Castilleja

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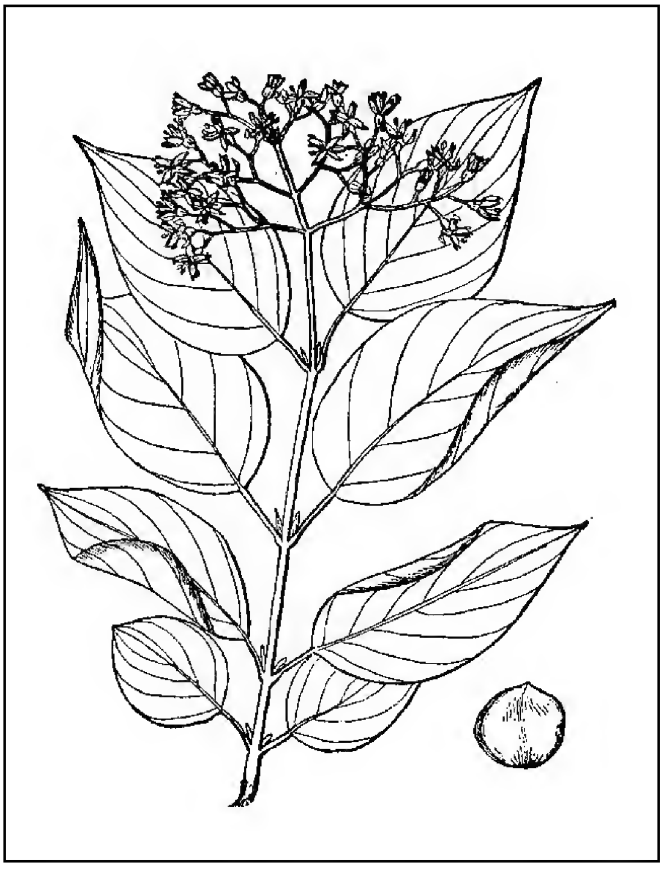
Natives Come to Campus

Red osier dogwood (*Cornus sericea*) comes into its own in the cold months. After the growing season's succession of colors, we are finally able to see its vibrant red stems that were with us all along. It lends its intense color to riverways across the state.

An easy way to tell if moose live nearby is by the presence of short, browsed Red osier stems that look like they've been attacked in over-zealous hedge trimming. Such tell-tale signs are wanting at Prexy's Pasture, where Red osier is among the newest recruit of natives to be added to campus plantings at the University of Wyoming. It is a favorite landscaping shrub for its accents of color and thrives on moist or well-watered settings. The cultivated varieties of this native species have been selected by horticulturalists from plants in the wild for specific colors, growth forms, and climate adaptations. Propagation information is published by Dorn and Dorn (2007).

Red osier dogwood is in the featured Dogwood family (p. 3, this issue). The phenology of Red osier and many other species is profiled on the National Phenology Network homepage (http://www.usanpn.org/), chronicling development through the growing season, and with links to images showing stages and features...a glimpse of things to come. BH

References – continued on p. 10



Above: *Cornus sericea* (Red osier dogwood), from: Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 2: 662.

In this issue:

WNPS News

WNPS Markow Scholarship: The 2009 WNPS Markow Scholarship announcement is in this issue, open to all who are pursuing graduate research related to native plant species and vegetation in Wyoming. The deadline is February 18.

Ballot and Renewal: Starting in 2009, the Wyoming Native Plant Society membership year begins in January. This makes for a short 2008 year, but the membership remains a bargain. Please renew early and mail your vote by January 25. See the mailing label for the year through which your membership is current, or get the date of last renewal from Ann.

Wyoming Native Plant Society
P.O. Box 2500
Laramie, WY 82073

Contributors to this issue: Beth Burkhart, Robert Dorn, Walter Fertig, Bonnie Heidel, Dave Kesonie, and Jill Larson.

Contributions: Announcements, book reviews and ideas are welcome any time of year by mail or email. The next newsletter deadline is 15 Feb.

New Members: Please welcome the following new members to WNPS: Linda Dudinyak (Jackson); Cheryl Mayer, Custer, SD; Sean Sheehan (Cody); Paige Wolken, Cheyenne, and Mary Wyman, Laramie.

Treasurer's Report: Balance as of 24 November 2008 - General Fund: $1,604.65; Markow Scholarship Fund: $848.50. Total Funds: $2,453.15.

Mark Your Calendar:

Black Hills Area Ecologist and Botanist Workshop, an interagency-sponsored event
When: March 12, 2009
Where: Western Dakota Tech (Rapid City, SD)
This one-day professional forum for natural resource professionals and researchers working in the Black Hills is open to the public. If you are interested in speaking or attending, contact: Amy Symstad (asymstad@usgs.gov ; 605-745-1191).

Changing Landscapes in the Southwest, the Southwest Rare Plant Conference, sponsored by Utah Native Plant Society
Where: Salt Lake City, UT on the University of Utah campus
When: March 16 through 20, 2009
Topics will range from rare plant issues (Southwest region as well as Utah) plant community and ecological restoration, climate change issues and others. Format will include posters, presentations and breakout sessions. There will be a published proceedings from this conference. Dr. Noel Holmgren will be our keynote speaker Events sponsors currently include Red Butte Garden and The Nature Conservancy. For more information and signup:
http://guest.cvent.com/i.aspx?5S,M3,549fa0a2-ee97-4fab-81b4-288ff73aac78

Plants Without Borders, the2009 annual meeting of Colorado Native Plant Society (CoNPS)
When: September 11-13, 2009 (weekend)
Where: Windsor, CO (north of Fort Collins) at The Ranch (Larimer County Fairgrounds)
Plant enthusiasts are also invited to cross borders. Wyoming Native Plant Society members will participate at some level in the Rare Plant Technical Conference on Friday and the symposium on Saturday. Sunday tours will include Soapstone Ranch, near the state line with Colorado's largest Colorado butterfly plant population. WNPS and CoNPS will print and post more information as it becomes available.

Wyoming Plant Families

The Dogwoods (Cornaceae)

By Walter Fertig

With a name like "dogwood" it is only natural to assume that members of the Cornaceae either resemble dogs or are undeniably attractive to our canine companions. In truth, the word dogwood is a corruption of a Scandinavian term "dag", meaning skewer. The hard woody stems of dogwood are excellent for roasting game over a fire or for use in basketry or wicker. Indeed, the Latin name for the dogwoods, *Cornus,* translates as "horn" in reference to the hardness of the plant's wood, which has often been used as a substitute for metal in the manufacture of weaving shuttles, bobbins, and farming implements.

The dogwoods are a relatively small family, with about 100 species distributed widely across the northern hemisphere, but extending into the mountains of South America and rarely into the tropics. About half of all known species in the family belong to the genus *Cornus*, although taxonomic splitters have suggested dividing this group into as many as eight separate genera.

Wyoming is home to two native dogwoods, of which the shrubby Red-osier (*Cornus sericea*, or *Swida sericea* for you splitters) is the most widespread. Red-osier dogwood gets its common name from the bright red stems (osier is French for long, willow-like shoot) that are especially obvious when the leaves have shed in winter. In this condition the shrub's bark can resemble that of willows with which it shares an affinity for wet soils and damp streamsides. In summer, Red-osier dogwood is easily recognized by its oval to elliptic leaves with prominent veins that gently curve to follow the smooth margins of the blade. *Cornus sericea* is among the few tree or shrub species in the west with opposite leaves (occurring in pairs on opposing sides of a stem, rather than singly in a zig-zag fashion) that are neither lobed nor divided.

The most reliable way to identify a dogwood in leaf is to break the leaf stalk or petiole and slowly pull each half apart to reveal the stringy white pith inside. The pith is part of the internal network of fibers that give the stem rigidity and flexibility. Dogwood pith is unusual in its elasticity, allowing it to be pulled like cotton candy batter, though it is less edible and brightly colored.

Like most dogwoods, Red-osier has inconspicuous white flowers with four or occasionally five petals borne in a flat-topped umbrella-like cyme. Wyoming's second dogwood species, Bunchberry (*Cornus canadensis*), differs in having four large, petal-like, bracts enfolding the smaller white flowers at the center of the inflorescence which creates the illusion of a single enormous flower. This low-growing herbaceous species is relatively uncommon in the state, being known only from Yellowstone National Park, the Bighorn Mountains, and the Black Hills. Additional anatomical differences have prompted some taxonomists to segregate the herbaceous dogwoods into the genus *Chamaepericlymenum.* If accepted, this 18 letter tongue-twister would surpass *Krascheninnikovia* (Winterfat) as the longest genus name in the Wyoming flora.

Dogwoods produce showy red or white fleshy fruits that are often as attractive (or more so) than the flowers. Technically, the fruits are drupes (like cherries) with a single, hard seed inside. Dogwood fruits are an important food source for songbirds and grouse.

Red-osier is one of several plants referred to as "kinnikinik" (meaning "that which is mixed" in Algonquian, Cree, or Ojibwa) for its use by American Indians as a tobacco substitute. The inner bark of young stems was split and scraped into threads and toasted over a fire before being mixed with real tobacco. Though he never admitted to trying it, edible plant aficionado H.D. Harrington noted that Red-osier "is said to be aromatic and pungent, giving a narcotic effect approaching stupefaction". He recommended its use only in moderation.

Perhaps it is fortunate that we have adopted the term "dogwood" over the more linguistically pure "dagwood" for these handsome and useful shrubs. Certainly, the image of a buffoonish cartoon character noted for sleeping on the job and crashing into the postman does not befit the dogwood clan. More importantly, the word dogwood allows for the clever botanical joke, always worth repeating: How do you tell a dogwood? By its bark, of course!

Announcing:

Flyers on Threatened and Endangered Plants of Wyoming

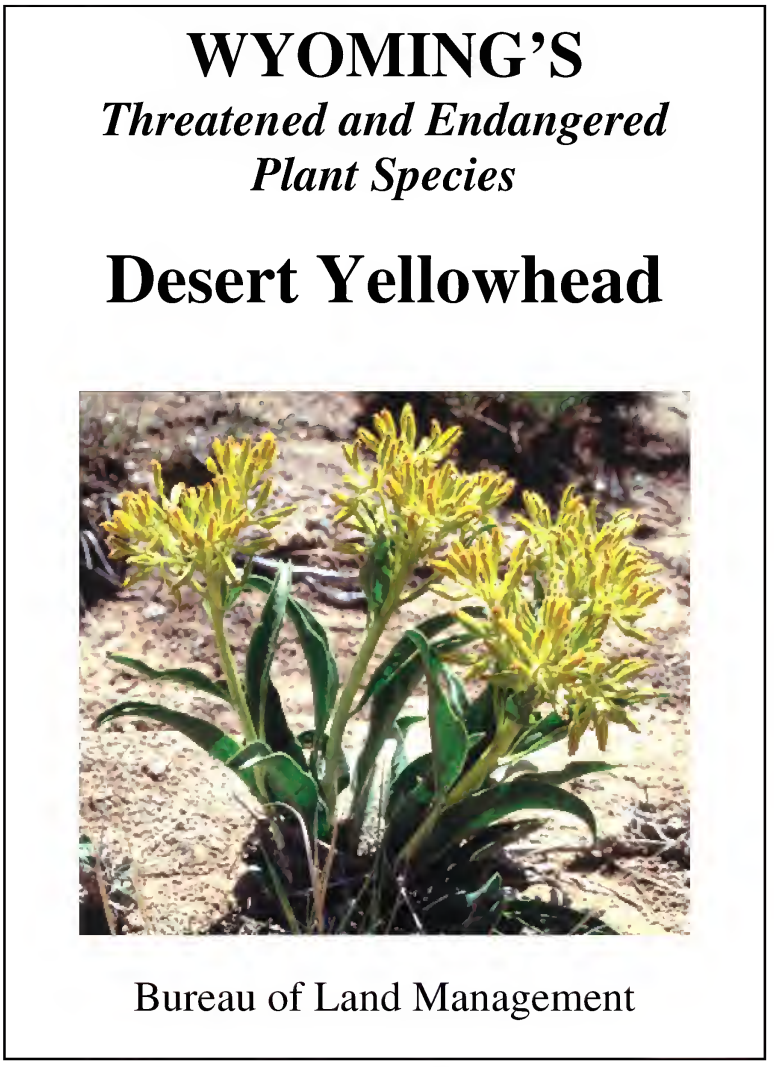
All four Threatened and Endangered plants of Wyoming are now featured on striking flyers recently published by the Bureau of Land Management, including:

- Blowout penstemon (*Penstemon haydenii*) – Endangered
- Colorado butterfly plant (*Gaura neomexicana* ssp. *coloradensis*) – Threatened
- Desert yellowhead (*Yermo xanthocephalus*) – Threatened;
- Ute ladies'-tresses (*Spiranthes diluvialis*) – Threatened

The four-page flyers present the story of their discoveries, their descriptions, life histories, habitat requirements, conservation, suggested readings; and with photographs, distribution maps and illustrations. They are springboards for use by students and educators, consultants, agency biologists, and by native plant experts and enthusiasts of all stripes. The four T&E species are highly localized in their distribution, though collectively known from seven of the 22 counties in the state.

Copies are available at all ten Bureau of Land Management field offices in Wyoming and at the BLM state office in Cheyenne. Wyoming Natural Diversity Database (WYNDD) also has copies for distribution. There is no cost for mailing individual or multiple flyers, also available in sets. Teton Chapter members will have copies available at local events, and copies are currently at the Rocky Mountain Herbarium. The flyers can also be downloaded directly from the homepage of the BLM State Office (//www.blm.gov/wy/st/en/programs/Botany.html).

This education project represents collaboration between the Bureau of Land Management and the University of Wyoming, as reflected in its authorship and narrative, along with other agencies and organizations. It included publication of the Threatened and Endangered plants poster. Copies of this poster are still available at no cost (available at BLM offices, or contact Wyoming Natural Diversity Database @ wndd@uwyo.edu or 766-3020; or else your nearest BLM office). BH



Above: *Yermo xanthocephalus* photo by Charmaine Delmatier

Check the flyers for answers to many mysteries:

-What T&E plant had to be discovered TWICE in Wyoming, 119 years apart?

-What T&E plant in Wyoming is also found downstream from the state,… in almost all directions?!

-What T&E plant is known only from Wyoming?

-What T&E plant of Wyoming lives closest to YOU?

What a Native Plant Society Means to Me

By Beth Burkhart

As my two years as president of Wyoming Native Plant Society come to an end, I'm thankful for the opportunity I had to learn more about Wyoming and the organization. It has been great to interact with other members across the state that I wouldn't otherwise have met, as well as work closely with other officers and board members to make several projects a success (from annual field trips to 2007 Wyoming Plant Conference).

The last two years, I've been contemplating what the main purpose of a native plant society is. An interesting article by Stanwyn Shetler in **Plant Conservation: A Natural History Approach** (University of Chicago Press, 2005) provides much food for thought. The article chronicles the history of native plant societies, from a beginning in United States with the New England Wild Flower Society (founded in 1900 as the Society for the Protection of Native Plants). Today, there are native plant societies in almost every state. They have similar missions that can be bundled up into the statement that they are promoting the conservation of North American plant species through education, research, horticulture, habitat preservation, and advocacy. What I've concluded after two years is that this broad-ranging mission is vital, drawing to it people with very different perspectives, opinions, and areas of expertise – from gardeners using native species in their gardens to academic researchers using the latest technology in a breadth of disciplines.

Rather than focusing on differences, I think it's useful to think about what we have in common. I would propose that whether someone is planting a roadside with native landscaping, pulling weeds in a park/open space, leading a field trip or providing a school program on native plants, doing a floristic survey, submitting a comment on a public plan advocating protection of native plant habitat, or participating in a conference to review status of rare plant species, the common ground is that we value native plant species and the ecosystems around us. If there is a single thing uniting us, it is the personal level of our quests to appreciate, understand and conserve something as complex and fundamental to Wyoming as its plant life.

While I originally thought that I could best serve native plant species and the WY Native Plant Society by limiting the focus of effort/energy on a smaller rather than larger number of items, I came to realize that this could result in loss of members and motivation – and less accomplishment of mission rather than more. A native plant society is at the heart a grassroots organization, which functions best with a bottom-up flow (as opposed to top-down). Shetler warns in his article against native plant societies becoming too distracted by gardening/landscaping, weed eradication, etc. and diverting scarce resources (in most native plant societies, generally human resources) from conserving native plants in native habitats. To the contrary, I believe the diversity of perspectives is a native plant society's greatest strength BUT only if members bring their time and energy along with their perspectives to the society. In a grassroots organization, nothing happens if the roots/members don't make it happen!

> "*If there is a single thing uniting us, it is the personal level of our quests to appreciate, understand and conserve something as complex and fundamental to Wyoming as its plant life.*"

My thanks to the many people I've worked with over the last two years keeping WY Native Plant Society an active entity that makes a difference in conservation of the native flora of Wyoming. I close with a challenge to all members to examine the mission of the WY Native Plant Society and determine where you can contribute to conserving native plants in native habitats – and then do it!

Unstoppable Global Warming Every 1,500 Years By S. Fred Singer and Dennis T. Avery. Updated and expanded edition, 2008. 278 pp. Rowman & Littlefield Publishers, Inc., Lanham, MD. Paperback $19.95.

Review and opinion by Robert Dorn

This book carefully documents global warming as a natural cycle and not human caused. It has numerous examples of the misuse of science to advance a personal agenda or achieve a political objective.

S. Fred Singer is a climate physicist, professor emeritus of environmental sciences at the University of Virginia, and currently Distinguished Research Professor at George Mason University. Dennis Avery is probably best described as a free lance writer with past federal government experience.

The Dedication concludes with the statement: "The public has remained virtually unaware that the 1,500-year cycle offers the only explanation for the modern warming that is supported by physical evidence."

The Preface outlines the theme of the book: "A public relations campaign of staggering dimensions is being carried forward to convince us that global warming is man-made and a crisis." "We still believe the truth eventually wins out, and that the average person is fully capable of telling truth from propaganda." This book is a demonstration of reality, how our pseudo-democratic system can put numerous obstacles in the path of truth. But the real purpose is a documentation with nearly 500 citations of what they believe is the truth: "We can state with confidence that the human contribution to current warming is not significant and is outweighed by natural climate variability."

Part One provides evidence and commentary on the 1,500-year (± 500) warm-cold, sun-driven climate cycle which is superimposed over the longer and stronger Ice Ages and warm interglacials. Types of data include ratio of oxygen and other isotopes in ice cores from Antarctica and Greenland, seabed sediment cores, cave stalagmites from the Northern and Southern Hemispheres, fossilized pollen, tree growth rings, archeological findings, and coral reef composition, among others. The cycle shifts have occurred roughly on schedule whether CO_2 levels were high or low. Unlike the model-based predictions used by advocates of the theory of man-made global warming, the "1,500-year climate cycle is a documented reality, based on a wide variety of physical evidence from around the globe." "So far we have no evidence that the Earth is warming to dangerous levels due to human-emitted greenhouse gases." A government employee in the Clinton administration admitted to being pressured to insert the "human fingerprint" in the summary of a document of the United Nations' Intergovernmental Panel on Climate Change (IPCC), and he removed from the science volume five statements approved by the panel's scientific consultants that stated no "human fingerprint" had been found. This is only one of several manipulations of the IPCC documents that have come to light.

> *"So far we have no evidence that the Earth is warming to dangerous levels due to human-emitted greenhouse gases."*

Part Two treats the flaws of the greenhouse theory and global climate models. Eight failures of the greenhouse theory are listed. In addition, the Global Circulation Models assume a planet with a stable climatic state, and that climate change will be smoothly linear, both false assumptions. "CO_2 for at least 240,000 years has been a lagging indicator of global warming, not a causal factor." They elaborate on some reasons to champion the greenhouse theory. Journalists have embraced the theory because it sells newspapers and attracts television viewers. "Politicians are always willing to jump ahead of any parade.... Former U. S. Vice President Al Gore is not an unusual character in our political history. What's new is that large parts of the scientific community have learned from the professional environmentalists and journalists how scares can generate funding and political power."

> *"CO_2 for at least 240,000 years has been a lagging indicator of global warming, not a causal factor."*

Part Three discusses baseless fears about global warming. Government agencies have projected sea level rise of as much as 3.5 feet by 2100 (Al Gore predicted 20 feet). Scientific experts in that field expect a 0 to 20 cm rise (less than 8 inches). There has been virtually no change in the past decade and no trend over the last 300 years. Scientists who are predicting hundreds of thousands of extinctions over the next 50 years concede that the same level of warming over the last 150 years has resulted in one extinction and this one was recently found to be due to changes in land use by humans. There is no evidence that warming produces more storms or more severe storms. Some areas will certainly experience heavier rains and other areas will experience drought in the future.

Part Four discusses the heavy costs and futility of the Kyoto Protocol. The money that would be expended to reduce CO_2 emissions, which would do little or nothing to change global warming, would be much better spent to improve the lives of third world peoples. "The United Nations ... saw the greenhouse theory as a way to expand its influence and power." "The Kyoto protocol was negotiated by the Clinton administration in 1997, much of it personally by Vice President Al Gore in preparation for his unsuccessful run for the U. S. presidency in 2000." European governments hoped to gain a competitive advantage over America. "Western Europe was overjoyed when Al Gore and the Clinton administration signed the American economy up for Kyoto's energy constraints - and terribly disappointed when George W. Bush erased that U. S. commitment." The Bush administration wasn't right on very many things, but it looks like they were right on this one, even if for the wrong reasons.

The next to last chapter discusses energy alternatives. This is perhaps the weakest part of the book. They state that, "The discussion in this chapter makes clear that the only possible alternative to fossil fuels today and in the near future is nuclear power." With projected future demands for energy, we will likely need to utilize every renewable and non-renewable source whether cheap or expensive.

The concluding chapter summarizes the book. "If the public were suddenly convinced of the natural, moderate 1,500-year cycle, there would be a crushing impact on donations and grants to environmental advocacy groups and on the reputations of the journalists who wrote the global warming scare stories, along with professional starvation for many university departments, government laboratories, and whole divisions of NASA and EPA." "Millions of Americans have already volunteered for such "global warming" by relocating to the recently air-conditioned South and Southwest. Their climate change is as great as most of the world's inhabitants should expect in the next *several centuries*, and they love it." "The message from the ice cores is clear: global warming is natural, unstoppable, and not nearly as dangerous as the public hysteria over it."

Their closing paragraph puts it all in perspective: "The chief worry then [in a future generation] is likely to be the coming Ice Age still looming as our mild interglacial period draws toward a close. The watchword will then, more than ever, be "insulate," "adapt," and "grow more food on less land," to leave more room for the people and wildlife pushed toward the equator by the mile-thick ice sheets advancing through Chicago."

"The message from the ice cores is clear: global warming is natural, unstoppable, and not nearly as dangerous as the public hysteria over it."

What can we expect for Wyoming? Chances are pretty good that we will experience more droughts that could be more severe. Temperatures will likely rise modestly. This might result in more exotic weeds displacing native plants unless the drought conditions keep the exotics in check. Major shifts in vegetation are not expected. Our native plants have been through these warming cycles in the past. Those plants that could not adapt were eliminated from the state long ago. The plants are able to take care of themselves. It is we who will need to adapt.

Additions to the Flora of Wyoming

By Bonnie Heidel, Jill Larson and Dave Kesonie

Five native additions to the state flora (Dorn 2001) were documented in 2008 studies. One is from Teton Canyon, in the Caribou-Targhee National Forest, less than 10 miles east of Idaho, discovered in the course of a baseline botanical survey. The others are from the Bear Lodge Mountains, on the Black Hills National Forest, less than 20 miles west of South Dakota, documented in a proposed research natural area. Collection label information will be published as a technical note, and field guide and status information will be in state species abstracts on the WYNDD homepage: www.uwyo.edu/wyndd .

Above: *Amphicarpaea bracteata*, by Jill Larson

A New Genus

Amphicarpaea bracteata (L.) Fern.
Groundnut or American hogpeanut (Fabaceae) – Peripheral widespread species of eastern North America
CROOK COUNTY: A vine-like annual legume with no sign of flowers and fruits would have been easy to overlook in a botanical study. As it turns out, *Amphicarpaea bracteata* was collected with subterranean flowers. It produces flower and fruits late in the growing season. *Amphicarpaea* is a small genus of East Asia, Africa and the eastern half of North America. Its subterranean fruit is edible and was likely to have been on the menu that first Thanksgiving in 1621 at Plymouth Rock (Ode 2006). In the Black Hills of South Dakota, it is "uncommon at low to mid elevations in moist understory of hardwood drainages" (Larson and Johnson 1999). In the Bear Lodge Mountains, it was found on the terrace, creek bank, and seasonally-flooded stream channel of a steep, wooded valley by J. Larson.

Above: *Botrychium crenulatum*, by Dave Kesonie

It's B-A-C-K-K-K!

Botrychium crenulatum W.H. Wagner
Crenulate moonwort (Ophioglossaceae) – Peripheral species sparsely-distributed in western North America
TETON COUNTY: Wyoming botanists are haunted by moonworts (*Botrychium* subg. *Botrychium*), primitive vascular plants that do not emerge above-ground each year and often appear in "genus communities" of multiple species. Twice in the past, *Botrychium crenulatum* has been heralded as an addition to the state flora only later to be questioned. Finally in 2008, this elusive plant was caught.

Botrychium crenulatum was first reported for Wyoming in the *Flora of North America* (Wagner and Wagner 1993) and cited as such in *Castilleja* (Fertig 1995). However, it was learned in 1998 that the FNA authors based its report in the state on likelihood of potential habitat in western Wyoming (W. Wagner pers. commun. to W. Fertig). By this time, in 1997, the first *B. crenulatum* sighting in the state was made by Faye Streier at French Creek Swamp in the Big Horn Mountains, an observation that was from a credible observer but was not accompanied by proof. Four years later, an intrepid moonwort stalker went back to search for the species, finding instead two other moonworts at the French Creek Swamp locale, and one included *B. ascendens*, a look-alike species (Fertig 2003). The status of *B. crenulatum* in Wyoming remained a mystery and the species was not included in the current state flora (Dorn 2001).

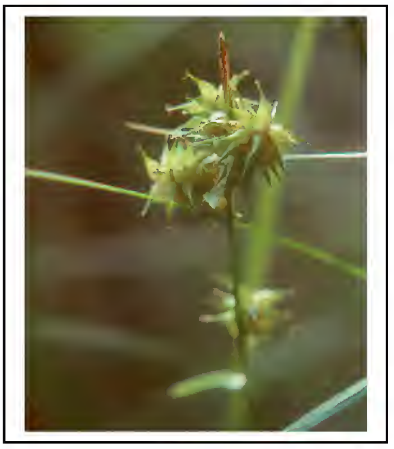
The inferences of the Wagners bore fruit, or *Botrychium*, in 2008 when Dave Kesonie conducted plant surveys in Teton Canyon around Treasure Lake in Teton County, on the Caribou-Targhee National Forest. Wet spruce was among the habitats targeted for survey. Kesonie knelt to find exactly one *B. crenulatum* poking up through duff in the company of other habitat specialists (*Corallorhiza trifida, Listera borealis*) with no other moonwort species or individuals in sight. He was able to photograph the leaflet outlines needed for determination (see previous page), left the lone plant intact, and provisionally identified it as *B. ascendens*. Joy Handley at WYNDD was later to study the image with the FNA treatment and unpublished *Botrychium* references, and came up with the startling determination of *B. crenulatum*. The photo was sent to Dr. Donald Farrar, expert in the genus and former student of W. Wagner, who provided verification. There will ideally be vouchers and genetics analysis to follow. *B. crenulatum* is distinguished by its rounded, fan-shaped leaflets and extremely reflexed basal sporophore branches. The pinnae are more spreading (perpendicular to the rachis) than are those of *B. lunaria*. In the Teton Range, it was found in a moist, mossy shallow depression of *Picea engelmannii* forest.

[*Editor's note: Photographs are not accepted by herbaria, and rarely accepted as confirmations of new species. However, collecting of voucher specimens is not advised in small populations, and diagnostic characteristics of moonworts can be captured on film.*]

A Big Genus Just Got Bigger

Wyoming has many large genera that lend color to the state flora, but the biggest genus of them all is the sedge genus, *Carex*, without showy flowers. Dorn (2001) reports 120 species and intraspecific taxa in the state. In 2008, three more species of *Carex* were documented in the Bear Lodge Mountains of the Black Hills from wet habitats less than 0.5 miles apart. Two were verified by Gary Larson (this article) and a third was verified by A. A. Reznicek after the newsletter went to press – a future sedge *suspense* story.

Carex intumescens Rudge
Great bladder sedge (Cyperaceae) - Peripheral widespread species of eastern North America
CROOK COUNTY: *Carex intumescens* has the quintessential air sac design in the sedge genus, with inflated perigynia that are 10-15 mm long. In the Black Hills of South Dakota, it grows "along streams, springs, and in boggy areas, where partly to heavily shaded" (Larson and Johnson 1999). In the Bear Lodge Mountains it was found at a spring and spring-fed wetland by B. Heidel. A previous report of it for Wyoming in the 1990's was based on a misidentification.



Above: *Carex intumescens* by B. Heidel

Carex scoparia Schkuhr ex Willd.
Broom sedge (Cyperaceae - Peripheral widespread species of eastern North America
CROOK COUNTY: *Carex scoparia* is one of very few species that *had* a North American distribution pattern with a "donut hole in the middle", representing apparent absence from Wyoming. In the Black Hills of South Dakota, it grows in "saturated wet meadows, springs, and fens" (Larson and Johnson 1999). In the Bear Lodge Mountains it was found in a wet meadow along a creek bank by J. Larson.

References

Dorn, R.D. 2001. Vascular Plants of Wyoming, third edition. Mountain West Publishing, Cheyenne, WY.

Fertig, W. 1995. Botanical News from Wyoming and the Rocky Mountain Region. *Castilleja* 14(1):4-5.

Fertig, W. 2003. Confessions of a moonwort stalker. *Castilleja* 22(1): 9-11.

Larson, G.E. and J.R. Johnson. 1999. Plants of the Black Hills and Bear Lodge Mountains. South Dakota State University College of Agriculture & Biological Sciences, South Dakota Agricultural Experiment Station B732. Brookings, SD.

Ode, D.J. 2006. Dakota Flora: a Seasonal Sampler. South Dakota State Historical Society Press, Pierre, SD.

Wagner, W.H., Jr. and F.S. Wagner. 1993. Ophioglossaceae. In: Flora of North America Editorial Committee, eds. 1993+. *Flora of North America North of Mexico*. Vol. 2. Pteridophytes and Gymnosperms. Oxford University Press, New York and Oxford. pp. 85-106.

Natives Come to Campus – cont. from p. 1

References (from p. 1)
Dorn, R.D. and J.L. Dorn. 2007. Growing Native Plants of the Rocky Mountain Area. 252 pages. Book version or CD; available at www.lulu.com/content/768231;

National Phenology Network. 2008. Jointly sponsored by U.S. Geological Survey and Project Budburst, at: http://www.usanpn.org/.

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This article is excerpted and modified from one prepared by the author that ran weekly in a statewide newspaper elsewhere, a series that featured native plants each week during the growing season. If other members of Wyoming Native Plant Society are interested in approaching the state newspaper about such a series, or in authoring articles for it, please contact the newsletter editor.

Wyoming Native Plant Society
P.O. Box 2500
Laramie, WY 82073

The Wyoming Native Plant Society is a non-profit organization established in 1981, 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. To join or renew, return this form to:

Wyoming Native Plant Society
P.O. Box 2500, Laramie, WY 82073

Name: _____

Address: _____

_____

Email: _____

___ $7.50 Regular Membership
___ $15.00 Scholarship Supporting Member
($7.50 goes to the Markow Scholarship Fund)

Check one:

_____New member
_____Renewing member

__Renewing members, check here if this is an address change.