



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT
U.S. FISH AND WILDLIFE SERVICE

Native Garden Guide for Southwestern Idaho



NATIVE GARDENS FOR IDAHO PARTNERSHIP

Boise School District
Bureau of Land Management (BLM)
City of Boise
College of Western Idaho
Garden City Garden Club
Golden Eagle Audubon Society
Idaho Department of Fish and Game
Mancuso Botanical Services
Steppe Environmental
U.S. Fish and Wildlife Service (USFWS)
West Ada School District

WRITTEN BY

Holly Hovis, BLM
Kristin Lohr, USFWS

CONTRIBUTING AUTHORS

Anne Halford, BLM
Chris Taylor, Boise School District
Dave Hopper, USFWS
Dusty Perkins, College of Western Idaho
Judy Snow, Garden City Garden Club
Karen Colson, USFWS
Kristin Gnojewski, City of Boise, Parks and Recreation
Lynell Sutter, Steppe Environmental
Micah Lauer, West Ada School District
Michael Mancuso, Mancuso Botanical Services
Sean Finn, Golden Eagle Audubon Society

DESIGN

Antonia Hedrick, BLM

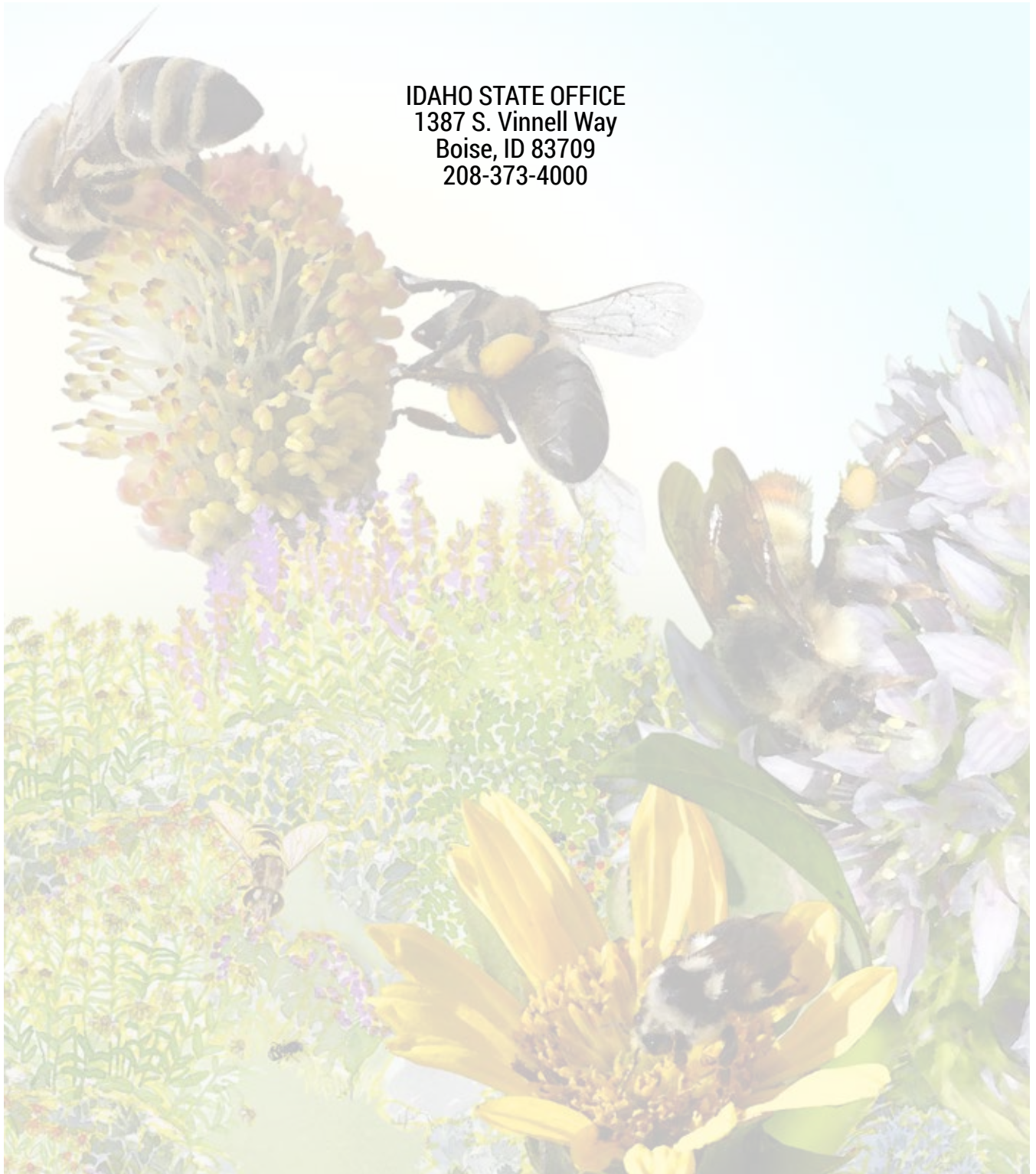
AUGUST 2019



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Native Garden Guide for Southwestern Idaho

IDAHO STATE OFFICE
1387 S. Vinnell Way
Boise, ID 83709
208-373-4000





Monarch on showy milkweed, A. Hedrick

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Sage International Charter School Garden

Introduction

Welcome to the Native Garden Guide for Southwestern Idaho. This guide was created to help novice gardeners create waterwise, wildlife-friendly gardens using plants suitable for southwest Idaho. The information in this guide will assist backyard gardeners, urban planners, schools, and businesses transform their landscapes into native gardens. All plants listed in this guide are native to Idaho or to adjacent states with the same growing conditions.

The purpose of this guide is to:

- provide steps for developing and maintaining native gardens
- provide examples of garden designs
- provide lists of locally adapted native plants
- aid in conserving water and attracting birds and pollinators
- identify partners, local resources and funding opportunities

Why Native Plants?

Urban gardens can provide important habitat for animals such as birds and native pollinators (bees, butterflies, moths, hummingbirds). These gardens can be used for nesting, foraging, shelter, and as stopovers during spring and fall migration. Native plants are adapted to the growing conditions in our area, thus requiring less water than introduced plants. They also support more insects, including native pollinators, than nonnative plants. This means more habitat for native bees and more food for insect-eating birds! Who needs a bird feeder when you have a native garden?



Arrowleaf balsamroot, A. Hedrick

Section A

How to Get Your Garden Started

Some basic steps will help you in creating your garden. Your garden planning time will depend on the size of your garden and the number of interested individuals. A backyard garden can be easily planned and implemented within a few months. A community garden that serves many people may take up to one year of planning prior to installation.

Basic Steps for a School or Community Garden

1. Form a team
2. Solicit input from staff, partners, or community
3. Create design
4. Present design to person approving garden
5. Develop schedule and coordinate with contractors or maintenance staff
6. Write grant proposals
7. Raise funds
8. After funding is awarded, refine plant list based on availability and order plants
9. Clear site of existing vegetation
10. Install hardscaping such as boulders and seating
11. Add topsoil if needed
12. Install irrigation
13. Plant
14. Protect plantings with temporary fencing
15. Install interpretive signs
16. Develop and implement garden maintenance plan



Go team!

Basic Steps for a Home Garden

1. Decide what your garden priorities are (water savings, pollinators, monarch butterflies, birds etc.).
2. Decide how much time you have to spend on a garden (little time = fewer plants that require less work).
3. Choose a design from this guide and adapt it to your space or create your own from the provided plant lists.
4. Figure out the cost of the garden. If you lack the funds, look for fall sales, grow plants from seed, or look for plant donations from fellow gardeners.
5. Clear the area to be planted.
6. Add compost and topsoil, if needed.
7. Install irrigation, if needed.
8. Plant.
9. Keep a planting plan. It helps with maintenance.
10. Mark your plants so you can tell the difference between what you planted and what is a weed.
11. Maintain your garden.

Forming a Team

If you are planning a community garden you will want to have the support of a garden team. Ideally, you will have a team of people who bring different skills to your group. Formalizing the group in some way, either by giving it a name or working it into an organization program, will help build continuity of the project. Some examples of garden team memberships are listed.

- Garden Coordinator—can be a parent or school staff but should definitely be a formal position on the Parent Teacher Association/Organization. They will organize the garden team to complete all the garden activities such as installation and periodic maintenance.
- Principal—Your principal will need to be a strong advocate for the garden. They will often need to write support letters for some of the grants or sign off on grant applications. They are also critical as a communication pathway between your team and the rest of the school.
- Maintenance Staff—They will be helpful in locating utility lines and irrigation options. They may be conducting some of the work.
- Resource Professional—Such as a botanist or biologist.
- Teachers and Students—Garden Clubs and Jr. Naturalist Programs are a great way to involve students and give the student body a voice in the garden design.



Students at Roosevelt Elementary conduct pollinator counts on native plants in their outdoor classroom.

Gathering Input

For school and community gardens, gathering input early in the process will foster ownership of the project and promote sustainability. The input you receive will help you tailor the project to the needs of the users of the garden. For example, a community may desire a neighborhood gathering place that could be created by including an open seating area with shade from the sun. An educator may have curriculum objectives that could be met by specific plantings. A sample school questionnaire is included below.

—SCHOOL QUESTIONNAIRE—

For Teachers

- What curriculum topics would you like to teach in a hands-on outdoor nature setting?

- How can you meet the needs of the curriculum topics in terms of types of plants or habitats?

- Do you prefer on-the-ground seating, boulders, benches, or other options?

- Would work tables be useful to you? Do you anticipate using a permanent type easel?

- Any other concerns that we should be aware of when designing the garden?

- Do your students have special needs that could be addressed in the garden for either access or use?

For Students

- What would you like to do in an outdoor classroom?

- Draw or write what you would like to experience in the nature garden that will be part of our outdoor classroom.

- Check activities that interest you:

<input type="checkbox"/> Quiet reading time	<input type="checkbox"/> Learning recipes using wild native plants
<input type="checkbox"/> Science experiments	<input type="checkbox"/> Identifying plants native to your backyard
<input type="checkbox"/> Observing Insects and pollinators	<input type="checkbox"/> Nature drawing or arts/crafts
<input type="checkbox"/> Wildlife habitat	<input type="checkbox"/> Staging plays

Section B

Funding

You can install a native garden for as little as \$100 up to \$25,000 and beyond depending on the size of the garden, the amount of labor you are willing to perform yourself, and your access to free materials such as plants, mulch, and tools. Knowing the potential components that you may want to include and the general costs will help you build a budget when writing grant proposals.

Costs to consider in your budget:

- Soil and rock mulch: \$100-\$4,000
- Boulders: \$350 for 3-5 seat sized rocks
- Labor for rock placing and spreading mulch: \$1,000-\$3,000
- Native plants: \$0-\$2,000
- Art and interpretive signs: \$2,000 for single panel medium sign out of metal and acrylic
- Equipment rental: \$500-\$750
- Irrigation materials: \$1,300-\$3,500
- Irrigation labor: varies by contractor
- Tools (wheelbarrows, shovels, pruning shears,...)
- Garden benches, bee boxes, bird bath, bird feeders: cost varies



Outdoor amphitheater seating in Hawthorne Elementary's garden, which doubles as a community gathering area and outdoor student orchestra space.

Grants

Seek out free labor or material options (e.g., Eagle Scout projects, school PTO, volunteer parents, local garden clubs, master gardener projects, horticulture classes or contact big box stores for donations of materials/grant programs).

BLM Master Funding Opportunities, Native Plant Conservation and Restoration Program
www.blm.gov/services/financial-assistance-and-grants

Boise Public Library Grants
www.boisepubliclibrary.org/research-learning/nonprofit-funding-resources/

Boise Public Schools Education Foundation
boiseschoolsfoundation.com/college-prep/other-scholarships/

Boise Urban Garden School Grants
www.boiseurbangardenschool.org/

The Grants Learning Center
www.grants.gov

Idaho Botanical Garden Lunaria Grant
idahobotanicalgarden.org/lunaria-grant-program/

Idaho Environmental Education Association Grants.
www.idahoeec.org/ee-educator-grants/

Idaho Native Plant Society; Education, Research, and Inventory Grant
idahonativeplants.org/erig/Announcement_for_2016_ERIG.pdf

Idaho Power Employee Community Fund
www.idahopower.com/NewsCommunity/Community/empCommServFund.cfm

Lowe's Toolbox for Education
www.toolboxforeducation.com

Micron Community Grants
www.micron.com/foundation/community/grants

National Environmental Education Foundation Grants
www.neefusa.org/grants

National Fish and Wildlife Federation Grants
www.nfwf.org/whatwedo/grants/Pages/home.aspx

Project Learning Tree
www.plt.org/resources/greenworks-grants/

The Cornell Lab. Youth and birds.
www.allaboutbirds.org/help-fund-your-community-event-with-a-mini-grant-from-celebrate-urban-birds/

Vehicle Grants (e.g., Subaru, toyota, etc)
www.subaru.com/csr/soa-foundation.html

Wildones Seeds for Education Grant
www.wildones.org/seeds-for-education/



Section C

Garden Design

Gardens of any size or shape create habitat for wildlife and beautiful spaces for people to enjoy. They don't have to be complicated or expensive. In this section, we present examples of small gardens to help you create a garden of your own, plus tips on design elements for a more polished effect. And remember, all of our garden designs can be scaled down if you are just a beginner and want to start small or they can be expanded if you have the experience and are ready for a larger garden.

The themed gardens in this section are just an inspirational starting point for you. Educational goals can be creatively worked into your garden design. Some schoolyard garden design ideas for early learners include:

- an alphabet garden—use plants that begin with the letters of the alphabet and label them
- a color garden—use plants of every color.



The Firewise Garden, Idaho Botanical Garden

Design Tips

- Start small! When learning how to garden, start with a small space and select just a few plants. You can always add to your garden later.
- Clearly delineate your garden with a border or maintained edge to demonstrate that it is a purposeful space.
- Place tall plants in the back of the garden if your space backs up to a building
- If your space is visible from both sides, place your tallest plants in the middle of the garden
- Use anchor species such as large shrubs or trees to create structure and year round interest and round out with seasonally flowering filler perennials.
- Plant a ground cover or low stature filler plant, or use a thick mulch to suppress weeds.
- Create depth by contouring the ground with berms and planting taller plants on mounds.
- Use multiples of plants in groups of 3s or 5s.
- For larger gardens, use mass plantings of a single species for impact and to suppress weeds.
- For public gardens, install an interpretive sign that clearly states the purpose of the garden.
- For school gardens, select plants with spring and fall blooms and plants with winter interest for when students are in school.
- For community gardens, add seating such as boulders and benches.
- Anticipate areas of high traffic where garden trampling could occur. Plant masses of rugged plants such as bunchgrasses that can withstand foot traffic or line with shrubs that will prevent entrance to the area.

A table of native plants with their growth requirements and benefits is included in Section F. All of these plants are commercially available and perform well in garden settings.

Native Gardens in Southwest Idaho

1. Roosevelt Elementary Outdoor Classroom
908 E. Jefferson St., Boise 83712
2. Hawthorne Elementary Outdoor Classroom
2401 W. Targhee Street, Boise 83705
3. BLM Ethnobotany Garden and Sage-grouse
Habitat Demonstration Garden
5948 Development Way, Boise 83705
4. Lewis and Clark Garden, and Firewise Garden
at the Idaho Botanical Garden
2355 Old Penitentiary Road, Boise 83712
5. MK Nature Center
600 S Walnut St, Boise 83712
6. Hewlett Packard Campus
11311 W. Chinden Blvd., Boise 83714
7. Chinden Garden Club Garden (Library)
6015 N. Glenwood St., Garden City 83714
8. Sage International Charter School
431 E Parkcenter Blvd., Boise 83706
9. Lowell Elementary School
1507 N 28th St, Boise 83703
10. Peace Valley Public Charter School
1845 S. Federal Way, Boise 83705
11. Boise Fire Station 12
3240 State Highway 21, Boise 83716
12. Lake Hazel Library
10489 W. Lake Hazel Road Road, Boise 83709
13. Suez Water
8248 W Victory Road, Boise 83709
14. Idaho Botanical Garden: Idaho Native Plant
Garden, Lewis and Clark Native Plant Garden,
Western Waterwise Garden, Firewise Garden
and Water Conservation Landscape
2355 N. Old Penitentiary Rd, Boise, ID 83712
15. Liberty Elementary
1740 E. Bergeson St., Boise, ID 83706

Public Perception

Interpretive signs can go a long way to educate the public about your new garden. As with anything new, expect concerns when converting grass to a more natural appearing garden.

- When looking for garden space in your community, convert unsightly, weedy areas to beautiful gardens. The community will be more accepting.
- Interpretive sign clearly stating garden purpose that is visible to the public.
- Clumps (mass) of plantings and structural elements such as walkways, boulders, benches, and art.
- Well manicured edges to the garden.
- Adequate anchor plants such as shrubs and trees.
- Plants that flower throughout the seasons.
- Plants that retain their shape.
- Plants that don't sucker or spread.
- Use bee houses instead of piles of rock, wood, or leaves for winter insect habitat (page 23).

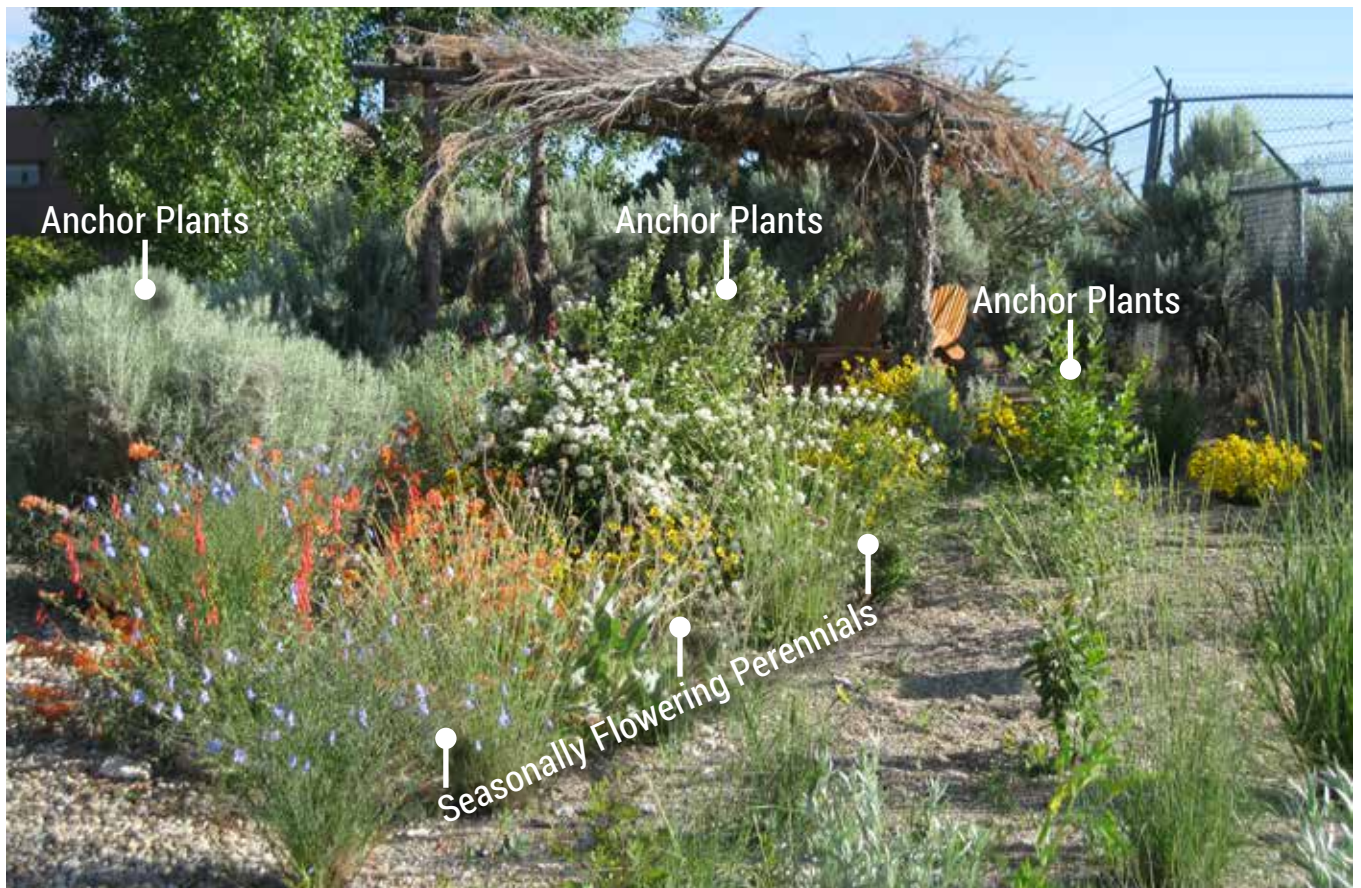
If gardens are in a public setting such as a school or community area the access will need to be Americans with Disabilities Act (ADA) compliant.

Pathways should be at least 3 ft. wide and surfaced with material that a wheelchair can negotiate, such as pavement or packed crushed rock (decomposed granite).





Roosevelt Elementary native garden with border delineated by rocks and maintained edges.



BLM Boise District ethnobotany garden has seasonally-flowering perennials and anchor plants in the back.



Suez Water native garden with border delineated by rocks and maintained edges.



Quail garden art in the Suez Water native garden.



Plant low-growing plants in front and tall plants in back.

Bird Habitat Garden

Planting a garden that provides food and shelter will attract birds which, with their bright colors and beautiful songs, will enhance visitor enjoyment of the garden. Birds prefer dense shrubs as hiding places from which they venture out to find food. Most birds eat some combination of seeds, fruits and insects so a garden that provides a little of each is more likely to attract a variety of birds. Larger gardens with trees and art can also provide habitat for nesting and perches where birds will fill the air with song.

Features of a bird habitat garden include:

- plantings rich in berry producing shrubs
- high diversity of seasonal plants with focus on Aster and Buckwheat families for seed eaters
- plants such as fireweed and milkweed that support strong insect communities for insect eaters
- range of heights of shrubs for nesting/roosting habitat

BIRD HABITAT GARDEN				
SCIENTIFIC NAME	COMMON NAME	BLOOM TIME	FLOWER / FOLIAGE COLOR	PLANT HEIGHT
GROUND COVER AND FILLER				
<i>Acrostaphylos uva-ursi</i>	Kinickinick	Spring	Pink	6"
<i>Festuca idahoensis</i>	Idaho Fescue (Grass)	Early Summer	Green, Blue-green	18"
<i>Gilia aggregata</i>	Scarlet Gilia	Early Summer	Red	30"
<i>Heuchera cylindrica</i>	Alumroot	Early Summer	White	12"
<i>Pseudoroegneria spicata</i>	Bluebunch Wheatgrass	Early Summer	Yellow	
FLOWERING PLANTS				
<i>Asclepias speciosa</i>	Showy Milkweed	Mid-Summer	Pale pink, white	48"
<i>Eriogonum compositum</i>	Arrowleaf Buckwheat	Early Summer	White-cream	12"
<i>Eriogonum strictum</i>	Blue Mountain Buckwheat	Fall	White flowers, silver foliage	12"
<i>Erigeron subtrineris</i>	Threenerve Fleabane	Summer-Fall	Purple	24" +
<i>Eriogonum umbellatum</i>	Sulfur Buckwheat	Spring	Yellow	12"
<i>Gaillardia aristata</i>	Blanket Flower	Mid-Summer	Red-yellow	24"
<i>Hymenoxys acaulis</i>	Orange Sneezeweed	Spring	Yellow-orange	30"
<i>Tetrameuris acaulis</i>	Sundancer Daisy	Mid-Summer	Yellow	12"
TREE AND SHRUB STRUCTURE				
<i>Amelanchier alnifolia</i>	Western Serviceberry	Spring	White	60" +
<i>Cercocarpus ledifolius</i>	Curl-Leaf Mountain Mahogany	Spring	Cream	96" +
<i>Juniperus sp.</i>	Juniper (Tree)	Spring	NA	20' +
<i>Krascheninnikovia lanata</i>	Winterfat	Early Summer	White, silver	30"
<i>Prunus virginiana</i> *	Chokecherry	Spring	White	10' +
<i>Rhus trilobata</i>	Lemonade Bush	Spring	Yellow	36" +
<i>Sambucus nigra cerulea</i> *	Blue Elderberry	Early Summer	White flowers, purple/ black fruits	10'
<i>Sorbus scopulina</i>	Mountain Ash	Spring	White	13'
<i>Symphoricarpos albus</i>	Snowberry	Spring	Pink	48"
* Very good for birds but requires annual pruning and shaping or will occupy a wide space.				

Bird Habitat Garden



Blanket Flower



Blue Mountain Buckwheat



Sundancer Daisy



Alumroot



Snowberry



Sulfur Buckwheat

Bird Habitat Garden



Winterfat



Threenerve Fleabane



Arrowleaf Buckwheat



Showy Milkweed



Blue Elderberry



Kinnikinnick

Bird Habitat Garden



Juniper



Mountain Ash



Oakleaf Sumac



Orange Sneezeweed



Scarlet Gilia



Serviceberry

Pollinator Habitat Garden

The whirl of hummingbird wings and buzzing from bees is the sound of a vibrant pollinator garden. Gardening for pollinators provides beauty to the landscape and habitat for pollinators such as hummingbirds, bees, butterflies, moths, and beetles. A garden that includes a mix of colors, bloom times, and flower shapes will host a large diversity of pollinators that often have unique flower preferences. Often unnoticed, insect pollinators are our most abundant wildlife. They also support other creatures by providing food for birds and bats. Bees pollinate approximately 75 percent of the fruits, nuts, and vegetables in the United States and over 80 percent of flowering plants. Planting a garden for these small creatures can make a big difference to our environment. Features of a pollinator garden include:

- plants with staggered blooming times to provide nectar and pollen from spring to fall
- a diversity of flower types/shapes for different pollinators
- day and evening flowering plants
- plants that support both larval and adult phases of pollinating insects
- provide nesting habitat such as bare soil areas and dormant plant stems over winter



Management for Pollinators:

- Use a fine gravel mulch such as decomposed granite or leave some bare areas for ground-nesting bees.
- Include logs and hollow stems for cavity nesting bees.
- Piles of rocks, leaf litter or logs will provide overwintering habitat or make a bee house for a cleaner look.
- Water in early morning when mother bees are home in the nest. Daytime watering can flood or obscure nest sites for bees who are out foraging, making it hard to locate their nests when they return.
- Do not use landscape fabric/barrier in the entire garden. It is impermeable to ground nesting insects.
- When pruning or thinning, leave 12-15 inch stubs of hollow stems for nesting bees.
- Following spring pruning of plants, leave cuttings of hollow-stemmed plants bundled on site.

Color Preferences of Pollinators

bees—blue, purple, white, yellow

butterflies—red, orange, yellow, pink, purple

moths—white, pale pinks, yellows

Flower Shape Preferences of Pollinators

long tubular flowers—hummingbirds, moths, butterflies, long-tongued bees

disk flowers (daisy shaped)—bumblebees and butterflies

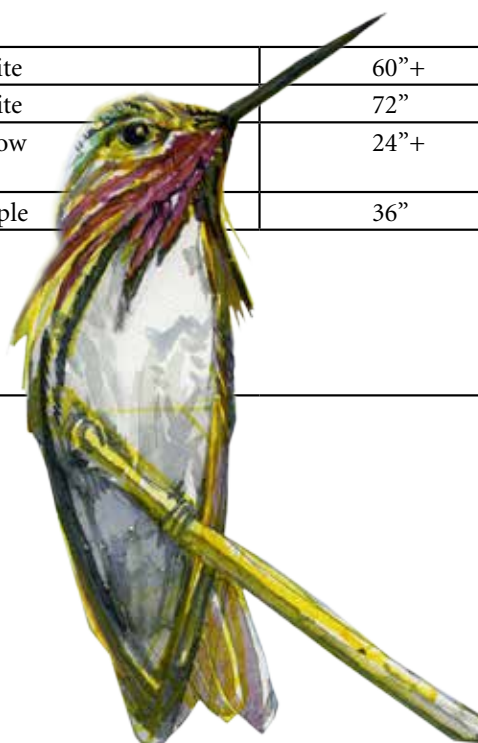
bell shaped flowers—long tongued bees and bumblebees

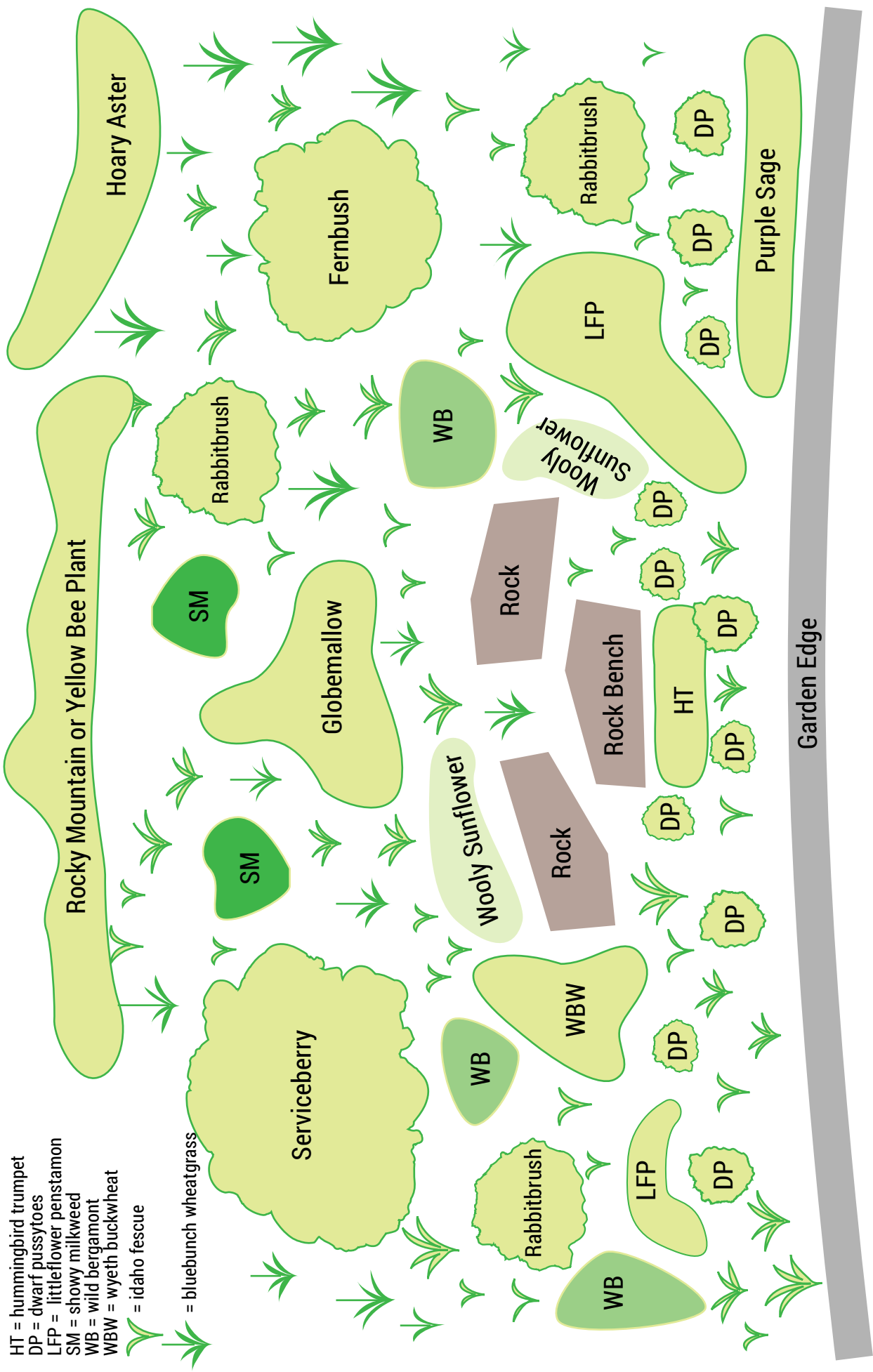
bowl flowers (buttercup shaped)—flies, beetles, honey bees and solitary bees

pea shaped flowers—honey bees and solitary bees

Skipper Butterfly, A. Hedrick

POLLINATOR HABITAT GARDEN				
SCIENTIFIC NAME	COMMON NAME	BLOOM TIME	FLOWER / FOLIAGE COLOR	PLANT HEIGHT
GROUND COVER AND FILLER				
<i>Antennaria microphylla</i>	Dwarf Pussytoes	Early Summer	Pink	5"
<i>Acrtostaphylos uva-ursi</i>	Kinickinick	Spring	Pink	6"
<i>Cleome lutea</i> *	Rocky Mountain Bee Plant	Summer	Purple	48"
<i>Cleome serrulata</i> *	Yellow Bee Plant	Summer	Yellow	60"
<i>Festuca idahoensis</i>	Idaho Fescue (Grass)	Early Summer	Green, Blue-green	18"
FLOWERING PLANTS				
<i>Asclepias speciosus</i>	Showy Milkweed	Mid-Summer	Pale pink,white	48"
<i>Epilobium canum</i>	Hummingbird Trumpet	Summer	Red	8"
<i>Eriogonum heracleoides</i>	Wyeth Buckwheat	Summer	Cream	12"
<i>Eriophyllum lanatum</i>	Wooly Sunflower	Summer	Yellow	8"
<i>Eriogonum microthecum</i>	Slender Buckwheat	Fall	White-Pink	12"
<i>Eriogonum strictum</i>	Blue Mountain Buck-wheat	Fall	White flowers, silver foliage	12"
<i>Monarda fistulosa</i>	Wild Bergamot	Summer	Purple	24"+
<i>Oenothera caespitosa</i>	Tufted Evening Primrose	Summer	White	6"
<i>Penstemon procerus</i>	Little Flower Penstemon	Spring	Purple	12"
<i>Sphaeralcea munroana</i>	Munro's Globemallow	Summer	Orange	24"
TREE AND SHRUB STRUCTURE				
<i>Amelanchier alnifolia</i>	Serviceberry	Spring	White	60"+
<i>Chamaebatiaria millefolium</i>	Fernbush	Summer	White	72"
<i>Ericameria nauseosus</i> Use a dwarf variety	Rubber Rabbitbrush	Fall	Yellow	24"+
<i>Salvia dorrii</i>	Purple Sage	Summer	Purple	36"
<p>*Annual that may be an initial and temporary plant in the garden. Can scatter seed during first year to provide quick impact.</p>				





Pollinator Habitat Garden Example

Shapes show planting areas with 3-5+ plants. Shrub shapes are single plants.

Scale: 1 inch = 5 feet
 This garden = 45'x30'

Pollinator Habitat Garden



Bluebunch Wheatgrass



Littleflower Penstemon



Idaho Fescue



Rosy Pussytoes



Wyeth Buckwheat



Fernbush

Pollinator Habitat Garden



Showy Milkweed



Blue Mountain Buckwheat



Globemallow



Purple Sage



Serviceberry



Wild Bergamot

Pollinator Habitat Garden



Hummingbird Trumpet



Kinnikinnick



Rabbitbrush



Rocky Mountain Bee Plant



Woolly Daisy



Tufted Evening Primrose



Mason Bee

To create a bee house for leaf cutter or mason bees, drill holes in a log or non-treated piece of wood that is at least 6 inches deep. Drill holes can vary in size between 5/16 and 3/8 inch in diameter. Drill 3-5 inches deep for small diameter holes and 5+ inches deep for larger diameter holes. Do not drill all the way through the wood. Hang in sunny spot at eye level so you can watch the activity!



Bee House and Bee Box at Sage International School



Butterfly on buckwheat



Monarch Butterfly Garden

The monarch butterfly is a beautiful orange and black butterfly that is found throughout the United States. They are known best for their long-distance migrations to either Mexico or California to overwinter. The western population of monarchs (those west of the Rocky Mountains) overwinter in California and breed in the western states. The Snake River Plain of Idaho is one of the best breeding areas for monarch butterflies in the West. The western population of monarchs has declined dramatically in the past couple of decades likely due to loss of habitat and pesticides. You can help monarchs by planting a garden with specific features:

- Milkweed for caterpillars—the only plant adults will lay their eggs on and the only plant the caterpillars will eat.
- Nectar plants for adults with overlapping bloom times from late May to mid October.

- Flower colors that attract butterflies—red, orange, yellow, pink, purple.
- Plantings grouped by color to create a large visual target that can be easily spotted by high-flying monarchs
- Puddling habitat (water and minerals) in the form of damp areas of soil or a shallow dish filled with water and pebbles.
- No pesticides—herbicides and insecticides.

Once milkweed is established, check the underside of leaves for eggs or for caterpillars. The eggs and first phase of the caterpillar are tiny, so look carefully! Once the caterpillar reaches full size, it will form a chrysalis and emerge as a butterfly approximately 10 days later. Milkweed takes two years to bloom if it is grown from seed.



Monarch butterfly on Showy Milkweed.



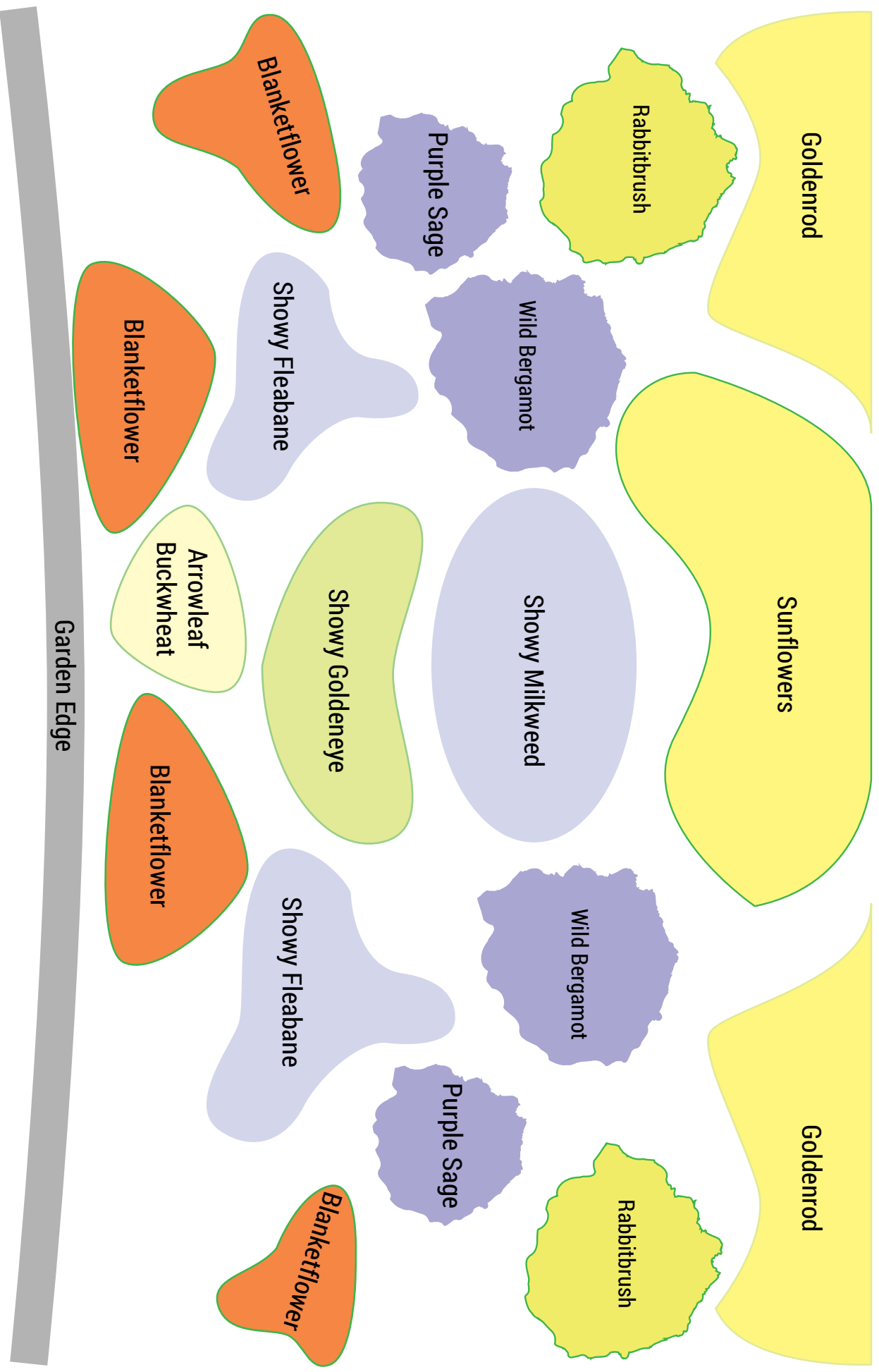
MONARCH BUTTERFLY GARDEN				
SCIENTIFIC NAME	COMMON NAME	BLOOM TIME	FLOWER / FOLIAGE COLOR	PLANT HEIGHT
GROUND COVER AND FILLER				
<i>Antennaria microphylla</i>	Dwarf Pussytoes	Early Summer	Pink	5"
<i>Cleome serrulata</i> *	Rocky Mountain Bee Plant	Summer	Purple	48"
FLOWERING PLANTS				
<i>Asclepias speciosus</i> **	Showy Milkweed	Mid-Summer	Pale pink,white	4 ft
<i>Asclepias incarnata</i>	Swamp Milkweed	Mid-Summer	Dark to pale pink	4 ft
<i>Asclepias fascicularis</i> **	Narrow-Leafed Milkweed	Mid-Summer	Pale pink	3 ft
<i>Erigeron speciosus</i>	Showy Fleabane	Summer	Purple	2 ft
<i>Eriogonum compositum</i>	Arrowleaf Buckwheat	Summer	Yellow	1.5 ft
<i>Eriogonum microthecum</i>	Slender Buckwheat	Fall	White-Pink	1 ft
<i>Eriophyllum lanatum</i>	Wooly Sunflower	Summer	Yellow	1-2 ft
<i>Gaillardia aristata</i>	Blanketflower	Summer	Red/yellow	2 ft
<i>Helianthus annuus</i>	Common Sunflower	Summer	Yellow	5 ft
<i>Heliomeris multiflora</i>	Showy Goldeneye	Summer	Yellow	1 ft
<i>Hymenoxys hoopesii</i>	Owl's-Claws	Summer-Fall	Yellow	2 ft
<i>Monarda fistulosa</i>	Wild Bergamot	Summer	Purple	2+ ft
<i>Monardella odoratissima</i>	Coyote Mint	Summer	White/pink	1 ft
<i>Sphaeralcea</i>	Globemallow	Summer	Orange	2 ft
<i>Solidago canadensis</i>	Canada Goldenrod	Late summer/fall	Yellow	5 ft
SHRUB STRUCTURE				
<i>Ericameria nauseosus</i>	Rubber Rabbitbrush	Fall	Yellow	24"+
<i>Salvia dorrii</i>	Purple Sage	Summer	Purple	36"
<p>*Annual likely to reseed.</p> <p>** Spreads once established</p>				



Monarch butterfly on Tapertip Hawksbeard



Showy Goldeneye



Monarch Butterfly Garden Example

Shapes show planting areas with 3-5+ plants. Shrub shapes are single plants.

Monarch Butterfly Habitat Garden



Showy Milkweed



Showy Fleabane



Blanket Flower



Arrowleaf Buckwheat



Showy Goldeneye



Rabbitbrush

Monarch Butterfly Habitat Garden



Owls Claws



Canada Goldenrod



Common Sunflower



Purple Sage



Coyote Mint



Dwarf Pussytoes

Monarch Butterfly Habitat Garden



Narrow-leaf Milkweed



Swamp Milkweed



Globemallow



Rocky Mountain Bee Plant



Slender Buckwheat



Wild Bergamot

Sensory Garden

Awaken your senses with the tart taste of golden currants and the sweet smell of bitterbrush in a sensory garden full of native plants. Gardens can promote learning and memory through sensory stimulation, especially through scented plants such as coyote mint and sagebrush. Creating a physical connection with a garden engages us and draws our attention more fully to the present. When all of our senses are activated, our brain function increases dramatically. This can be an effective tool if you are hosting educational events in your garden.

Features of a sensory garden:

- Plants that are hardy to withstand regular handling
- A range of contrasting textures and shapes for visual interest
- Low-growing plants that are in reach of young explorers
- Features such as natural-material wind chimes, art, and rocks with interesting surfaces

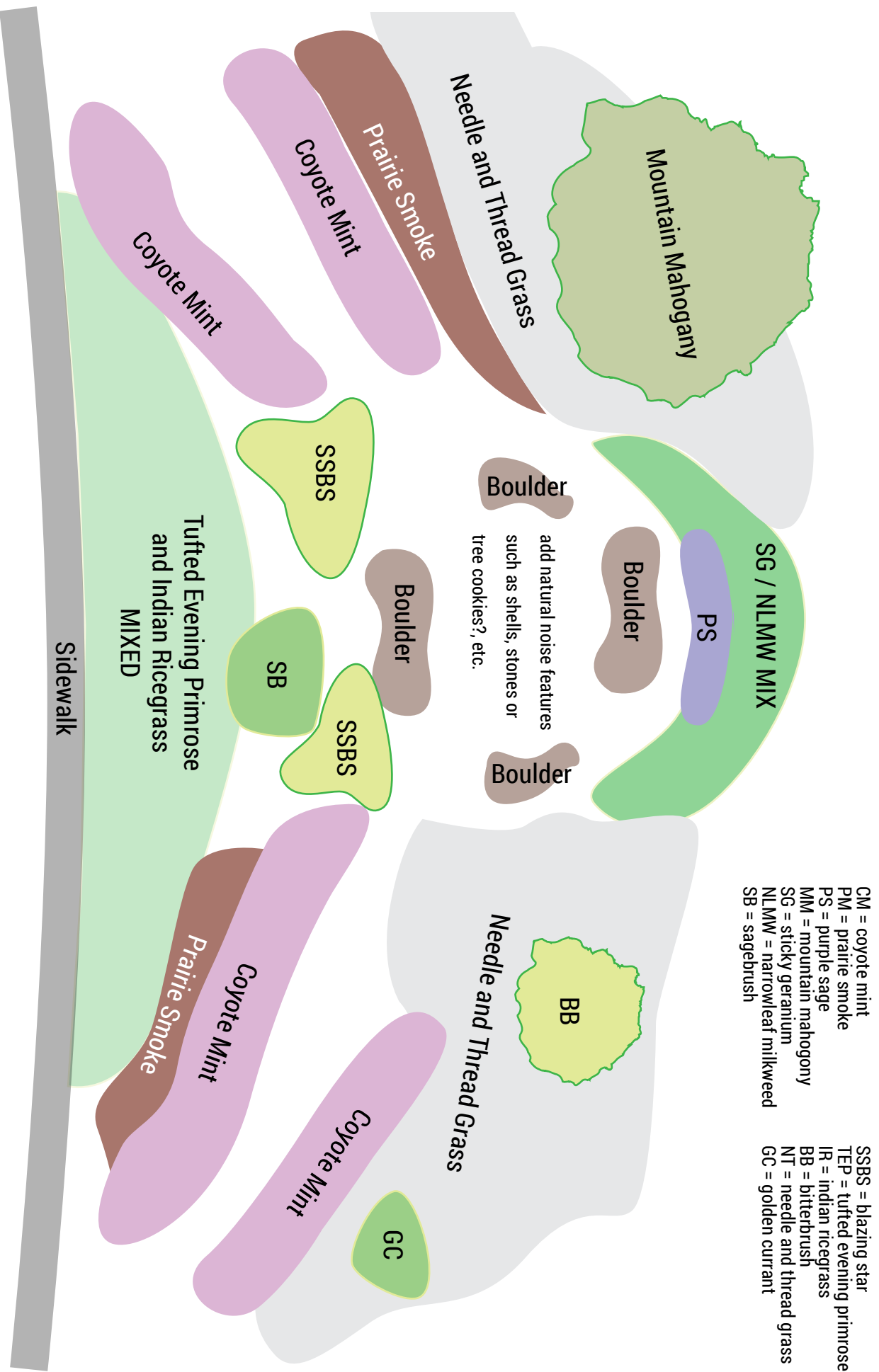


Coyote Mint



SENSORY GARDEN

SCIENTIFIC NAME	COMMON NAME	BLOOM TIME	FLOWER / FOLIAGE COLOR	PLANT HEIGHT
GROUND COVER AND FILLER				
<i>Hesperostipa comata</i>	Needle and thread grass	Spring	Green	2 ft
<i>Achnatherum hymenoides</i>	Indian ricegrass	Spring	Green	1 – 2 ft
FLOWERING PLANTS				
<i>Monardella odoratis-sima</i>	Coyote mint	Spring - Summer	Purple	1 ft.
<i>Geum triflorum</i>	Prairie smoke	Summer	Rose-red	1 ft
<i>Salvia dorrii</i>	Purple sage	Spring - Summer	Blue - Purple	2 -3 ft
<i>Geranium viscosissimum</i>	Sticky geranium	Spring - Summer	Pink	2 ft
<i>Mentzelia laevicaulis</i>	Smoothstem blazing-star	Summer	Yellow	1 – 3 ft
<i>Asclepias fascicularis</i>	Narrow-leafed milk-weed	Summer	Pink, White, Purple	2 – 3 ft
<i>Oenothera caespitosa</i>	Tufted evening prim-rose	Spring - Summer	White	6 in
TREE AND SHRUB ANCHOR PLANTS				
<i>Cercocarpus ledifolius</i>	Curl-leaf mountain mahogany	Spring	Yellow	10 – 15 ft
<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>	Mountain big sage-brush	Fall	Yellow	6 ft
<i>Purshia tridentata</i>	Bitterbrush	Spring	Yellow	4-6 ft
<i>Ribes aureum</i>	Golden currant	Spring	Yellow	5 ft
SENSES				
SCENT	TOUCH	VISUAL	TASTE	AUDIBLE
Coyote mint (leaves)	Smoothstem blazingstar (Velcro-like leaves)	Prairie smoke (seed heads with feathery plumes)	Golden currant (tart edible berries)	Birds chirping? Include nature based music materials
Sagebrush (leaves)	Sticky geranium (sticky leaves that trap and partially digest insects)	Needle and thread grass (shiny seeds with long tails that blow in wind)		
Bitterbrush (flowers and leaves)	Needle and thread grass (sharp tipped seed head with long tail that curls when moist)	Smoothstem blazing-star (large yellow star shaped flowers)		
Evening primrose (flowers)	Curl-leaf mountain mahogany (feathery seed plumes and thick leathery leaves)	Sticky geranium (bright pink flowers with nectary guides on petals)		
Purple sage (leaves)				
Golden currant (vanilla-dove scented flowers)				



Scale: 1 inch = 5 feet
This garden = 45'x30'

Sensory Garden Example

Shapes show planting areas with 3-5+ plants. Shrub shapes are single plants.

Sensory Garden



Tufted Evening Primrose



Blue Mountain Buckwheat



Idaho Fescue



Indian Ricegrass



Woolly Sunflower



Needle and Thread Grass

Sensory Garden



Narrow-leaf Milkweed



Blazing Star



Sticky Geranium



Rosy Pussytoes



Little-flower Penstemon



Serviceberry

Sensory Garden



Golden Currant



Purple Sage



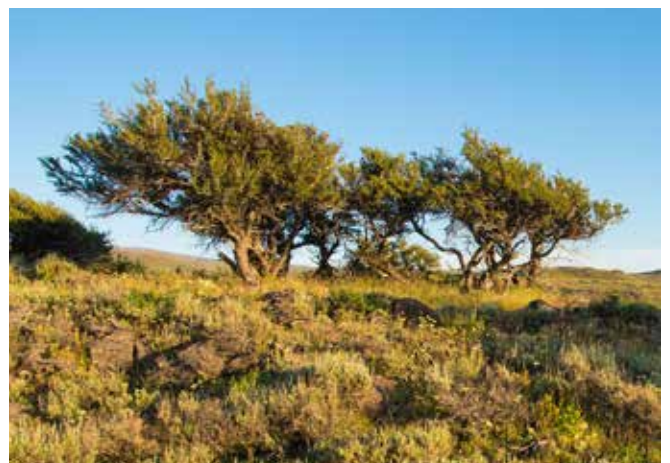
Bitterbrush



Sagebrush



Prairie Smoke



Mountain Mahogany

Outreach

Sculpture, design and art in interpretive panels adds personality to your garden. Art can highlight your garden theme and attract visitors who may not initially notice the purpose of a native garden. Incorporating local artists and designers if you have funding supports your local arts community. Interpretive features are valuable in educating visitors on the importance of native plants for providing wildlife habitat.

Bighorn sheep silhouette sign (right)

Entrance to a Wilderness Garden (below left)

Entrance sign with map and purpose (below right)



Rattlesnake silhouette garden art

Hummingbird garden sign



Pot art at an elementary school experimental garden.



Entrance arch at the Children's Garden, Id. Botanical Garden.



Interpretive sign mounted on planted box

Sign Concepts and Design

Interpretive and/or informational signs identify your garden and help the public understand its function, particularly if your garden is different from neighboring gardens. You will need to consider the following factors when deciding on how to identify or interpret your garden:

- Who is your audience? If you are hoping to attract the attention of school age children you will want to adjust your sign height to a readable range and make sure your graphics and language are engaging for the target age.
 - Create an introductory sign with a map of the garden, list of partners, and garden purpose.
 - Avoid reds and browns that will fade in the sun.
 - Create a visual hierarchy with image sizes and text sizes that clarifies your message.
 - Leave some blank space for text on the signs and along the edges.
 - Avoid a collage of equal size photos and text boxes.
 - Limit your sign to no more than 150 words and avoid placing them on top of a busy photo or texture.
 - Orient your signs away from direct sun, south-facing aspects, and irrigation spray.
 - Leave an unplanted buffer around the sign to prevent the sign from being obscured by vegetation.
 - Install supporting posts approximately 1.5 to 2 feet underground and in concrete footings.
 - Mount your sign on planter box or mount it into a pedestal frame.
 - When using upright sign pedestals, think about a comfortable reading height of your audience.
- Designing curved or shaped signs and pedestals “outside the box” will draw people’s attention.



Create a visual hierarchy with image sizes and text sizes that clarifies your message on your sign.

Section D

Implementation

It is important to know the sequence of events, what help you will need, and the tools you will need before you start your garden project. This is particularly good information to share with your team and all those affected by the project. Adding a date column will be necessary for facilities and operations staff if you are at a school.

Always know what is underground before you start digging. Utilities can sometimes be located at a surprisingly shallow depth. An example of a site plan is provided below. You may have fewer steps involved if you are creating a private or smaller garden.

Planning Calculations

It is easy to plant too densely when using small plants from the nursery. Particularly with shrubs and grasses, leave enough space between plants so that they can grow to maturity. When planning planting density or calculating numbers of plants to purchase, use the following guidelines.

Plant Calculations

- Perennial grass and flowers: In general 1 plant per 2 square feet. Check individual growth requirements.
- Trees and Shrubs: 1 per 8 square feet
- The area to be planted in square feet is divided by the distance apart in square feet or $A \div D = \text{Number of plants}$
- The distance generally is 1.5 feet apart for slow spreading plants and 2 feet apart for medium spreading plants, 3 feet apart for fast spreaders, and 8 feet apart for trees and shrubs.



Box of plants ready to go!

Mulch Calculations

- A good mulch for native plants is crushed rock (e.g. decomposed granite, chat, or pea gravel) that drains water well and mimics natural seed beds for many plants. This type of mulch is often called decomposed granite, chat, or manufactured sand and is inexpensive and easily available. Pea gravel is also a good choice for native gardens. When ordering, err on the side of excess so that you will have an adequate depth to deter weeds. For large gardens, using a conveyored material truck to distribute the mulch is advised.
- Calculate depth in feet, then calculate quantities of mulch or soil. (planting area in ft² x depth of mulch in feet*) $\div 27 \text{ ft}^3 / \text{yd}^3 = \text{yd}^3$
- A layer of mulch 3 inches deep over a project area of 1,000 ft² would require 250 ft³ or 9.25 yd³ of mulch.
- The online calculator is helpful at: www.globalrph.com/start/landscape.htm

Site Preparation

Turf grass is extremely competitive with native plants and will need to be removed in order to have a more compatible ground cover and mulch. Once your sod is removed you can install your plants and cover them with a thick layer of fine gravel or decomposed granite mulch or a bark mulch. This type of mulch will allow water to soak into the soil and your plants' roots.

Removing Sod

There are several ways to eliminate turf before you plant. The quickest way is to hire someone to cut the sod out with a sod cutter machine or rent one yourself. If the soil is compacted or grass has been on the site for a long time, consider hiring professionals to bring in quality machines to cut the sod, rather than renting and performing this yourself. Once the sod is cut, it can be rolled and stacked to form berms or create elevation change throughout your garden. If you are creating an amphitheater

for seating in a larger school or community garden, this is a good use of your sod to build up height. Be aware that the sod will decompose and settle over time. Stack your sod at least a third higher than you want the final height of the berm. Covering the stacked sod with permeable black landscape fabric will help speed the decomposition process.

A second way to eliminate sod is to solarize the grass. This process takes about six weeks and should occur during hot summer months. First cut the grass very short then water until soil is saturated 1-2 feet deep. Cover the sod with 3-4 mil clear plastic, extending the plastic 6-8 inches over the edge of the grass. Anchor the plastic with rocks, bricks, or wood. Remove the plastic and plant into dead sod or add another layer of topsoil. Do not till the soil because it could expose buried weed seeds and stimulate their growth.



Students ready to plant!



Students help with sod removal at their school.

Sod-cutting Machine

(http://iren.com.tr/plu/products/product_detail&product_id=55)

Plastic Solarization

(<http://www.csmonitor.com/The-Culture/Gardening/diggin-it/2011/0822/Soil-solarization-A-chemical-free-way-to-get-rid-of-weeds-and-unwanted-grass>)



Elementary students planting.

Irrigation

Native gardens require only 10% of the water used to maintain a grass lawn, but they still need supplemental water while they are getting established and during the long, hot summer months. In general, drip irrigation is best suited to small gardens or gardens with widely-spaced plantings. Overhead watering is best for gardens that are densely planted with little space between plants.

Planting Tip:
Plant in damp soil, group plants by their water requirements and water deeply immediately after planting.

NEW PLANTING (up to 6 months)

1. Deep soak every 2-3 weeks running sprinklers for several hours to achieve a 1-1.5 inches of water. Check the sprinkler head rate to determine how long to run to achieve 1 - 1.5 inches.
2. Sprinkle lightly 1 or 2 times per week for about 5 minutes to cool the soil and lightly moisten the soil surface.

ESTABLISHED PLANTINGS (6 months onward)

1. Deep soak every 3-4 weeks running sprinklers for several hours to achieve a 1-1.5 inches of water. Check the sprinkler head rate to determine how long to run to achieve 1 - 1.5 inches.
2. Sprinkle lightly once per week for about 5 minutes to cool the soil and lightly moisten the soil surface.

WATERING SYSTEMS

There are advantages and disadvantages of different watering systems for your garden. Examples to consider are listed next.

DRIP IRRIGATION SYSTEM OPTION

ADVANTAGES

- Highly water efficient.
- Only waters select plants, thus discouraging weeds.
- Water flow to plants is adjustable for plants with different water requirements.

DISADVANTAGES

- Harder to detect a leak or malfunction in the system.
- More time intensive to install.
- Drip lines can become tripping hazards if used by students.

OVERHEAD IRRIGATION SYSTEM OPTION

ADVANTAGES

- Waters a large area.
- Easy to detect if the system is malfunctioning.
- Easier to install than drip.

DISADVANTAGES

- Less water efficient than drip.
- Can promote weeds since the whole area is watered.
- Sprinkler heads can become blocked as plants grow resulting in dry zones.

HAND WATERING OPTION

ADVANTAGES

- No or little expense compared to an irrigation system.
- No system maintenance.
- Ability to adjust the amount of water each plant needs.
- More of a connection with the garden.

DISADVANTAGES

- Need a nearby water source and a hose that will reach all parts of the garden.
- Time spent watering the garden.
- Not as water efficient as a drip system.



Students planting oak leaf sumac at Bruneau Elementary School.

Weed Barrier

There are advantages and disadvantages to using weed barrier in your garden.

ADVANTAGES

- It is effective in the short term at suppressing the germination and establishment of weeds already present in the soil.

DISADVANTAGES

- Holes in the fabric meant to let water through can become clogged with dust and irrigation water minerals creating dead zones in the soil below.
- Ground-nesting pollinators attracted to your garden cannot penetrate the fabric to create nests.
- Earthworms, important for soil health, cannot move through the fabric.
- Exposed weed barrier can be unsightly.



Globemallow (Sphaeralcea spp.)

Mulch

If you are installing a garden at a school in Boise the district's preferred mulch material is "chat" which is a type of decomposed granite. The benefits of chat are that it is wheelchair friendly, allows for germination of many native plant seeds in your garden, is inexpensive, and has good drainage. In other situations, you can use a larger gravel mulch or a bark mulch.

ADVANTAGES of a larger rock mulch

- fewer fines for weed germination.
- rarely needs to be added to over the years.

DISADVANTAGES of larger gravel mulch

- difficult to walk on.
- natural germination and recruitment of garden plants is less likely.

ADVANTAGES of bark mulch

- easily available
- small bark pieces eventually decompose to build soil.

DISADVANTAGES of bark mulch

- needs to be replenished more frequently.
- does not mimic natural growing conditions for xeric plants.
- expensive
- can scatter during windstorms.
- may be used by outdoor cats as cat litter.



Planting globemallow at Bruneau Elementary School



Example of an Implementation Plan



ACTIVITY	WHO IS NEEDED	MATERIALS & EQUIPMENT
Sod Cut	Garden Committee and Volunteers	2 Sod Cutters 3 Wheelbarrows Truck And Trailer to haul away sod
Locate Utilities, call DIGLINE at 811 before digging	Dig Line Staff and City	
Mark Sign Post Locations	Garden Committee	Pin Flags Spray Paint
Mark Paths and Berm Outline	Garden Committee	Pin Flags Spray Paint
Install Irrigation	Maintenance Staff	Irrigation Supplies
Deliver and Install Boulders	Garden Committee and 4 Volunteers	Truck with Crane Arm Shovels
Install Planter Boxes along Walkway	Garden Committee and Skilled Labor	TBD
Deliver Soil and Install Berm	Garden Committee and 10 Volunteers	Skidsteer Wheelbarrows Shovels Tarps
Deliver and Install Plants	Garden Committee and 10-20 Volunteers	Shovels Trowels Hose Water Cans
Deliver Decomposed Granite Mulch	Garden Committee	Conveyor Rock Truck
Spread Mulch	Garden Committee and Volunteers	Skidsteer Wheelbarrows Shovels and Tarps

Material Resources



PLANTS

Draggin' Wing Nursery, 208-345-4199
<http://waterthriftyplants.com/>
5300 Stinger Dr.
Boise, ID 83703

Edwards Nursery, 208-342-7548
<https://www.edwardsgreenhouse.com/>
4106 Sand Creek
St. Boise, ID 83703

FarWest Nursery, 208-853-4000
<http://farwestgardencenter.net/>
5728 W. State St.
Boise, ID 83703

Buffalo Berry Farm, 208-634-3062
<http://buffaloberryfarm.com/>
51 East Lake Fork
Road, McCall, ID, 83636

Plants of the Wild, 509-284-2848
<http://www.plantsofthewild.com/>
P.O. Box 866,
Tekoa, WA, 99033

Idaho Native Plant Society
Native Plant Sale
<https://idahonativeplants.org/pahove/>
MK Nature Center, Boise, ID.

College of Western Idaho Plant Sale
<http://cwidaho.cc/program/horticulture-technology>
College of Western Idaho, Nampa, ID.

SOIL

Cloverdale Nursery, 208-375-5262
<http://www.cloverdalenursery.com/>
2528 N. Cloverdale Rd.
Boise, ID, 83713

Edwards Greenhouse, 208-342-7548
<http://www.edwardsgreenhouse.com/>
4106 Sand Creek
St. Boise, ID 83703

North End Nursery, 208-389-4769
<http://www.northendnursery.com/>
3777 W. Chinden
Blvd., Garden City, ID 83714

LANDSCAPE DESIGN

College of Western Idaho,
Department of Horticulture
2444 Old Penitentiary Rd.
Boise, ID 83712

Xeric Gardening, 208-850-9981
xericgardening@hotmail.com

FarWest Garden Center, 208-853-4000
<http://farwestgardencenter.net/>
5728 W. State St.
Boise, ID 83703

ROCK (Boulders)

Rock Placing Company, 208-855-2277
<http://www.rockplacingco.com/>
513 West Franklin
Rd. Meridian, ID 83713

GRAVEL (and Chat)

Ruschman's Sand and Gravel, 208-331-9222
<http://ruschmansandandgravel.net/>
9400 Pleasant Valley Rd.,
Boise, ID 83705

Ada Sand and Gravel, 208-368-0100
<http://adasandandgravel.com/>
9501 S. Pleasant Valley Rd.,
Boise, ID 83705

Victory Greens, 208-888-5551
<http://www.victorygreens.com/>
100 E. Victory Rd.,
Meridian, ID 83642

METAL WORK

Professional Technical/Dennis Education Center
208-854-5810
<http://protech.boiseschools.org/>
8201 W. Victory
Rd., Boise, ID 83709



Section E

Maintenance Activities

Just like grass lawns, gardens require maintenance. Although your garden will require less weekly labor and water than a lawn, it still will need tending on a regular basis to keep it tidy. Making these maintenance activities part of a “garden party” keeps the work sociable and enjoyable. Spring weeding and spring/fall pruning will be your two top maintenance activities along with regular checks throughout the growing season for emerging weeds. For school and community gardens, two things will help sustain your native garden over time, 1.) a maintenance plan or schedule and 2.) a commitment from staff or volunteers to participate. Keep a binder on-site that gives new garden coordinators the tools to succeed. This should include a photographic list of plants in the garden, a copy of the garden design, and a maintenance schedule for watering, weeding and pruning. It can be confusing for volunteers to know what to weed and what to keep so a good way to start the maintenance sessions is with a short training. Refer to your map of the garden and plant markers to help you identify what you planted and what is a weed. A description of the common maintenance activities is listed below as well as an example of a maintenance schedule for a native garden.

Maintenance tips for specific plants are included in the master plant list on page 52.

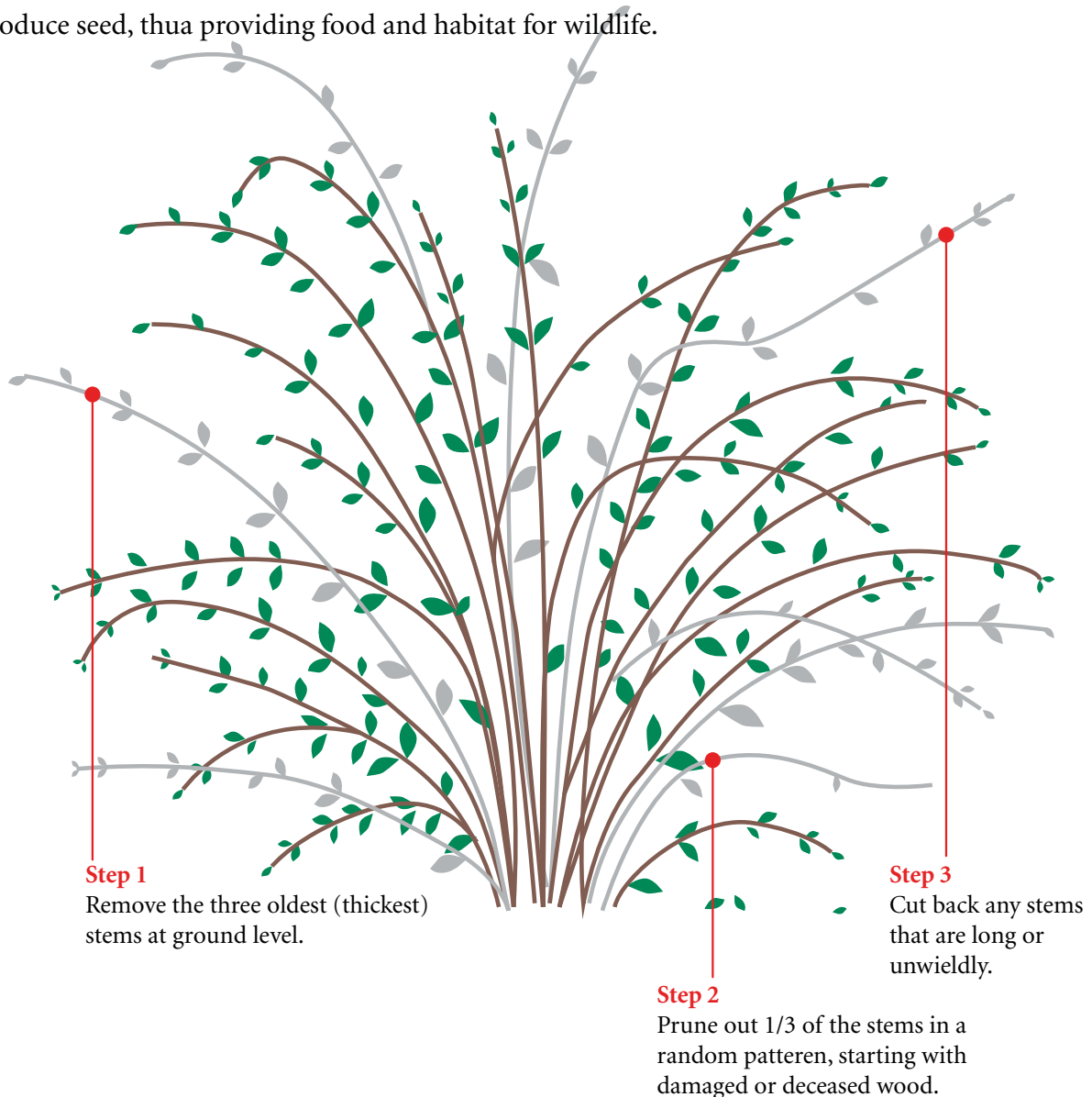
Weeding

If you have applied a thick (2-4 inch) layer of gravel mulch you likely won't have many weeds to worry about the first growing season. Weeds often increase the second and third year. Diligence in these first couple of years will help moderate weed occurrence in later years. A likely weeding schedule would be two weeding sessions in the early summer and two in the fall as needed.

Pruning and Thinning

Fall is a good time to assess the structure of the garden when plants are mature and done growing for the season. If large shrubs are present, look for crowding of plants and prune as needed. Look for new starts and seedlings that may need to be moved to different parts of the garden to fill in holes. Asters are especially prolific and may need to be thinned to maintain overall diversity. In general, leave flowering stalks and stems until spring. Wildlife such as birds will eat the seeds and many insects will use them as habitat. This will also help retain visual interest for your garden in the winter with a natural appearance.

Leave 6-12 inch stems for stem-nesting bees when pruning in spring or fall. Leave cuttings of hollow stemmed plants bundled on site. These can be used by stem nesting insects. Leave native plant flower heads to produce seed, thus providing food and habitat for wildlife.



Garden Maintenance Schedule

SPRING

- Prune woody shrubs and cut back perennials
- Plant new plants
- Transplant out of overgrown areas to bare areas
- Hand weed
- Use limited herbicide, optional
- Clean up general area

SUMMER

- Program irrigation system
- Adjust irrigation running time to suit weather
- Hand weed
- Dead head flowers that will rebloom (eg. blanketflowers and sundancer daisies)

FALL

Grasses and shrubs, left untrimmed in the fall, can provide winter interest for humans and food and shelter for birds and insects. Grasses and other perennials can be trimmed back in the spring.

- Transplant from overgrown areas into bare areas
- Prune and shape shrubs and trees
- Hand weed



Rabbitbrush should be pruned back hard in the spring, leaving about 1/3 of the plant untrimmed. If you have a dwarf variety of rabbitbrush you will not need to prune it back.

EXAMPLE

GARDEN MAINTENANCE PLAN

WATERING

- Timer is located in green box on east side of garden
- Check battery each spring
- Set watering schedule to run each station for 30 minutes once a week at 5 am.
- Check garden irrigation heads for leaks or breaks every couple of weeks.

WEEDING

- Email garden volunteers and post a notice in school newspaper for one weeding session in the spring, two in summer, and one in fall.
- Use garden maps to show volunteers.
- Use photos of target weeds to show volunteers during weeding parties.
- Leave leaf litter on the ground in the fall to protect overwintering insects in the soil.

PRUNING

- Thin Syringa shrubs according to diagram in spring.
- Thin and prune back lemonade bush when it extends over pathway.
- Trim back perennial flower stems in spring leaving approximately 1 ft of stubble for tall hollow stemmed plants.
- Prune rabbitbrush in the spring leaving about 1/3 of the plant untrimmed.

Remove These Weeds



Bindweed



Bulbous bluegrass



Cheatgrass



Cheeseweed



Dandelion



Kochia



Orchard grass



Prickly lettuce



Puncture vine



Purslane



Russian thistle



Siberian elm



Spotted spurge



Storksbill

Section F Master Plant List

Scientific Name	Common Name	Height	Flower Color	Flowering Period	Light Requirement	Moisture Requirement	Special Considerations	Maintenance
		(inches; feet)						
FLOWERS								
<i>Agastache urticifolia</i>	Nettleleaf giant hyssop	5 ft	White-purple	Summer	Sun Part Shade	Medium	Aromatic foliage.	Trim back old flower stems in spring.
<i>Anaphalis margaritacea</i>	Pearly everlasting	1-3 ft	White	Summer - Fall	Sun Part Shade	Low-medium	Numerous fluffy seed heads that are good for winter interest; rhizomatous; ground cover	Trim back old flower stems in spring.
<i>Antennaria microphylla</i>	Littleleaf pussytoes	1 ft	White	Spring - Summer	Sun Part Shade	Low	Ground cover	Trim back old flower stems in spring.
<i>Antennaria rosea</i>	Rosy pussytoes	8 in	Pink - white	Summer	Sun Part Shade	Low	Ground cover	Trim back old flower stems in spring.
<i>Aquilegia caerulea</i>	Colorado blue columbine	12- 30 in	Blue White	Summer	Part Shade	Medium-high		Trim back old flower stems in spring.
<i>Aquilegia formosa</i>	Western columbine	2-3 ft	Red Yellow	Summer	Part Shade	Medium-high		
<i>Arctostaphylos uva-ursi</i>	Kinnikinnick Bearberry	< 6 in	White - pink	Spring - Summer	Sun Part Shade Shade	Low-medium	Evergreen. Ground cover.	
<i>Arnica mollis</i>	Hairy arnica	2 ft	Yellow	Summer	Sun Part Shade	Medium		Trim back old flower stems in spring.
<i>Artemisia frigida</i>	Fringed sage	4-16 in	Yellow	Summer	Sun	Low	Readily spreads when overwatered.	Trim back current year flower stems in the fall. May use string trimmer.

<i>Asclepias fascicularis</i>	Narrow-leafed milkweed	2-3 ft	White, Pink, Purple	Summer	Sun	Low	Will spread through garden.	Trim back old flower stems in late fall or spring.
<i>Asclepias incarnata</i>	Swamp milkweed	4-6 ft	White, Pink, Purple	Summer	Sun Part Shade	Medium		
<i>Asclepias speciosa</i>	Showy milkweed	3-5 ft	Light pink	Spring - Fall	Sun Part Shade	Low-medium	Will spread through garden.	
<i>Chaenactis douglasii</i>	Douglas' dustymaiden	1 ft	White	Spring - Summer	Sun	Low		Trim back old flower stems in spring.
<i>Chamerion angustifolium</i> ssp. <i>circumvagum</i>	Fireweed	3 - 6 ft	Pink	Summer - Fall	Sun - Shade	Medium	Fluffy seed heads in Fall. Place in back of garden. Can spread.	Trim back old flower stems in spring. If plant spreads into unwanted areas, thin growth throughout the season.
<i>Cleome lutea</i>	Yellow bee plant	2-3 ft	Yellow	Spring - Summer	Sun	Low	Annual that will reseed itself the following year.	Trim off seed pods in late fall and scatter in garden if more plants are wanted. Remove stalks if unsightly.
<i>Cleome serrulata</i>	Rocky Mountain beeplant	3 ft	Purple	Summer - Fall	Sun	Low	Annual that will reseed itself the following year.	
<i>Dalea ornata</i>	Blue Mountain prairie clover	1.5 ft	Purple	Spring - Summer	Sun	Low		
<i>Epilobium canum</i> spp. <i>garrettii</i> (<i>Zauschneria</i>)	Hummingbird trumpet/Garrett's firechalice	1-2 ft	Red-orange	Summer - Fall	Sun	Low		
<i>Erigeron compositus</i>	Cutleaf daisy	6 in	White	Spring and Fall	Sun	Low		
<i>Erigeron linearis</i>	Desert yellow fleabane	6 in	Yellow	Summer	Sun	Very low		
<i>Erigeron pumilus</i>	Shaggy fleabane	8 in	White-pink	Summer	Sun	Very low		
<i>Erigeron speciosus</i>	Showy fleabane	2 ft	Purple	Early Summer	Sun	Low		Trim back old flower stems in spring.
<i>Erigeron subtrinervis</i>	Threenerve fleabane	2 ft	Purple	Early Summer	Sun	Low		

Scientific Name	Common Name	Height (inches; feet)	Flower Color	Flowering Period	Light Requirement	Moisture Requirement	Special Considerations	Maintenance
FLOWERS								
<i>Eriogonum</i>	Arrowleaf	1-1.5 ft	Yellow	Spring	Sun	Very low		
<i>Eriogonum heracleoides</i>	Parsnip-flower buckwheat	1-1.5 ft	White-cream	Spring-Summer	Sun	Low		
<i>Eriogonum strictum</i>	Blue Mountain buckwheat	1.5 ft	White	Fall	Sun	Very low		
<i>Eriogonum umbellatum</i>	Sulphur-flower buckwheat	1 ft	Yellow	Summer	Sun	Very low		
<i>Eriophyllum lanatum</i>	Woolly sunflower	3-6 in	Yellow	Spring - Summer	Sun	Very low		
<i>Erysimum capitatum</i>	Sanddune wallflower	1 ft	Orange Yellow	Spring - Summer	Sun	Low-medium		
<i>Gaillardia aristata</i>	Blanketflower	2 ft	Red Orange Yellow	Summer	Sun	Low		Deadheading spent flowers during the season will extend flowering period.
<i>Geranium viscosissimum</i>	Sticky geranium	2 ft	Pink	Spring - Summer	Sun Part Shade	Low	Foliage turns red in fall	
<i>Geum triflorum</i>	Prairie smoke	1 ft	Rose-red	Summer	Sun	Low-medium		Trim back old flower stems in spring.
<i>Hedysarum boreale</i>	Utah sweetvetch	8 in	Purple Rose	Spring - Summer	Sun	Low-medium		
<i>Helianthus annuus</i>	Annual sunflower	5-6 ft	Yellow	Summer - Fall	Sun	Low-medium	Annual that will reseed itself the following year.	Trim off seedhead in late fall and scatter in garden if more plants are wanted. Or, leave seedheads for birds. Remove stalks if unsightly.
<i>Helianthus nuttallii</i>	Nuttall's sunflower	4-6 ft	Yellow	Summer - Fall	Sun	Low-medium		
<i>Helioneris multiflora</i> var. <i>multiflora</i>	Showy goldeneye	1 ft	Yellow	Summer	Sun	Low	Can spread.	

<i>Heterotheca villosa</i>	Hairy false goldenaster	1.5 ft	Yellow	Spring - Summer	Sun	Low		Trim back old flower stems in spring.
<i>Heuchera cylindrica</i>	Roundleaf alumroot	1 ft	White	Summer	Sun Part Shade	Low	Evergreen	
<i>Hymenoxys hoopesii</i>	Owl's-claws	1 ft	Yellow/orange	Summer	Sun	Low		
<i>Ipomopsis aggregata</i>	Scarlet gilia	1 ft	Red	Spring - Summer	Sun	Low-medium	Biennial to short-lived perennial. Will stay in rosette of leaves then die after flowering. Reseeds.	In spring, trim plant to base or remove after flowering.
<i>Machaeranthera canescens</i>	Hoary tansyaster	1-2 ft	Purple	Summer - Fall	Sun	Very low	Can be annual, biennial, or short lived perennial.	Trim back entire plant in early winter or spring.
<i>Mentzelia laevicaulis</i>	Smoothstem blazingstar	1 -3 ft	Yellow	Summer	Sun	Very low	Direct seed into the garden in winter.	
<i>Monarda fistula</i>	Wild bergamot	2-3 ft	Purple	Summer	Sun Part Shade	Medium		
<i>Monardella odoratissima</i>	Coyote mint	1 ft	White Blue Purple	Spring - Summer	Sun	Low-medium	Aromatic foliage.	
<i>Oenothera caespitosa</i>	Tufted evening primrose	6 in	White	Spring - Summer	Sun	Very low	Aromatic flowers open in early evening.	
<i>Oenothera pallida</i>	Pale evening primrose	1 ft	White	Summer	Sun	Very low	Aromatic flowers open in early evening.	
<i>Penstemon acuminatus</i>	Sharpleaf penstemon	1.5 ft	Blue Purple	Spring - Summer	Sun	Low-medium		
<i>Penstemon cyananthus</i>	Wasatch penstemon	1 ft	Blue Purple	Spring - Summer	Sun	Low-medium		

Scientific Name	Common Name	Height (inches; feet)	Flower Color	Flowering Period	Light Requirement	Moisture Requirement	Special Considerations	Maintenance
FLOWERS								
<i>Penstemon deustus</i>	Hot rock penstemon	1 ft	White	Summer	Sun	Low		Trim back old flower stems in late fall or spring. If stems trimmed in fall can scatter seed capsules to generate more plants.
<i>Penstemon fruticosus</i>	Shrubby penstemon	12-16 in	Pink	Spring - Summer	Sun	Low		
<i>Penstemon procerus</i>	Little flower penstemon	1 ft	Purple	Spring	Sun	Low		
<i>Penstemon rydbergii</i>	Rydberg's penstemon	1-2 ft	Blue - Purple	Summer	Sun Part Shade	Medium		
<i>Penstemon speciosus</i>	Royal penstemon	2 ft	Blue	Spring - Summer	Sun	Low-medium		
<i>Penstemon whippleanus</i>	Whipple's penstemon	2 ft	Dark Purple Black	Summer - Fall	Part Sun	Medium		
<i>Solidago canadensis</i>	Canada goldenrod	3-6 ft	Yellow	Fall	Sun Part Shade	Low-medium	Spreads readily when overwatered	Trim back old flower stems in spring.
<i>Solidago spectabilis</i>	Nevada goldenrod	3-6 ft	Yellow	Summer - Fall	Sun Part Shade	Low-medium		
<i>Sphaeralcea spp.</i>	Globemallow	20-40 in	Orange	Spring - Fall	Sun	Low		Trimming back spent flowers in summer can extend the flowering period.
<i>Symphotrichum ericoides</i> (<i>Aster ericoides</i>)	White heath aster/snowflurry	6 in	White	Fall	Sun	Low	Spreads	Trim back old flower stems in spring.
<i>Symphotrichum spatulatum</i> (<i>Aster occidentalis</i>)	Western mountain aster	1.5 ft	Yellow Violet	Summer	Sun	Low-medium		

<i>Tetraneris acaulis</i>	Sundancer daisy	1 ft	Yellow	Summer	Sun Part shade	Low	Will bloom all season if spent flowers are trimmed away.	
GRASSES								
<i>Achnatherum hymenoides</i>	Indian ricegrass	1-2 ft	Green	Spring	Sun	Very low		
<i>Leymus cinereus</i>	Basin wildrye	3 - 6 ft	Green	Spring	Sun	Low	Up to 3 ft wide. Does best in full sun.	Trim back old flower stems in spring.
<i>Festuca idahoensis</i>	Idaho fescue	1 ft	Green	Summer	Sun	Low		
<i>Hesperostipa comata</i>	Needle and thread grass	2 ft	Green	Spring	Sun	Low	Can be direct seeded in late fall.	If excessive dead material accumulates, trim plant back by 2/3 in spring.
<i>Pseudoroegneria spicata</i>	Bluebunch wheatgrass	2 ft	Green	Summer	Sun	Low		

Scientific Name	Common Name	Height (inches; feet)	Flower Color	Flowering Period	Light Requirement	Moisture Requirement	Special Considerations	Maintenance
SHRUBS								
<i>Artemisia tridentata</i> <i>ssp. vaseyana</i>	Mountain big sage	6 ft	Yellow	Fall	Sun	Very low	Be cautious of overwatering	
<i>Chamaebatiaria millefolium</i>	Fernbush	5 ft	White	Summer	Sun	Very low	Aromatic foliage.	Trim edges to maintain shape and thin interior branches when shrub becomes dense.
<i>Chrysothamnus viscidiflorus</i>	Yellow rabbitbrush	2-3 ft	Yellow	Summer - Fall	Sun	Low		In the Spring trim plant back by 2/3
<i>Cornus sericea</i>	Red osier dogwood	7-10 ft	White	Spring	Sun Part Shade	Low-medium	Red stems for winter interest	Trim edges to maintain shape and thin interior branches when shrub becomes dense.
<i>Ericameria nauseosa</i>	Rubber rabbitbrush	2-3 ft	Yellow	Summer - Fall	Sun	Low	*Use a dwarf variety	In the Spring trim plant back by 2/3
<i>Krascheniikovia lanata</i>	Winterfat	2-3 feet	White Silver	Spring - Summer	Sun	Very low	Woolly white foliage with fluffy white seed heads in fall and winter.	In early Spring trim back plant by at least 1/2.
<i>Mahonia repens</i>	Creeping Oregon grape	2 ft	Yellow	Spring	Sun Shade	Low-medium		
<i>Philadelphus lewisii</i>	Mock orange	4-10 ft	White	Spring	Sun Part Shade	Low-medium		Thin interior stems in spring when the shrub becomes dense.
<i>Purshia tridentata</i>	Bitterbrush	4-6 ft	Yellow	Spring	Sun	Very low	Be cautious of overwatering	
<i>Rhus trilobata</i>	Skunkbush sumac	5-6 ft	Yellow	Spring	Sun	Low		Trim edges to maintain shape and thin interior branches when shrub becomes dense.

<i>Ribes aureum</i>	Golden currant	5 ft	Yellow	Spring	Sun Part Shade	Low-medium	Edible fruits.	Thin interior stems in spring when the shrub becomes dense.
<i>Salvia dorrii</i>	Purple sage	2-3 ft	Blue Purple	Spring - Summer	Sun	Low	Evergreen and aromatic silver foliage.	Lightly shape at end of season.
<i>Symphoricarpos albus</i> and <i>S. oreophilus</i>	Snowberry	4 ft	White Pink	Summer	Sun Part Shade Shade	Medium		Thin interior stems in spring when the shrub becomes dense.
TREES								
<i>Acer glabrum</i>	Rocky Mountain maple	6-20 ft	Green	Spring	Sun Part Shade	Low-medium		Trim edges to maintain shape and thin interior branches when shrub becomes dense.
<i>Amelanchier alnifolia</i>	Saskatoon Serviceberry	6-12 ft	White	Summer	Sun Part Shade	Medium		
<i>Cercocarpus ledifolius</i>	Curl-leaf mountain mahogany	10-15 ft	Yellow	Spring	Sun	Very low	Slow-growing shrubby tree	Can be pruned to tree shape by removing lower branches or kept as multi-stemmed shrub.
<i>Juniperus occidentalis</i>	Western juniper	33 feet	NA	Spring	Sun	Low	Evergreen	
<i>Prunus virginiana</i>	Black chokecherry	10-15 ft	White	Spring	Sun Part Shade	Low-medium	Vigorous stem and branch developer	Remove low spreading branches. Can be pruned in late winter to tree shape or kept as multi-stemmed shrub.

Resources

Websites

School garden webinar:

<https://sites.google.com/a/blm.gov/take-it-out-side/home/webinar-3---working-with-partners>

Schoolyard Habitat website: <https://www.fws.gov/cno/pdf/HabitatGuideColor.pdf>

Books

Asphalt to Ecosystems: Design Ideas for Schoolyard Transformation.

Sharon Gamson Danks.

Planting in a Post-Wild World: Designing Plant Communities for Resilient Landscapes.

Thomas Rainer and Claudia West.

Native Plants for High Elevation Western Gardens.

Janice Busco and Nancy R. Morin.

Garden Revolution: How Our Landscapes Can Be a Source of Environmental Change.

Larry Weaner and Thomas Christopher.

Attracting Native Pollinators: The Xerces Society Guide.

Pollinator Friendly Gardening: Gardening for Bees, Butterflies, and Other Pollinators.

Rhonda Fleming Hayes.

Moving the Classroom Outdoors.

Herbert W. Broda.

Butterfly Gardening with Native Plants.

How to Attract and Identify Butterflies.

Christopher Kline.

Cover: Pollinator Garden, A. Hedrick

