

**Master Gardener
Volunteer**



**SOUTH DAKOTA STATE
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Pollinator Friendly Plantings

May 9, 2023

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Missouri Valley Extension Master Gardeners



Put out the Welcome Mat

Assess your Yard

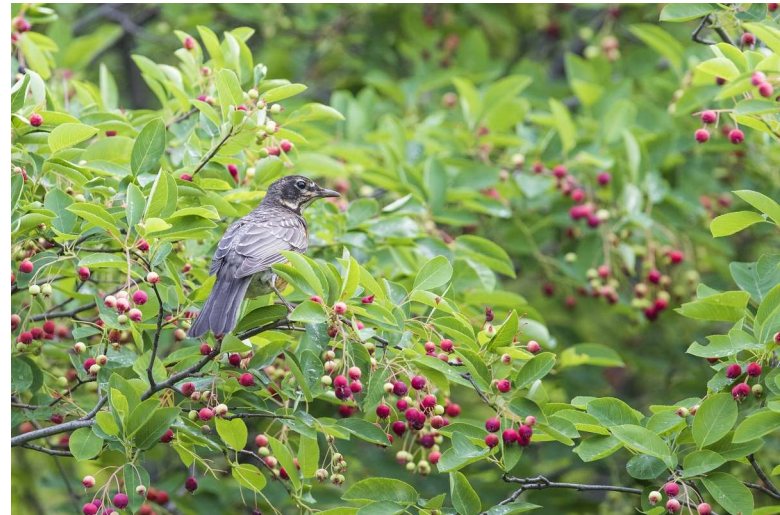
- Food Sources—seeds, fruits, nuts, buds, flowers
- Water—for drinking & bathing
- Cover—protection from weather & predators; place for young
- Sustainable gardening—plant natives



Gardening for Birds

Food Sources

- Trees & shrubs for fruits, nuts, seeds, caterpillars



Gardening for Birds

Food Sources

- Perennials & annuals for seeds and nectar



Joe-pye Weed



Purple Coneflower



Goldenrod



Penstemon

Gardening for Birds

Shelter

- Shrubs, conifers & vines
- Protection and Nesting



Viburnum



Douglas Fir



Grape vine



Clematis

Water—as vital as food

A magnet for wildlife

- Natural stream or spring
- Birdbaths (with heater for winter)

keep clean

- Small pond
- Shallow dish
- Locate in open area near trees/shrubs



Native Plants are Key

- Tolerant to drought
- Low maintenance
- Provide building supplies
- Symbiotic bonds with local birds & insects
- Search for local natives

<https://www.nwf.org/NativePlantFinder>



Ironweed



False
Indigo



Maximillian's
Sunflower

Avian Pollinators

Attracting hummingbirds

- Red accents help
- Tube-shaped flowers
- Less fragrance
- Cascading blooms
- Plant in clusters
- Vary heights
- Deadhead for more blooms



Sweet treats

- Bee balm (*Monarda didyma*)
- Butterfly weed (*Asclepias tuberosa*)
- Columbine (*Aquilegia canadensis*)
- Fuchsia (*Fuchsia magellanica*)
- Salvia (*Salvia splendens*)
- Snapdragon (*Antirrhinum majus*)



Gardening for Bees

- Bees pollinate about 75% of our food crops with the majority of pollination due to native bees
- 20-45% of native bees are pollen specialists
- Native bees are often small and may resemble flies
- Most bees are solitary
- Most bees live in the ground or in hollow stems



Food Sources

- Bees need both nectar and pollen
- Choose a range of flower shapes and colors
- Plant season-long blooms
- Choose non-hybrid natives
- Avoid “double” flowers
- Plant in masses; sunny areas are most attractive



Other needs

- Nesting sites
 - Undisturbed ground
 - Vegetation; dry stems
- Muddy or sandy area for water



Danger!

- Climate change: flowers & bees are out of sync
- Loss of habitat due to herbicides
- Toxic pesticides, especially neonicotinoids, which are systemic (seed treatment in agriculture; lawn treatments)
- Diseases due to stressors



NO!

South Dakota Native Bees

Digger bee

- $\frac{1}{2}$ - 1"
- Hairy body; striped abdomen
- Live underground



Leafcutter Bee

- $\frac{1}{4}$ - $\frac{1}{2}$ "
- Cut circles out of leaves to line nest
- Carry pollen on underside of body



Longhorn bee

- About ½"
- Light colored eyes
- Nest underground
- Specialist: prefers Asteraceae (sunflowers, etc)



Mason bee

- ½ - ¾"
- Metallic bodies
- Nest in wood or hollow plant stems



Mining bee

- $\frac{1}{4}$ - $\frac{1}{2}$ "
- Dark bodies; hairy thorax
- Nest in sandy soil



Small Carpenter bee

- $\frac{1}{4}$ - $\frac{1}{2}$ "
- Dark, metallic body
- Nest in hollow twigs & plant stems



Squash bee

- 1/2"
- Hairy thorax, resemble honeybee
- Live in tunnels
- Specialist: cucurbits, active early morning



Sweat bee

- 1/4 - 1/2"
- Metallic green head/thorax
- Attracted to sweat
- Prefer rotting logs for nesting



Bumblebee

- Up to 1"
- Hairy; black bodies with patches of yellow
- Social bees—live in underground colonies



Honey bee (non-native)

- About ½"
- Brown with bands of pale hairs
- Social—live in a colony



Gardening for Butterflies

- Food sources
 - Nectar producing plants, starting early spring
 - Host plants for caterpillars
- Water (shallow dish of wet sand)
- Shelter



SD is host to about 180 species

Keystone Trees

- Chokecherry (*Prunus virginiana*)
- Willows (*Salix*)
- Oaks



Bur (*Quercus macrocarpa*)

Chinkapin (*Quercus muehlenbergii*)

Attract multiple species, provide nectar and serve as host plants



Nectar Producing Flowers

- Asters
- Coneflowers
- Lantana
- Marigold
- Salvia
- Zinnia



Overripe fruit as food source

- Bananas
- Strawberries
- Oranges
- Keep ants away by setting dish of fruit in water
- Change daily



Host Plants

- Host plants vary by species
- Find out which host plants the butterflies you like prefer
- Avoid butterfly bush (*Buddleja davidii*)—may become invasive

Examples:

- Common milkweed (not tropical) for Monarchs
- Dill, parsley for Eastern Swallowtail



Grasses and Sedges

- May be larval hosts
- Good for pupation
- Provide shelter and overwintering sites



Native choices:

- Indian grass
- Little bluestem
- Prairie dropseed



Common SD Butterflies



Azure



American Painted Lady



Cabbage White



Eastern Swallowtail



Monarch



Variegated Fritillary

Pollinator Pocket Gardens

- Small area? Plant clumps of native pollinators in full to partial sun
- Leave open ground areas for nesting
- Provide water source
- Avoid pesticides
- No yard space? Create a “pocket” of plants in pots



Container Garden for Pollinators



Plants that attract birds, bees and butterflies:

#1

- Bee Balm (*Monarda didyma*)



#2

- Coneflower (Echinacea purpurea)



#3

- Goldenrod (*Solidago*)



#4

- Globe thistle (*Echinops ritro*)



- #5

- Hollyhock (*Alcea rosea*)



- #6

- Lavendar (*Lavandula angustifolia*)



#7

- Liatris—blazing star (*Liatris spicata*)



#8

- Sedum—Autumn Joy (*Sedum ternatum*)



- #9
- Sunflower (*Helianthus maximiliana*)



- #10
- Sweet Pea (*Lathyrus odoratus*)



#11

- Zinnia (*Zinnia violacea*)



#12

- Clematis (*Clematis occidentalis*)



- #13
- Scarlet Runner Bean (*Phaseolus coccineus*)



- #14
- Chokeberry (*Aronia melanocarpa*)



#15

- Chokecherry (*Prunus virginiana*)



#16

- Dogwood (*Cornus florida*)



- #17
- Elderberry (*Sambucus nigra*)



- #18
- Lilac (*Syringa vulgaris*)



#19

- Mountain Ash (*Sorbus aucuparia*)



#20

- Pussy Willow (*Salix discolor*)



#21

- Redbud (*Cercis canadensis*)



#22

- Serviceberry (*Amelanchier arborea*)



Bibliography

Books:

Black, Scott. Gardening for Butterflies, Xerces Society, 2016

Daniels, Jaret. Native Plant Gardening for Birds, Bees and Butterflies: Upper Midwest, Nature Friendly Gardens, 2020

Erickson, Laura. 100 Plants to Feed the Birds, Storey Publishing, 2022

Lee-Mader, Eric. 100 Plants to Feed the Bees, Xerces Society, 2016

Sweet, Kirsten, ed. Gardening for Birds, Butterflies & Bees, Birds & Blooms, 2016

E-resources:

“Busy as a Bee: Pollinators put Food on the Table”

<https://www.nrdc.org/sites/default/files/bee-deaths-FS.pdf>

“Native Plant Finder” <https://www.nwf.org/NativePlantFinder>

“Native Plant Research at SDSU” <https://openprairie.sdstate.edu/nativeplant/>

“Plant a Pollinator Pocket” <https://go.illinois.edu/PollinatorPocket>

“Pollinator Friendly Native Plant Lists” <https://xerces.org/pollinator-conservation/pollinator-friendly-plant-lists>



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