Create Overwintering Habitat for Beneficial Insects

Teri Gegenheimer

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Volunteer Ambassador

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Why Care About Insects?

(Photos: Derek Artz / USDA-NRCS; Barbara Driscoll; David Cappaert, Michigan State University, Bugwood.org; Xerces Society / Sarah Foltz Jordan)

(Photos: Xerces Society/Katie Lamke; David Cappaert, Michigan State University, Bugwood.org; Kara Keating-Stuart; Xerces Society/Rich Hatfield)

(Photos: Mary Keim / Flickr Creative Commons 2.0, Katja Schulz / Flickr CC 2.0, Mary Keim / Flickr CC 2.0, Xerces Society / Emily May)

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Observe Nature's Ways

Photos: Teri Gegenheimer

Photo: Dan Keck, Flickr.com

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Leaves and Stems

and so much more

Photo: Kailee Slusser

Photo: Sarah Foltz Jordan

Photo: Bernhard Plank/Wikimedia

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Photo: Matthew Shepherd

Leave the Leaves

Provides habitat for:

Frogs, Ground Beetles,
Ground Nesting Bees,
Butterflies, Fireflies,
Moths, Spiders,
Small Mammals, and more
In their various stages of life

Provides food for overwintering birds

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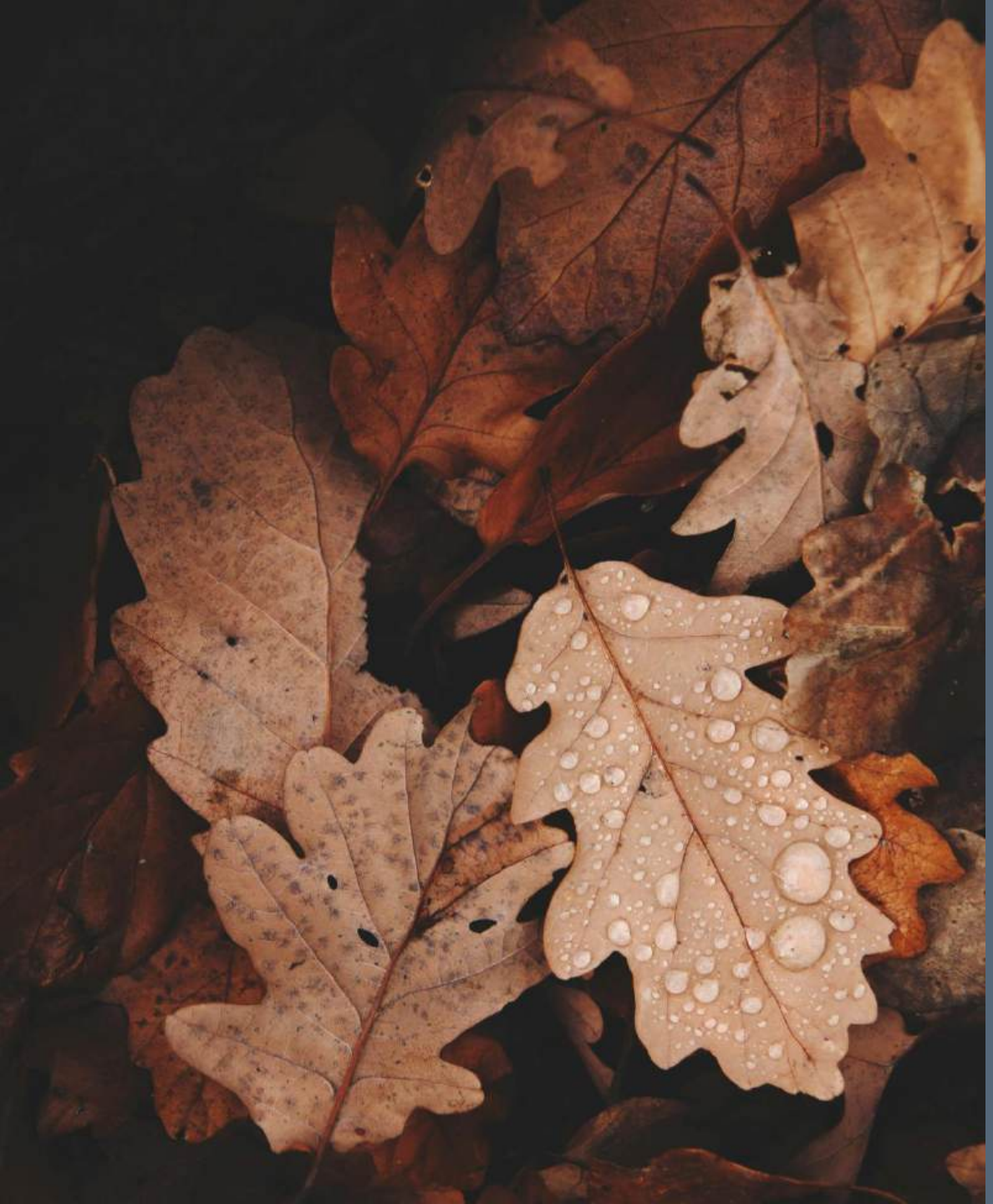

Photo: Daniel Frank, Pexels.com

Leave the Leaves

Organic Matter:

Enriches the soil

Helps to maintain a consistent soil moisture

Feeds beneficial fungi and bacteria

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Challenges

Photo: Nam Phong Bui, Pexels.com

Photo: Andrea Piacquadio, Pexels.com

Photo: Vera Arsic, Pexels.com

Photos: Matthew Shepherd

Leave the Leaves

Just not everywhere

Keep drains clear

Remove slip hazards

Relocate leaves to more beneficial locations

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Photos: Polesie Toys, Pexels.com. Cbaile19, Wikimedia.org

When you Cannot Just Leave the Leaves

Gently rake leaves to preserve insect eggs

Leaf blowers can damage insect eggs

Shredding or mowing is not recommended

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Photos: Matthew Shepherd, Teri Gegenheimer

When you Cannot Just Leave the Leaves

Leaf mulch existing flower or garden beds

Leaf mulch around trees

Leave the leaves in beds to break down naturally to feed soil biology

Leaf mulch thickly to smother grasses for future garden spaces

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Other Ways to Use Leaves

- Rake leaves and clippings along fence line to suppress weeds
- Compost leaves and clippings
- Build a compost fence

Photo: Laura Lavender, my permission

Photo: Sami Aksu, Pexels.com

Photo: Tomwsulcer, CC0, via Wikimedia Commons.

Photo: Sarah Foltz Jordan

Dormant, but not Dead

This garden and path may not look like

ones seen in magazines,

but it is teaming with biodiversity and life!

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Don’t Forget to Leaf Mulch…

Your dog(wood)

Photo: Hugo Lamacq: pexels.com

For More Information, see #LeaveTheLeaves

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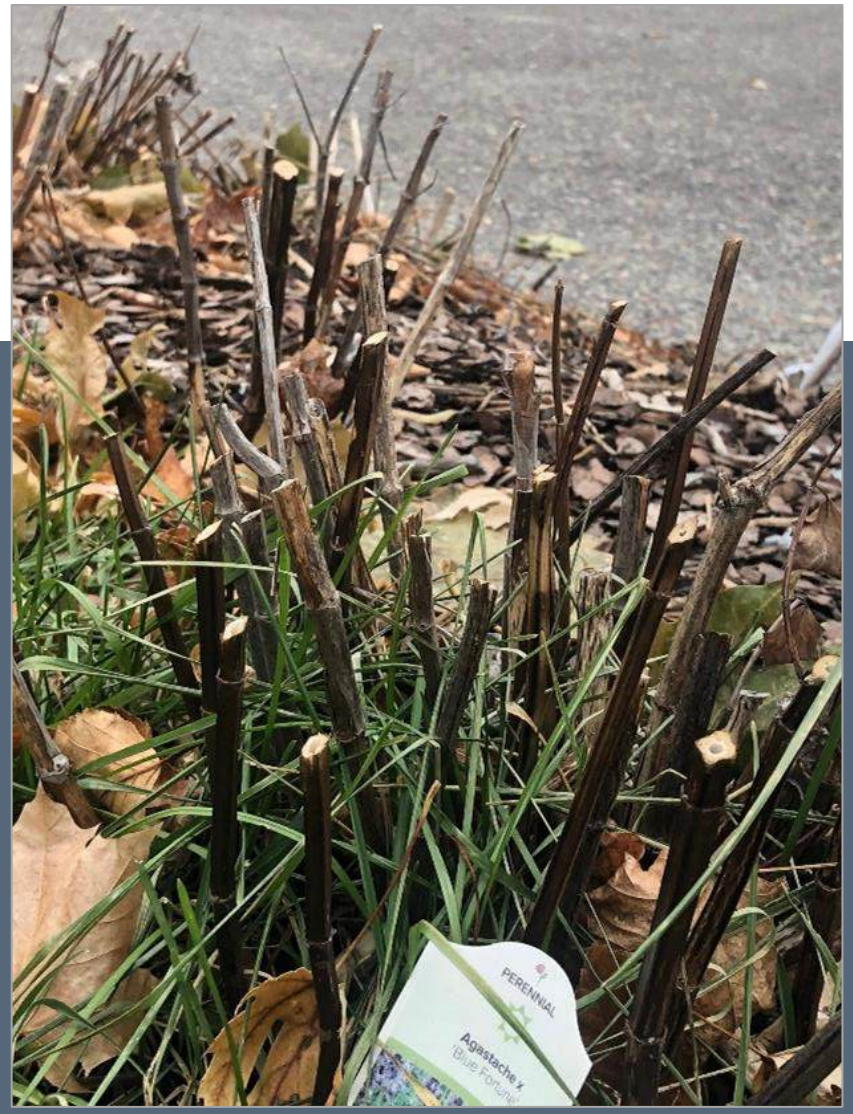
Save the Stems



Photos: Sara Morris; Sarah Foltz Jordan

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Save the Stems

A few commonly used plants for stem-nesting bees

Common Name	Plant Genus
Hyssop	*Agastache*
Echinacea	*Echinacea*
Sunflowers	*Helianthus*
Blazing Star	*Liatris*
Bee balm	*Monarda*
Goldenrods	*Solidago*
Asters	*Symphyotrichum*
Raspberry & other brambles	*Rubus*
Sumac	*Rhus*
Elderberry	*Sambucus*

Photo: Nancy Adamson

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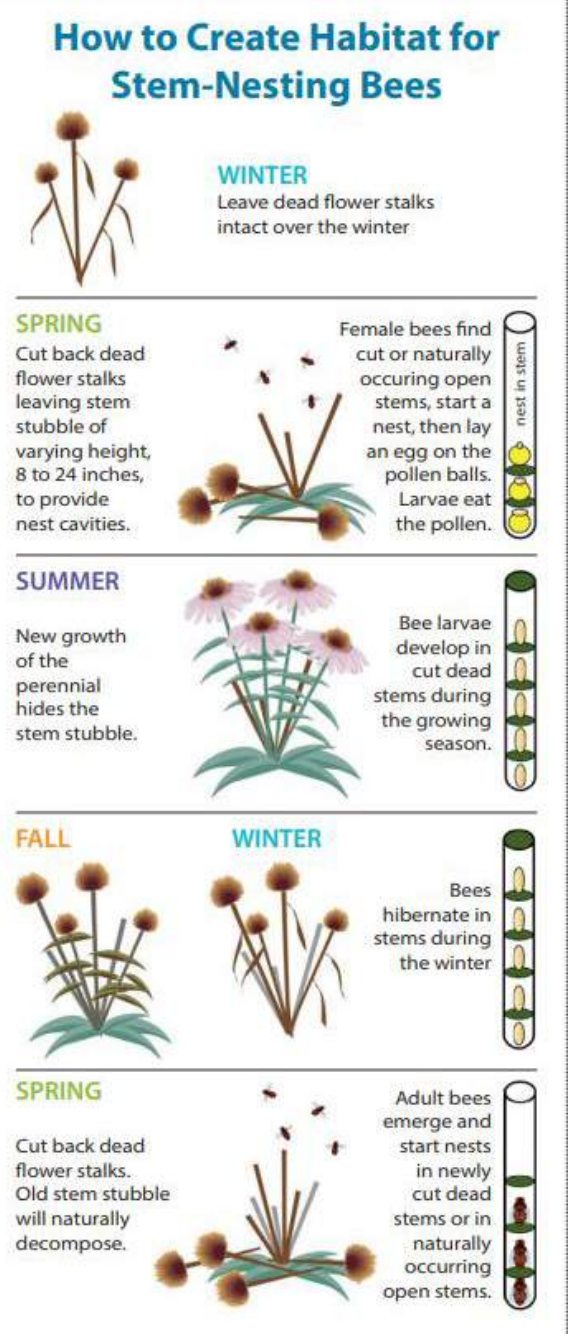
How to Save the Stems

- **Winter**: Leave flowered stalks intact over winter for reseeding and bird food

- **Spring**: Adult bees emerge from nest. Prune dead stalks to create new nest sites
- No clean-up necessary; just drop cut stems on the ground
- Cut at a variety of heights ~8 to 24 in.

- **Summer**: Watch for new nesting activity!

- **Fall/Winter**: Bee hibernation period



An Eyesore?

Photo: Sarah Folz Jordan

Photo: Matthew Shepherd

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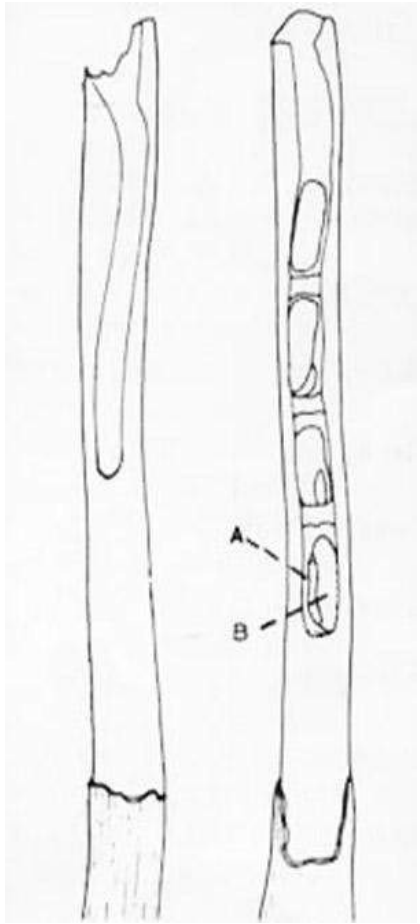
Ceratina (Small Carpenter Bees)

Excavating the nest



- Females excavate nests
- Nest cells are in a linear series, partitioned with pith
- Nests are not capped/plugged; smoothed around the entrance
- Female commonly guards nest

Illustration: http://entnemdept.ufl.edu/creatures/misc/bees/ceratina.htm. Photos: Sarah Foltz Jordan (stubble & adult), Edward Ross (nest), Colleen Satyshur (excavation)

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Osmia (Mason Bees)

- Females nest in empty insect burrows in wood, hollow stems, narrow protected spaces, cracks in rocks, etc.
- Nest configuration varied, often linear
- Mud (sometimes chewed leaves) used for partitioning cells and for capping the nest

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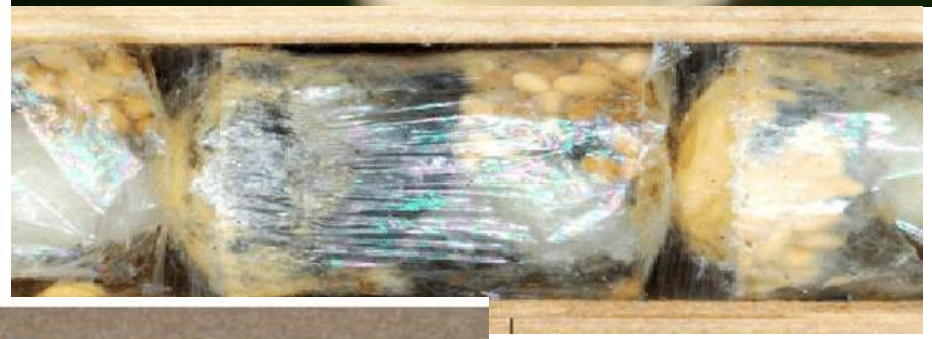
Photos: Edward Ross (nest), Jack Dyckinga, USDA-ARS (adult on flower), Mace Vaughan (adult at nest)

Hylaeus (Yellow Faced Bees)

- Females nest in hollow stems
- Nest configuration is linear
- Cellophane secretions are used for partitioning cells and for capping the nest entrance



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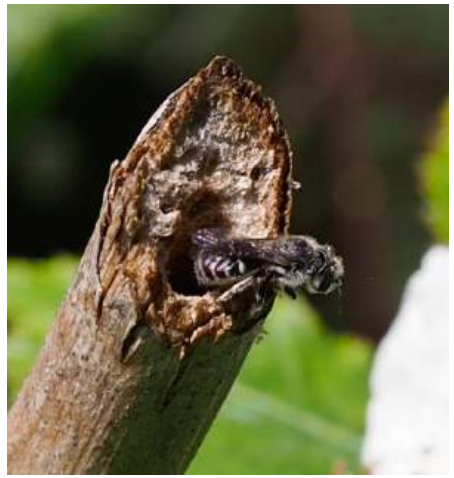
Photos: Rob Cruikshank (adults in nest), James K. Lindsey, Wikimedia Commons (adult), Christophe Barthelemy (inside nest), Colleen Satyshur (nest entrance), Joel Gardener (inside the nest)

Artificial Nesting Habitat

- Can harbor disease, often require sanitation and careful maintenance
- Simplified environments make it easier for parasites to usurp nests
- Sometimes have limited success (especially artificial bumble nests)
- Can be a great educational tool

Natural Nesting Habitat

- Very low maintenance
- Natural ecosystems support higher diversity
- Can be a great educational tool



Photos: Xerces Society (box & tube bundle); Leif Richardson (bumble nest), Nancy Adamson, Teri Gegenheimer

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Available at:
xerces.org/publications/fact-sheets/tunnel-nests-for-native-bees

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Natural Nest Sites are Better

Natural nest sites are the preferred option

Offers multiple conservation benefits and mimics density that occurs in natural settings

Simulate deer browsing

Prunings can be piled for added habitat

Photos: Sarah Foltz Jordan, Jennifer Hopwood, Colleen Satyshur

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Photos: Matthew Shepherd

Log, Branch and Stick Piles

Can be big or small

Size depends on space and materials you have

Stack up branches leaving gaps and spaces

Insects will occupy cut ends of hollow sticks and previously made cavities made by other insects

Small mammals may nest, creating future bumble bee homes

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Leave the Logs and Celebrate the Snags

Photos: Sarah Foltz Jordan

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Dead Wood is Important in All Stages of Decay

Photos: Beatriz Moisset (log with bark), Heather Holm (log with moss & bee head), Sarah Foltz Jordan (Augochlora pura)

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Wood Boring Beetles Help Bees

Photos: Bernhard Plank/Wikimedia (leafcutter), Sarah Foltz Jordan

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Heriades (Resin Bees)

- Females nest in hollow stems and pre-existing tunnels in wood, also galls, pinecones
- Nest cells are typically in a linear series
- Resin is used for partitioning cells and for capping the nest

Heriades carinatus prepupae in cells made completely of hardened plant resin.

Photo: Sara Morris/ Xerces Society (wood with Heriades), Christophe Quintin/Flickr (Heriades truncorum at nest), Joel Gardener (nest)

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Photo: Magda Ehlers, Pexels.com

Photo: Matthew Shepherd

Brick and Rock Piles

Include a diversity of rock types and sizes, and assemble with a "messy" configuration

Can be part of your hardscaping

Incorporate bunchgrasses, shrubs, or flowers around the pile to increase wildlife value

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Grasses and Abandoned Nests

Native grasses, leaves, and brush piles provide

- Shelter from rain and predators
- Space for movement
- Also great for spiders and ground nesting beetles that reduce crop pest and weed seed populations

Photos: Sarah Foltz Jordan

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Embrace the Challenge

Business

Party

Photo: : Tony Alter, Flickr.com

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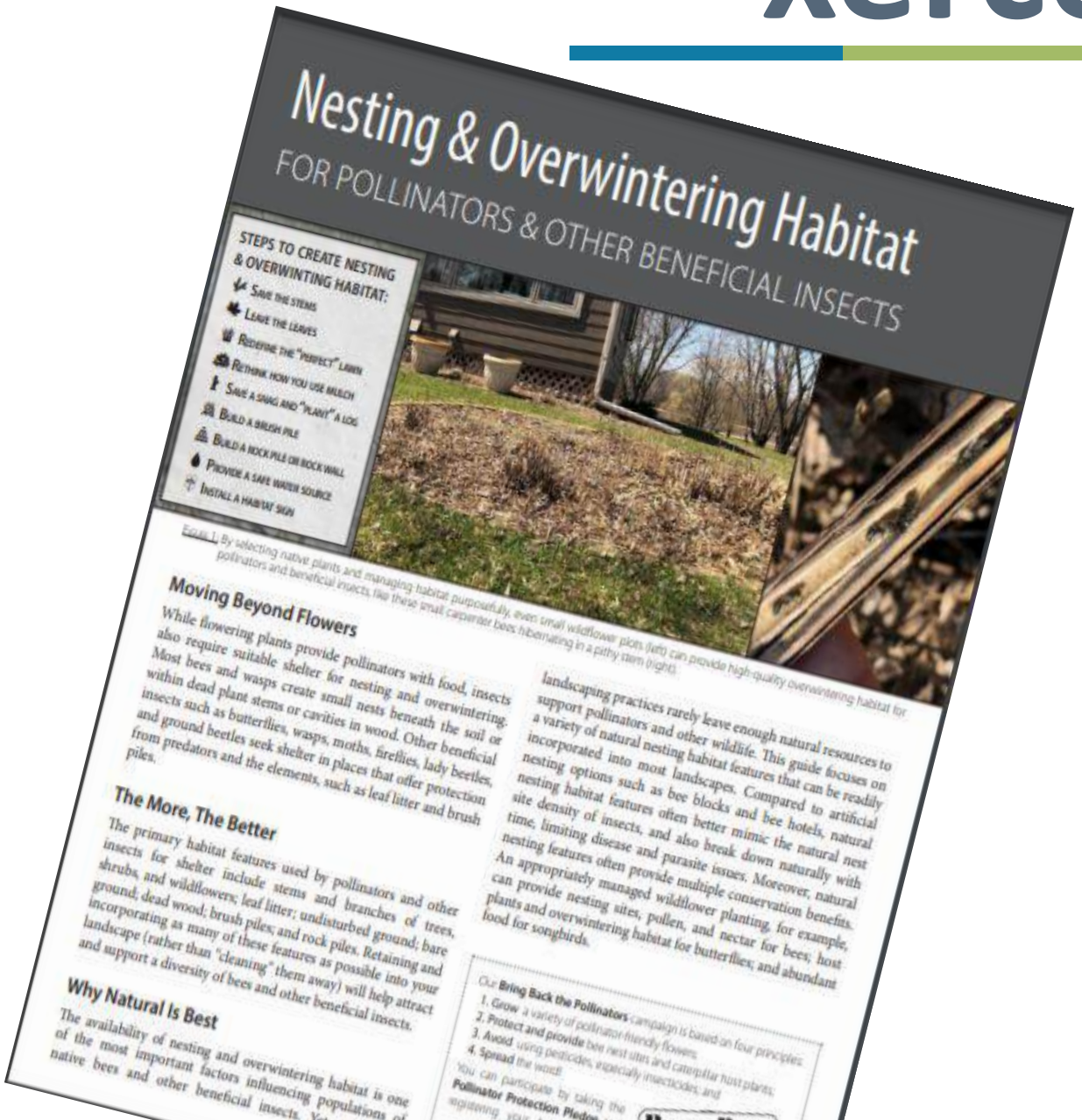
Nesting & Overwintering Habitat
FOR POLLINATORS & OTHER BENEFICIAL INSECTS
STEPS TO CREATE NESTING & OVERWINTING HABITAT:
Save the stems
Leave the leaves
Redefine the "perfect" lawn
Rethink how you use mulch
Save a snag and "plant" a log
Build a brush pile
Build a rock pile or rock wall
Provide a safe water source
Install a habitat sign
Moving Beyond Flowers
The More, The Better
Why Natural Is Best

- Landscaping & farming practices rarely leave enough natural resources to support pollinators & other wildlife
- This guide focuses on key nesting features that can be readily incorporated into most landscapes
- Available at: xerces.org/publications/factsheets/nesting-overwintering-habitat

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Just a Little Lagniappe

Photo: Liza Summer, Pexels.com

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Wild Bee Diversity

- **Worldwide: 20,000 species**
- **North America: 5,200 species**
- **United States/CAN: 3,600 species**

Photos: Sam Droege

Leafcutter Bees are Happy Campers

- Females will nest in stems, tunnels in wood, rock cavities, and in the ground
- Cut leaves (sometimes flower petals) are used to partition cells and plug nest

Photo: Heather Holm (adult at leaf); Sarah Foltz Jordan (adult at nest); Joel Gardener (inside stem nest); Jason Gibbs (underground nest; single capsule; inside the cell). Gibbs photos from Figure in: Gibbs 2017. Notes on the nesting biology of… Megachile mucida in Central Michigan. The Great Lakes Entomologist.

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Many Bees and Wasps are Not Aggressive

Only social bees and wasps are defensive near their nests—they have young larvae, a queen, sisters & stores

Use a fake wasp nest to deter social wasps from nesting nearby

Photos: Nancy Adamson

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Thank You on Behalf of the Xerces Society

We don’t work in isolation—the Xerces family is large and diverse

- Over 12,000 Xerces Society members in 15+ countries.
- Scores of private foundations that provide funding.
- More than 100 scientists at universities around the world.
- Dozens of federal, state, and local agencies.
- Hundreds of farmers and land managers that have worked with us on habitat projects.
- Over 50 companies supporting us.
- Thousands of people who act to protect invertebrates in their neighborhoods.

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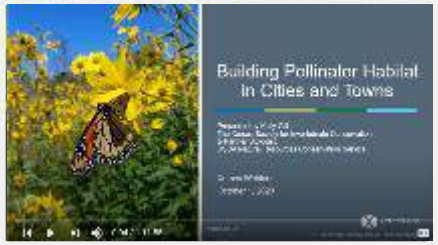
Xerces Society YouTube Channel

Xerces Webinar Series



Building Pollinator Habitat in Towns and Cities

Xerces Classroom Series

Xerces Classroom for Youth: Brilliant Bees

Invertebrates for Youth

Xerces Classroom for Youth: Beautiful Butterflies

Community Science

Nebraska Bumble Bee Atlas

Bumble Bees and Community Science

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Xerces Society Bug Banter Podcast

Spider Sense Part 1:
Unraveling The Secrets Of Arachnids

Exploring Wasps:
Myths, Facts, and Fascinations

All About Bees:
Celebrating Pollinator Week

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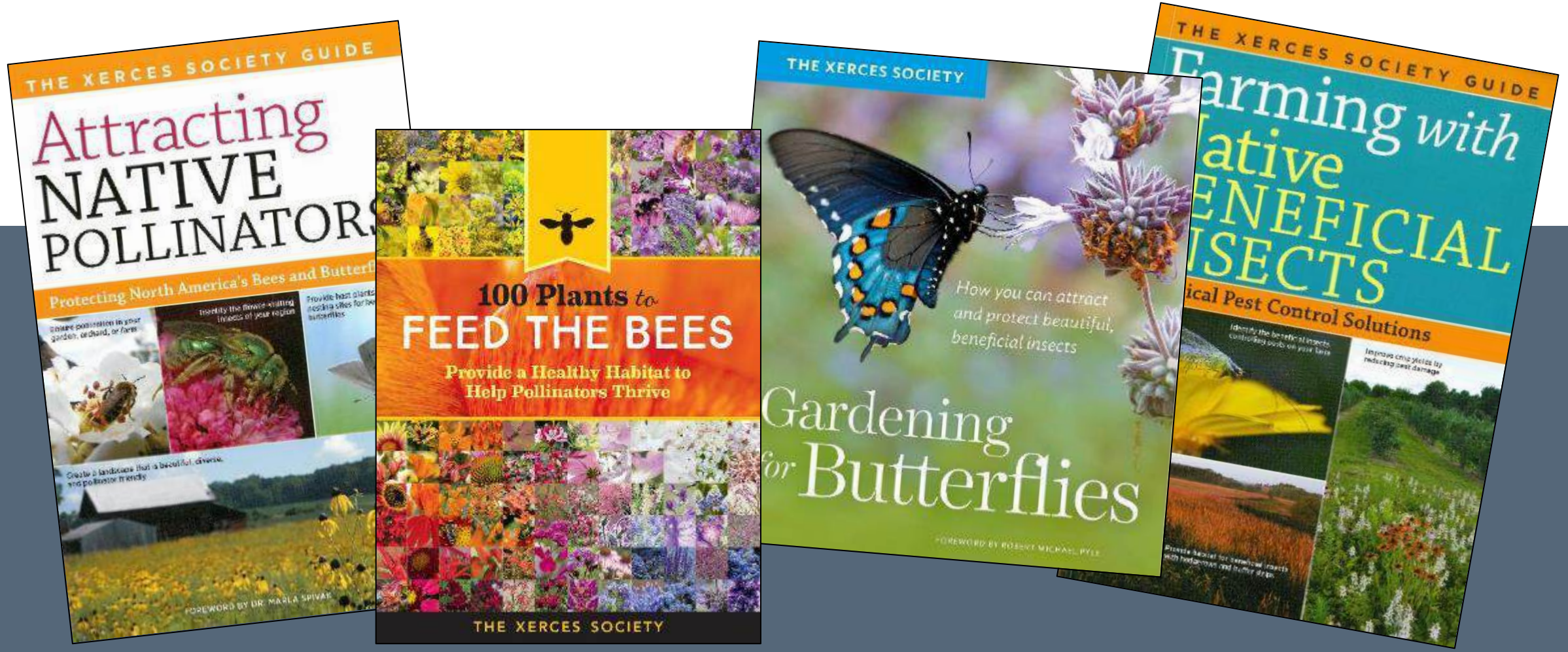

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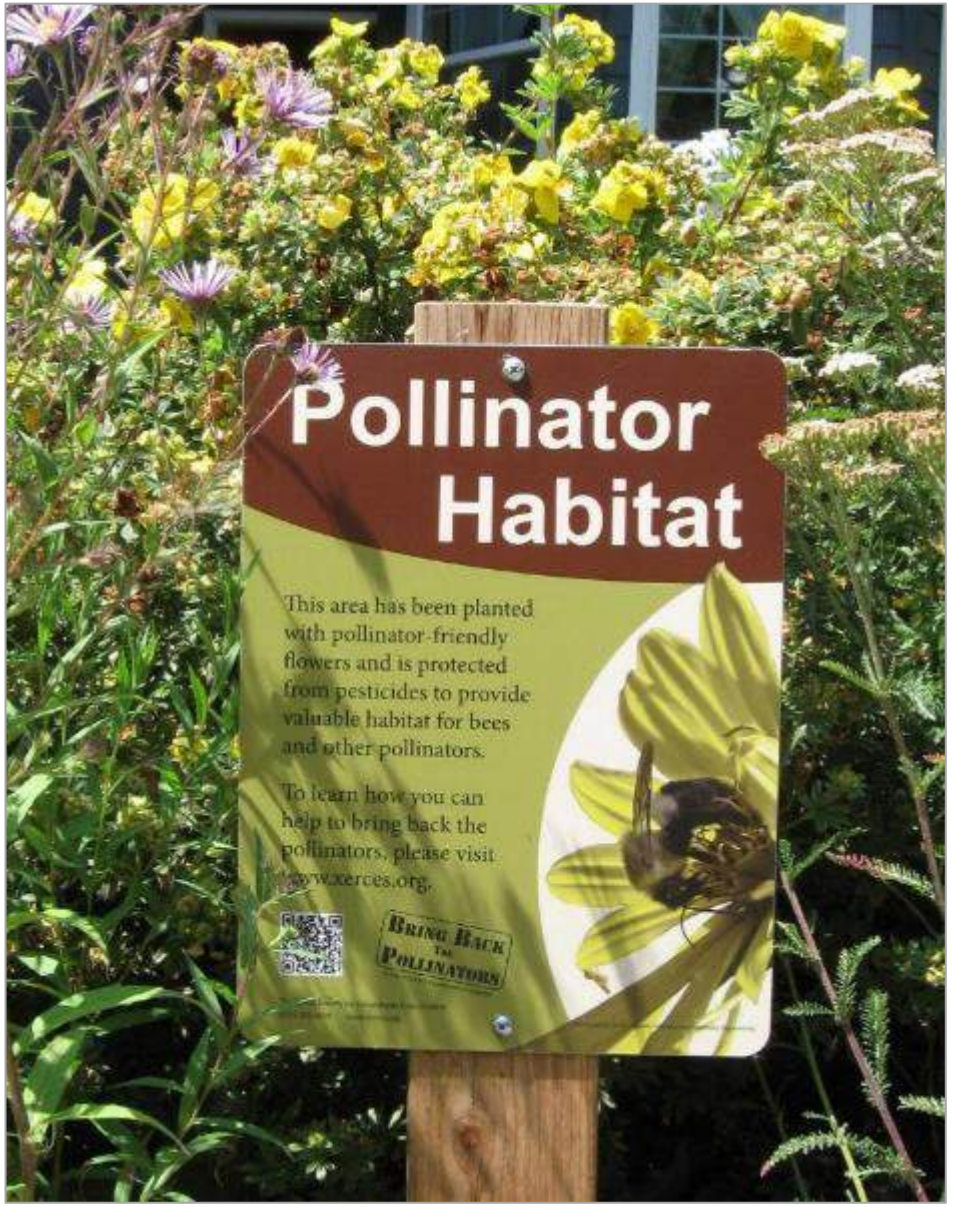

Photo: Matthew Shepherd

Thank you!

Any questions?

Photo: Matthew Shepherd

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