Get to know these . . .

10 Bees

Why care about bees? Bees are important as indicators of environmental quality, are key in the continued existence of our wildlands, vital to sustainable pollination of crops, and serve as food that supports a diversity of other species. In addition, bees are critical to the health of natural, ornamental and agricultural landscapes.

Beyond the honey bee

Most people can recognize non-native, ever-present European honey bees, but many are unaware of the 1600 species of native bee that can be found in California, many of them in our own gardens.

While honey bees are social, live in hives and cooperate with one another, most of our native bees are solitary, live in wood or underground tunnels and do not make honey.

The hard working females mate, make nests, collect pollen for their young and lay eggs. Males live to mate and only pollinate inadvertently when they visit flowers for nectar to fuel their flight.

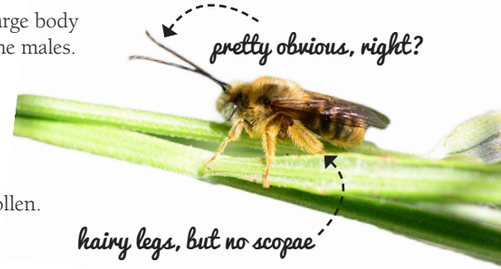
Native bees come in various shapes and sizes from the somewhat intimidating Valley carpenter bee at one inch long (sometimes more) to tiny sweat bees that are less than one quarter inch. They also vary in color, shape, markings on their faces and legs, distribution of hairs on their bodies and other features that may require a magnifying glass to be seen. Native bees differ in the seasons they appear, habitats they prefer, and flowers they favor.

Look for these bees and others in your outdoor spaces. They are all quite different from honey bees and each other.

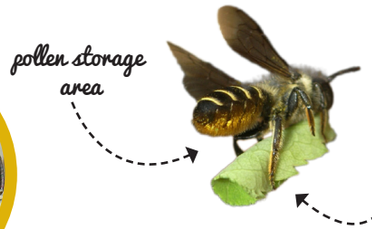
yellow-faced bumble bee, *Bombus vosnesenskii*

(Apidae) Bumble bees move relatively slowly among flowers and are easy to recognize by their hairy chunky forms and yellow bands on their backs and abdomens. This hard-working species is one of the most common and easy to identify from its bright yellow facial hair. Female bumble bees' hind legs widen to form pollen baskets often filled with bright colored, moistened pollen pellets.

long-horned bee, *Melissodes* spp. (Apidae) Medium to large body bees, this group gets their names from the long antennae of the males. Females of this species do not have long antennae. Males may be seen by day jostling for female attention above a patch of plants like blanket flower (*Gaillardia*). Look closely at the diligent females collecting pollen. Both the males and the female of this species have hairy legs, but only the females have scopae (branched hairs) for carrying pollen.
Photo credit: Kathy Keatley Garvey



sweat bee, *Halictus* spp. (Halictidae)
This is a group of medium to small elongate bees so named because of a tendency to alight on the skin and lap up sweat for moisture and salt. They are dark bees with pale hair bands at the ends of the abdominal segments giving a striped appearance. They typically carry pollen on their hind legs, but sometimes carry it on the underside of their abdomen. Common in our area, they nest in soil in annual colonies.
Photo credit: Ken Schneider



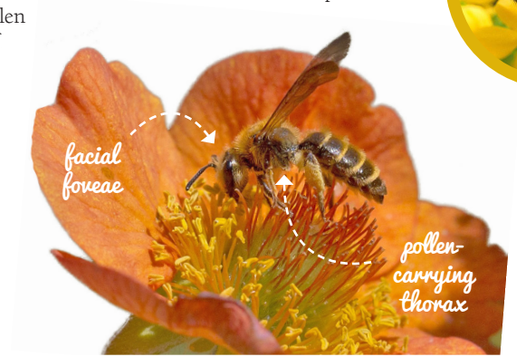
leafcutter bee, *Megachile spp.* (Megachilidae)
These bees have triangular or heart-shaped abdomens, the underside of which is where their pollen carrying scopae are located. They are slow fliers with thick heads that hold muscles required for leaf cutting. They use the leaf material to partition their nests between eggs; most will nest in holes in wood.
Photo credit: Rob Cruickshank

ultra green sweat bee, Agapostemon texanum (Halictidae) A remarkably colored insect, the females of this species are all metallic green, while the males are green on the head and thorax with a striped abdomen that makes them relatively easy to identify. You can find them in soil where they nest or on flowers in the daisy family (*Asteraceae*). Widespread and common, green sweat bees may be one of the first native bees you encounter, and one you will remember because of its jewel-like appearance.

wool carder bee, *Anthidium manicatum*
(Megachilidae) Although this bee is a non-native European introduction, it is common and easy to identify by its aggressive behavior and unusual abdominal striping — look for bands of color that do not quite meet in the middle. Males often set up territories and body slam other insects that get too close. Many curious insect watchers know them by a more appropo common name — head bonkers. They collect hairs from plants to build their nests (hence the common name) and often forage on *Salvia* plant species.

Valley carpenter bee, *Xylocopa varipuncta* (Apidae)
Called carpenter bees because they carve nests out of decaying wood or untreated lumber, the females of this species are large, stout, shiny black bee and one of the most noticeable bees found in Valley gardens. They can be commonly observed "nectar robbing" at the base of flowers where they pierce the flower tube to steal nectar. Solitary and long-lived, the females burrow into soft or decaying wood or pithy stems. Males of this species are affectionately referred to as "teddy bear bees" due to their golden bodies and hairs—if you are brave you can try and hold one—they are strong but cannot sting! Photo credit: JKehoe_Photos

mining bees, *Andrena* spp. (Apidae) Medium to tiny bees, their populations peak from March to May as this group is among the first to emerge from their soil nests in spring. Many have metallic coloring and are characterized by grooves (facial foveae) that run down the center of their faces and between their compound eyes. They carry pollen on the upper part of their back hind legs (bees have three pairs of legs) as well as on the back sides of the insect's mid-section (thorax).
Photo credit: Allan Jones



mason bee, *Osmia* (Megachilidae) Called masons because they use mud to create walls between their egg chambers, this species ranges in size and come in different colors from metallic blue to green. All mason bees have round abdomens, heads and thoraces as compared to other types of bees which have more oval shaped configurations. They also carry their pollen on the underside of their abdomens instead of their hind legs. The female of the common blue orchard mason bee (*Osmia lignaria*) has horns on her lower face while males commonly have dense moustache-like white hairs on their faces. Most species nest in preexisting cavities in wood. Photo credit: U.S. Department of Agriculture

digger bee, *Anthophora* spp. (Apidae)
Aptly named, these species dig their nests in bare soil, so to welcome digger bees to your garden, leave some uncovered dirt in your landscape! This type of bee belongs to a larger group of bees that are generalist foragers but prefer plants in both the mint and the daisy families. They range in size but you can differentiate females by the long hairs on their hind legs (scopae) for carrying pollen and males by their unique, opal-like eyes (see photo on right).Photo credit: Kathy Keatley Garvey

Acknowledgements:

A very special thank you goes to Professor Emeritus Dr. Robbin Thorp from the UC Davis Department of Entomology and Nematology for the inspiration to create this brochure and for reviewing its content.

This brochure was created as part of the University of California Cooperative Extension's 2016 California Naturalist Certification in conjunction with the American River Natural History Association (ARNHA) at the Effie Yeaw Nature Center in Sacramento County.

References:

Frankie, G. W., Robbin W. Thorp, Rollin E. Coville, and Barbara Ertter. California Bees & Blooms: A Guide for Gardeners and Naturalists. Berkeley, CA: Heyday, 2014. Print.

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Many kinds of bees like these . . .

10 Plants

Gardening to support our native bees

Since native bee species differ in the season when they emerge from overwintering, bee gardens should contain plants with attractive flowers at different times of the year. The Urban California Native Bee Survey demonstrated that ". . . with the right bee plants, one small urban garden can attract forty to fifty species of native bees".

The plants included here were selected based on information available through this work and that of others both in the Bay Area and the Sacramento Valley. These plants were chosen for spring, summer and fall bloom, low to medium-low watering need, low maintenance requirements and the variety of bee species they attract.

Frikart's aster, *Aster* × *frikartii* 'Mönch' is a herbaceous perennial that flowers throughout summer. Its lavender-blue daisies pair well with silver foliage plants. An absolute butterfly magnet it also attracts many types of native bees, and provides them with both pollen and nectar. Deadheading spent flowers will extend its flowering season.

Ray Hartman's California lilac, *Ceanothus* 'Ray Hartman', California lilacs are a large group of native shrubs that are an excellent source of pollen for early spring bees. 'Ray Hartman' is an upright large shrub that can be trained as a small tree and is covered with clear blue flowers in March. Unlike some other California lilacs, it tolerates summer irrigation and is relatively long-lived.

Western redbud, *Cercis occidentalis* is native to the foothills of California's valley floor. It blooms in spring with magenta-pink pea-shaped flowers that are popular with a variety of native bees. If you see curious scoops on the edges of its leaves, you are doing a good job encouraging diversity in your pollinator garden because that means a population of leafcutter bees lives close by.

Photo credit: Katie Hetrick

California poppy, *Eschscholzia californica* is technically an annual, but they will "perennial-ize" by sprouting the following year from their roots and lower stems or by re-seeding. Look for sweat bees scrambling around the bottom of the flower and covering themselves with pollen.

blanket flower, *Gaillardia* × *grandiflora* is a colorful daisy-type flower popular with a number of native bees. In the Valley they attract long-horned bees like Melissodes which can be easily observed collecting nectar and pollen from the showy orange and yellow flowers. This plant may be short-lived in heavy soils.

Goodwin Creek lavender, *Lavandula* × *ginginsii* 'Goodwin Creek Grey' hybrid lavender is a tough and long-blooming sub-shrub that can be used to provide winter structure to your pollinator planting. Blooming early and lasting into summer, it is popular with large carpenter bees and a range of other smaller bees for its nectar. It can be pruned to shape, to increase branching, or to keep a compact form.

catmint, *Nepeta* × *fassenii* is a tough, herbaceous and spreading perennial that blooms from spring to early summer. Cut this one back after its first bloom to promote reblooming. In our area catmint is sought by a wide variety of bees like leafcutters, digger bees, and blue orchard bees for its nectar while some of the smaller bees also use it for pollen.

Russian sage, *Perovskia atriplicifolia* 'Little Spire' Visited by many types of native bees as well as honey bees, this upright deciduous perennial is tough and heat tolerant and thrives in harsh environments. This variety will reward you with vertical spikes of showy purple blooms late into the summer season. Cut it back to the base in winter.

germander sage, *Salvia chamaedryoides* blooms with beautiful dark blue flowers from late spring to early summer and again in fall. It is a primary nectar source for a number of bee types. Male carder bees may be most noticeable as they set up territories around flowering patches and knock into other bees that enter their area. Deadheading spent flowers in early summer will help the blossoms (and the bees) return in fall.

Cascade Creek goldenrod, *Solidago californica* 'Cascade Creek' blooms summer into fall. Its flame-shaped yellow spikes of flower clusters are attractive to small bees and butterflies. Tough and drought tolerant, it is perfect in a native garden with other low-water plants. Cut flower spikes to the ground after bloom to encourage reblooming. This plant will overwinter as a small mat of green leaves. Photo credit: Katie Hetrick

Introducing

10 Bees

and

10 Plants

they love

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