



Castilleja

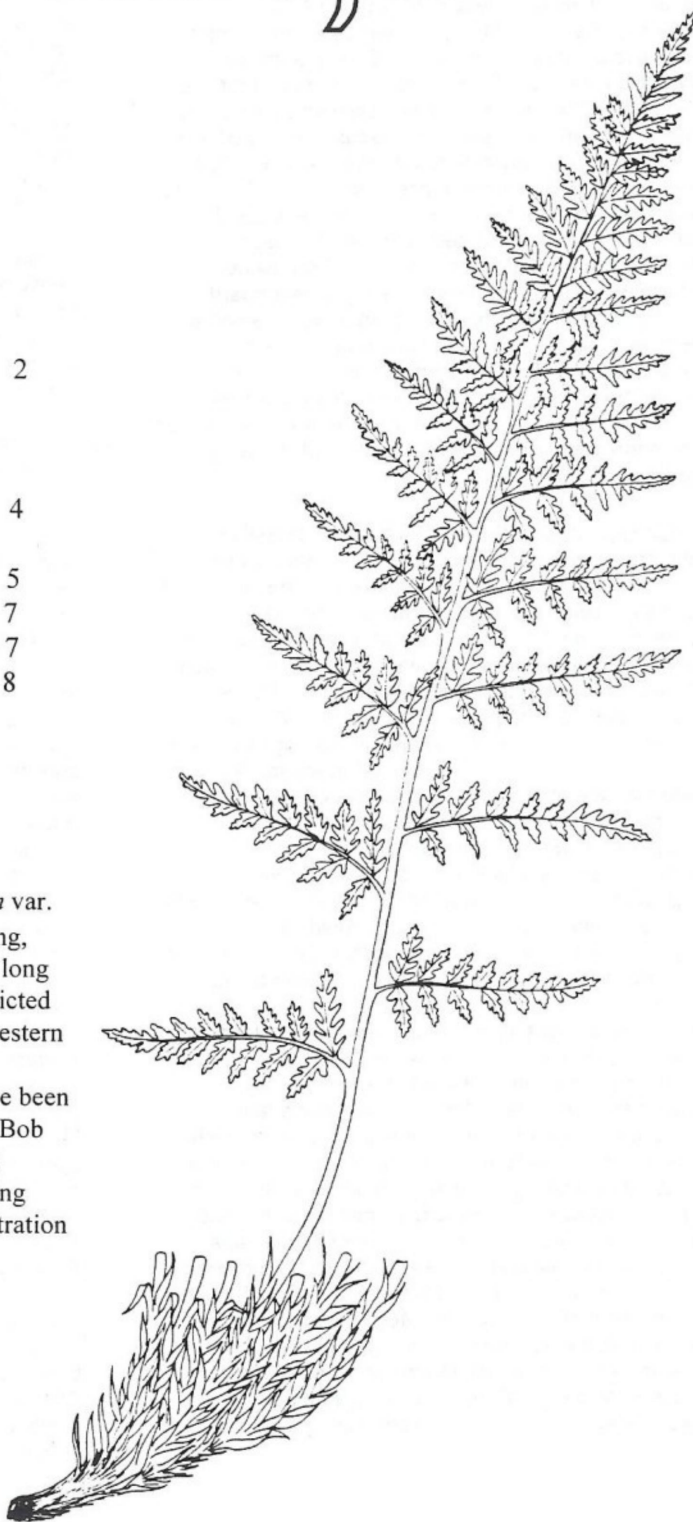
The Newsletter
of the Wyoming
Native Plant Society

October 1996
Volume 15, No. 3

In this issue:

WNPS News	2
Annual Meeting	
1996 Summer Field Trip Reports	
Tall Forb Communities of Western Wyoming and Eastern Idaho	4
Landscaping with Wildflowers and Other Native Plants	5
The Caper Family	7
Botany Briefs	7
The Botany 130 Songbook	8

Alpine Lady Fern (*Athyrium distentifolium* var. *americanum*) is one of our largest ferns in Wyoming, with elliptic, 2-4 times pinnate fronds up to 70 cm long and 20 cm wide. In Wyoming, this species is restricted to alpine talus habitats in the Teton Range, southwestern Yellowstone National Park, and the Snowy Range (Medicine Bow Mountains). It was thought to have been extirpated in the Snowies until it was relocated by Bob Dorn during this summer's Wyoming Native Plant Society annual meeting. For more on this interesting discovery, see the field trip report on page 2. Illustration by Jane Dorn.



WNPS NEWS

Annual Meeting: The WNPS annual meeting and field trip were held in the Snowy Range on August 3, 1996.

Approximately 25 members and guests enjoyed a sunny summer day of botanizing in the alpine country between Libby Flats and Sugarloaf Mountain, just east of Medicine Bow Peak.

A brief business meeting was held in the lookout observatory at Libby Flats. New president Jennifer Whipple lead the discussion of new business, including plans for a fourth Wyoming Rare Plant Conference, scheduled for March 1997 in Riverton. The possibility of establishing a chapter in the Laramie-Cheyenne area was also discussed, as well as the idea of coordinating Society events with the Forest Service.

The Secretary-Treasurer announced the results of the 1996 Board elections. To no one's surprise, the entire slate of nominated candidates was elected. Officers for 1996/97 are: President: Jennifer Whipple, Vice President: Charmaine Refsdal, Secretary-Treasurer: Walter Fertig, 2-year board member: Katy Duffy. Jean Daly will continue as the second Board member. Thanks were extended to our outgoing board members, Barbara Amidon and Diana Osuna.

The Ft. Laramie/Torrington area (Great Plains) narrowly beat out the Wind River Range in the vote for next years annual meeting/field trip site. Look for details on the 1997 outing in an upcoming issue of *Castilleja*.

Snowy Range Field Trip: With Society business taken care of, the group proceeded from the Libby Flats parking area to the base of Sugarloaf Mountain. Considering the number of botanists in the crowd, we made admirable progress, nearly reaching the mountain (a distance of 1/2 mile) by lunch time!

Enroute, we encountered a dazzling display of showy alpine species typical of the southern Rocky Mountains. The Snowy Range (technically just the quartzite spine of the Medicine Bow Range) is the only true alpine area in southeast Wyoming and home to a number of uncommon species that are more typical of Colorado than the other mountainous areas of Wyoming. Among the rarities that we found were pinnate fleabane (*Erigeron pinnatisectus*), a purple-rayed composite with pinnately divided leaves; blackheaded daisy (*Erigeron melanocephalus*), a species characterized by a densely black-woolly involucre beneath a relatively large head of white rays; and Rocky Mountain snow-lover (*Chionophila jamesii*), a plant with whitish snapdragon-like flowers closely related to the penstemons.

The most noteworthy find of the day, however, belonged to field trip co-leader Robert Dorn. As we were proceeding to the base of Sugarloaf, I mentioned to Bob that we were in the vicinity of an historical location for American alpine lady fern (*Athyrium distentifolium* var. *americanum*). This hardy, high-elevation fern had not been reported from the Medicine Bow Range since 1934, when it was last seen on the east face of Sugarloaf. After hearing this story, Dorn nonchalantly lifted his binoculars, looked towards the base of the quartzite talus slope, and calmly announced "there it is". Bob then proceeded to lead us across a snowfield and boulder slope straight to the ferns! A population of approximately 40 individuals was found in crevices among the boulders growing with parsley fern (*Cryptogramma acrostichoides*), Drummond's rush (*Juncus drummondii*), Ross sedge (*Carex rossii*), dwarf mountain butterweed (*Senecio fremontii*), and seep-spring arnica (*Arnica longifolia*).

In addition to rarities, we also explored the more common (but no less interesting) flowers of the alpine turf and timberline communities. Dense, low-growing turfs consisted primarily of alpine avens (*Geum rossii*), Rocky Mountain sagewort (*Artemisia scopulorum*), and a variety of low grasses, sedges, and wildflowers. Rocks scattered liberally throughout the rolling meadows supported their own micro-communities of crustose lichens. Local lichen aficionado Bill Brenneman kindly provided identifications for the group. Amid the rocks were a variety of showy wildflowers including blue columbine (*Aquilegia coerulea*), butterweed (*Senecio dimorphophyllus*), and Whipple's penstemon (*Penstemon whippleanus*). Treeline communities featured wind-sheared hedges of Engelmann spruce (*Picea engelmannii*) and subalpine fir (*Abies lasiocarpa*), with currants (*Ribes lacustre*) and stunted grouse whortleberry (*Vaccinium scoparium*) on the leeward edges.

On the return leg of the hike, we explored the edges of Libby Lake, encountering willow thickets and tussocks of wetland grasses and sedges. Bob Dorn did his best to explain the subtle nuances distinguishing *Salix glauca* and *S. brachycarpa*. In addition, we observed two low, pink-flowered shrubby heaths, red mountain-heather (*Phyllodoce empetrifomis*) and alpine laurel (*Kalmia microphylla*). I pointed out the spring-loaded anthers of the saucer-shaped *Kalmia* flower that can be triggered by a slight touch. Other wildflowers in the wetland included pink elephant's-head (*Pedicularis groenlandica*), white violets, and a lot of sedges. WF

Laramie Range Trip: A second trip was held on Sunday, August 4, for those who did not receive their complete botanical fix on Saturday. Bob and Jane Dorn lead a smaller, but no less enthusiastic, group on a tour of the fern gardens near Brady Rock, east of the Lincoln head monument on Interstate 80. The steep, shady cliff walls of these Sherman granite outcrops support populations of four state and regionally rare ferns and fern allies, a remarkable concentration for a "pteridophyte-challenged" state such as Wyoming. The most peculiar species in the group is probably *Asplenium septentrionale*, a species with slender, linear leaves resembling blades of grass. A look at the underside of the leaves reveals a rim of brown sporangia, proving that the plant is truly a fern. A closely related species, *Asplenium trichomanes*, is also present in deep, shady crevices. This species is known from only one other location in the state, last observed in 1939. Rarest of all the ferns at this site is the Rocky Mountain polypody (*Polypodium saximontanum*), a regional endemic of the South Dakota Black Hills and the Front Range from SE Wyoming to northern New Mexico. This species was formerly called *P. vulgare* var. *columbianum*, but was recognized as its own species in 1993. Rounding out the collection of rare pteridophytes is *Selaginella underwoodii*, a moss-like vascular plant with ropey stems closely appressed to the cliff face. This species is known from only 4 other sites in Albany and Laramie counties.

Several other unusual plants were encountered on this short hike, all with affinities to the southern Rocky Mountain floristic region. These species included *Heuchera bracteata*, *Jamnesia americana*, *Polemonium brandegei*, *Senecio fendleri*, and *Eriogonum jamesii* var. *flavescens*.

From Brady Rock, the group proceeded to a wetland area bordering the Happy Jack Road where it crosses the Middle Fork of Crow Creek. This otherwise unremarkable looking site contains 10 of the 32 known species of willow found in Wyoming (all in an area of less than 1/4 acre). The most

noteworthy plant found here is Autumn willow (*Salix serissima*), a species listed as Sensitive by the US Forest Service. The Crow Creek site contains the only known occurrence of this boreal species in Wyoming. Autumn willow is unusual in that it is the latest blooming willow in the state. Pistillate plants still had developing catkins on the day of our trip, long after most of the other species in the area were finished with fruit production.

A small cold-water spring is present at this site and may account for some of the unusual species diversity. Two boreal disjunct species, hoary willow (*Salix candida*) and rush aster (*Aster borealis*) are present on quaking mats in the bog. Other unusual plants in the area include *Senecio debilis*, an orange-flowered, rayless composite, *Campanula parryi*, a large-flowered relative of the common harebell, and *Oxytropis splendens*, a purple-flowered locoweed with leaflets arranged in dense fascicles. All in attendance agreed that this unusual site warranted some kind of special recognition by the Forest Service for its rich and diverse flora. WF

Below: *Asplenium septentrionale* by Jane Dorn.



Tensleep Trip: A small group of members attended a mid-July weekend trip to The Nature Conservancy's Tensleep Preserve, on the rugged west side of the Bighorn Range. The objective of this trip was to add to the plant species list being maintained by preserve managers Ann Humphrey and Phil Shephard. On two hikes, we were able to locate over 60 new species that had not previously been reported for the preserve. An investigation of the preserve's herbarium also resulted in the discovery of two additional rare plant species for the site: Arizona bluebells (*Mertensia arizonica*, last seen gracing the cover of the May 1996 issue of *Castilleja*) and Mancos wild buckwheat (*Eriogonum mancum*). We were also able to observe several of the rarest species on the preserve, including Hapeman's sullivantia (*Sullivantia hapemanii* var. *hapemanii*) at the bottom of spectacular Canyon Creek Canyon and Cary beardtongue (*Penstemon caryi*) in thin pockets of soil amid dolomite bedrock. WF

Teton Chapter Produces Landscaping Brochure: We are pleased to include in this issue a copy of a 2-page pamphlet produced by WNPS's Teton County Chapter on landscaping with native plants (see page 5). Although the information pertains chiefly to the Jackson area, readers in other parts of the state should also find it helpful. Congratulations to all involved in creating such a useful guide.

Renewal Time: Although most members are paid up for 1996-97 (indicated by a '97' on your mailing label), a few members still need to pay their dues to remain in good standing. If you have a '94, '95, or '96 on your mailing label please renew soon.

New Members: Please welcome the following new members of WNPS: Katherine Bede (Sheridan), Kathy Browning (Green River), Scott Fisher (Medicine Bow), Vicky Goodin (Laramie), Sabine Mellmann-Brown (Cooke City, MT), Teresa Prendusi (Ogden, UT), Brent Sherard (Wheatland), Gary Skillman (Evansville), Kim Springer (Teton Village), Jeff Troxel (Cody)

Attention Readers: We are always looking for articles and illustrations for the newsletter. Items for the December issue are needed by 1 December 1996.

Treasurer's Report: Balance as of 13 October 1996: General Fund \$685.61; 1996-97 Student Scholarship Fund \$421.00; Total funds: \$1106.61. WF

Wyoming Native Plant Society
1604 Grand Ave., Laramie, WY 82070

President: Jennifer Whipple (Old Faithful)
Vice President: Charmaine Refsdal (Green River)
Secretary-Treasurer: Walt Fertig (Laramie)
Board Members: Jean Daly (Big Horn)
Katy Duffy (Moose)
Newsletter Editor: Walt Fertig (307) 745-5026 (wk)
Contributors to this issue: John Baxter (JB), Meredith Campbell, Jane Dorn, Walter Fertig (WF), Dorothy Leake, and Stuart Markow

Tall Forb Communities of Western Wyoming and Eastern Idaho

By Stuart Markow

Of the many different kinds of vegetation represented in North America, among the most interesting and certainly among the most colorful are the tall forb communities scattered throughout the western United States. Although this cover type extends from central Colorado, west to California and north to Canada, some of the best representation occurs in the high mountains of western Wyoming and adjacent Idaho.

There are various ways that tall forb communities have been described. One way that they have been characterized is "as a large array of luxuriant, rather tall, sixteen to forty-eight inch mesic forbs". Other descriptions have used such criteria as percent tree cover, shrub cover, and graminoid composition in attempts to define the community type.

However one chooses to define it, the type is characterized by a large variety of forb species that vary greatly in composition and distribution of dominant species. Some species occur at nearly every site; others show up only occasionally, with restricted geographic limits or narrow environmental constraints. Basic community structure however, is quite uniform throughout its range of occurrence.

These communities may occur at such diverse sites as along streams, adjacent to springs, or even within the understory of forests or shrublands. Mostly however, they occur at mid to upper elevations (6500-9500 feet) in openings in spruce/fir or Douglas-fir forests. They are often species-rich and may provide a dazzling display of colorful wildflowers. Those contributing to the show usually include sticky geranium (*Geranium viscosissimum*), silvery lupine (*Lupinus argenteus*), and fernleaf lovage (*Ligusticum filicinum*). Others that may be locally important consist of leafy Jacob's ladder (*Polemonium foliosissimum*), bracted lousewort (*Pedicularis bracteosa*), duncecap larkspur (*Delphinium occidentale*), and sulphur paintbrush (*Castilleja sulphurea*). A wide variety of showy composites such as asters (*Aster* spp.), fleabanes (*Erigeron* spp.), showy goldeneye (*Viguiera multiflora*), and little sunflower (*Helianthella uniflora*) round out the visual treat.

Graminoids seldom achieve much importance in tall forb communities (at least in undisturbed sites). However, Raynold's sedge (*Carex raynoldsii*), mountain brome (*Bromus carinatus*), nodding bluegrass (*Poa reflexa*), and showy oniongrass (*Melica spectabilis*) seem to consistently show up, albeit in low concentrations. The situation changes when sheep graze in these communities. In some areas such use has seriously reduced the forb component, and subalpine needlegrass (*Stipa nelsonii*), Wheeler bluegrass (*Poa nervosa* var. *wheeleri*), elk sedge (*Carex geyeri*), and slender wheatgrass (*Elymus trachycaulus*) now dominate. In other areas, heavy grazing by cattle has removed essentially every shred of graminoid material, shifting dominance to a few resistant, unpalatable forbs including mule's ears (*Wyethia amplexicaulis*) and coneflower (*Rudbeckia occidentalis*).

Just why tall forb communities persist without being replaced by trees is beset with controversy, and attempts to explain this phenomenon are diverse and, often, contradictory. No one hypothesis explains all situations. Factors which have been reported as crucial include soil texture and mineralogy, aspect, fire history, and even tree degradation by rodents. While the "textbook" tall forb community occurs on fine-

textured soil derived from limestone or shale on a south-facing slope, the fact remains that such communities also occur on sites which differ in any or all of these factors. One interesting hypothesis contends that the dominance of tall forbs is an artifact of drier conditions during the Pleistocene, and that recent, more mesic conditions will allow forest to encroach on them.

These are relatively fragile systems, vulnerable to the many abuses that have been imposed on vegetation in general. Being highly productive, they are prime targets for exploitation by native herbivores and commercial stock, both of which may seriously reduce plant abundance and ground cover. This vegetation loss encourages erosion, a problem compounded by trampling, fine-textured soils, and steep slopes. Unrestricted hiking and camping may wreak the same havoc. Additionally, tall forb communities may be lost to succession. Allegedly, fire suppression has allowed trees to encroach on those sites where forb dominance has historically been maintained by fire.

Tall forb communities are aesthetically pleasing and important ecological components of the landscape, deserving of our attention and appreciation. Careful, and in many cases, restrained use is paramount if they are to be maintained in their natural condition, now and in the future.

Below: "Werner-leaved" groundsel (just what is a Werner leaf anyway?), perhaps better known by its Latin name, *Senecio wernerifolius*. Illustration by W. Fertig.



Landscaping with Wildflowers

& Other Native Plants



Wild Rose

An astounding array of colors heralds the arrival of spring and summer: lavender lupines, bright yellow balsamroots, pink geraniums, scarlet paintbrushes, deep purple monkshoods, blue penstemons, pink daisies, purple asters, creamy buckwheats, snowy white chokecherries and serviceberries... Wildflowers and flowering shrubs with blossoms of every imaginable hue grow in valleys, on open hillsides, carpet forest floors, paint the walls of mountain canyons and even hug the rocky ground atop peaks where trees cannot grow.

Bring the natural beauty of wildflowers and other native plants to your property. What grows wild will grow in your yard.

Why plant native plants?

Certain trees, shrubs, wildflowers and grasses have adapted to local growing conditions over the past several thousand years. Natural selection has resulted in plants suited to each soil type, aspect (direction a slope faces) and availability of moisture. Plants that grow here naturally have adapted to a burst of moisture from melting snow, then increasing dryness as

summer progresses. Unlike most popular garden plants, native plants do not require extensive watering once they have become established. Landscaping with native plants, the most practical solution, achieves harmony with natural surroundings.

Plants and Wildlife

Jackson Hole hosts a variety of wildlife that depends on native plants for food or shelter. Ground squirrels and chipmunks eat wildflowers and grasses. Forcupines eat a variety of woody and herbaceous plants. Deer and moose frequently browse native shrubs, trimming the plants, but not killing them. Browsing actually triggers branching in willows, revealing a long association between native browsers and native plants. Fences or chicken wire will protect plants.



Cow moose and young calf

Many migratory birds seek the safety of dense shrubs or thick conifers for secure nest sites. Aspens also attract a variety of nesting birds. Berries of hawthorn, chokecherry and serviceberry provide nutritious food for birds prior to migration. Asters and other composites (plants with daisy-like flowers) provide nectar for butterflies.

Exotic Plants

Numerous undesirable non-native plant species are spreading throughout Wyoming. Many exotic plants are aggressive competitors that proliferate quickly. Often they choke out native plants and reduce the natural diversity of plant species we enjoy. Take caution to avoid spreading seeds of exotic plants including oxeye daisy, spotted knapweed, musk thistle, bull thistle and Canada thistle. Always ask if a species is native to northwestern Wyoming. For more information, contact the Bridger-Teton National Forest or the Teton County Weed and Pest District.

Suggested Native Plants

For a natural appearance, pick a few species and plant many of each. Species marked * are the best bets for adaptability and gardening success.

Trees

***Aspen** *Populus tremuloides* This tree does well on the valley floor; it prefers moist soil, but will do well without watering once established (at least two years). One of the best adapted and easy to grow native trees, aspen may send out suckers and spread. Nursery stock survives better than transplants. More suitable for growing in clumps than as single trees.

***Engelmann spruce** *Picea engelmannii*, ***Colorado blue spruce** *Picea pungens* These spruces hybridize naturally. Colorado spruce is more commonly available at nurseries. Spruces have shallow roots and may topple over in a windstorm, so plant them in a clump or protected area.

Lodgepole pine *Pinus contorta* Not generally considered an ornamental, lodgepole pine does well in the right conditions and is a lovely tree. Subdivisions where lodgepole pine already grows are ideal locations. Open sagebrush flats on the valley floor are generally not good places to grow lodgepole pine. Lodgepole is subject to chlorosis, evidenced by yellow needles, if it is grown in alkaline soil.

Subalpine fir *Abies lasiocarpa* Subalpine fir, a picturesque tree often sold in nurseries for rock gardens, does not do well on the valley floor and is subject to chlorosis. It prefers moist, acidic forest soil. Some of the developments on the valley margins, such as those around Teton Village, provide favorable locations for planting subalpine fir. Moose eat the needles and branches, so plant it where there are many other trees to serve as decoys.

Douglas-fir *Pseudotsuga mucronata* Douglas-fir tolerates a range of soil conditions, including dry, rocky soils. It may get chlorotic in alkaline soil. It is not generally sold as an ornamental in this area, but native plant nurseries will probably have it.

Rocky mountain juniper *Juniperus scopulorum* It tolerates dry and moist soils; once established, it needs little care. This juniper is available at native plant nurseries, although Chinese juniper (*J. chinensis*) is a more common horticultural species, so ask before buying.



Serviceberry

Shrubs

*Serviceberry *Amelanchier alnifolia* Serviceberry does well in the valley and on mid-elevation slopes and tolerates heavy browsing without damage. It is a favorite winter food for mule deer; berries persist all winter and attract waxwings and other birds. Serviceberry is available at nurseries.

*Red-osier dogwood *Cornus stolonifera* (also called *C. sericea*) This species does well on the valley floor, can become a dense shrub eight or more feet tall and will spread under favorable conditions. Red-osier dogwood can tolerate dry conditions if grown in fine soils; in dry rocky soil, it will need care. With its beautiful red bark, the shrub looks striking when planted in a clump. Wintering deer and moose may prune the outer twigs, but the shrub is adapted to such browsing and is not harmed. Nursery stock may not always be the native variety, so ask before buying.

*Snowberry *Symphoricarpos oreophyllus*; *S. alba* Snowberry grows to three feet and has conspicuous white berries in winter. It is easy to grow because it tolerates moist and dry soil, full sun and partial shade. Snowberry does well on the valley floor.

*Wild rose *Rosa woodsii* Wild rose, a rambling shrub with fragrant pink flowers, has red hips that persist into winter. It prefers moist soil and tolerates partial shade as well as full sun. It suckers and will spread quickly. Many species are called wild rose, so check the botanical name at nurseries where the native species is usually available.

*Chokecherry *Prunus virginiana melanocarpa* A tall shrub with panicles of fragrant white flowers in late spring, chokecherry has clusters of red to black berries in late summer. Chokecherry does very well in moist areas and streambanks at lower elevations, and does not need watering once established.

Black (river) hawthorn *Crataegus douglasii* Black hawthorn, a dense tall shrub, has adapted to floodplains and river bottoms. Planted in masses, it forms an effective screen. Its berries attract birds and its foliage turns deep red in fall. Hawthorn tolerates shade, but will make a denser mass of branches in full sun. Fungal attack spots the leaves without apparent harm to the shrub. Nurseries that sell native plants carry the native species, although English hawthorn (*C. oxyanthus*) is a more common ornamental.

Buffaloberry *Shepherdia canadensis* A tall shrub with silvery leaves and red berries, buffaloberry does well in shady, moist or protected areas. Local nurseries sometimes carry this species.

River birch *Betula occidentalis* Multi-branched river birch prefers moist, rich soil and is ideal for a streamside planting. It tolerates shade but also does well in full sun and can grow quite tall in good conditions. Available at nurseries.

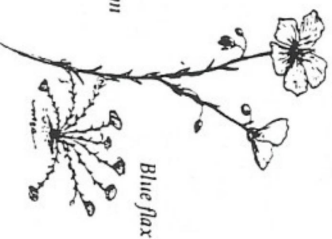
Rocky mountain maple *Acer glabrum* Deep red twigs distinguish this small maple with an upright growth form. Rocky Mountain maple is not often available at nurseries, but can be started from seed.

Big sagebrush *Artemisia tridentata* Plant sagebrush in dry, bare areas where there is little competition, as other plants will crowd it out if the soil is too rich. The survival rate is low for transplanting mature plants. Big sagebrush can be started from seed gathered in this area; purchased seed is not recommended unless it definitely came from the local area.

Perennial Wildflowers

The wildflowers listed below are generally available at nurseries as live plants. Seeds may be purchased or collected when they are dry and fully mature. All will start readily from seed in proper conditions. It is often hard to know which species you are getting when purchasing seeds or plants; many horticultural varieties are sold as wildflowers. Seeds may be sprinkled over the planting bed and worked into the soil; best to do this in the fall. Many of the flowers listed will reseed readily or spread through underground shoots if there isn't too much turf-forming grass nearby.

- Columbine *Aquilegia canadensis*
- Yarrow *Achillea millefolium*
- Daisy (fleabane) *Erigeron speciosus*
- Fireweed *Epilobium angustifolium*
- Lupine *Lupinus argenteus*
- Pensilemon *Penstemon cymatulus*
- Blue flax *Linum lewisii*
- Sticky geranium *Geranium viscosissimum*
- Shoovy Goldeneye *Viguiera multiflora*



Blue flax

Where can seeds and plants be obtained?

- Local nurseries
- Trail Creek Nursery, Victor, ID.
- Porcupine Greenhouse, south of Jackson.
- Julia's Garden, Wilson.
- Rocky Mountain Landscaping, Jackson
- Catalog sales
- High Altitude Gardens, P.O. Box 1048, Hailey ID 83333 (208) 788-3452.
- Granite Seed, Box 177, Lethi, UT (801) 768-4422.
- Bridger-Teton National Forest - with permit

Please do not pick or dig native plants found in national parks.

Suggested Reading

- Rocky Mountain Gardener Magazine.
- Rocky Mountain Wildflowers by John J. Craighead, Frank C. Craighead, Jr. and Ray J. Davis.
- Plants of Yellowstone and Grand Teton National Parks by Richard J. Shaw.
- Vascular Plants of Grand Teton National Park and Teton County: An Annotated Checklist by Richard J. Shaw.
- Vascular Plants of Wyoming by Robert D. Dorn.

To learn more about native plants

- Wyoming Native Plant Society and Teton County Chapter, Box 26, Moose, WY 83012.
- Teton Science School classes (307) 733-4765.
- Ranger-led wildflower walks and talks in Grand Teton National Park in summer (307) 739-3399 and 739-3594.
- Bridger-Teton National Forest (307) 739-5500.
- Snake River Institute classes (307) 733-2214.

Flower artwork by Meredith Campbell and Walter Ferring. Moose artwork courtesy of Grand Teton National Park. Written and produced by the Teton County Chapter of the Wyoming Native Plant Society with grant from anonymous donor.



Pensilemon

The Caper Family

By Walter Fertig

The Caper family (Capparaceae) suffers from something of an identity crisis in the west. Worldwide, the family numbers about 700 species and is especially abundant in dry, tropical areas of Africa. Only four species in two genera, however, manage to make it to Wyoming. These species are often mistaken for mustards when in flower, or legumes when in fruit. Worst of all, the very name of the family is somewhat demeaning. The word *Capparis* (the genus for which the family name is based) is derived from the Latin term for goat (Capra), in reference to the foul odors associated with both organisms.

Despite this bad rap, the caper family can claim its share of successes. The capers of commerce are derived from the flower buds of various species in the genus *Capparis*. According to Dr. William Weber, capers are "essential to the preparation of the German meatball dish 'Königsberger klops'". In addition, a number of species are grown as ornamentals. Spider flower (*Capparis spinosa*) is probably the best known of these, although other species in the genera *Capparis*, *Gynandropsis*, and *Polanisia* are also used.

Members of the caper family can be recognized by their four-petaled, slightly irregular (zygomorphic) flowers, stalked ovaries, and capsular fruits. The family is closely related to the mustards (Brassicaceae), but differs in technical features of the fruit. All of the Wyoming species of Capparaceae have palmately compound leaves and fruits that superficially resemble legumes (Fabaceae). Unlike legumes, Capparaceae fruits are composed of two fused carpels divided by a partition and are borne on a jointed stalk called a gynophore.

The most widespread member of the caper family in Wyoming is Rocky Mountain bee plant (*Cleome serrulata*). The plant's common name comes from its popularity with bees (and beekeepers) as a valuable source of nectar. *C. serrulata* can be recognized by its dense inflorescences of pink flowers with 6 stamens that extend far beyond the petals. Often the inflorescence bears buds, open flowers, and long-stalked, recurved fruits all at the same time. This species is commonly found in disturbed areas and roadsides from the plains to the lower foothills of the mountainous areas of the state.

Another widespread species in the state is yellow bee plant (*C. lutea*), which can be recognized by its yellow flowers and lower leaves with 5-7 leaflets. This species is found primarily in the basin country of western Wyoming on sandy slopes and disturbed soils.

The rarest species in the family is the many-stemmed spider-flower (*C. multicaulis*), known in Wyoming only from the Steamboat Lake area north of Pathfinder Reservoir in Natrona County. This glabrous annual herb resembles *C. serrulata*, but has narrower leaflets, smaller flowers, and stamens that are shorter than the petals. In favorable years, the Steamboat Lakes population can be quite extensive, numbering in the hundreds of thousands on semi-moist saline banks of shallow lakes and ponds with Baltic rush (*Juncus balticus*) and *Scirpus pungens*. *C. multicaulis* is considered rare throughout its range (central Wyoming and southern Colorado, south to central Mexico) and is threatened by loss of its wetland habitat to agriculture and residential development. The Wyoming population is found within Pathfinder National Wildlife Refuge, but may be threatened by fluctuations in surface water levels and trampling by livestock.

The final species in the caper family in Wyoming is clammy weed (*Polanisia trachysperma*). This species earns its name from its sticky-hairy leaves and stems, which feel cool (or clammy) to the touch. These sticky glands also give the plant its characteristic foul smell. Clammy weed is relatively common in plains and hills in the lower elevation parts of the state, especially on coarse sandy soils near reservoirs and roadsides. The flowers are white or cream-colored with pink or purple stamens of various lengths. Its fruit is an erect, glandular-hairy capsule on a slender stalk.

Below: *Cleome serrulata* by Dorothy Leake.



Botany Briefs

Botanical News from Wyoming and the Rocky Mountain Region

New Wyoming Records of Parasitic Fungi in 1996

(Ed: When not composing botanical doggerel, Dr. Baxter is combing the state for rusts, smuts, and other parasitic fungi. He reports the following new species for Wyoming from his summer adventures):

Erysiphe polygoni on *Convolvulus arvensis*
Helminthosporium phragmitis on *Phragmites australis*
Bostichonema alpestre on *Polygonum bistortoides*
Septoria helianthii on *Helianthus petiolaris*, *H. tuberosus*, *H. nuttallii*, and *Iva xanthifolia*
Puccinia harknessii on *Stephanomeria runcinata* JB

The Botany 130 Songbook

By John "Barney" Baxter, the Balladeer of Burns

At the University of Wisconsin-Milwaukee, the life of a Botany 130 lab instructor was fraught with tension and trauma. The most stressful lab exercise was the one in which the students tested various plants or plant parts for sugar, starch, fat, etc.

The Testing of the Food
(Tune: Battle Hymn of the Republic)

My eyes have seen the chaos of the testing of the food,
And brother, I am telling you I'm in a morbid mood,
I'm going to a bar where I'll get completely stewed,
And then forget it all.

Hallelujah, glory, glory,
What a messy laboratory,
There's Benedict's Solution on the stools and on the floor
In the old 130 lab.

Come forward all you students, of this paper take a piece,
Then rub it with your hunk of gunk until I holler "cease!"
And after careful drying if you see a spot of grease
You write "Plus 4" for fat.

Glory, glory, hallelujah,
Do you get the picture, do ya?
I'm flunking any joker using Brylcreem on the sly
In the old 130 lab.

Now boil chunks of onion in that liquid bright and blue,
Be sure to aim your test tube at the person next to you,
It's really all in fun and she'll continue smiling through,
While the stuff drips off her chin.

Glory, glory and hosanna,
Where the hell is the banana?
I guess a hungry student must have used it for his lunch,
In the old 130 lab.



**WYOMING NATIVE
PLANT SOCIETY**
1604 Grand Avenue
Laramie, WY 82070

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 \$5.00 annually.

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

Wyoming Native Plant Society
1604 Grand Ave.
Laramie, WY 82070

Wyoming Native Plant Society

Name: _____

Address: _____

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