



Oxytropis nanus Nutt., a Wyoming endemic collected by Thomas Nuttall on his journey across Wyoming in 1834

WYOMING NATIVE PLANT SOCIETY

Box 1471
Cheyenne, WY 82003

Volume 5, Number 3 May 1986

Treasurer's Report - Balance as of February 20, 1986: \$439.42; deposits \$13.00; disbursements \$11.44 (newsletter printing); new balance as of May 10, 1986: \$440.98. RD

Annual Meeting - The annual meeting for 1986 will be held July 4-6 in the Flaming Gorge area south of Rock Springs. We will meet at 8:30 AM on Friday, July 4, at the reservoir in Big Firehole Canyon. Take Interstate 80 west from Rock Springs about 4 miles or east from Green River about 8 miles and turn south on U. S. Highway 191. Go south about 13 miles to the Big Firehole turnoff (on right hand side). This paved road goes about 9 miles to the reservoir (see map elsewhere in newsletter). There is a campground here but it has been closed in recent years. If you arrive the night before, there are plenty of camping places along the reservoir or in the surrounding hills. The meeting place on Friday morning will be at the campground. Be sure to bring plenty of water, and gas up in Rock Springs or Green River. The tentative schedule follows. Friday: business meeting; visit Little Firehole Canyon to see *Forsellesia meionandra*, *Brickellia microphylla*, and a small desert cottonwood community; go to the top of Little Mountain to see *Abies concolor* (hopefully), *Erigeron nanus*, desert and mountain plants in close contact, and a super view of the surrounding area including the reservoir, the Uinta Mountains, and the pinyon-juniper woodlands, lunch on the mountain; visit Richards Gap to see *Draba juniperina*, *Galium coloradoense*, *Eriogonum corymbosum*, and *Philadelphus microphyllus*; visit Minnie's Gap to see *Pinus edulis*, close up of pinyon-juniper woodland, *Draba juniperina*, *Leucelene ericoides*, and *Ephedra viridis* (a desert gymnosperm). Saturday: cross Flaming Gorge Dam and stop for water, gas, etc. in Dutch John and/or Manila, Utah; visit Black Mountain area to see *Chamaechaenactis scaposa* and *Phacelia scopulina*; visit Cedar Mountain area to see *Ceanothus martinii*, *Thelesperma pubescens*, *Astragalus coltonii*, *Astragalus proimanthus*, and *Penstemon acaulis*. Sunday: optional field collecting trip on Cedar Mountain and/or Hickey Mountain (base of Uintas). RD

Dues - Dues are due by the annual meeting if you wish to vote: initial membership \$7.00, renewals \$3.00; students and persons 65 or over half the preceding rates. A few members are already paid up for next year: George Jones, Rob & Ruth Kirkpatrick, Dennis Knight, Hollis Marriott, Maribeth Patrick, Michele Potkin, and Richard Scott. RD

Election of Officers - Our nominees for officers this time are all unopposed: President - Phil White, Vice-President - Ernie Nelson, Secretary-Treasurer - Robert Dorn, Board Member - Hollis Marriott. If you wish to nominate (and/or vote) for someone else, submit the name(s) to the Secretary-Treasurer at least a week before the annual meeting. Mail votes are accepted before the meeting. RD

Help! Slides Needed - In looking over my slide collection, for a presentation to be given in Boulder in June, I discovered that I did not have color slides of the following species: *Adoxa moschatellina*, *Arnica cordifolia*, *Crepis elegans*, *Erigeron humilis*, *Kell-oggia galioides*, *Linnaea borealis*, *Lysichiton americanus*, *Menziesia ferruginea*, *Pyrola secunda*, and *Xylorhiza glabriuscula*. I would appreciate anyone sending me (1476 Tyrell, Park Ridge, IL 60068) 2x2 color slides of these species, preferably in flower and of the entire plant. I must have them by June 1. I will duplicate them and return them promptly. Thanks. EFE

Names of Plants - The majority of our members are not professional taxonomists so they may be curious about the procedure for naming plants. Any classification system must solve two main problems. First, each of the several hundred thousand species of plants in the world needs a different name in order for us to communicate about any particular plant. Second, because of the many different languages in the world, we need some kind of universal language. The international scientific community first attempted to standardize the naming of plants in 1867, but it was not until 1930 that this was effectively accomplished. We now have an International Code of Botanical Nomenclature, the most recent edition (1983) of which is 80 pages long. The Code is based on six principles: (1) it is independent of zoological nomenclature, (2) application of names is determined by nomenclatural types (an element, usually a specimen, to which a name is permanently attached), (3) a correct name is based upon priority of publication for ranks of family and lower, (4) there can be only one correct name for each taxonomic group (with rare exceptions, particularly with families), the oldest in accordance with the rules, (5) names are in Latin, and (6) the rules are retroactive unless specifically excepted. From these we can see that the first main problem above is resolved by principle 4, and the second main problem is resolved by principle 5.

The starting date for vascular plants (ferns, conifers, flowering plants) and some lower plants is 1 May 1753, the publication date of Species Plantarum by Linnaeus. There are specific publication requirements to make a name valid. These differ depending on the date

of publication, but the major ones at present are: (1) printed matter must be distributed to the general public, (2) there must be a Latin description or diagnosis or reference to a previous one, (3) the rank (species, subspecies, variety, etc.) for the plants must be indicated, (4) if a name is transferred to another genus or species, there must be a full and direct reference to the original publication, and (5) a nomenclatural type (usually a specimen) must be designated. The type specimens are normally deposited in a recognized herbarium where they are available for study by other scientists. The only such institution in Wyoming is the Rocky Mountain Herbarium at the University of Wyoming.

Most of us are concerned only with the following of many possible ranks: family, genus, species, subspecies, and variety. The species is the primary taxonomic unit and also the most difficult to define. A short discussion from The Evolution and Classification of Flowering Plants by Arthur Cronquist (Houghton Mifflin Co., 1968) should place it in better perspective. "An exact definition of the species is impossible, and the more precise one attempts to be, the larger the number of species which do not fit the definition. Still, the basic concept is simple enough. A species is the smallest population which is permanently (in terms of human time) distinct and distinguishable from all others. It is the smallest unit which simply cannot be ignored in the scheme of classification. It is the primary taxonomic unit, and it may also be thought of as the basic evolutionary unit. In sexual populations, gene exchange by hybridization within a species is ordinarily rampant, whereas such gene exchange between different species is restricted or even impossible. Interspecific hybrids are not always wholly sterile, but they are not so fertile and so competitively adapted as to swamp out the parents. Although there are some differences in interpretation, a reasonable degree of reproductive isolation from other species, under natural conditions, is an essential specific quality. Without such isolation, the population would lose its identity through interbreeding."

The name of a species consists of two words, the genus name and the specific epithet. An example is the state flower, Wyoming Indian Paintbrush, Castilleja linariifolia Benth. The Indian Paintbrush genus is Castilleja and the specific epithet is linariifolia. "Benth." is the abbreviation for George Benthham who first described the species in 1846. The type specimen was collected by John C. Fremont at the north end of the Laramie Range in 1842. There are about 15 other species of Indian Paintbrush in Wyoming. Another example is Castilleja angustifolia (Nutt.) G. Don. Thomas Nuttall first described the species in 1834 but placed it in the genus Euchroma. George Don transferred it to Castilleja in 1838. Castilleja was named for Domingo Castillejo, a Spanish botanist. The epithet linariifolia means leaves like Linaria, another genus in the same family. The epithet angustifolia means narrow-leaved.

Not infrequently, the name of a species will change. The Code allows only two reasons for changing a name: "The only proper reasons for changing a name are either a more profound knowledge of the facts resulting from adequate taxonomic study or the necessity of giving up a nomenclature that is contrary to the rules." The latter reason is usually the result of an error that was overlooked or the discovery of a publication that was overlooked.

How does one decide whether to call a population of plants a species, a subspecies, or a variety? We saw above the difficulty in defining a species. Actually, assigning a morphologically significant population of plants to a particular rank is not as important as assigning it to a rank. In other words, it is not so important whether we assign them to a species rank, or a subspecies rank, or a varietal rank. It is more important that we assign them to one of these ranks so that we can communicate about them. The plants are still the same whether we call them a species, a subspecies, or a variety. The decision is made easier following extensive experience or study. But borderline cases will probably never be easy. After all, plants are still actively evolving so there are bound to be some at any given time that are midway between ranks. The ranks are not sharply defined. They are continuous with each other. RD

Botanical Novelties

Aquilegia laramiense A. Nels.

Laramie Columbine

This little columbine grows in crevices of granite boulders in the Laramie Range from near Laramie Peak to northeast of Laramie, in Albany County and barely into Converse County. It flowers in mid summer. The plants average about 8 inches high. The flowers are mostly about an inch long, are white to lavender, and have very short spurs. It was first collected by Aven Nelson in 1895 at the foot of Laramie Peak. He described it in the "First Report on the Flora of Wyoming" in 1896.

Lesquerella macrocarpa A. Nels.

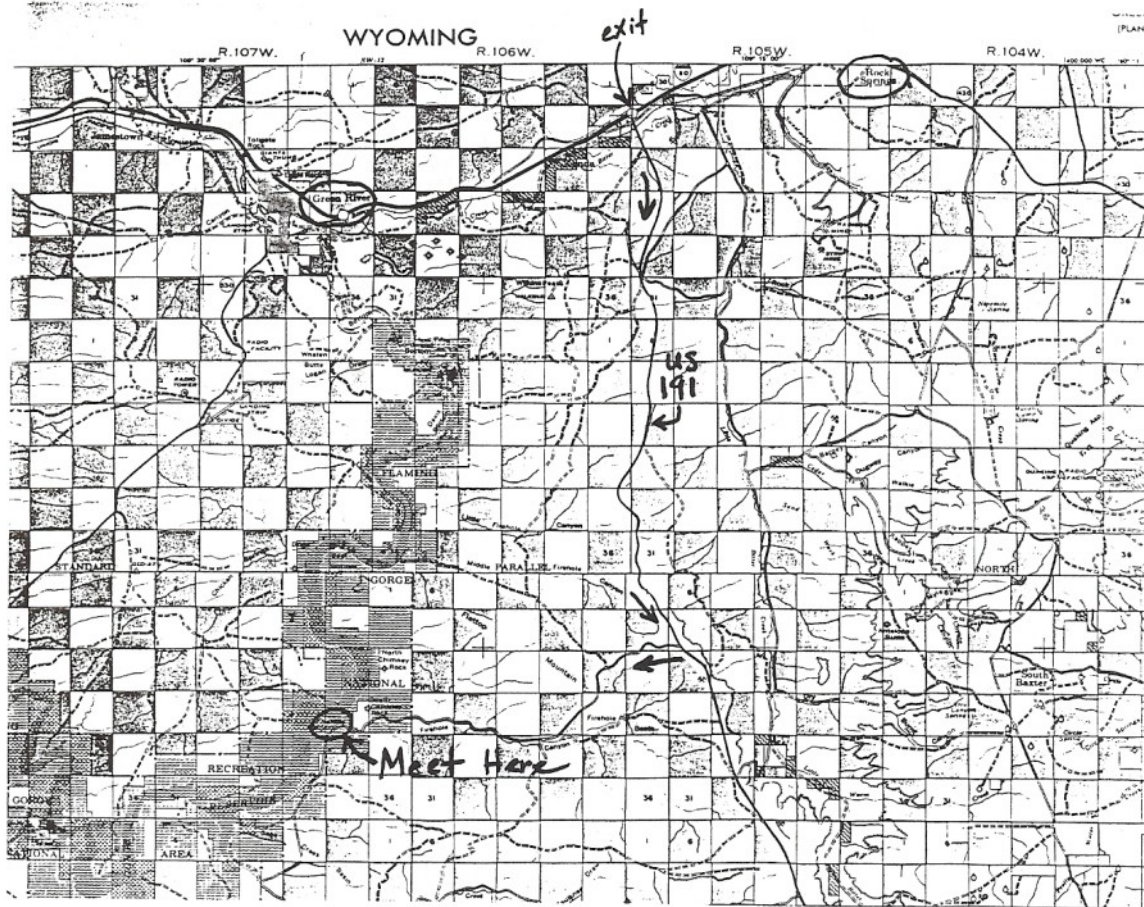
Large-fruit Bladderpod

This member of the Mustard family grows on barren clay soils in the Great Divide Basin of Sweetwater and southern Fremont counties and flowers in spring. It is an annual or biennial with bright yellow flowers about ½ inch across. The stems tend to sprawl and average 4 to 6 inches long. The fruits are like little balls about ½ inch in diameter. It was first collected by Aven Nelson in 1900 near Steamboat Mountain and then by Elmer Merrill and a Mr. Wilcox in 1901 near Continental Peak. It was described by Aven Nelson in the Botanical Gazette in 1902. Around 1974 it had not been recollected so was thought to be extinct, but it was collected again in 1977. RD

Contributors This Issue - RD = Robert Dorn, EFE = Erwin F. Evert, HJM = Hollis J. Marriott



Lesquerella macrocarpa A. Nelson



Wyoming Black Hills Checklist: The Wyoming portion of the Black Hills was collected intensively by Hollis Marriott, B. E. (Ernie) Nelson and R. L. Hartman during the 1982 through 1984 field seasons (over 11,000 specimens). Preliminary results were reported in the WNPS newsletter Vol. 4, No. 1 (February 1985). The study area included all of the Black Hills within Wyoming, an area of roughly 2500 square miles in the northeast corner of the state. Although well over one third of the uplift is in Wyoming, previous floristic work in the Black Hills has concentrated on the South Dakota side; no extensive collecting had been done in the study area prior to this project.

The Wyoming Black Hills contain a wide range of plant communities including sagebrush-grassland (near the perimeter), mountain mahogany shrubland, mixed grass prairie, ponderosa pine forest, white spruce forest (limited to high areas immediately adjacent to South Dakota) and several types of deciduous forest (aspen, birch, oak, cottonwood and others). The flora is correspondingly diverse, containing some 975 taxa.

The study yielded fourteen Wyoming state records. Many of these were mentioned in the previous article. Additional taxa new for the state include Helianthus tuberosus (several collections from streambanks in Crook Co.), Cyperus erythrorhizos (from sand and mud flats at Keyhole Reservoir) and Panicum perlongum (from grassland and pine woodland in the Newcastle and Black Buttes areas). New weeds for Wyoming include Anchusa arvensis (north of Beulah) and A Armoracia lapathifolia or horseradish (northern Bear Lodge Mountains).

Also included in the flora are roughly 60 new or clarified Black Hills records (based on Dorn's 1977 Flora of the Black Hills). Many of these have affinities with the Great Plains or Great Basin and occur in the outer part of the uplift (the hogback rim of N. H. Darton). Included in this category are Machaeranthera linearis, Verbesina encelioides, Cryptantha kelseiana, C. torreyana, Chenopodium rubrum, Monolepis nuttalliana, Carex parryana, Boisduvalia glabella, Phlox kelseyi and Lewisia rediviva var. r. Other additions to the Black Hills flora of interest are Lomatium dissectum (from Cement Ridge), Elatine triandra (northwest of Hulett), Hedysarum boreale (Devils Tower area), Ranunculus natans (near Sundance) and Melica subulata var. pammelii (scattered throughout at high elevations). The last taxon has also been reported for the South Dakota Black Hills by J. Thomasson of Black Hills State College. Taxa previously reported for the Black Hills but not verified by Dorn include Carex intumescens, Eleocharis acicularis, Lycopus asper, Corallorhiza striata var. s., Glyceria borealis and Trisetum spicatum.

An annotated checklist (32 pages) is now available. Included for each taxon are scientific name, relative abundance, distribution in the study area, elevational range and prevailing habitat. The checklist is available for \$1.50 each (plus .50 postage) from Hollis Marriott, Rocky Mountain Herbarium, 3165 University Station, Laramie, WY 82071. HJM

TNC in Wyoming: The Rocky Mountain Heritage Task Force (The Nature Conservancy) recently created a "Wyoming Botanist" position, and has hired Hollis Marriott to collect data concerning plant species of special concern for entry into the Wyoming plant database maintained by the Department of Environmental Quality. The position is currently being housed at the Rocky Mountain Herbarium through a Memorandum of Understanding with the University of Wyoming. In preparation is a preliminary list of species of special concern. The list, which will be distributed in mid-June, will be used to direct research and to solicit information from other botanists in the state. Interested individuals may obtain copies from Hollis Marriott, RM Heritage Task Force, Box 3165 University Station, Laramie, WY 82071. The Wyoming Natural Heritage Program database continues to be housed at DEQ in Cheyenne. Requests for database information should be sent directly to DEQ. HJM

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