



NATIVE SOLITARY BEES

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There are 20,000 known species of bees worldwide with 4000 species native to the U.S. - 1600 in California and 400 in California urban areas.

Native bees are important pollinators, pollinating 80% of the world's flowering plants and 75% of fruits, nuts and vegetables in the U.S. They are more efficient pollinators than honey bees and are unaffected by Colony Collapse Disorder.

Native Bees

- Wide range of colors and patterns: bright green, metallic blue, black, yellow, stripes and polka dots, fuzzy or shiny.
- Range of sizes and shapes: Few millimeters to two centimeters; rounded, long slender or tapered.
- Nests: 70% nest in the ground, 30% nest in established structures like holes in wood, beetle tunnels or hollow stems. Males do not stay in the nest but can be found resting in flowers (such as dahlias or squash family plants) in the evening.
- Flowers they visit: most favor native plants but also visit non-native ornamentals, some are specific feeders (squash bee).
- Cool names: Cuckoo bee, spine-cheek sweat bee, long-horn digger bee, blue orchard bee (BOB), ultra-green sweat bee, leaf cutter bee.



Solitary bees - Native Bees - Social Bees - Non-native Bees

Approximately 75% of all bees are solitary.

Unlike social bees, which live in colonies and share the raising of young and production of food, solitary bees don't live in colonies or produce honey. They live independently with their own individual nests. Although some solitary bees may aggregate their nests with other bees and even share nest building tasks, they are considered solitary as they each maintain their own nest and solely care for their young.

Most native bees are solitary but there are exceptions. Bumblebees, some sweat bees and carpenter bees are native but they are not solitary. Honey bees are non-native bees which are social bees. European carder bee is a non-native bee which is solitary.

Nesting and Providing for their Young

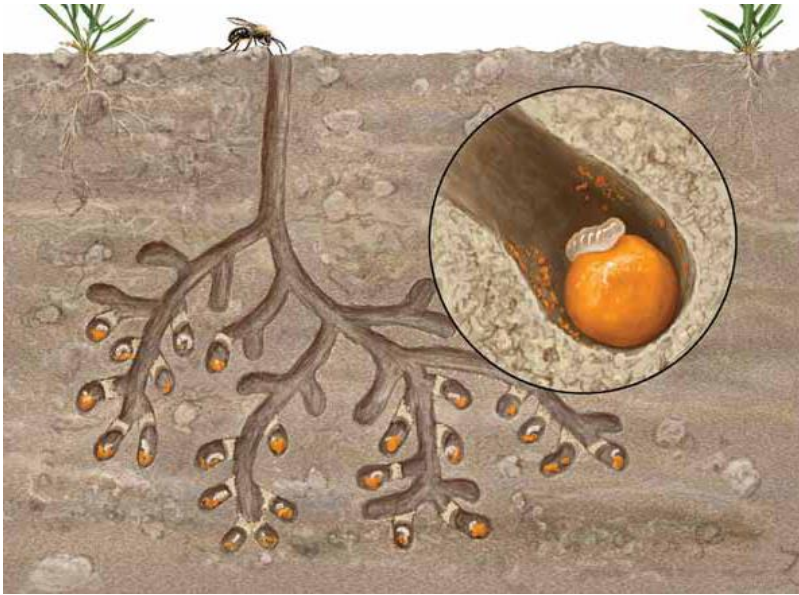


Image is from Moiset and Buchmann

The solitary female bee digs or uses a pre-made tunnel and creates food bricks from nectar, pollen and saliva. This food packet is placed in a tunnel with one egg, then the tunnel is walled off. The egg hatches and the larva feeds on the food and develops into an adult. This new adult waits in the sealed tunnel until the correct time for emergence based on the flowering of target plants. It can remain in the nest for 4 years during extended droughts. Male solitary bees do not help with nest building or collecting pollen for young.

Stinging

Solitary native bees rarely sting, but can sting if trapped. They do not sting to defend their nest. Their sting is not as strong as a honey bee. Only females have stings and they do not die after stinging.

Providing Habitat for Bees

Urban landscapes have decreased nesting sites for native bees due to lack of bare ground and removal of dead trees and rough grass patches preferred by native bees.

Bee friendly yard

- Plant a variety of native and ornamental plants with mass plantings of one square meter or more. Native bees have different seasons of emergence so choose plants which have a succession of bloom times.
- Preserve some open soil areas or a sand pile in a sunny south facing slope or flat spot. Soil or sand in an oak barrel or raised bed is another option.
- Eliminate the use of broad spectrum pesticides.

Build or Buy Bee Houses

1. Bundle of sticks: Bundle 15-20 sticks of bamboo, reeds or dead hollow stems such as some asters or raspberries. Cut at 6"-8" lengths. One end of hollow stems must be closed so cut stem near a closed stem node or bundle into an open-sided box. Mount so stems are horizontal.
2. Block of wood: Using a block of untreated lumber, drill holes using a 5/16" drill bit, 3/4" apart, 5-8" deep. Depth of holes is important: holes less than 1/4" should be 3-4" deep, holes greater than 1/4" should be 5-6" deep.



3. Location: Sheltered spot with entrance holes facing southeast for morning sun exposure. Set 3-6 feet off of ground. Fix nest firmly to fence, building, stake or tree. Protect nests from spiders and ants.
4. Maintenance: Nests should be cleaned or replaced every two years.

References

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BEE GARDENER PLANT LIST

***Remember bees' favorite colors are hues of blue.
They also like yellow, white, orange, light or dark pink and purple.***

SPRING PLANTS – EARLY BLOOMING (PLANT NATIVES IN THE FALL)

Achillea millefolium - Yarrow
Arctostaphylos sp - Manzanita
Borago officinalis - Borage
Carpenteria californica - Bush Anemone
Ceanothus sp. - California Lilac
Coreopsis - Coreopsis lanceolata
Eschscholzia californica - California poppy
Pentstemon
Phacelia tanacetifolia - Tansy Phacelia
Pot Marigold - Calendula spp.
Pride of Madeira - Echium candicans
Salvia - many varieties
Wisteria

SUMMER PLANTS (PLANT IN THE SPRING)

Bidens ferulifolia - Bidens
Calamintha spp. - Catmint
Cosmos bipinnatus - Cosmos
Coreopsis lanceolata - Lanceleaf tickseed
Cucurbitaceae - pumpkin, squash, zucchini
Erigeron grande rubescens - Red Buckwheat
Helianthus - Sunflower
Lavandula spp - Lavender
Origanum spp. - Oregano
Perovskia atriplicifolia - Russian Sage
Rudbeckia hirta - Black-eyed Susan
Thymus spp. - Thyme

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GARDENING QUESTIONS? ASK THE MASTER GARDENERS AT HELPLINE: 805-781-5939



Website: Master Gardeners San Luis Obispo

Availability	on VMS > Documents/Presentations > INFO DOCS > BEES: Native Solitary Bees with Attachment~Bee Gardener Plant List
History	Original: 8/6/17 Revised: month/year: 5/2/19

