Botanical Adventures in Yellowstone  
By Hollis Marriott

On June 13, 1899, the Union Pacific Railroad delivered two botany students and a load of freight to Monida, Montana, the western gateway to Yellowstone National Park. Leslie Goodding and Elias Nelson climbed down from a boxcar, and unloaded a wagon, three horses, camping gear, provisions for six for three months, and six plant presses with thousands of “driers and white sheets.” Professor Aven Nelson of the University of Wyoming arrived by passenger train two days later, with his wife and young daughters, ages 8 and 13. They would spend 14 weeks in Yellowstone, ostensibly to document the flora of the Park. But the project’s impact would be much greater.

The previous winter, Nelson wrote to the Park Superintendent requesting permission to collect plants “to represent the vegetation of the Park in full ... dried specimens of the smaller plants and such twigs of the larger as may conveniently be preserved on the usual herbarium sheets, 12 x 16 inches.” An affirmative reply arrived just a few weeks later. He also contacted P.A. Rydberg, who was preparing a Catalogue of the Flora of Montana and the Yellowstone National Park. In his reply, Rydberg explained what Nelson most likely already knew:

“The flora of the park is, however well worked up as several collectors have been in there, viz., the Hayden Survey, C.C. Parry, Letteman, Burglehous, &c. The one that has done the most, however, is Frank Tweedy of US Geological Survey. He spent two whole summers in the park. ... I would advise you to select the mountains east and south east of Yellowstone Lake. None of the collectors that I know of has collected in that region.”

But Nelson had other plans. (cont. p. 7)
WYNPS News

Time to Renew: Please renew your WYNPS membership for 2016, and vote for 2016 Board candidates. You can do this by mail or else on-line using PayPal and the WYNPS email address. -Thanks! (The membership year is the calendar year. The mailing label on the printed newsletter indicates the year through which you are renewed.)

2016 Annual Meeting: Mark June 17-20 on your calendar! If you’d like to get a jump on lodging, you can reserve cabins or camping at the Dubois KOA where Wyoming Native Plant Society attendees have a group discount. It is located 1 block from town (from Hwy 26/287, turn at the Conoco Station onto Riverton St. and go south 1 block). You can register by mail (225 Wely St., Dubois, WY 82513), by phone (1-800-562-0806), or on-line (www.koa.com/campgrounds/dubois). Just say that you are with Wyoming Native Plant Society and they will give a 20% discount off the full prices for cabins, tent camping or RV (below). Amenities include laundry, fishing, heated pool. Other local options include public campgrounds and local motels (http://www.duboiswyomingchamber.org/).

Tent Camping: $30.00
Cabins (no linens):
  2 person cabins: $60.00
  4 person cabins: $70.00
  5 person cabins: $145.00 (Full bathrooms, kitchenettes)
RV Camping (go on-line for full options):
  Water/electric: $45.00
  Full hook up: $50.00
  River front: $53.00

Call for Scholarship and Grant applications: Student study and small grant applications are being accepted now through 15 February, by mail or the WYNPS email address. Please feel free to post or distribute the 2016 announcement!

Treasurer's Report: Balance as of 21 Sept 2015:
  Scholarship = $1,940; General = $6,314; Total = $8,254.

Contributors to this Issue: Ann Boelter, Karen Clause, Frances Clark, Robert Dorn, Bonnie Heidel, Hollis Marriott, Nancy Miller, Amy Taylor, Dan Tinker.

Deadline for next Issue: Announcements and articles are welcome at any time. The next deadline is 15 Feb.

Wyoming Native Plant Society
P.O. Box 2449
Laramie, WY 82073

New Members: Please welcome the following new members to WYNPS: Lorie Cahn, Jackson; Trissta Lyman, Jackson; Michael Mancuso, Boise, ID; Jennifer Thompson, Laramie.

Message from the President:
Season’s Greetings!

It’s the holiday season, and I look forward to time with family, skiing, and cooking my favorite holiday foods. I also start thinking about my New Year’s resolutions for the coming year. For instance, in 2010 I made a resolution to get back into skate skiing after a 6-year hiatus to raise babies. I also resolved to get more involved with The Wyoming Native Plant Society. To make good on that resolution, I became a lifetime member and ran for my first term on the Board of Directors.

Six years later, here I find myself running for another term as President. It feels good to serve, and I encourage any of you who are thinking that you might be interested in becoming more involved with the Society to do so. It’s important to the success of the Society to represent its members through a diversity of voices on its Board of Directors. If not interested in an officer position, please consider one of the at-large board member positions or volunteering to sit on a special committee to organize events.

With your help, we can make the Society the best that it can be. Mmm...sounds like I have come up with this year’s resolution! Happy holidays to you and yours,

~Karen Clause, President

WYNPS Board – 2015
President: Karen Clause, Pinedale (kddclause@centurytel.net)
Vice-President: Brian Sebade, Laramie (bsebade@uwyo.edu)
Sec.-Treasurer: Ann Boelter, Laramie (boelter@uwyo.edu)
Board-at-large:
  Walt Fertig, Phoenix, AZ (’14-’15) (waltola64@gmail.com)
  Bob Giurgevich, Sheridan (’15-’16) (bobgiurgevich@live.com)

Other contacts:
WYNPS homepage: www.wynps.org; also on Facebook
Teton Plants – a Chapter of WYNPS: Amy Taylor, Treasurer (tetonplants@gmail.com) and homepage http://www.tetonplants.org/
Sublette Chapter of WYNPS: Julie Kraft, President (jewelyjoe@hotmail.com)
Editor: Bonnie Heidel (bheidel@uwyo.edu)
Webmaster: Brenna Marsicek (brennamarsicek@gmail.com)
Bighorn Native Plant Society: Jean Daly, Treasurer (P.O. Box 21, Big Horn, WY 82833)
1. Taylor Mountain by Amy Taylor
2. Teton Mountains by Nancy Miller
3. Klara Varga reveals the inner workings of a water lily at Loon Lake by B. Heidel
4. Walter Fertig, Reid Miller, Ann & Dick Boelter at Darby Canyon by Nancy Miller
5. Colorado columbine by Frances Clark

We had a grand time at the annual meeting in the Tetons - a least 125 people attended. THANKS to everyone involved!!! Here are glimpses. Go to www.wynps.org to see these photographs in color!
In their book, “Ponderosa: People, fire, and the West’s most iconic tree”, Carl Fiedler and Stephen Arno have given readers an informative and entertaining collection of essays and photographs that focus on Ponderosa pine (*Pinus ponderosa*), certainly a favorite tree of residents and visitors alike. The book is part ecological primer, part historical account, and part tour guide, and excels in all three areas. It is organized into two main sections: Part I contains the majority of the life history and ecological chapters, while Part II serves as a traveler’s guide to unique and beautiful Ponderosa pine locations throughout the 16 US states of its distribution, as well as British Columbia, Canada. The book is loaded with sound science throughout, but presented in a very readable way for non-scientists. Plus, the excellent collection of historic and current photos really makes this an excellent read.

Fiedler and Arno’s approach in Part I take the reader through the century-long transformation from historical Ponderosa forests of the 1800s to the “modern” forests of today. They begin with an enlightening treatment of the role of ponderosa pine in US history, including the often intimate relationships with Native American Indians, providing evidence of their use of ponderosa as a building material as early as AD 500. Many of the accounts are anecdotal, but still paint a fascinating picture of the many uses of the tree by the wide range of historical inhabitants of the Western US, including the early pioneers and the US military. The authors do a really nice job with their descriptions of the life history characteristics of Ponderosa, from its broad genetic diversity and geographic distribution, to its adaptations to drought and fire. And, speaking of fire, Fiedler and Arno dedicate three chapters to Ponderosa’s “multifaceted relationship with and dependency on fire”, highlighting the evolution of attitudes and management philosophies regarding fire and its near-elimination from most Ponderosa forests in the West. They also emphasize the importance of Ponderosa in the forest products industry, tracing the harvesting of old-growth forests via “clearfelling” and “high grading” to the more familiar clearcuts of the 1960s and 1970s. They include a nice section that highlights the emerging environmental legislation that arose following the cessation of clearcutting in Ponderosa pine forests and how, while well-intentioned, these policies actually created provisions for completely eliminating fire from these forests. As the authors move us into the more recent “modern” forests, they describe how humans are “loving our forests to death”, particularly with the increase in housing development in the Wildland Urban Interface (WUI), much of which occurs in and around Ponderosa pine forests. They wrap up Part I of the book with a brief, yet grim reminder of the recent spate of “megafires” that have burned in Ponderosa forests beginning in the 1980s, along with the acceleration of other major disturbances such as bark beetle epidemics. The final chapter focuses on what we have learned through scientific research over the past few decades, and describes the various approaches and challenges to actively restoring Ponderosa pine forests.

Part II, as mentioned before, is a travelogue for Ponderosa pine seekers around the Western US and British Columbia. This section is yet another reason to throw this book in your backpack while you’re traveling if you’re a lover of Ponderosa. From Arizona to North Dakota, they describe literally...
Continued from p. 4
dozens of “special” sites across the region. Here in Wyoming, they highlight four such places: Blacks Fork River, southwest of Mountain View; Vedauwoo recreation area in the Medicine Bow National Forest; Mallo Camp, in the Black Hills; and the land around the Pine Bluffs Rest Area, east of Cheyenne. If you haven’t seen these special places, you should check them out as soon as you can. And, if you want to learn more about Ponderosa pine and have a great read at the same time, I’d suggest a copy of this book for your collection!

Growing Native Plants

Part 18. Meadow Gardens

By Robert Dorn

Meadow gardens require a consistently moist site, wetter than a prairie but not as wet as a wetland which supports sedges, rushes, and the like. Most of these sites are found in mountain parks but there are occasional subirrigated sites in the lowlands that match this requirement. Meadows usually have some grasses like Melica bulbosa, Oniongrass, or Phleum alpinum, Mountain Timothy, but the most conspicuous species are flowering forbs of which five examples follow. Go to the Society website to see them in color.

*Erigeron subtrinervis*, Threenerve Fleabane, grows to 2.5 feet tall and 1 foot wide from rhizomes. The leaves are somewhat narrow and to 4.5 inches long. The ray flowers are mostly blue to purple or lavender and the disk flowers are yellow. They appear in July and August. The plants occur naturally in moist meadows and open woods in the mountains. They prefer full sun to partial shade and moist loamy soils. They can be grown from seed that is surface sown for light exposure or from division of clumps or from rhizome cuttings. They transplant easily and seed has been commercially available.

*Helianthella quinquenervis*, Fivevein Littlesunflower, grows to 5 feet tall and 1 foot wide. The leaves are to 10 inches long and 4 inches wide. Flower heads are one to several at the stem tips and nodding or horizontal with yellow ray and disk flowers. They appear from June to August depending on elevation. The plants occur naturally in moist to slightly dry meadows or on slopes in the mountains. They prefer full sun and moist but well drained soils. They can be grown from seed which is commercially available.

*Lupinus polyphyllus*, Moffat County, Colorado

*Helianthella quinquenervis*, Grand County, Colorado

*Erigeron subtrinervis*, San Juan County, Utah
Lupinus polyphyllus, Meadow Lupine, grows to 4 feet tall and wide. The leaves are palmately compound with 6 to 13 leaflets to 3 inches long. The flowers are to 0.5 inch long, blue or blue-purple with a large white spot on the banner, with many borne along the upper 12 inches or so of the many stems which overtop the leaves. They appear from May to August depending on elevation. The plants occur naturally in open meadows and on slopes in the plains, valleys, basins, and mountains. They prefer full sun to light shade and cool, moist to dry, well drained loamy soils. They can be grown from seed that is first scarified and planted .25 inch deep. Seed and several cultivars are commercially available.

Monarda fistulosa, Horsemint, grows to 2 feet tall from rhizomes. The leaves are to 3.5 inches long and half as wide. The flowers are pink-purple to lavender, to 1.5 inches long, borne in a tight head-like cluster at the stem tips. They appear from June to August. The plants occur naturally in moist to slightly dry open areas of the plains, basins, and foothills. They prefer full sun to light shade and moist to slightly dry, sandy or loamy soils. They can be grown from fresh seed barely covered with soil or from rhizome cuttings. It is also in the nursery trade.

Sidalcea neomexicana, New Mexico Checkermallow, grows to 2.5 feet tall and 1 foot wide. The leaves are shallowly to deeply lobed and to 4 inches long and wide. The flowers are rose-pink fading to blue-purple, to 1.5 inches across, and are closely arranged along the upper stem. They appear in June and July. The plants occur naturally in moist open areas of the plains, basins, and mountains. They prefer full sun and moist loamy or clayey soils. They can be grown from seed or from rootstock divisions. Seed is commercially available.

Go to www.wynps.org to see these photographs in color!

Announcing: Friends of the Rocky Mountain Herbarium

The Rocky Mountain Herbarium (RM; University of Wyoming) has a wide following among Botany Department alumni, agency botanists across the Rocky Mountain states and collaborators on campus and beyond. In an effort to formalize this following and promote it locally, there is now an organization: Friends of the Rocky Mountain Herbarium! The “Friends” were launched following an RM open house on 1 October 2015.

Many members of Wyoming Native Plant Society (WYNPS) are in this same circle of affiliates and supporters, and WYNPS is a proud promoter. It is an informal organization as a venue for fostering local volunteerism, formalizing the region-wide interest and support, and communicating. You can still be a “charter member” if you reply this year to Greg Brown (GKBrown@uwyo.edu) expressing your interest. The Friends of the Herbarium will host Herbarium Night events this winter, starting on Thursday, January 21. All local “Friends” including many of us in WYNPS will receive further email information.
They mostly collected near roads, though earlier botanists had done the same. Occasionally two men made long excursions on foot while the third stayed in camp with Mrs. Nelson and the girls. Only in late July did they finally approach “the mountains east and south east of Yellowstone Lake” where Rydberg had recommended they spent most of their time. Yet they drove on by. Lack of wagon roads probably was a factor. And they had lost one man.

On July 26, Elias and Leslie were collecting near the popular Artist Paint Pots. Visitors were routinely warned to stay on established paths, but Elias stepped off (botanical fervor?) and one leg sank into hot mud to the knee. He jumped to higher ground and pulled off his shoe and sock—along with a large patch of skin from his ankle. A huge blister ran up his leg.

“With the help of several nearby tourists, I sprinkled the wound with soda, bandaged it, and covered the bandage with flour,” wrote Mrs. Nelson in her diary. A few days later, a physician examined the burn and pronounced it serious. So Elias was driven to Madison and put on the stage to Monida, greatly disappointed that his adventure was cut short.

There was another reason to stick to roads. Though we have no written record, it seems Nelson wanted to collect as many specimens as possible; documenting the Park flora was secondary. He returned home with 30,000 specimens representing about 500 different species. In other words, most were duplicates—multiple collections of a given species from a given location, often 20 or 30!

Nelson very much wanted to expand the small herbarium at the University of Wyoming, and through the Yellowstone project he did—1400 specimens were added directly, and thousands more through exchange. He knew herbaria worldwide would want specimens from Yellowstone, the famous natural wonderland. A full set of duplicates went to the Smithsonian. Others were sent to institutions and private collectors across the US, in Europe, and as far away as India, in exchange for specimens for the UW herbarium. Sets were sold as well, to raise money for field and herbarium work (the University provided no funds). (cont. last page)
Wyoming Native Plant Society – Renewal and Ballot
Return to: Wyoming Native Plant Society – P.O. Box 2449 – Laramie, WY 82073

2016 WYNPS RENEWAL

Name: __________________________________________________
Address: _______________________________________________
__________________________________________________________
Email: _________________________________________________

Check one: [ ] New member  [ ] Renewing member
[ ] Check here if this is an address change.
[ ] Check here if you prefer to receive the newsletter electronically.

Payment:
[ ] WYNPS annual membership: $10; or
[ ] WYNPS annual membership with scholarship support: $20 ($10 for membership and $10 for Scholarship fund)
[ ] WYNPS Lifetime membership: $300 ($150 for membership and $150 for Scholarship fund)

In addition to the statewide organization, we have two chapters. Membership in chapters is optional; chapter members must also be members of the statewide organization.

[ ] Sublette Chapter annual membership: $5.00
[ ] Teton Plants Chapter annual membership: $5.00

Total enclosed: ___________ THANK YOU!

2016 WYNPS BALLOT – Please mail for receipt by January 31 or email wynps@wynps.org

Please vote for one person for each Officer position, and ONE OF TWO candidates for the At-Large position:

President _____ Karen Clause (Pinedale)          Secretary/Treasurer _____ Jeanette Flaig (Laramie)
Vice President _____ Brian Sebade (Laramie)  At-Large (2-year term) _____ Walter Fertig (Phoenix, AZ)
Write-in candidate and office: __________________________________________________________

[The second At-Large position is held by Bob Giurgevich (Sheridan), who will start his second year of a two-year term.]

Candidate Biographies

Karen Clause is current President and also served a term on the Board from 2011-2012. Karen is an outdoor and native plant enthusiast who enjoys serving the Society and its members. She lives in Pinedale with husband and daughters. She works for the Natural Resources Conservation Service (NRCS) as a Rangeland Management Specialist.

Jeanette Flaig is a botanist working for Western EcoSystems Technology seasonally. Jeanette earned her Bachelor degree in Biology from the University of Colorado and a Masters in Plant Systematics from the University of Wyoming when she joined Wyoming Native Plant Society. She is active in wetland delineations and functional assessment.

Brian Sebade is a U-WY Extension educator in southeast Wyoming, focusing on agriculture and horticulture, plus 4-H and youth development. He addresses native plant identification and awareness, range monitoring, poisonous plants, edible plants, weed management and identification, and pesticide certification. He joined WYNPS during graduate studies, first served on the Board in 2015, and enjoys hunting, fishing, Nordic skiing, or anything else that gets him outside.

Walter Fertig is Assistant curator at Arizona State University herbarium, former heritage program botanist in Wyoming, and longtime Secretary-Treasurer and newsletter editor of the Wyoming Native Plant Society (ca. 1992-2001). Walter currently lives in Phoenix, AZ with his wife Laura and a bevy of cats and dogs.
Wyoming Native Plant Society

2016 MARKOW SCHOLARSHIP/SMALL GRANT

Applications are due February 15, 2016. Awards will be made in April, 2016.

Electronic copies of this application are also posted on the WYNPS homepage at:
www.wynps.org

The Wyoming Native Plant Society promotes appreciation, understanding and conservation of native plants and plant communities through its annual scholarship/small grants program. For scholarships, thesis research may address any aspect of botany including floristics, taxonomy, ecology, genetics, plant geography, range science, paleontology, pollination biology, physiology, and mycology. For small grants, projects such as botany curriculum development, public native plant gardens, and other forms of outreach will be considered. **This competition is open to all students who conduct research in Wyoming, residents of Wyoming or members of WYNPS.** Priority will be given to projects conducted at least in part in Wyoming.

Proposals must pertain to native plants of Wyoming. Preference will be given to proposals expected to generate research data or promote public understanding. Up to $1,000 may be covered for a scholarship proposal, and up to $500 for a small grant proposal. Awards defray direct project costs, excluding labor or conferences. Eligible expenses include:

1. Direct costs of travel, meals, and lodging for research or education projects.
2. Supply and service expenses used for the sole purpose of the project (e.g., consumable supplies such as laboratory chemicals, soil and nursery stock, and services such as phone and computer time).

**The deadline for proposals is February 15.** Awards will be announced in April. The proposal should be no longer than three pages and include the following:

- Name, mailing address, telephone number (land &/or cell as appropriate) and email address of the applicant.
- Name, mailing address, contact person's name & phone number for any organization that will be directly involved with the applicant when executing the proposal.
- Short abstract of the study or project (2-5 sentences).
- Description of the study or project: objectives, methods, description of final product, and short description of past similar work (if applicable). Garden proposals should include plant lists, an educational component, and explicitly address long-term maintenance plans.
- Description of how the study or project will benefit native plant conservation in Wyoming.
- Overall budget showing amount requested from WYNPS ($1,000 or less), the intended purpose of the funding, and other funding sources.
- Timeline for completion of the major components of the study or project.
- Brief statement of applicant's qualifications or biography.
- Name, address, email address or phone number of two people as references.

Successful scholarship or grant recipients will be required to submit a final report (due no later than September 20, 2017) documenting the study or project accomplishments to WYNPS, written for a broad audience and suitable for publication in our *Castilleja* newsletter, along with an accounting of how the funds were used. **Please send completed applications to:** Wyoming Native Plant Society, P.O. Box 2449, Laramie, WY 82073; or wynps@wynps.org.
Continued from p. 7

Shortly after returning from Yellowstone, Nelson met with the University Board of Trustees and convincingly argued that the herbarium would soon warrant recognition as a separate institution. The Trustees promptly established the Rocky Mountain Herbarium—“an accessible and serviceable collection” of the region’s plants. In the 116 years since, it has become more—the tenth largest herbarium in the US and a world-class institution, built on a foundation of Yellowstone plants.

References
Yellowstone National Park Archives, Yellowstone National Park Army Era records. 1898-1899.
Correspondence with Aven Nelson.

“Our Herbarium is now in a fireproof building and doubtless some day will have a building all its own. That is, it will be a collection properly housed and surrounded by a beautiful botanical garden. Such is my dream, and dreams sometimes come true.” Aven Nelson, 1936

Wyoming Native Plant Society is a non-profit organization established in 1981 to encourage the appreciation and conservation of the native plants and plant communities of Wyoming. The Society promotes education and research through its newsletter, field trips, annual student scholarships and small grants awards. Membership is open to individuals, families, or organizations. To join or renew, you can do it online (www.wynps.org) or return this form to:

Wyoming Native Plant Society
P.O. Box 2449
Laramie, WY 82073

Name: __________________________________________________________
Address: ________________________________________________________
_______________________________________________________________
_______________________________________________________________
Email: __________________________________________________________

Check one: [ ] New member [ ] Renewing member
[ ] Check here if this is an address change.
[ ] Check here if you prefer to receive the newsletter electronically.

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Total enclosed: ___________________ THANK YOU!