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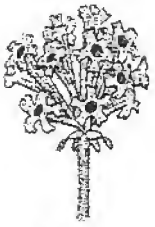
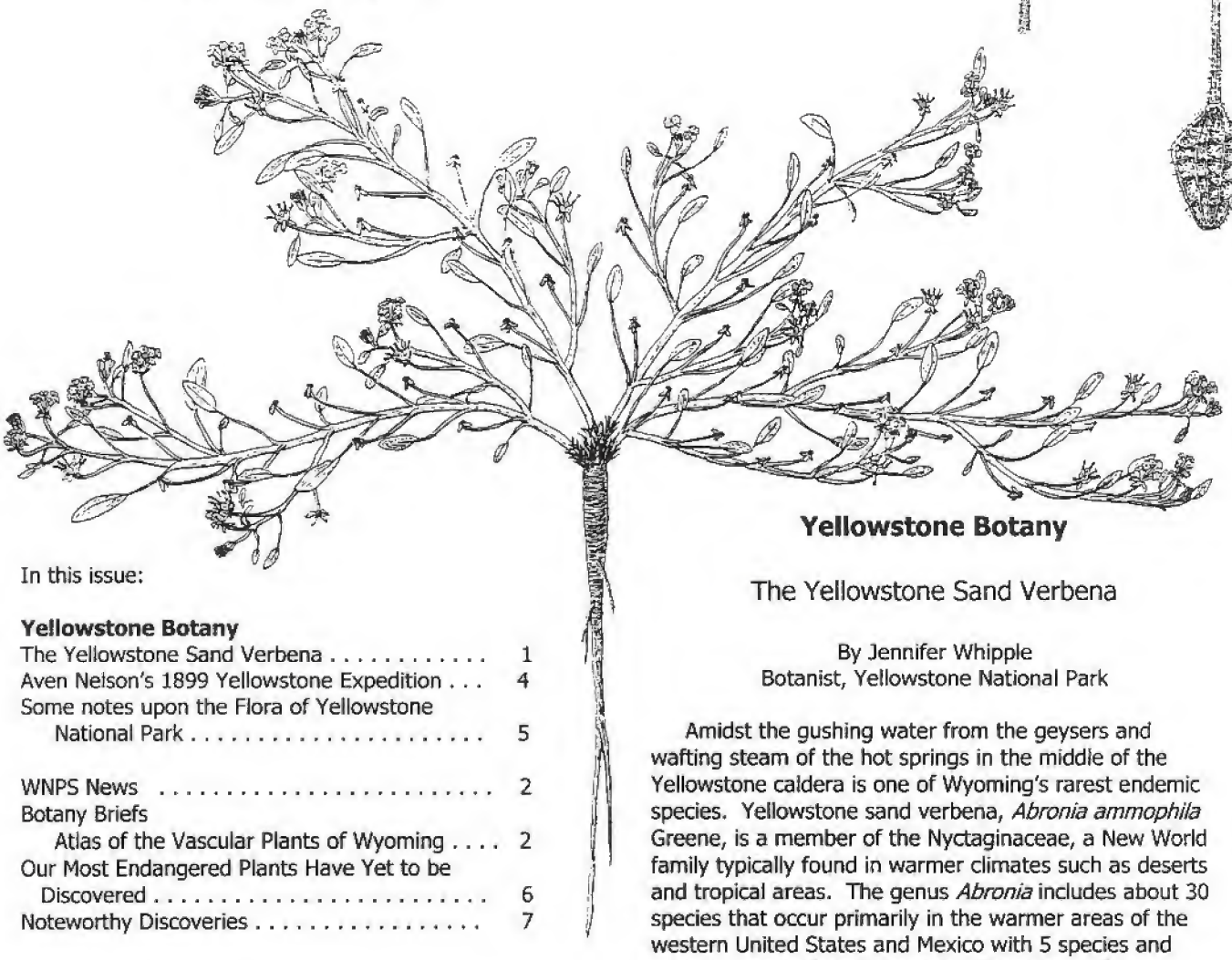
The Newsletter of the Wyoming Native Plant Society

December 1999
Volume 18, No. 4





In this issue:

Above: Yellowstone sand verbena (*Abronia ammophila*) is one of Wyoming's 28 endemic plant species (see articles on page 1 & 6). Illustration by Robin Jones from *Wyoming Rare Plant Field Guide.*

Yellowstone Botany

The Yellowstone Sand Verbena

By Jennifer Whipple
Botanist, Yellowstone National Park

Amidst the gushing water from the geysers and wafting steam of the hot springs in the middle of the Yellowstone caldera is one of Wyoming's rarest endemic species. Yellowstone sand verbena, *Abronia ammophila* Greene, is a member of the Nyctaginaceae, a New World family typically found in warmer climates such as deserts and tropical areas. The genus *Abronia* includes about 30 species that occur primarily in the warmer areas of the western United States and Mexico with 5 species and varieties known from Wyoming. The shores of Yellowstone Lake where the sand verbena lives are a harsh uninviting environment during much of the year, but the volcanic heat that reaches the surface along portions of the lakeshore may have contributed to the survival of these plants and their evolution into a unique species. [continued on page 3]

WNPS NEWS

WNPS Student Scholarship: Thanks to generous contributions by WNPS members, the society's annual student scholarship is available once again for qualified junior college or university undergraduate or graduate students. One to three scholarships will be awarded in the amount of $300-500. Interested students should contact the Secretary of the Society for an application form. Applications are due by 18 February 2000. Winners will be announced by the Board in March.

New Mailing Address: Please note that the Society has changed its mailing address to PO Box 3452, Laramie WY, 82071.

New Members: Please welcome the following new members of WNPS: Louise Englestad (Rapid City, SD), Cynthia Guild (Jackson), Don Hazlett (Pierce, CO), Carol and Jim Hecker (Cheyenne), Christopher Hiemstra (Laramie), Beverly Hiza (Story), Catherine Jean (Clancy, MT), Elizabeth Lack (Cheyenne), Ronald Weedon (Chadron, NE), and Carl Wichern (Loveland, CO).

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.

Attention Readers: We are always looking for articles and illustrations for the newsletter. Items for the March issue are needed by 5 March 2000.

Treasurer's Report: Balance as of 22 December 1999: General Fund $683.03; 1999-2000 Student Scholarship Fund $860.00; Total funds: $1,543.03.

Wyoming Native Plant Society
PO Box 3452, Laramie, WY 82071

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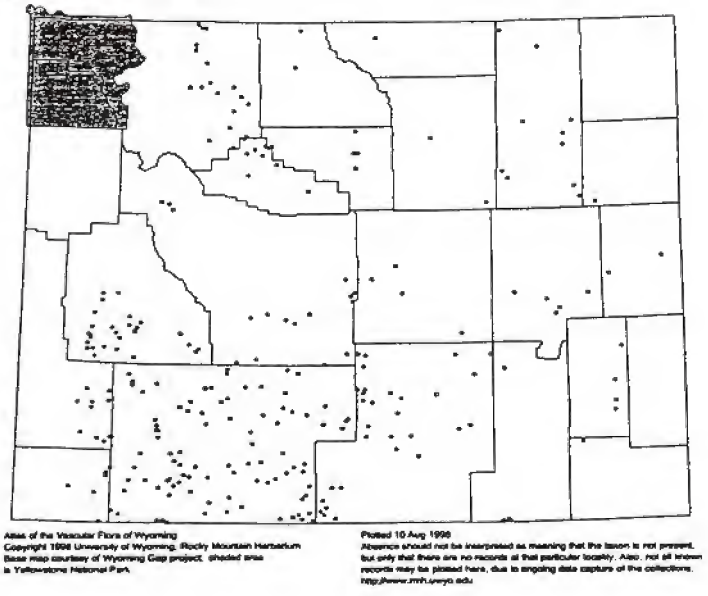
Contributors to this issue: Jane Dorn, Robert Dorn, Walter Fertig, Ronald L. Hartman (RLH), Robin Jones, Aven Nelson, B, Ernie Nelson, Jennifer Whipple.

Botany Briefs

Atlas of the Vascular Plants of Wyoming: High resolution dot maps for the distribution of more than 2,800 taxa are available on-line. They are served as .pdf files which can be read with Adobe Acrobat Reader, available on the web page. High quality copies can be produced with a laserjet printer. The atlas is based on label data from nearly 200,000 herbarium specimens (ca 9,000 localities) housed at the Rocky Mountain Herbarium (RM). It was created using ArcView. Eighty percent of the collections are from fieldwork conducted in the past 20 years; we are now capturing information from older specimens (ca 80,000). Periodic updates are planned and eventually the records will be linked to the dots and the database will go online. Questions concerning specific records may be sent to rhartman@uwyo.edu. One goal of this project is to make distributional data available to authors of the Flora of North America. Currently the atlas is being served from the University of Texas at Austin by Tim Chumley, a doctoral student of Robert K. Jansen. The atlas may be cited as: T.W. Chumley, B.E. Nelson, and R.L. Hartman, 1998. Atlas of the Vascular Plants of Wyoming (http://www.rmh,uwyo.edu) [1999, Sept. 16], University of Wyoming, Laramie. RLH & BEN.

Below: Sample map from the RM Atlas of Vascular Plants of Wyoming.

Haplopappus armerioides



Yellowstone Botany

The Yellowstone Sand Verbena [continued from page 1]

Frank Tweedy made the first collection of sand verbena from Yellowstone in 1885. Subsequently, Per Axel Rydberg looked at Tweedy's specimens and decided that the material from Yellowstone was sufficiently different to justify recognition as a unique species. Meanwhile, Aven Nelson had also collected the sand verbena and realized that it was different. Within the period of a couple of years, four different scientific names were published for the plants from Yellowstone that are now known as *Abronia ammophila.*

Yellowstone sand verbena, as the name suggests, occurs exclusively on sandy lakeshore deposits. It grows as a sand-hugging mat that is usually 1 to 4 inches tall and can be up to three feet wide. Even though a 1975 monograph on sand verbenas describes these plants as annuals, in reality the sand verbena is a perennial with a thick taproot that can be at least a couple of feet long. The white flowers are in head-like arrangements of up to 20 separate flowers subtended by membranous bracts. Sticky glands are present absolutely everywhere on the plants except on parts of the corolla, causing the plants to be covered in sand. Anything else that blows by tends to stick to the plants too, such as bird feathers and seeds.

The clusters of white flowers are present by the middle of June and the plants continue blooming into September until a killing frost occurs. This extended blooming period is unusual for Yellowstone; most plants bloom for a short time during the summer. The advantages of this sustained bloom are unknown, although one reason could be the sporadic presence of pollinators such as moths. A prolonged blooming period would maximize the chance that at least some of the blossoms will be pollinated.

During the summer of 1998, extensive field work was made possible by the Canon Corporation U. S. A. through an "Expedition into the Parks" grant administered by the National Park Foundation and by a Native Plant Conservation Initiative grant administered by the National Fish and Wildlife Foundation. The entire shoreline of Yellowstone Lake was searched on foot or by boat for the sand verbena. Also, all of the other large lakes in the park with extensive sandy areas and additional likely locations in the backcountry were searched. The sand verbena was found at only four sites around Yellowstone Lake. Prior to these searches, the only location known was the original type locality on the north shore of the lake.

Abronia ammophila is found as high as approximately 10 meters elevation above the high water line and as far inland as roughly 60 meters, although it mostly occurs within 40 meters of the shoreline. The species generally occurs above the high water mark, but some of the plants were found on and below a sand slope cut by the unusually high water of 1997. No plants occur in any location that appears to be inundated regularly.

Yellowstone sand verbena appears to favor open, sunny sites with widely spaced vegetation. Common associates include *Phacelia hastata, Rumex venosus, Polemonium pulcherrimum,* and *Lupinus argenteus.* Other species that often occur in the vicinity include *Haplopappus macronena* var. *linearis, Aster integrifolius, Chaenactis douglasii* and *Polygonum douglasii.*

The restriction of the sand verbena to relatively open vegetation suggests that this species does not compete well in areas that are more highly vegetated. This tendency is obvious when one examines the distribution of plants around the lakeshore. Typically, the plants occur in a relatively constrained zone between the area impacted by wave action and the densely vegetated area inland. Some natural disturbance may be necessary to prevent the establishment of dense vegetation that would then preclude sand verbena. Perhaps high lake level events such as occurred in 1996 and 1997 may be important due to the increase in erosion opening habitat. In the last few thousand years, Yellowstone Lake as undergone major changes in lake levels. Obviously, the sand verbena must be capable of moving with the changing water level.

To monitor any changes that might impact populations of sand verbena, all of the plants were counted using a permanent grid-system in 1998. One difficulty with the census was the impossibility of telling exactly how many plants were in large mats without disturbing the roots. Therefore, the population count is a minimum. A total of 8325 sand verbenas were found among all the sites with almost 96% of the plants at one site. Many of the plants were seedlings or young plants so there has been significant recruitment during the last few years.

The historical distribution of *Abronia ammophila* is uncertain but clearly the species was more widely distributed in the past along the shoreline of Yellowstone Lake. Plants were present in the vicinity of the Fishing Bridge Museum at one time according to locations noted on old herbarium specimens. Apparently, these plants, like some of the other species of sand verbena, are vulnerable to trampling. Increased visitor use of the shoreline may have contributed to its decline. The permanent grid system was established so that any negative impacts to the species from overuse or exotic plants in any portion of the occupied habitat could be easily documented leading to proactive measures before the impacts are unrecoverable. This unique botanical element of the Yellowstone ecosystem needs to be protected and cherished so that it will continue to remain a fascinating component of the Yellowstone lakeshore community, at least until the next caldera eruption!

[Editor's Note: *Abronia ammophila* has also been reported from Sublette County, but these latter plants are now thought to represent *A. mellifera*, a close relative.]

Aven Nelson's 1899 Yellowstone Expedition

By Walter Fertig

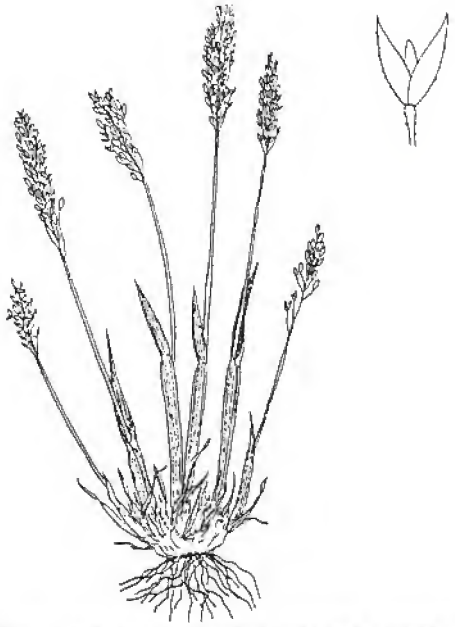
At the close of the 19th Century, the botanical wonders of Yellowstone National Park were still poorly known. A small number of plants had been collected from Yellowstone by John Coulter and Charles Parry during the Hayden and Jones expeditions of the early 1870s, and Frank Tweedy, a surveyor with the US Geological Survey, had botanized the park in 1884-85 and 1891 (even writing the first park flora in 1886). Per Axel Rydberg and Ernest Bessey had also spent time in the park in 1897, collecting specimens for Rydberg's upcoming tome *Flora of Montana and the Yellowstone National Park* (published in 1900). Most of these early collectors confined themselves to existing roads, leaving much of the park relatively unexplored.

Aven Nelson, the University of Wyoming's pioneer botanist and founder of the Rocky Mountain Herbarium, recognized that the Yellowstone area still held great promise for undescribed species as well as new records for the state of Wyoming. Nelson decided to launch a major botanical expedition to the park in 1899 to search for novelties as well as to expand the collections of his fledgling herbarium. To help finance the trip, Nelson planned to collect enough specimens to offer numerous duplicate sets for trade or sale to other institutions or individual subscribers (primarily in the Eastern US and Europe).

The Yellowstone expedition also offered Nelson the opportunity to learn a new part of the state's rich flora. Although hired as the University's first Biologist in 1887, Nelson arrived in Laramie with no formal botanical training (he initially planned to teach English, but when the University mistakenly hired 2 English professors, Nelson was reassigned). During the next 12 years, Nelson taught himself the regional flora. Since 1893 he had been traveling widely across the state, collecting specimens for the herbarium, assembling the first checklist of the state flora, and even describing some new species (initially with the help and encouragement of leading botanists in the East and California). By 1899 Nelson's credentials were well established and he was recognized as one of the leading local authorities on the plants of the Rocky Mountains.

Nelson's Yellowstone expedition consisted of his wife Celia Alice and two young daughters Neva and Helen, graduate student Elias Nelson (no relation), and a young undergraduate assistant, Leslie Goodding. The party left Laramie in mid-June 1899, traveling by rail to Monida, Montana, and then by horse-drawn wagon into Yellowstone National Park from the west entrance. Their wagon contained a large tent, cooking gear, a summer supply of rations, and enough plant presses to process the anticipated collection of several thousand specimens.

The expedition got off to an inauspicious start. On just their second day in the Park, an overly zealous army private visited the Nelson camp, and upon seeing the site strewn with plant blotters demanded that the group pick up their litter immediately! (Yellowstone was still under the supervision of the US Army at this time.) Cooler heads prevailed when Aven Nelson explained to the private that they were merely drying plant specimens and had official permission to be in the park on their botanical mission.



Above: Ross' bentgrass (*Agrostis rossiae*) is endemic to Yellowstone National Park where it occurs near thermal features. Illustration by Jane Dorn.

The Nelson party traveled extensively through the park, from the west entrance to Mammoth, Undine Falls, the Lamar valley and Tower Falls and on to the Gardner River, Obsidian Creek, Yellowstone Lake, Dunraven Peak, and even briefly to the Teton country (which at that time was not a national park). The expedition was plagued by wet weather, which made roads muddy and plant drying difficult. Only one serious mishap occurred, however, when Elias Nelson fell into a thermal feature and burned his leg. The injury was serious enough that Elias was forced to return to Laramie in August. Without Elias, Aven Nelson was unable to visit as many off-road areas as he had hoped.

The expedition returned to Monida in September with over 1400 collections (these often consisting of 20-30 duplicates for exchange). Among the collections were more than two dozen species thought to be new to science, including *Ranunculus jovis, Thlaspi parviflorum, Lepidium densiflorum* var. *pubicarpum,* and *Arabis divaricarpa.* Unfortunately, most of Nelson's novelties from this trip ultimately proved to be synonyms of established species (sadly, among the victims were *Draba yellowstonensis* and *Erigeron yellowstonensis*). The Nelson party was successful, however, in adding a number of new species to Wyoming's state checklist and contributing to our knowledge of the flora of Yellowstone.

Some Notes Upon the Flora of Yellowstone National Park

By Aven Nelson

Excerpted from "Contributions from the Department of Botany and the Rocky Mountain Herbarium # 25, 1900.

To one who has spent several weeks collecting in Yellowstone Park, the amount that might be said of its flora seems nearly limitless. In a short article like this the chances are that one will choose the least interesting of the observations that come to mind. Nevertheless, one must choose.

One of the perennial sources of wonder is the resistance of mountain plants to frost. Nowhere may this be seen to better advantage than in the park. (A specific instance - Camp on Obsidian Creek, July 22 and 23 [1899], altitude a little more than 7,000 feet. A thick crust of ice formed in a coffee pot sitting on a camp stove in which fire had been kept till 10 o'clock at night, the stove being in a good, well-closed tent). Even at its average altitudes heavy freezes occur almost nightly. Delicate-appearing plants, each morning procumbent under a heavy load of frost, are after a few moments of sunshine jauntily erect, in all their brilliancy of color, as if they had never felt any but the balmiest breezes.

If this is the condition at average altitudes, how much more wonderful are the facts in regard to alpine heights! Here no night passes that is not suggestive of an arctic clime. Temperatures reaching nearly the zero point (F.) must be of frequent occurrence. In spite of these conditions, a day's climb into one of these almost unknown workshops of mother Nature never fails to reveal, among many others, Polemoniums of soft caerulean hues, frail Saxifrages filling the clefts of lichen-covered rocks, ranunculi of richest gold, potentillas waving on slender wands their ladened cups, lupines displaying their varied hues against the white banks of lingering snows, castillejas rearing everywhere their gaudy spikes, and white and azure columbines trying to hide by veriest profusion the broken cliffs.

But this lasts but a comparatively few days. As if their vitality had all been thrown into a few midsummer weeks, and with no courage to meet an extra emergency, they succumb to the first September storm that spreads a mantle of white over them. How hard the conditions, but how perfect are the adaptations to meet them!

What is a park? To one who has lived in the West and has come to think of a park as an open, grassy place in the forest, or who has formed his conception of a park from those beautiful, treeless plains of Colorado – North, Middle, and South Park – hemmed in by majestic mountain ranges, Yellowstone Park does not quite meet one's expectations, as a park. (As a "wonderland" no words can do it justice.) A very large portion of its area is heavily wooded. Its roads wind for miles through "the silent sea of pines." Dense and straight and tall, their swaying summits mark the passing breeze. Monotonous as are these woods of Lodge-pole pine so of correspondingly striking interest among the Coniferae are the Alpine Fir and Whitebark pine which the writer saw here for the first time.

Parasitism is abundantly illustrated in all floras, but nowhere, perhaps, so profusely by a single parasite. The Small American Mistletoe is met with everywhere, within the bounds of the park, upon the Lodge-pole Pine. In some places nearly every tree for miles around is infected, and it is too apparent that most serious inroads are made upon the health and vitality of the host – the very existence of this part of the forest cover being threatened.

Two floras meet in the park. Mountain summits and high valleys are occupied by a flora which has its center of distribution in much higher altitudes. On the formations about the hot springs and geysers, on the banks of the warm streams, and in many places where internal heat keeps the surface at a relatively high temperature there occur species which are either identical with or similar to those of lower latitudes or altitudes. Many species that have been reported from the park are far out of their supposed range.

Though the season for some species is exceedingly short, yet for others, as some Mimuli and Epilobiums, which love the marshy banks of warm streams, it is correspondingly long. Heat-loving plants abound everywhere, but perhaps there are none that interest the visitor more than the thermal Algae.

Of the moss flora nothing is known except from very recent collections. Nothing can be more curious than the way in which several species have adapted themselves to the hot areas about the springs and 'paint pots'. These species seem to form a turf, sometimes of great extent, which rests upon a substratum of air rather than upon the hot, underlying crust.

Lichens abound on stock and stone, embellishing everything with their varied hues. Golden Gate receives its name from the lichen decorations on the cliffs through which the road winds at that point. No visitor to the park can fail to note the superabundance of the yellow tufts of *Evernia vulpina* which occurs everywhere on the dead logs and branches along miles of forest roads.

If allowed to single out but one for special mention among the flowering plants, that singularly beautiful buttercup, *Ranunculus eximius* Greene, comes first to mind. Now for the first time secured in abundance, as seen in its alpine valley, it will ever be remembered as one plant that is worthy of its name.

[For more information on the life and times of Aven Nelson, consult *Aven Nelson of Wyoming* by Dr. Roger L. Williams, Colorado Associated University Press, 1984.]

Our Most Endangered Plants Have Yet to be Discovered

(Adapted from a talk given at the Wyoming Rare Plant Conference in March 1999)

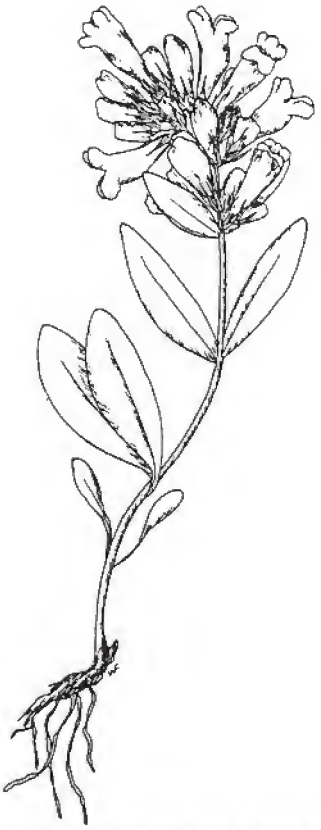
By Robert Dorn

An endemic plant is one that is restricted to a particular area such as a state (state endemic), region (regional endemic), or continent (North American endemic). Wyoming state endemics are of interest to us because they are not known to occur anyplace outside of Wyoming. Most of these are considered rare. Some state endemics have become regional endemics when they are discovered outside the state. Taxonomic changes have sometimes removed species from the endemic list. Newly discovered species may add to the list. As such, the list of state endemics is not static but changes from time to time. The following summary of the discovery of Wyoming endemics is based on our current list and covers species only.

The history of Wyoming botany, from a scientific standpoint, began in 1833 when Nathaniel Wyeth, a Boston ice merchant and fur trader, collected some specimens in Wyoming for his naturalist friend Thomas Nuttall. Nuttall named the new genus *Wyethia* to commemorate his efforts. The following year, Nuttall accompanied Wyeth on an expedition to the West and collected two of our endemics on his trip across Wyoming in 1834. These were *Astragalus simplicifolius* and *Oxytropis nana* from central Wyoming.

The next collection of an endemic was not until nearly 40 years later in 1873 when James Carter, a doctor and judge at Fort Bridger, collected *Penstemon paysoniorum*. Surpassingly, it was another 74 years before the species was described (by David Keck in 1947). In 1881, L. F. Ward, a USGS paleontologist, collected *Haplopappus wardii*, and in 1890, Edith Ross, a collector from Davenport, Iowa, obtained *Agrostis rossiae* from Yellowstone Park. During the same period, Frank Tweedy, a surveyor, picked up three state endemics: *Abronia ammophila* in Yellowstone Park in 1885, *Aster mollis* in the Big Horn Mountains in 1899, and *Cymopterus williamsii* also in the Big Horns in 1900. The latter was not described until 1985 (by Ron Hartman and Lincoln Constance), quite a long time for such a distinctive species to go without a name.

Aven Nelson, our first resident botanist and founder of the Rocky Mountain Herbarium, collected *Aquilegia laramiensis* near Laramie Peak in 1895, *Sphaeromeria simplex* near Laramie in 1898, and *Lesquerella macrocarpa* in Sweetwater County in 1900. Perhaps teaching and administrative duties prevented his finding more in the additional 50 plus years he was active in the state. In 1911, C. J. Bayer, presumably a Forest Service employee, collected *Lesquerella fremontii* near Lander, which wasn't described until 1973 (by Reed Rollins and Elizabeth Shaw). Edwin Payson, a student of Aven Nelson and an early botany faculty member at the University of Wyoming, collected *Astragalus shultziorum* with George Armstrong in 1923, and *Astragalus drabelliformis* with his wife Lois in 1925, both species from Sublette County. These were described much later by Rupert Barneby in 1981 and 1964, respectively. Payson's career was cut short by a fatal operation in 1927. In the first 100 years of botanizing in the state (to 1933), half of our currently known endemic species were discovered.



Above: Absaroka beardtongue (*Penstemon absarokensis*) is one of a suite of regional endemic species and varieties restricted to barren volcanic slopes in the Absaroka Range. Illustration by W. Fertig.

In 1938, Reed Rollins, a student of Aven Nelson and later Asa Gray Professor of Botany at Harvard University, discovered *Physaria condensata* at Bridger Butte near his boyhood home. He collected another endemic, *Arabis pusilla* at South Pass with his wife Kathryn in 1981. Rupert Barneby, long associated with the New York Botanical Garden, along with H. Dwight Ripley (who Barneby frequently acknowledges for field and financial assistance) collected three state endemics: *Astragalus proimanthus* in 1946, and *Trifolium barnebyi* and *Penstemon absarokensis* in 1947, the former from Sweetwater County, the latter two from Fremont County. This pair of collectors obtained numerous endemics across the West.

C. L. Porter, curator of the Rocky Mountain Herbarium for many years, collected *Artemisia porteri* in Fremont County in 1949. His habit of traveling with an Airstream trailer, which seldom strayed far from the main roads, probably accounts for his only finding one.

In 1958, James Carrig, an unknown collector, found *Cryptantha subcapitata* in Fremont County, and in 1966, Dick Scott, now at Central Wyoming College in Riverton, collected *Descurainia torulosa* in Fremont County. Apparently, the *Descurainia* is soon to be transferred to varietal status. Keith Dueholm, a graduate student, was accompanied by Ron Hartman when they found *Phlox pungens* in Fremont County in 1980. My own collections include *Physaria eburniflora* from Carbon County in 1977, *Physaria dornii* from Lincoln County in 1979, *Cirsium aridum* from Sublette County in 1983, *Townsendia microcephala* from Sweetwater County in 1989, and *Yermo xanthocephalus* from Fremont County in 1990.

A few statistics are of interest. Nearly one fourth of our endemics were collected for the first time in the last 25 years. There has been at least one new Wyoming state endemic collected in every decade since the 1870's. Our 28 endemic species are represented by the following families: Asteraceae 7, Brassicaceae 7, Fabaceae 6, Scrophulariaceae 2, and Apiaceae, Ranunculaceae, Boraginaceae, Polemoniaceae, Nyctaginaceae, and Poaceae 1 each. The latter is the only monocot. Fifteen of the 28 endemics have been found in Fremont County, nine in Natrona County, and eight each in Sweetwater and Sublette counties. Seventeen of the 23 counties have at least one state endemic. Those without endemics are along the eastern edge of the state with the exception of Hot Springs County.

The endemics discovered in recent years can be placed in several categories: early flowering (e. g., *Phlox pungens*), most easily recognized as different when in the field (e. g., *Physaria eburniflora*), plants avoided by collectors (e. g., *Cirsium aridum*), look alikes (e. g., *Cryptantha subcapitata*), difficult to see (e. g., *Townsendia microcephala*), and those with an extremely small range (e. g., *Yermo xanthocephalus*). The latter three categories and the families Asteraceae, Brassicaceae, and Fabaceae will likely produce most of our undiscovered endemics.

Are we losing some undiscovered species by disruptive land use changes? How can we get environmental surveys to look for undescribed taxa instead of only for the known rare species expected in an area?

Noteworthy Discoveries

By Walter Fertig

Bi-toothed Cinquefoil Rediscovered in Wyoming: Bi-toothed cinquefoil (*Potentilla concinna* var. *bicrenata* or *P. bicrenata*) occurs widely across the mountains and high sagebrush plateaus of the southwestern US, but barely enters Wyoming in the southern Laramie and Medicine Bow ranges and the Bighorn Mountains. This plant closely resembles the more common *P. concinna* var. *concinna* in having 5-7 gray-woolly leaflets, ground-hugging branches, and pale yellow flowers, but differs in having only 3 teeth at the tip of each leaflet rather than 3-9 teeth at the tip and sides of the leaflet. Bi-toothed cinquefoil had not been collected in Wyoming since 1934, and was thought to be possibly extirpated, prompting it to be listed as a "species of special concern" by the WY Natural Diversity Database (WYNDD). Barb Packer and Ron Hartman of the University of Wyoming discovered 6 new locations for this species in 1997 while conducting a general floristic survey of the Laramie Range, proving that it was not only alive, but thriving in the state. With the discovery of additional populations in 1999, bi-toothed cinquefoil has been dropped from WYNDD's list of rare plants of Wyoming.

More Native Plant Species Discovered in Wyoming in 1999:

Asclepias engelmanniana (Engelmann's milkweed): Ernie Nelson of the Rocky Mountain Herbarium discovered this perennial member of the milkweed family (Asclepiadaceae) near Hawk Springs (Goshen County) in the summer of 1999. Engelmann's milkweed can be recognized by its linear, alternate to subopposite leaves (under 5 mm wide) and green flowers with small horns contained entirely within the hoods. It is most likely to be confused with *A. viridiflora* or *A. stenophylla*, two species that have hornless hoods. Engelmann's milkweed occurs widely through the Great Plains from Nebraska to northern Mexico.

Ipomopsis longiflora [*Gilia longiflora*] (Long-flowered gilia). Robert Dorn discovered this annual to biennial Great Plains plant in Goshen County in 1999. Long-flowered gilia resembles scarlet gilia in having slender, trumpet-like flowers borne on elongate stalks, but can be distinguished by its inodorous white to bluish corollas and sparsely pubescent to glabrous leaves with linear leaflets. This species occurs in sand dunes or sandy stream bottoms.

Onoclea sensibilis (Sensitive fern). Robert Dorn added a new fern to the state's flora with the discovery of Sensitive fern on the Wyoming side of the Black Hills in 1999 (it had previously been documented from the South Dakota segment of the Hills). Sensitive fern has strongly dimorphic leaves, with the sterile (vegetative) fronds having thin, broadly triangular once-pinnate blades and the fertile leaves consisting of pinnately-arranged, sporangia-bearing leaflets that resemble clusters of beads at maturity. This species earns its name from its acute sensitivity to frost (the vegetative leaves wither immediately with the first frost of the year, while the sterile segments remain brown and rigid into the next growing season). Dorn discovered this species growing with 2 other rare ferns and fern-allies: *Equisetum sylvaticum* and *Gymnocarpium dryopteris*.

New Exotic Species for Wyoming: While combing the Bighorn Basin for county records in 1999, Robert Dorn discovered two small colonies of Flower-of-an-hour (*Hibiscus trionum*) growing along ditchbanks. This species had previously been documented in the state on the grounds of Central Wyoming College in Fremont County, but was thought to have been purposefully planted. This annual member of the mallow family (Malvaceae) can be recognized by its short-lived yellowish flowers with a purple center (these are literally open for just a few hours), expanded hairy calyx, slender ciliate bracts, and deeply 3-parted leaves. *H. trionum* is native to southern Europe, but has become widely escaped in fields and waste areas in North America.

Patsy Douglas of the Center for Ecological Management of Military Lands discovered our second new exotic, ventenata (*Ventenata dubia*) near Sheridan in 1998. Ventenata is an annual member of the grass family (Poaceae) native to Europe, but has become naturalized in the Pacific Northwest. This species resembles oats (*Avena* spp.) or oatgrass (*Danthonia* spp.) in having multiple, twisted-awned florets per spikelet, but can be distinguished by its short glumes (shorter than the lemmas).

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 an interest in Wyoming's flora. Members receive *Castilleja*, the Society's quarterly newsletter, and may take part in all of the Society's programs and projects, including the annual meeting/field trip held each summer. Dues are $7.50 annually.

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

Wyoming Native Plant Society
PO Box 3452
Laramie, WY 82071

Name: _____

Address: _____

___ $7.50 Regular Membership
___ $15.00 Scholarship Supporting Member
($7.50 goes to the annual scholarship fund)

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