, and trampling. Disturbed dunes become subjected to a new cycle of winderosion which may remove plant cover and result in a new, shifting dune.

Despite their dry appearance, the Killpecker Dunes are surprisingly moist and are dotted by numerous shallow ponds. Although precipitation is relatively low in the area, the coarse texture of the sand traps and retains moisture from rain and snow. Snow patches can be buried by sand drifts and persist well into the summer to provide a valuable source of water. Ponds in low areas of the dunes support a rich assortment of wildlife, including waterfowl, wild horses, deer, and one of the few desert elk herds in North America.

The Killpecker sand dunes are just one of the many "surprises" awaiting the naturalist in the desert country of central and southern Wyoming. Although not as well known as the state's other wild areas, this region contains treasures that are just as valuable and interesting.



Above: Scurfpea (*Psoralidium tenuiflorum*), a common dune species in the Killpecker Dunes. This member of the pea family can be recognized by its 3-5 leaflets with glandular spots and single-seeded, glandular fruits. Like many dune colonizers, it forms extensive rhizomes. Ill. by Jeanne R. Janish from "Flora of the Pacific Northwest".



Botany Briefs

Botanical News from Wyoming
and the Rocky Mountain Region

Teton Science School Summer Botany Courses: The Teton Science School, located in Grand Teton National Park in Kelly, Wyoming is offering a number of botany courses through its Natural History Seminar Program. The following seminars are being offered in 1995:

The Wonder of Wildflowers. Enjoy and identify the colorful wildflowers that blanket Jackson Hole during June. Instructor: Kristi Dahl. Date: June 12. Fee: \$50.

Field Botany: Flora of the Tetons. Hands-on experience in the field analyzing floral structure, using keys to species, and learning to recognize plant species found in the Tetons. Instructor: Leila Shultz. Date: June 12-15. Fee: \$207.

Edible and Medicinal Plants of the Tetons. Identify the diverse flora of the Tetons and discover the edible and medicinal uses of these plants. Learn to make teas, tinctures, and other herbal preparations. Instructor: Clarissa Smith. Date: August 22-25. Fee: \$360.

The Nature of Jackson Hole Wildflower Walk. Spend a day enjoying and learning about the wildflowers of the valley. Instructor: Bill Edwards. Dates: June 21 & July 26. Fee: \$50.

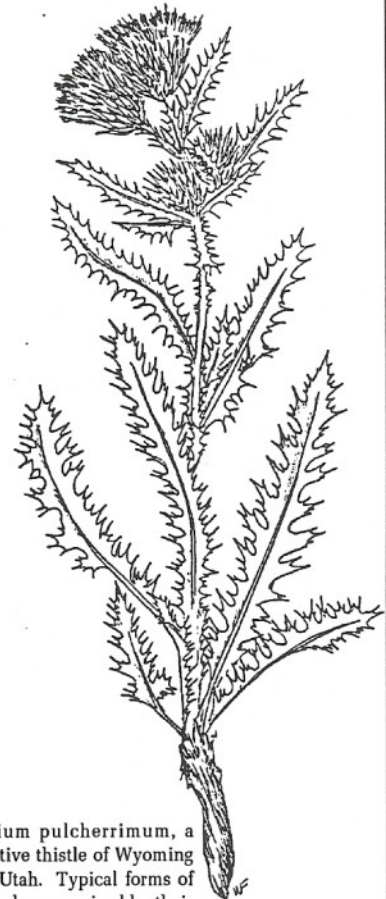
Wildflower Photography. The emphasis of this field course will be on close-up techniques, composition, and lighting in wildflower photography. Instructor: Bruce Thompson. Date: June 10-12. Fee: \$150.

For more information on these or other courses, or to register, please contact: Teton Science School, PO Box 68, Kelly, WY, 83011. Phone: (307) 733-4765.

New Native Plant Publication: The National Wildflower Research Center has compiled state and regional lists of recommended native plants and seeds and native plant bibliographies to assist home gardeners interested in using native species. "Introductory packets" containing the above items are available for \$4.00. To order, contact: National Wildflower Research Center, 4801 LaCrosse Ave., Austin, TX 78739 (512-292-4200).

Still More New Plant Species for Wyoming: Barneby's thistle (*Cirsium barnebyi*) is a recently

described species reported for Carbon County, Wyoming in volume 5 of the Intermountain Flora (published in 1994). This species is known only from the Uinta Basin and adjacent areas of Colorado and Wyoming. It occurs on open shaley slopes of pinyon pine and Utah juniper. *C. barnebyi* can be distinguished by its woolly tomentose leaves and long-tipped involucre bracts. It is most likely to be confused with *C. aridum*, *C. pulcherrimum*, and *C. subniveum*, a confusing complex of woolly pubescent thistles mostly restricted to Wyoming and Utah. WF



Above: *Cirsium pulcherrimum*, a widespread native thistle of Wyoming and northeast Utah. Typical forms of this species can be recognized by their glabrous, bright green, upper leaf surfaces. In central Wyoming, specimens may have white-woolly upper leaves that resemble *C. aridum*. The two can be distinguished by differences in fruit and inflorescence morphology and by their different size. Ill. by W. Fertig.



Botanist's Bookshelf

Mountains and Plains, the Ecology of Wyoming Landscapes by Dennis H. Knight. 1994. Yale University Press, New Haven, CT. 338 pp.

Whether your plans for the upcoming summer days include travels throughout the state or outings to your favorite local spot, a book well worth reading beforehand is *Mountains and Plains, the Ecology of Wyoming Landscapes* by Dr. Dennis Knight. Even if you are not able to get out much, this book will allow you to take a vicarious tour of the state from the eastern grasslands where the antelope abound, through the rough desert country of the intermountain basins, beyond the sagebrush steppe into the foothills of mountain mahogany shrublands, on to mountain forests of spruce-fir and rugged peaks.

Of course none of these landscapes are nearly that simple and each is dealt with quite thoroughly in *Mountains and Plains*. Dennis Knight is head of the University of Wyoming Botany Department and has taught courses and directed graduate students specializing in forest ecology for over 20 years. He has spent nearly 30 years living in Wyoming, exploring and researching the connections between vegetation and the environment. Using the insight he has gained over the years, coupled with an extensive review of other research (resulting in 42 pages of reference citations), Knight is able to describe each general landscape in terms of the many specific plant communities found there and the characteristics of the environment which they inhabit. Included are discussions of the interactions between animals and microorganisms with the plants and soil. A good deal of geological and climate information is offered; both are necessary components to understanding our present Wyoming environment. Many detailed ecological processes and concepts, such as nitrogen loss through leaching, disturbance, and succession, are presented with specific Wyoming examples.

Mountains and Plains is well organized and loaded with photos, graphs, maps, tables, flow charts, and drawings to help the reader visualize the points made in the text. Following the introduction, the second chapter gives an overview of the history of the Wyoming landscape, from how the land masses have drifted over geologic time to what forces were acting on the area we now know as Wyoming. The next chapter focusses on the modern environment and discusses the effects of topography, climate, soils, and disturbance regimes. These three chapters set the foundation for delving into the specifics of Wyoming's environments.

The following chapters detail Wyoming's riparian landscapes, plains and intermountain basins, foothills, and mountains. Knight also devotes three chapters to profiles of "special interest landscapes": the Yellowstone plateau, Jackson Hole and the Tetons, and the Black Hills area. A final chapter "Using Wyoming Landscapes" discusses sustainable land management.

Knight is careful throughout his book not to take sides on environmental issues, choosing instead to present a wealth of ecological information. As he points out "... ecology is a science dedicated to the

understanding of interactions between plants, animals (including humans), microorganisms, and their environment ... not to be judged as good or bad." Rather than give value judgements, Knight prefers to use data to explain the ecological results of the many land use actions we may take.

Appendices and notes at the back of the book provide supplemental information and give the latin names of the plant and animal species cited in the text. At times I was wishing that the end notes were contained within the chapter to save from thumbing through the back of the book. Likewise, the use of common plant names in the text can be confusing for readers more familiar with latin names. In addition, a handful of common plant names are not given scientific names in the appendix and at least one species (*Juniperus communis*) is called by two different common names in the text. The book concludes with an outstanding reference section, which unfortunately is missing a few citations given in the text.

These are minor flaws in an otherwise outstanding reference. If a person could have only one book on the ecology of Wyoming (or on ecological principles in general), this would be the book to have. JW & WF

A Wildflower By Any Other Name: sketches of pioneer naturalists who named our western plants by Karen B. Nilsson. Yosemite Association, Yosemite National Park, CA. 152 pp., \$14.95.

This book provides a nice introduction to 43 botanists whose names are indelibly attached to western North American plants. The list varies from Europeans like Joseph Dalton Hooker (*Arctostaphylos hookeri*) to famous explorers like Meriwether Lewis and William Clark (*Lewisia* and *Clarkia*) and John Charles Fremont (*Fremontodendron californicum*) to contemporary naturalist Carl Sharsmith (*Draba sharsmithii*) and amateur botanist Mary DeDecker (*Dedeckera eurekensis*). In between are such notables as David Douglas (Douglas-fir), Nathaniel Wyeth (*Wyethia*), Asa Gray (*Grayia*) and Edward Palmer (*Penstemon palmeri*).

The subtitle reads "sketches of pioneer naturalists who named our western plants". I find this inaccurate as it is really sketches of pioneer naturalists for whom our western plants have been named. The sketches are just that, sketchy, and I find it unfortunate that there is no bibliography and no literature cited. To further pursue one of the "pioneer naturalists" you would have to look elsewhere for a starting point. All 43 people are illustrated as well as one of the plants named for them.

I would have liked to have seen dates on the photographs and an index would be most useful. The label on the picture on page 114 of Marcus Jones and family has one name omitted from it and should read Marcus, Mabel, Mildred, Anna, and Howard. Nonetheless, I found this to be a very worthy and readable book and would highly recommend it for anyone wanting to know who that plant was named for. AT

(excerpted from the Newsletter of the Northern Nevada Native Plant Society, May 1995).

The Wyoming Native Plant Society, established in 1981, is a non-profit organization dedicated to encouraging the appreciation and conservation of the native flora and plant communities of Wyoming. The Society promotes education and research on native plants of the state through its newsletter, field trips, and annual student scholarship award. Membership is open to individuals, families or organizations with and interest in Wyoming's flora. Members receive *Castilleja*, the Society's quarterly publication, and may take part in all of the Society's programs and projects, including the annual meeting/field trip held each summer. Dues are \$5 annually.

To join the Wyoming Native Plant Society, return the membership form below to:

Wyoming Native Plant Society
 1604 Grand Avenue
 Laramie, WY 82070

Name: _____

Address: _____

- \$5.00 Regular membership
- \$15.00 Scholarship Supporting Member
(\$10.00 goes to annual scholarship fund)

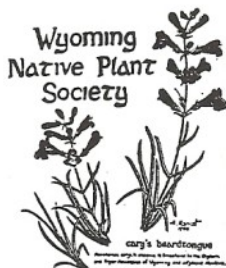
The Botany 130 Songbook

By John "Barney" Baxter

It's not generally known that the famous Swedish botanist Linnaeus had an interesting hobby - writing popular songs. The following is a song that he wrote after returning from a collecting trip to Lapland:

*I'd like to land in Lapland
 with a Lapp like you,
 Oh lovely Lapp, land on my lap
 and say you love me too,
 We'll roam the Arctic tundra;
 we'll dig bulbs and corms
 And I will shelter you
 from all those thunderstorms.*

Later this song was a big hit for an English group called the Conversing Craniums - the 18th Century equivalent of the "Talking Heads."



WYOMING NATIVE
 PLANT SOCIETY
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