

Xerces Society Pollinator Resources

The Xerces Society is a nonprofit organization that protects biological diversity through conservation of invertebrates. We work with farmers and scientists across the country to protect habitat that supports pollinators and to increase native bee populations for crop production. More information on providing habitat for native bees is available on our website at www.xerces.org/pollinator-resource-center, where you can download pollinator-friendly plant lists, conservation fact sheets, or a copy of *Farming for Bees*, our detailed guidelines for protecting and providing native bee habitat on farms. You can also purchase *Attracting Native Pollinators*, a comprehensive handbook to pollinator conservation on farms and in gardens, urban areas, and other landscapes.



The Xerces Society for Invertebrate Conservation
628 NE Broadway, Suite 200, Portland, OR 97232
855-232-6639 www.xerces.org

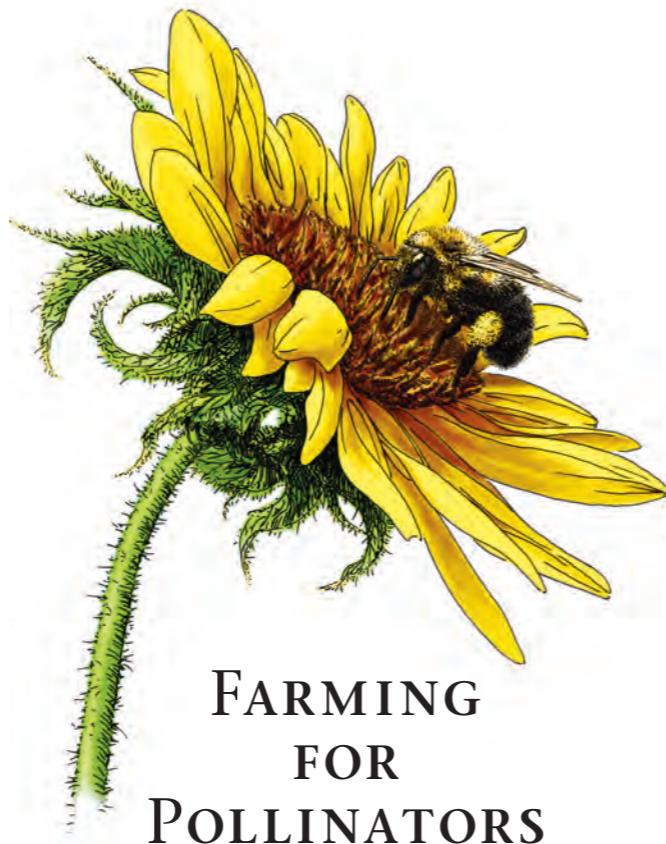
NRCS Programs

The Natural Resources Conservation Service (NRCS) of the U. S. Department of Agriculture (USDA) provides financial and technical assistance to support conservation efforts for pollinators and other wildlife on farms. NRCS conservation programs can help agricultural producers establish pollinator-friendly plantings of native and naturalized species, provide nesting sites for bees, and manage pollinator habitat. For more information on these programs, contact your local USDA service center. You can find the NRCS office nearest you at www.nrcs.usda.gov.



Published by the Xerces Society in collaboration with the USDA-NRCS. Additional funding has been provided by the Turner Foundation, the CS Fund, the Disney Worldwide Conservation Fund, the Ceres Trust, and the Columbia Foundation. Illustrations by Andrew Holder. Designed and produced by Press-22. Copyright © 2005 by the Xerces Society. The USDA and the Xerces Society are equal-opportunity providers and employers.

XS 0212



Native Bees and Your Crops

Native bees are valuable crop pollinators. These wild bees help increase crop yields, and may serve as important insurance when honey bees are hard to come by.

There are simple and inexpensive things you can do to increase the number of native bees living on your land. Any work you do on behalf of pollinators will support other beneficial insects and wildlife. In addition, improvements to pollinator habitat may be eligible for financial support from government programs.

Inside you'll find more information, along with a visual guide to identifying and enhancing habitat for native bees on your farm.

Principles of Farming for Crop Pollinators

Know the habitat on your farm. Using the illustration in this brochure as a guide, look for areas on and around your land that can support native bees.

Protect flowering plants and nest sites. Once you know where bees are living and foraging, do what you can to protect these resources from disturbance and pesticides.

Enhance habitat with flowering plants and additional nest sites. Adding flowers, leaving areas of soil untilled where possible, and providing bee blocks (tunnels drilled into wood) are all ways to increase the number of native bees on your farm.

I was surprised to learn how native pollinators can make honey bees much more effective at pollinating our sunflowers. As we continue working to increase biodiversity on our farm, we'll be adding features to help the wild bees.

— Charlie Rominger
Rominger Brothers' Farms
Winters, California

Critical Requirements of Native Bees

Food. Bees eat only pollen and nectar. In gathering these resources, they move pollen from one flower to another, and thus pollinate your crops. Bees rely on an abundance and variety of flowers, and need blooming plants throughout the growing season. Native plant species are particularly valuable.

Shelter. Native bees don't build the wax or paper structures we associate with honey bees or wasps, but they do need places to nest, which vary depending on the species. *Wood-nesting* bees are solitary, often nesting in soft-pithed twigs or beetle tunnels in standing dead trees. *Ground-nesting* bees include solitary species that construct nest tunnels under bare ground. *Cavity-nesting* social species—bumble bees—make use of small spaces, such as abandoned rodent burrows, wherever they can find them.

Protection from pesticides. Most insecticides are deadly to bees, and herbicide use can remove many of the flowers that they need for food.

We have the good fortune of being home to many native pollinators, including blue orchard bees. We believe that our being chemical free helps our bees flourish, and they in turn help produce some of the sweetest berries in the whole country.

— Mandy McCormick
Blue Tara Organic Blueberry Farm
Poplarville, Mississippi

Getting Started

Here are two things that you can do to begin improving habitat for native bees on your land:

Minimize tillage. Many of our best crop pollinators live underground for most of the year, sometimes at the base of the very plants they pollinate. To protect them, turn over soil only where you need to.

Allow crops to bolt. If possible, let leafy crops—such as lettuce—flower if they don't need to be tilled right away. This gives bees additional food sources.

Going Further

If you want to do more to increase the number of native bees pollinating your crops, you can set aside marginal areas, plant hedgerows or windbreaks with a variety of flowering plants, reduce or eliminate the use of pesticides, or work with your neighbors to protect natural areas around your farm.

Exercising Care with Insecticides

If you must use insecticides, choose targeted ingredients (for example, Btk for pests such as leaf rollers) and the least harmful formulations (granules or solutions). Spray on dry evenings—and do so soon after dark, when bees are not active. Keep in mind that even when crops are not in bloom, some of your best pollinators are visiting nearby flowers, where they may be killed by drifting chemicals.

Most native bees are unlikely to sting. The yellowjackets and other wasps you see eating rotting fruit and hanging around picnics are not bees, nor are they significant pollinators.



Riparian Buffers
Food and Shelter

Habitat along streams should contain a diversity of plants. Willows, in particular, will nourish bumble bee queens in the spring so that large numbers of workers are available when crops begin to bloom.



Fallow Fields and Set-Asides
Food and Shelter

Even small areas of fallow or unproductive land, especially when sown with native flowers, can offer important resources for native bees.



Hedgerows or Windbreaks
Food and Shelter

Creating hedgerows with a wide variety of plants that have overlapping flowering periods will provide bee habitat throughout the growing season and strengthen populations of natural enemies of crop pests.



Natural or Undeveloped Areas
Food and Shelter

Nearby natural areas may harbor all the native bees needed to pollinate your farm's crops. Consider inviting your neighbors to help with safeguarding these habitats.



Snags
Shelter

Keeping dead trees standing provides shelter for native bees. Some solitary bees build nests in abandoned beetle tunnels in snags.

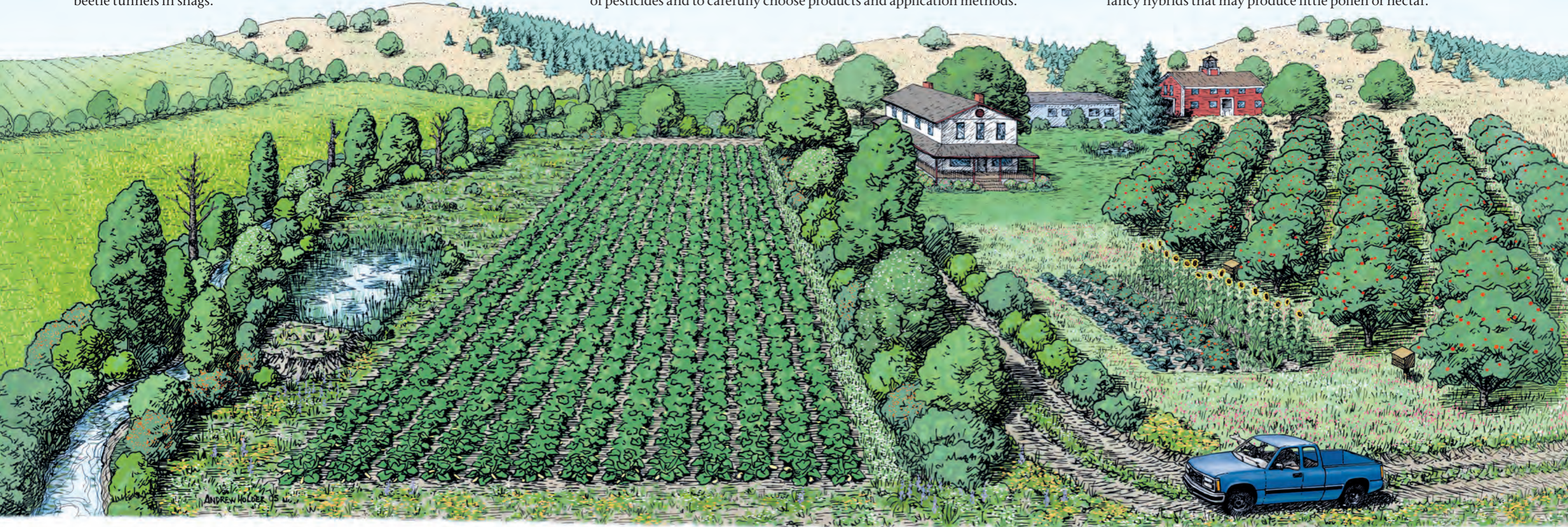
Pesticides

Insecticides kill pollinators outright, and herbicides may destroy plants important for both food and shelter. It is preferable to minimize your use of pesticides and to carefully choose products and application methods.



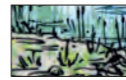
Gardens
Food

A vegetable, flower, or herb garden, with a diverse assortment of plants, is a good source of food for pollinators. Be wary of fancy hybrids that may produce little pollen or nectar.



Temporary Bee Pasture
Food

Planting fields with clover or other inexpensive seed—or allowing crops such as lettuce, kale, basil, and broccoli to bolt—will supply bees with nectar and pollen.



Ponds and Ditches
Food and Shelter

When you create a pond or ditch, leave the pile of excavated soil. Ground-nesting bees may build nests in stable, bare areas of this mounded earth. Planting clumps of native flowers will attract more pollinators.



Field and Road Borders
Food and Shelter

Leave areas next to fields untilled and unsprayed to support flowering plants and provide nest sites for ground-nesting bees.



Cover Crops
Food

Flowering plants—certain legumes in particular—can be included in cover-crop mixes to supply pollen and nectar.



Artificial Nests
Shelter

Making bee blocks for wood-nesting bees is a good way to increase the number of native bees in your landscape.