Bat Garden Guide

ORGANIZATION FOR BAT CONSERVATION
#SAVETHEBATS

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Gardening for Bats

Create a space for bats in your backyard! With natural habitats in decline, you can help bats by providing food, water and shelter in even the smallest of spaces. In return, bats will eat many of your garden's pests.

FOOD

Bats eat night-flying insects, so you'll want to plant flowers that either stay open through the night or bloom through the evening.

Use native plants that match your region and site conditions, as they have evolved to attract native insects. Although there are thousands of plants to choose from, we've compiled lists of plants by region (link to regional list page). The Lady Bird Johnson Wildflower Center is also a great resource and contains a well-researched database of both native plants by state and region that will match your site-specific planting conditions.

PRACTICE SUSTAINABLE GARDENING

Remember, you want insects to come to your garden, so don't use insecticides! Organic gardening is the way to go to support both predator and prey. In order to promote diversity of critters in your garden, consider incorporating the following sustainable strategies to manage your yard.

- Park your lawn mower. Less time mowing means less fossil fuel use and more habitat for bats' favorite foods.
- Use your own body's energy to power hand tools instead of fossil-fuel powered ones.
- Capture the rainwater from your roof with a rain barrel instead of tapping into public water supplies.

WATER

Provide a water source for bats to drink and for insects to reproduce. For smaller backyards, install a bird bath or container filled with water. Remember to change the water regularly.

PLANT A BAT GARDEN!
Visit our online store for seed packets and "Save the Bats" gardening gear.

SHELTER

Bat houses offer a safe nursery site for your new bats yet other smaller sheltered spaces are also important. You can create sheltered corners using a combination of walls, fences or hedges or train fragrant perennial vines to climb walls or fences to provide possible roosting sites. Maintain both live and dead trees in your yard. Loose bark and crevices typical of dead trees (snags) are especially valuable as roost sites.

Garden Prep and Management Tips

1. GET RID OF PERENNIAL WEEDS

Bluegrass, fescue, quackgrass and red clover are all examples of perennial weeds that, if left, will compete with your native bat garden plants for nutrients, moisture, and sunlight. If you are converting a section of lawn into your new bat garden, you'll need to oust the existing cover prior to introducing new players to the field. If you're converting a fallow/old field or cropland, give us a call to discuss site prep options.

- **Smothering:** Cover your future bat garden planting area with either black plastic, old carpet, plywood or a thick layer of leaves or newspapers, leaving in place for a full growing season. Remove the "smother cover" in fall or the following spring.

- **Sodcutting:** Remove the top two to three inches of grass and soil using a sod-cutter.

- **(Only if options 1 & 2 are not possible) Herbiciding:** Apply a broad-spectrum herbicide such as glyphosate according to label instructions (Round-up) when your lawn is two to three inches tall and actively growing (in fall or spring). When the grass has turned brown, which may take up to 10 days, you're ready to roll.

  Keep in mind that even when you've successfully removed the perennial weeds, you will still need to control short-lived annual and biennial weeds by hand weeding as your long-lived perennial plants establish.

  Warning! If the area that you've slated as your future bat garden is relatively bare or completely devoid of vegetation (assuming it wasn't disturbed), you may have soil issues going on. In that case, it's best to hire a landscape consultant to check it out.

2. CULTIVATE AND AMEND YOUR SOIL. OR NOT.

To till or not to till. That is the question.

Soil cultivation to a depth of five to six inches creates an easy-to-plant substrate for your new plant material and allows for the incorporation of soil amendments. For heavier clay soils especially, mechanically tilling really does save your back and breaks up soil particles to allow for increased porosity and air exchange; a plus for the development of new roots. For lighter soils (loams, sand/loams), simply dig a hole to accommodate your plant right through the dead vegetation or newly exposed soil after sod cutting. By minimizing soil disturbance, you reduce weed flushes, maintain soil structure and associated microorganisms (and critters such as salamanders) and prevent soil erosion from surface and structure runoff. Plus, the dead residual plant growth provides a bit of mulch for your new plants.

Should I amend my soil?

Vigorous and/or diverse plant growth prior to prepping is a great sign that the underlying soils are healthy. Dark brown or black soils are also a good sign of ample organic materials and subsequent soil fertility, so no need to amend. If you suspect poor soils, such as the moonscape left after construction of a new home or some such project, plan on adding two to four inches (or more depending on the amount of topsoil in your planned garden area) of a 50/50 blend of activated organic composted leaf mulch and pulverized and screened topsoil.

Let's talk sand. If your yard looks like a sandbox, don't be tempted to change your soil to accommodate either of these two bat gardens. There are thousands of other native plant choices that will thrive on sand (such as Lupine, Lupinus perennis), which you could use instead. We would be happy to send you a list of substitutes or design a garden that matches your site conditions.

3. ON YOUR MARK. GET SET. PLANT!!

Although spring is the best time to install native perennials, you can still plant between the window of Midwest's April/May spring and frozen ground in the fall, as long as you water plants as needed during the heat of the summer when young plants are most needy.

Installing potted plants is pretty easy when you follow the steps below. Remember green side up!

1. Lay the plants out according to the on center spacing (spacing from the center of one plant to the center of an adjacent plant) specified in your Bat Garden key.

2. Dig a hole large enough to spread out the root structure of each plant and firm the soil around the roots to prevent air pockets.

3. Mulch around (not over) each plant with two to three inches of weed free straw (such as winter wheat) or finely shredded bark mulch to keep weeds at bay and soils moist longer. If you intend to manage weeds with a stirrup hoe, omit the mulch.

4. Label the plant with a Popsicle stick or survey flag to avoid an accidental weeding error as you become more familiar with the plant's appearance.

5. A word about pre-emergent herbicides. If you feel overwhelmed by hand weeding, you could use a pre-emergent herbicide (according to label instructions) to control weeds as the plants fill in.

4. KEEP YOUR NEW PLANTS WATERED AND WEEDED

There's no such thing as a zero maintenance landscape! Although these native bat gardens will be less needy once mature, follow these tips to make sure you help them get there.

In the absence of natural rainwater, water newly installed perennials, shrubs and trees two to three times per week for 20 to 30 minutes. More water may be required if the plants look wilted and stressed during the morning hours.

Make sure you check the ground around the plants for saturation post-watering. If the water pools on top of the soil surface for hours after watering, you are watering too much. I've seen more losses from over than under-watering. Homeowners have a tendency to over-water during hot weather and end up killing the plant with kindness.

Remove weeds by hand or with a stirrup hoe every couple weeks to promote the establishment of your plants. As they fill in, weeding will be less and less frequent.

Your plants will look a bit stressed during the first few weeks as they weather the shock of transplanting. With adequate water and weeding, however, they will double in size by the end of the first growing season and many species will flower. By the end of the second growing season, the space between the plants will be negligible, as each plant fills in to their mature width.

Keep in mind that these rules are general guidelines. You have to consider factors such as the amount and frequency of natural rainfall, heat, wind, humidity, air temperatures as well as the composition and drainage rate of the soil.

5. MONITOR WEEDS AND THATCH LEVELS OVER THE LONG TERM

Weed Management

Weeding is still necessary during the first few growing seasons as the plants fill in. Once the plant develops to its full size, the space between each plant will be negligible (unlike more traditional gardening where plants are kept a foot or more apart) and weeding is significantly reduced.

Thatch Management

You can also consider mowing (given the inherent risks associated with burning) as part of your long-term management option. Mowing will help prevent the build-up of residual plant material or thatch, which, if allowed to accumulate, will restrict the new growth of perennial plants. The reduction of thatch through mowing also encourages rapid soil warm-up in the spring and subsequent vigorous perennial growth. In addition, mowing will help keep unwanted tree and shrub invasion at bay.

Like all management options, mowing is a tool that should only be performed when thatch levels are visibly impeding the growth of the existing native perennials. Depending on the accumulation of thatch in the planting, mowing may only be required every three to five years or more. Many people mow for purely aesthetic reasons, to clean up the standing residual vegetation so the subsequent green carpet is all that is visible. Doing this every year actually reduces the wildlife potential of the planting during the spring and early summer, as many birds and other wildlife seek cover and nest sites among the thatch.

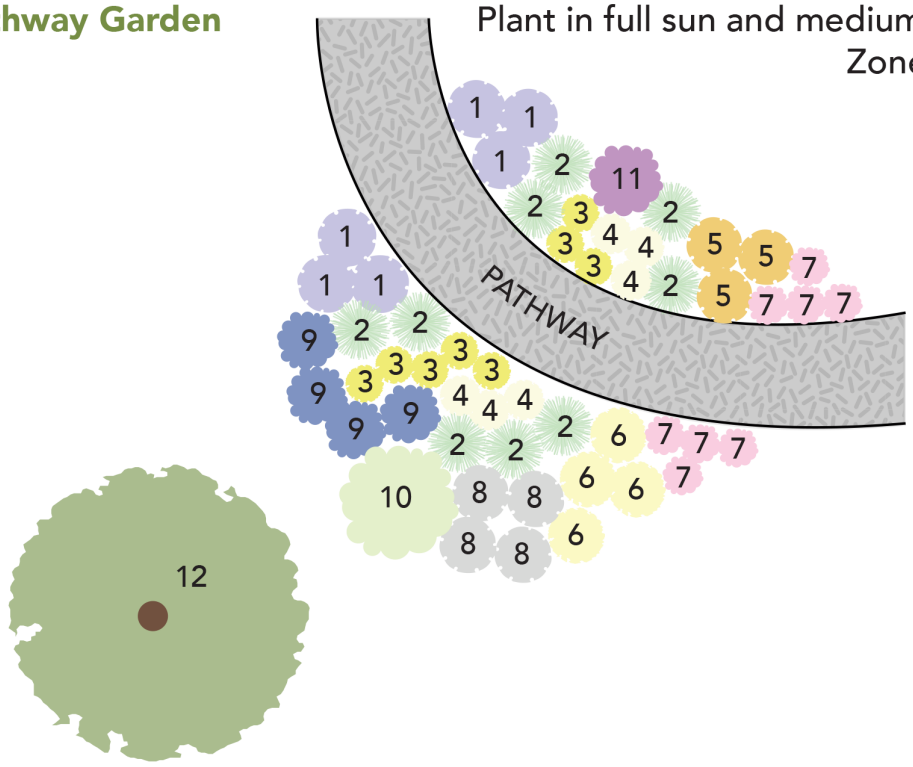
To maintain a microclimate for over-wintering invertebrate pupae that adhere to standing residual plant material, only mow one half of the area in any given year. You can mow during the spring prior to leaf out between mid-March and late April, prior to the green-up of any spring blooming species.

Garden Plans

A bat garden is a long-term investment in your landscape and requires careful planning. These starter garden plans are comprised of perennials native to prairie, woodland edge and wet meadow ecosystems will attract an abundance of moths and other insects--one of North American bats' favorite foods. Once established, these gardens will bloom through the growing season with minimal maintenance.

Pathway Garden

Plant in full sun and medium soils
Zones 3-8

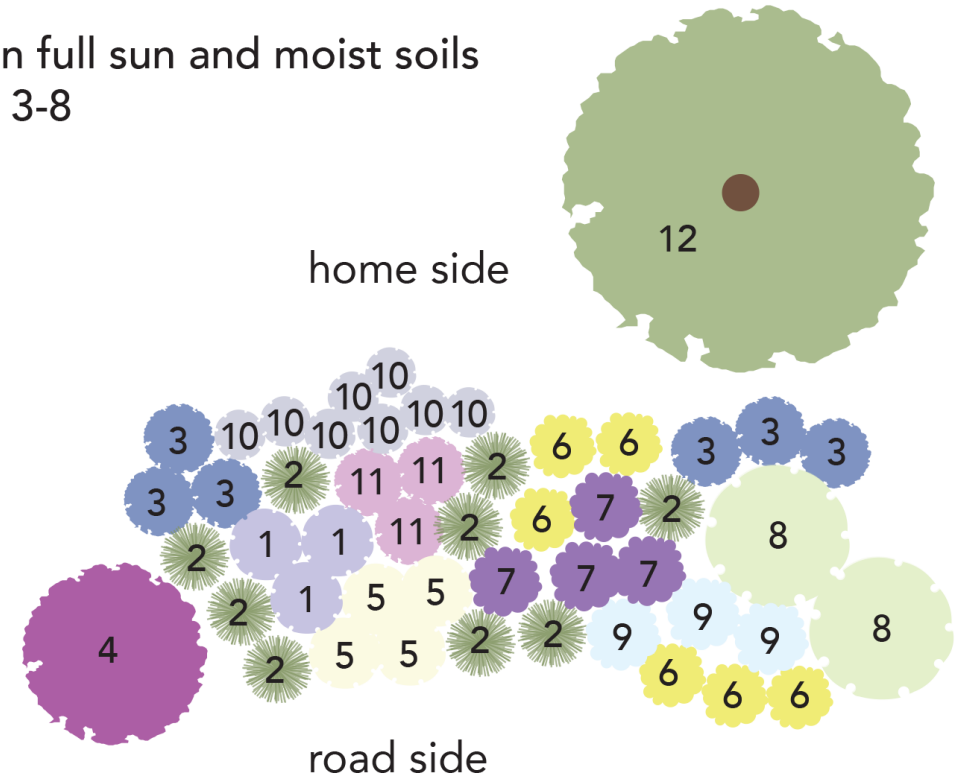


Pathway Garden Planting Key

Code	Common Name	*Latin Name*	Amt	On Center Spacing	Ht.
1	Bergamot	*Monarda fistulosa*	6	1.5'	4'
2	Palm Sedge	*Carex muskingumensis*	9	1.5'	3'
3	Prairie Sundrops	*Oenothera pilosella*	8	1'	2'
4	Smooth Penstemon	*Penstemon digitalis*	6	1'	2'
5	Stiff Goldenrod	*Solidago rigida*	3	1.5'	4'
6	Orange Coneflower	*Rudbeckia fulgida*	4	1.5'	3'
7	Prairie Phlox	*Phlox pilosa*	8	1'	1'
8	Virginia Mountain Mint	*Pycnanthemum virginianum*	4	1.5'	3'
9	Sky Blue Aster	*Aster oolentangiense*	4	1.5'	3'
10	New Jersey Tea	*Ceanothus americana*	1	3'	3'
11	Sweet Joe Pye	*Eupatorium purpureum*	1	2'	7'
12	Choke Cherry	*Prunus virginiana*	1	8'-10'	25'

Roadside Swale Garden

Plant in full sun and moist soils
Zones 3-8



Roadside Swale Garden Planting Key

Code	Common Name	*Latin Name*	Amt	On Center Spacing	Ht.
1	New England Aster	*Aster novae-angliae*	3	1.5'	4'
2	Fox Sedge	*Carex vulpinoidea*	9	1.5'	3'
3	Wild Iris	*Iris versicolor*	6	1.5'	2'
4	Carolina Rose	*Rosa Carolina*	1	4'	2'
5	Flat-topped Ast3er	*Aster umbellatus*	4	1.5'	4'
6	Ohio Goldenrod	*Solidago ohiensis*	6	1.5'	3'
7	Joe Pye Weed	*Eupatorium maculatum*	4	1.5'	1'
8	Swamp Fly Honeysuckle	*Lonicera oblongifolia*	2	3'	3'
9	Boneset	*Eupatorium perfoliatum*	3	1.5'	3'
10	Mistflower	*Eupatorium coelestinum*	8	1'	3'
11	Rose Milkweed	*Asclepias incarnata*	3	1.5'	7'
12	Choke Cherry	*Prunus virginiana*	1	8'-10'	25'

Container Gardening for Bats

Even small spaces will entice bats to your home if there's something good to eat. Try these relatively short-statured (unless otherwise noted) native plants in pots on your deck or window box as a micro-habitat for bats.

Full to Partial Sun

5 hours min. sun per day during the growing season

Bloom Time	Common Name	Latin Name	Growth Form
Early	Prairie Sundrops	*Oenothera pilosella*	Perennial
	Smooth Penstemon	*Penstemon digitalis*	Perennial
	Palm Sedge	*Carex muskingumensis*	Perennial
Mid	Black-eyed Susan	*Rudbeckia hirta*	Biennial
	Bradbury's Monarda	*Monarda bradburiana*	Perennial
	Dotted Mint	*Monarda punctata*	Short-lived perennial
	Hairy Mountain Mint	*Pycnanthemum verticillatum*	Perennial
	Ohio Goldenrod	*Solidago ohioensis*	Perennial
	Fireweed*	*Epilobium angustifolium*	Perennial
	Midewiwan Sacred Tobacco	*Nicotiana rustica*	Annual
	Spotted Touch-me-not*	*Impatiens capensis*	Annual
	Rocky Mountain Bee Plant*	*Cleome serrulata*	Annual
Late	Anise Hyssop	*Agastache foeniculum*	Short-lived perennial
	False Aster*	*Boltonia asteroides*	Short-lived perennial
	Mistflower	*Eupatorium coelestinum*	Perennial
	Brown-Eyed Susan*	*Rudbeckia triloba*	Short-lived perennial
	Yellow Jewelweed*	*Impatiens pallida*	Annual
	Slender Gerardia	*Agalinis tenuifolia*	Annual
All Season	White Prickly Poppy	*Argemone polyanthemos*	Annual

Partial Sun to Shade

2-4 hours of sun per day during the growing season

Bloom Time	Common Name	Latin Name	Growth Form
Early	Palm Sedge	*Carex muskingumensis*	Perennial
	Black Cohosh*	*Cimicifuga racemosa*	Perennial
	Foamflower	*Tiarella cordifolia*	Perennial
Mid	Hairy Wood Mint	*Blephilia hirsuta*	Perennial
	Indian Tobacco	*Lobelia inflata*	Annual
Late	Short's Aster	*Aster shortii*	Perennial
	Zig-Zag Goldenrod	*Solidago flexicaulis*	Perennial

**Over three feet tall*

Container Gardening Tips

- Use the largest containers that space allows, especially for perennials and/or if you plan to overwinter plants (12" diameter minimum). Small raised beds work well.
- Invest in self-watering planters to reduce summer watering.
- Make sure your containers have at least one drainage hole.
- If planning to over-winter plants (which can be difficult), use lightweight containers made of plastic (even tupperware works), wood or metal (clay or ceramic pots will break during the freeze/thaw cycle).
- Select native plants to match the available sunlight (>5 hours is full sun, 3-5 is partial and <3 is shade).
- Purchase quart or gallon-sized containers to ensure a more mature plant during the time of planting and promise of flowers during the first season. Three inch pots and plugs are fine for biennials and short-lived perennials.
- Select plants with a sturdy spine so they don't fall over.
- Use an even blend of early, midsummer and fall blooming plants to ensure consistent habitat for invertebrate "bait" to feed hungry bats.
- Don't be afraid to venture vertically, add a trellis to a pot for a vine. Hang baskets from your eaves.
- In general, plant one plant per square foot.
- Listed annuals may only be available as seed. Start seed indoors prior to spring planting if you want to get a jump start on the season.
- Water and fertilize as necessary. Plants living in containers are always more needy than plants living in the ground.
- If you're attempting to over-winter your plants, move pots to the soil surface or into an unheated garage or cold frame, huddling pots close together. Cover with a couple inches of leaves or evergreen boughs and water thoroughly just prior to the ground freezing. Plan on adding handfuls of snow to the tops of the plants periodically for moisture if temps promote melting.

Certify your Bat Habitat!

To get started click here.

Bat Garden Plant Recommendations by Region

Jennifer Baker, Sparrow Landscaping LLC

ALASKA

Common Name	Latin Name	Spacing	Ht.
Pacific Anemone	*Anemone multifida*	1′	2′
Smallflower Columbine	*Aquilegia brevistyla*	1′	2′
Nodding Arnica	*Arnica lessingii*	1′	1′
Thrift Seapink	*Armeria maritima*	1′	1′
Dwarf Fireweed	*Chamerion latifolium*	1.5′	2′
Northern Larkspur	*Dephinium brachycentrum*	1.5′	2′
Eightpetal Mountain Avens	*Dryas octopetala*	0.5′	0.5′
Arctic Aster	*Eurybia sibirica*	0.5′	0.5′
Northen Bedstraw	*Galium boreale*	1.5′	2′
Alpine Sweetvetch	*Hedysarum alpinum*	1.5′	2′
Selfheal	*Prunella vulgaris*	1.5′	2′
Choke Cherry	*Prunus virginiana*	8′	25′

MIDWEST

Common Name	Latin Name	Spacing	Ht.
Bergamot	*Monarda fistulosa*	1.5′	4′
Palm Sedge	*Carex muskingumensis*	1.5′	3′
Prairie Sundrops	*Oenothera pilosella*	1′	2′
Smooth Penstemon	*Penstemon digitalis*	1′	2′
Stiff Goldenrod	*Solidago rigida*	1.5′	4′
Orange Coneflower	*Rudbeckia fulgida*	1.5′	3′
Prairie Phlox	*Phlox pilosa*	1′	1′
Virginia Mountain Mint	*Pycnanthemum virginianum*	1.5′	3′
Sky Blue Aster	*Aster oolentangiense*	1.5′	3′
New Jersey Tea	*Ceanothus americana*	3′	3′
Sweet Joe Pye	*Eupatorium purpureum*	2′	7′
Choke Cherry	*Prunus virginiana*	8′	25′

NORTHEAST

Common Name	Latin Name	Spacing	Ht.
Bergamot	*Monarda fistulosa*	1.5′	4′
Long-beaked Sedge	*Carex sprengelii*	1.5′	3′
Virginia Spiderwort	*Tradescantia virginiana*	1′	3′
Smooth Penstemon	*Penstemon digitalis*	1′	2′
Small Yellow Wild Indigo	*Baptisia tinctoria*	1.5′	2′
Golden Alexanders	*Zizia aurea*	1.5′	3′
Butterflyweed	*Asclepias tuberosa*	1.5′	2′
Narrowleaf Mountain Mint	*Pycnanthemum tenuifolium*	1.5′	3′
Wrinkleleaf Goldenrod	*Solidago rugosa*	1.5′	4′
Calico Aster	*Aster lateriflorus*	1.5′	3′
New England Aster	*Aster novae-angliae*	1.5′	5′
Choke Cherry	Prunus virginiana	8′	25′

PACIFIC NORTHWEST

Common Name	Latin Name	Spacing	Ht.
Bigleaf Lupine	*Lupinus polyphyllus*	2′	4′
Common Camas	*Camassia quamash*	1′	2′
Meadow Checkermallow	*Sidalcea campestris*	1′	1.5′
Selfheal	*Prunella vulgaris*	1.5′	2′
Showy Milkweed	*Solidago speciosa*	1.5′	3′
Canada Goldenrod	*Solidago canadensis*	1.5′	4.5′
Douglas Aster	*Aster subspicatum*	1.5′	4′
Hall's Aster	*Aster hallii*	1.5′	3′
Puget Sound Gumweed	*Grindelia integrifolia*	1.5′	3.5′
Nootka Rose	*Rosa nutkana*	3′	6′
Pacific Ninebark	*Physocarpus capitatus*	3′	5.5′
Choke Cherry	*Prunus virginiana*	8′	25′

SOUTHEAST

Common Name	Latin Name	Spacing	Ht.
Eastern Smooth Penstemon	*Penstemon laevigatus*	1.5′	3′
Rattlesnake Master	*Eryngium yuccifolium*	1.5′	6′
Bergamot	*Monarda fistulosa*	1.5′	4′
Narrowleaf Sunflower	*Helianthus angustifolius*	2′	6′
Golden Alexanders	*Zizia aurea*	1.5′	3′
Eastern Rosemallow	*Hibiscus moscheutos*	2′	6′
Wingstem	*Verbesina alternifolia*	1.5′	6′
Narrowleaf Mountain Mint	*Pycnanthemum tenuifolium*	1.5′	3′
Wrinkleleaf Goldenrod	*Solidago rugosa*	1.5′	4′
New Jersey Tea	*Ceanothus americanus*	3′	3′
Purple Passionflower (vine)	*Passiflora incarnata*	2′	25′
Eastern Redbud	*Cercis Canadensis*	20′	30′

SOUTHWEST

Common Name	Latin Name	Spacing	Ht.
Globemallow	*Sphaeralcea ambigua*	1.5′	3′
White Prairie Clover	*Dalea candida*	1.5′	2′
Indian Blanket	*Gaillardia pulchella*	1.5′	2′
Lemon Beebalm	*Monarda citriodora*	1.5′	3′
Evening Primrose	*Oenothera elata*	1.5′	3′
Upright Coneflower	*Ratibida columnifera*	1′	1.5′
White Prairie Aster	*Aster falcatum*	1.5′	2.5′
Cow's Clover	*Trifolium wormskiodii*	1.5′	3.5′
Desert Zinnia	*Zinnia acerosa*	2′	1′
Threenerve Goldenrod	*Solidago velutina*	1.5′	2.5′
Bluebonnet Lupine	*Lupinus palmeri*	1.5′	2′
Rocky Mountain Beeplant	*Cleome serrulata*	1.5′	3′

ROCKY MOUNTAINS

Common Name	Latin Name	Spacing	Ht.
Orange Globemallow	*Sphaeralcea munroana*	1.5′	2′
Woolly Sunflower	*Eriophyllum lanatum*	1′	1′
Narrowleaf Yucca	*Yucca glauca*	1.5′	2.5′
Arrowleaf Balsamroot	*Balsamorhiza sagittata*	1.5′	2′
Alpine Sunflower	*Tetraneuris grandiflora*	1′	1′
Silky Lupine	*Lupinus sericeus*	1.5′	2′
Common Gaillardia	*Gaillardia aristata*	1.5′	3′
Rocky Mountain Columbine	*Aquilegia caerulea*	1′	1.5′
White Evening Primrose	*Oenothera caespitosa*	1.5′	1′
Rocky Mountain Penstemon	*Penstemon strictus*	1.5′	2.5′
Showy Milkweed	*Solidago speciosa*	1.5′	3′
Scarlet Bugler Penstemon	*Penstemon barbatus*	1.5′	2′