

# APPENDIX 1

## PLANT PORTRAITS FOR SELECTED PLANTS FROM THE BLOOM LIST

By Jennifer Thompson

Plants are ordered by bloom time. For more details, refer to the complete bloom list, “Planning a landscape with a continual supply of flowering plants,” on page 34, which lists plants ordered from spring blooming to fall.

More information on a variety of plants is available by visiting the Barnyards & Backyards website, [www.barnyardsandbackyards.com](http://www.barnyardsandbackyards.com), and clicking on “Landscaping.”

### PLANT TOXICITY

Many plants have some level of toxicity to animals (including us). This includes plants from elsewhere in the world (introduced plants) and those native to the Rocky Mountain region. Many plants likely contain toxic compounds as a way to keep herbivores (rabbits, deer, insects, etc.) from eating them. Any threat these plants pose depends on several factors:

- Toxicity varies by plant species (and plant varieties within species) and the plant part eaten.
- The environment the plant is growing in and what growth stage the plant is at can affect the levels of toxic compounds.
- What animal species is consuming the plant. Not all animals are similarly susceptible to the toxic compounds in any particular plant species. Just because cattle or wildlife are eating a plant does not mean they are safe for humans to eat!
- How toxic they are to the animal species consuming them. Toxicity ranges from highly toxic in which a minute amount can kill an animal to minimally toxic when an animal must consume very large amounts to have any effect.
- How likely they are to be eaten. Many (but not all) of our poisonous native plants are not very palatable (animals do

not like to eat them), and they won't be consumed unless the animal has little choice (such as in overgrazed pastures).

A little information is provided here on some commonly known plants with toxic properties. This does not mean others listed are not toxic as well. If concerned with these issues, research the plant in question.

Never eat or allow others whom you supervise (such as children) to eat any plant you haven't positively identified or which you don't know (100 percent) to be safe to eat.

#### Additional plant toxicity resources

Burrows, George E., and Ronald J. Tyrl.

*Toxic Plants of North America*. John Wiley & Sons, 2013.

University of California Agriculture and Natural Resources. “Toxic Plants (by Scientific Name).” Safe and Poisonous

Garden Plants, [ucanr.edu/sites/poisonous\\_safe\\_plants/Toxic\\_Plants\\_by\\_Scientific\\_Name\\_685/](http://ucanr.edu/sites/poisonous_safe_plants/Toxic_Plants_by_Scientific_Name_685/).

USDA-ARS. *Plants Poisonous to Livestock in the Western States*, United States Department of Agriculture - Agricultural Research Service, 2011, [www.ars.usda.gov/ARSUserFiles/oc/np/PoisonousPlants/PoisonousPlants.pdf](http://www.ars.usda.gov/ARSUserFiles/oc/np/PoisonousPlants/PoisonousPlants.pdf).



### Spring meadow saffron

*Bulbocodium vernum* (also known as *Colchicum bulbocodium*)

Height: 3–4 inches

Width: 1–2+ inches

Small, raggedy looking but very early blooming little bulb. Critter resistant. All parts toxic.

Photo: RukiMedia/shutterstock.com



### Crocus

(Many varieties)

Height: 3–4 inches

Width: 2+ inches

Hardy, small, early flowering bulb. Wide variety of colors. Flowers and foliage might be eaten by rodents, rabbits, and deer.



### Snow iris

*Iris reticulata*

Height: under 6 inches

Width: 3 inches

An early-blooming dwarf iris bulb. Clumps will increase by offsets in size over time if happy with their location. Leaves grow taller after blooming until dormancy. 'Pixie' pictured.



### Pasqueflower

*Pulsatilla vulgaris*, *Pulsatilla patens* (pictured)

Height: 6–12 inches

Width: 12 inches

*P. patens* (left) is native to Wyoming, *P. vulgaris* (right) is not. Blooms very early followed by feathery seed heads. All parts are toxic.



Note: All Appendix 1 photos courtesy Jennifer Thompson unless otherwise noted.



### Daffodils

*Narcissus*  
'Jetfire', 'King Alfred'  
Height: up to 16 inches  
Width: clump size depends on number of bulbs planted  
'Jetfire' (pictured) is a shorter, smaller type of daffodil. 'King Alfred' is a classic daffodil type. All parts toxic.



### Glory-of-the-snow

*Chionodoxa forbesii*  
Height: 4-6 inches  
Width: 3-6 inches  
A spring-blooming bulb. It will often spread via seed and bulb offsets.  
Photo, right: Diane E. Irwin/shutterstock.com



### Tulips

*Tulipa* Species (botanical-type)  
These tulips are generally shorter and have smaller flowers than regular tulips. Clumps will expand over time if happy with their location. Tulip flowers and foliage are eaten by many wildlife. 'Little Beauty' (left).



### Grape Hyacinth

*Muscari*  
Height: 6-8 inches  
A cheerful spring-blooming bulb. Leaves also grow out in the fall. *Muscari armeniacum* can reseed a lot. Plant another species or deadhead to avoid reseeding.



### Thymes

*Thymus*  
Height: generally under 10 inches  
Width: varies  
Many different types; some can be used as groundcover. 'Elfin' (left).





### Sugarbowl clematis

*Clematis scottii*

Height: 12 inches

Width: 18 inches

Native bush clematis. A bit floppy. It takes a little while to bulk up from small plants. Amusing seed heads. Bumble bees push themselves into the urn-shaped flowers.

Photo, right: Hanjo Hellman/shutterstock.com



### Hall's penstemon

*Penstemon hallii*

Height: to 8 inches

Width: 12+ inches

Adaptable, early-blooming penstemon from higher elevations in Colorado. Relatively easy to start from seed; plants are not common in nurseries.



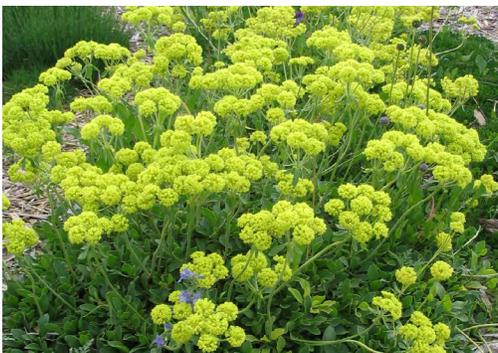
### White-tufted evening primrose

*Oenothera caespitosa*

Height: approximately 12 inches

Width: 12–24 inches.

Native. Short-lived (a couple of years.) Reseeds; can reseed a lot depending on location. Some kinds spread underground. Fragrant flowers. Jackrabbits like to eat it. A larval and nectar food for hawkmoths.



### 'Kannah Creek' sulfur buckwheat

*Eriogonum umbellatum*

Height: 6–12 inches

Width: 8–12 inches.

Native. Long season of interest. Flowers turn rusty orange color later in summer.



### Coral bells

*Heuchera sanguinea*

Height: up to 16 inches in bloom

Width: up to 15 inches

'Ruby Bells' (left) is a cultivar of this plant native to the Southwest. Coral bells tend to grown in places such as on canyon walls. Probably will do better in part shade in hot areas. Attractive to hummingbirds.

Photo, right: Alina Kuptsova/shutterstock.com





### 'Walker's Low' catmint

*Nepeta*  
Height: 15–18 inches  
Width: 2–3 feet  
Long bloom time. Can rebloom if deadheaded. Purchase only sterile, vegetatively propagated types to minimize reseeding. Extremely attractive to a wide variety of pollinators.



### Firecracker & Beardlip penstemon

*Penstemon eatonii*, *Penstemon barbatus*  
Height: up to 3 feet in bloom  
Width: 12–18 inches  
Native to Utah and Colorado. *P. eatonii* (left) tends to bloom before *P. barbatus* (right). Attractive to hummingbirds. Can reseed.



### 'May Night' salvia

*Salvia nemorosa*  
Height: 18–24 inches  
Width: 12–18 inches  
Longish bloom period. Reseeds. Cut back after blooming for fresh growth and to control reseeding. Visited by many bees.



### Large beardtongue

*Penstemon grandiflorus*  
Height: 2–3 feet  
Width: 8–12 inches  
Native. Large showy blooms (right). Reseeds moderately. Short bloom period of approximately 2 weeks. Can be short-lived (1–2 years).



### Desert princesplume

*Stanleya pinnata*  
Height: up to 3 feet  
Width: 18–24 inches  
Native. Can be short-lived. Concentrates selenium, can be toxic to livestock if they are without adequate other forage sources. Can reseed.





### Rocky Mountain penstemon

*Penstemon strictus*

Height: 18–24 inches

Width: 12–18 inches

Native. Easy to grow. Susceptible to powdery mildew in shadier acres. Prolific reseeders; deadhead to avoid reseeding.



### Purple prairie clover

*Petalostemon purpureus* (also *Dalea purpurea*)

Height: 2–3 feet

Width: 1–2 feet

Native. Nitrogen-fixing plants. Slow growing from seedlings. Takes a couple of years to bulk up. Likes some irrigation. Very attractive to some bees.



### Palmer's beardtongue

*Penstemon palmeri* (also known as pink wild snapdragon)

Height: 2–4 feet

Width: 18–24 inches

Native to Utah. Large, showy fragrant blooms. Short-lived but reseeds when happy.



### Blanket flower

*Gaillardia*

Height: 12–18 inches

Width: 12–18 inches

Many varieties available. Can reseed a fair amount and be short-lived. Native *Gaillardia aristata* (right) has rhizomatous tendencies and is susceptible to powdery mildew.



### Prairie coneflower

*Ratibida columnifera* (also known as upright prairie coneflower)

Height: 18–24 inches

Width: 18–24 inches

Native. Long bloom period. Short-lived plant but reseeds moderately. Flowers can be yellow or burnt orange. Some interesting native bees, such as digger bees, visit this plant.





### Garrett's firechalice

*Zauschneria garrettii*

Height: 18 inches

Width: 18–24 inches

Native. Late summer color.

Spreads underground and can cover a large area in time. The red-orange tubular flowers (right) are visited by hummingbirds.



### Poppy mallow

*Callirhoe involucrata*

Height: 6–12 inches

Width: 2–3 feet

Does not transplant well when older due to taproot. Reseeds.



### Hollyhock

*Alcea*

Height: 3–8 feet

Width: 2+ feet

Tall plants range from biennials to short-lived perennials. Visited by many bees. Leafcutter bees cut circles out of the petals to use in their nests (right).



### Black-eyed Susan

*Rudbeckia hirta*

Height: approximately 24 inches

Width: approximately 24 inches

Variety *pulcherrima* is native.

Various varieties available in cultivation. A short-lived perennial. Great late-summer color. Vigorous reseeder.



### Agastache

Height: 2–3 feet

Width: 18+ inches

*A. foeniculum* is native. Other species and varieties also available. Some are cold-hardier than others. Visited by bees and hummingbirds.





### Narrow-leaf coneflower

*Echinacea angustifolia*

Height: 18–24 inches

Width: 12–18 inches

Native. More drought-tolerant than *E. purpurea* (below) but not as large and showy. Reseeds. Takes a few years to bulk up. May need to grow from seed.



### Purple coneflower

*Echinacea purpurea*

Height: 2–3 feet

Width: 18–24 inches

Late-summer blooms. Not a xeric plant in some areas of Wyoming. Performs better with supplemental water.



### Beebalm

*Monarda didyma*

Height: up to 24 inches. Dwarf ‘Petite Delight’ (right) is 12–15 inches.

Width: 18–24 inches

Susceptible to powdery mildew. Choose resistant cultivars. ‘Fireball’ (left).



### Spike speedwell

*Veronica spicata*

Height: 12+ inches

Width: up to 18 inches

Various varieties. Visited by bees. Subspecies *incana* pictured.



### Milkweed

*Asclepias* spp.

Height: 20–30 inches

Width: 6–8 inches at base; wider at top when in bloom.

Native. Attractive to butterflies and some bees. Larval host for some butterflies. Some *Asclepias* toxic to livestock, see note “Butterfly milkweed” on page 72. *A. tuberosa* (left). *A. incarnata* (right).





### Oregano

*Origanum*

Height: 18 inches

Width: 24+ inches over time

Many different types of bees, syrphids, and other pollinators can cover the flowers of this herb for as long as it blooms in late summer. Winter hardiness varies among cultivars.



### Colorado four o'clock

*Mirabilis multiflora* (also known as wild four o'clock)

Height: 1-3 feet

Width: 2-4 feet

Long-lived. Does not transplant well when larger due to taproot. Reseeds.



### Goldenrod

*Solidago spp.*

Height: 18-24 inches

Width: 16 inches

'Golden Baby' is a hybrid goldenrod highly attractive to bees. Good source of late summer and fall food for a variety of bees. It forms a clump. Many goldenrods are vigorous rhizomatous spreaders.



### Gentians

*Gentiana parryi*, *G. septemfida* hybrids

Height: 6-8 inches

Width: 12 inches.

Native and non-native cross. Bumblebees like to squeeze inside these late-blooming flowers. Plants like moisture. Can be planted near downspouts. Some gentian species bloom in spring.



### Scarlet gilia

*Ipomopsis aggregata*

Height: up to 3+ feet

Width: 24 inches

Native. Biennial or short-lived perennial. Favorite of hummingbirds. Takes up little room in the garden until it bursts into bloom in late summer. Can reseed.





### **Dotted blazing star**

*Liatris punctata* (also known as Gayfeather)

Height: 12–18 inches

Width: 6–12 inches

Native. More drought-tolerant than some other liatris species. Takes a few years to bulk up from a seedling. Long-lasting flower heads attractive to butterflies and bees.



### **'Autumn Joy' sedum**

*Sedum*

Height: 18–24 inches

Width: 12–18 inches

Long, late-summer bloom time. Bee favorite.



### **Blue Sage**

*Salvia azurea* (also known as Prairie sage)

Height: 40 inches

Width: 20 inches

Regional native in Colorado and Nebraska. Very late bloomer so may not have time to bloom in more exposed or high altitude areas. Tall and can flop a bit. Visited by hawkmoths, hummingbirds and other pollinators.



### **'Purple dome' aster**

*Aster novi-angliae*

Height: 18–24 inches

Width: 18–24 inches

Later summer/fall bloom time. Excellent resource for bees late in the season.





### Colchicum

Height: up to 8 inches  
Width: 5+ inches  
One of the latest flowers to bloom in the fall. Huge flowers on many varieties. Animal resistant. Taller leaves come up in spring before going dormant. All parts toxic.



## Shrubs



### Serviceberry

*Amelanchier alnifolia*  
Height: 6–10 feet  
Width: 5–8 feet  
A spring-blooming shrub. Blooms followed by edible blue-black berries. Can experience winter dieback in some locations.  
Photo, left: HES Photography/shutterstock.com; right: ArgenLant/shutterstock.com



### Sand cherry

*Prunus besseyi*  
Height: 4–6 feet  
Width: 4–6 feet  
A native shrub that provides food for wildlife. Susceptible to powdery mildew on the leaves. Blooms smell sweet. Some suckers. Fruit can be very nice tasting or very astringent.



### Golden currant

*Ribes aureum*  
Height: 4–6 feet  
Width: 4–6 feet  
Native plant. Sweet smelling yellow blooms. Spreads by suckers or reseeding.  
Photo, right: Murasaki Izumi, shutterstock.com





### Three-leaf sumac

*Rhus trilobata*

Height: 3–12 feet

Width: 4–10 feet

Native shrub. Glossy leaves. Inconspicuous flowers and red berries. Fall foliage colors can be nice. Can sucker.



### Lewis mock orange

*Philadelphus lewisii*

Height: 4–9 feet

Width: 4–9 feet

Covered with sweet-smelling white flowers in early summer.

Native to Montana and the Northwest.

Photo, right: LagunaticPhoto, shutterstock.com



### Silver buffaloberry

*Shepherdia argentea*

Height: up to 12 feet

Width: 12+ feet

Native, spring-blooming shrub. Very attractive to bees. Male and female flowers are on separate plants. Can form thickets.

Photo: Andrey Kozyntsev/shutterstock.com



### Wood's rose

*Rosa woodsii*

Height: 3–6 feet

Width: 3–6 feet

Native with fragrant flowers. Can quickly spread to form thickets.

Photo: cjchiker/shutterstock.com



### Raspberry

*Rubus*

Height: up to 6 feet

Width: 4+ feet

Delicious fruit. Bees love the flowers. Old stalks are used by some native bees that create their nests in the pithy middles.



### Potentilla

*Potentilla fruticosa*

Height: 2-4 feet

Width: 2-4 feet

Tough shrub. Long summer bloom period.



### Fernbush

*Chamaebatiaria millefolium*

Height: up to 6 feet

Width: 6 feet

Native in Idaho and Utah.

Aromatic with rounded form.

Visited by bees, syrphids, etc.

Brittle stems; avoid planting where it will get crushed by snow falling off roofs.



### Blue mist spirea

*Caryopteris x clandonensis*

Height: 2-3 feet

Width: 3 feet

Late summer bloomer. Can cut back in early spring. Bees visit it heavily.



## BUTTERFLY MILKWEED

A note on the *Asclepias* species (butterfly milkweed). Milkweeds have received a lot of press in recent years due to concerns with monarch butterfly populations. *Asclepias* species serve as food sources for the caterpillars of these butterflies. The caterpillars consume leaves and concentrate toxic substances within the plants apparently as a means of defense (birds who eat the caterpillars throw up). *Asclepias* are toxic to some livestock.

The species most often reported to be of concern to livestock are *Asclepias labrifloris*, *A. subverticillata*, *A. eriocarpa*, and *A. fascicularis* (You can find out which species are native to the state on the Plants USDA website <https://plants.usda.gov>). In part, this is reported to be due to their presence in harvested hay. Their thin leaves are hard for animals to discern in dried hay and avoid eating them. They are also a concern where animals are trailed or where they have no other forage. *Asclepias speciosa* is native to Wyoming and has been declared noxious in some counties in the state. This plant is not recommended for landscape beds as it is also a highly vigorous spreader. Some of the other *Asclepias* can also spread vigorously.

There is some debate amongst the scientific community on the importance of planting milkweeds as a caterpillar food source for monarchs. Drought in places such as Texas that reduces nectar sources along their migration routes, has been implicated by some studies as playing a large role in the health of monarch populations. Further studies may clarify the situation.

For more detailed information on toxicity see *Toxic Plants of North America*, George E. Burrows and Ronald J. Tyrl.

# APPENDIX 3

## EXAMPLE SEED MIX FOR POLLINATOR PLANTINGS

The decision process for creating a pollinator seed mix can be somewhat complex. The following are some factors to consider:

- Most guidelines suggest choosing three species of flowers to bloom in each bloom period for a total of nine species. (Note: the example mix is short one late-blooming species.) There are several USDA-NRCS publications that can help you look at choices. Visit [bit.ly/wypollinators](http://bit.ly/wypollinators) for links.
- No more than 30 percent of seed should be grasses (bunch grasses are preferred to rhizomatous since they are less likely to out-compete the flowers)
- Do you want just native plants? How “native”? Native to the U.S.? Native to the region? Native to Wyoming? Native to your county? Visit <https://plants.usda.gov/> to see maps (zoom in to see your county) on each plant’s page that shows whether the NRCS considers the plant to be native to the area. (These designations are not always cut-and-dried.)
- Is seed available for this plant from a seed company? (Some sources listed on <http://wyomingnativegardens.org/index.php/resources/seed-sources/>)
- How much will the seed cost?

This example seed mixture is calculated on a very heavy seeding rate used for broadcast application by hand. It is four times the amount of seed recommended by USDA-NRCS for use with seed drills. Calculations are based on seeding half an acre.

Plant common name	Plant scientific name	Seeds/lb	% mix	Pounds PLS needed <sup>1</sup>	Seeds/ft <sup>2</sup>	Example cost per pound (\$) <sup>2</sup>	Cost of seed (\$)	Seedling depth (inches)	Bloom period
Indian ricegrass	<i>Achnatherum hymenoides</i>	162,000	10%	1.6	11.90	12.00	19.20	½-3	
Bottlebrush squirreltail (grass)	<i>Elymus elymoides</i>	220,000	10%	1.2	12.12	14.00	16.80	¼- ½	
Sandberg’s Bluegrass	<i>Poa secunda</i>	1,000,000	10%	0.4	18.37	5.00	2.00	0-¼	
Beeflower, Rocky Mountain	<i>Cleome serrulata</i>	64,000	10%	3.4	9.99	64.00	217.60	0-1/8	early-mid
Utah Sweetvetch	<i>Hedysarum boreale</i>	46,000	5%	2.4	5.07	150.00	360.00	¼- ½	early
Penstemon, Rocky Mountain	<i>Penstemon strictus</i>	286,000	10%	0.8	10.51	70.00	56.00	0-1/8	early
Blanketflower	<i>Gaillardia aristata</i>	200,000	10%	1.0	9.18	52.00	52.00	¼- ½	early
Prairie clover, white	<i>Dalea candida</i>	448,000	10%	0.4	8.23	70.00	28.00	¼- ½	mid-late
Sunflower, annual	<i>Helianthus annuus</i>	45,000	10%	4.8	9.92	14.00	67.20	¼- ½	mid-late
Coneflower, prairie or Mexican hat	<i>Ratibida columnifera</i>	740,000	15%	0.9	30.58	36.00	32.40	¼- ½	mid
Totals			100%	22.9	161.00		\$851.20		

1 PLS stands for pure live seed. Read this article to gain a better understanding of what that means. [http://www.uwyo.edu/barnbackyard/\\_files/documents/magazine/2013/fall/092013bbseedlabel.pdf](http://www.uwyo.edu/barnbackyard/_files/documents/magazine/2013/fall/092013bbseedlabel.pdf)

2 These are just example prices to demonstrate some of the variability (though some of the more expensive ones, \$500 per pound, were not included). Seed prices can vary widely year-to-year based on supply and demand.