INVERTEBRATE CONSERVATION FACT SHEET

Nests for Native Bees

Pollinators are a vital part of a healthy environment.

Native bees are North America's most important group of pollinators.

Nest sites are simple to make, and can be added to any area of greenspace, large or small.

A selection of home-made bee nests: (clockwise from left) wooden block, bamboo bundle, and bumble bee box.

Pollinators are a diverse and fascinating group of animals. In addition to their beauty, pollinators provide an important link in our environment by moving pollen between flowers and ensuring the growth of seeds and fruits. The work of pollinators touches our lives every day through the food we eat. Even our seasons are marked by their work: the bloom of springtime meadows, summer berry picking, pumpkins in the fall.

There are 4,000 species of native bees in North America. Together they form the most important group of pollinators. Like all wildlife they are affected by changes in our landscapes, especially the loss of nesting sites. Bees make nests in which they create and provision brood cells for their offspring. In many modern landscapes, a desire for neatness has usually resulted in the removal of bare ground, dead trees, and untidy corners of rough grass—all important nesting sites for bees.

This fact sheet gives information on how to provide nest sites for native bees, including nest blocks and bare ground for solitary-nesting bees, and nesting boxes for bumble bees.

For more information, visit our web site, www.xerces.org, where you will find other fact sheets and more detailed guidelines on how to enhance habitat for pollinators. You'll also find information about *Attracting Native Pollinators. Protecting North America's Bees and Butterflies.*

Written by
Matthew Shepherd

The Xerces Society for Invertebrate Conservation

(855) 232-6639

www.xerces.org

Wood-Nesting and Cavity-Nesting Bees

About 30% of our native bee species make their nests in old beetle tunnels in snags or similar locations. The female bee builds dividing walls across the tunnel to make a line of brood cells. Where you can, retain snags. Where you can't, make some nesting blocks. (Alternatively, many garden centers and back yard bird shops sell them.)

- **Nesting blocks.** Bee blocks can be made by drilling nesting holes between 3/32" and 3/8" in diameter, at approximate 3/4" centers, into the side of a block of preservative-free lumber. The holes should be smooth inside, and closed at one end. The height of the nest is not critical—8" or more is good—but the depth of the holes is. Holes less than 1/4" diameter should be 3-4" deep. For holes 1/4" or larger, a 5-6" depth is best.
- **Adobe blocks.** In desert areas, adobe blocks can be made and drilled with holes as outlined above.
- **Logs and snags.** Get some logs or old stumps and place them in sunny areas. Those with beetle tunnels are ideal. Plant a few upright, like dead trees, to ensure some deadwood habitat stays dry. On the southeast side of each log, drill a range of holes, as outlined above.
- **Stem or tube bundles.** Some plants, like teasel, bamboo, and reeds, have naturally hollow stems. Cut the stems into 6" to 8" lengths. Be careful to cut the stems close to a stem node to create a tube with one end closed. Fifteen to twenty stem pieces tied into a bundle (with the closed ends of the stems together) makes a fine nest. Or, make a wooden frame to hold as many stems as you like. Paper tubes can be used as well. Just make sure they stay dry.

Location of the nesting sites is important. These nests should be placed where they are sheltered from the worst of the weather, with entrance holes facing towards east or southeast, so they get the morning sun. With stem bundles, be sure that the stems are horizontal. The nests can be any height from the ground, but between three and six feet is convenient. Put them on a building, fence, or stake, or place them in a tree. Fix them firmly so they don't shake in the wind.

Ground-Nesting Bees

Most native bees—about 70% of species—nest in the ground, and need access to the soil surface to dig their nest. Each female excavates her own nest tunnel and brood cells, and stocks the cells with nectar and pollen. Where possible, keep bare or partially vegetated ground. Where you can, create more.

- **Bare ground.** Simply clear the vegetation from small patches of level or sloping ground and gently compact the soil surface. These patches can be from a few inches to a few feet across, but should be well drained, and in an open, sunny place. A south-facing slope can be a good location. Different ground conditions—from vertical banks to flat ground—will draw different bee species, so create nesting patches in different areas if you can to maximize the nesting opportunities.
- **Sand pits and piles.** In a sunny, well-drained spot, dig a pit about 2' deep, and fill it with a mixture of pale-colored, fine-grained sand and loam. Where soils do not drain well, a pile of the sand/loam mixture can help, or make a raised bed. If space is limited, you can fill planter boxes with the sand/loam mixture.

Bumble Bees

Unlike the nests built for solitary bees there are no strict size requirements for bumble bee nests—any hole large enough for a small colony will be OK. After emerging from hibernation, a bumble bee queen will hunt for a dry, warm cavity in which to start her colony. In natural conditions, most bumble bees nest in abandoned mouse holes in the ground or under grass tussocks. Where you can, keep patches of rough grass. Where you can't, consider building a nest box or two.

- **Nest box.** A simple wooden box, with internal dimensions of about 7" by 7" by 7", made from preservative-free lumber will work. Drill a few ventilation holes near the top (covered with door screen to deter ants) and some drainage holes in the bottom. Make an entrance tunnel from 3/4" plastic pipe, marked on the outside with a contrasting color, and fill the box with soft bedding material, such as upholsterer's cotton or short lengths of unraveled, soft string. The box must be weather tight; the larvae may become cold in a damp nest, and mold and fungus will grow.

Place the box in an undisturbed site, in partial or full shade, where there is no risk of flooding. The box should be on or just under the ground. If you bury it, extend the entrance tube so it gently slopes up to the surface. Put your nesting box out when you first notice bumble bees in the spring, or when the first willows and other flowers are blooming, and be patient. There is no guarantee that bees will use your box. Only about one in four boxes get occupied. If it has no inhabitants by late July, put the nesting box into storage until next spring.

For more pollinator conservation information, go to www.xerces.org