12 NATIVE BEES YOU MIGHT SEE AT LAKE MERRITT

Below are descriptions of 12 of the many species of native bees that you can look for at Lake Merritt. Happy Hunting!

A Few Interesting Native Bee Facts

- Male and female bees drink nectar from flowers as flight fuel. Females transport pollen from flowers to their nests to create food supplies for their offspring.
- Females lay eggs in brood chambers provisioned with pollen for emerging larvae. After consuming the food supply, the larvae pupate before emerging as adults.
- Larvae of some species go into diapause (hibernate) to overwinter before pupating in spring.
- Females of some species can reproduce asexually; some hibernate after mating.
- Most native bees are solitary, but bumble bees and some carpenter bees nest in colonies.
- Most bees live only a few weeks, but some species overwinter. Female carpenter bees may live two years or more.

And a Few Definitions

- "Buzz pollinate": Females of some species are able to grasp flowers with their mouths while vibrating their wings until the flower's anthers release a burst of pollen that falls on the bee. This behavior allows the bee to gather pollen regardless of whether the shape of the flower allows the bee to make body contact with the anthers.
- "Scopa/ae": A specialized configuration of bristles and hairs that enables female bees to transport pollen to the nest. Scopae occur on the hind legs in some species and on the abdomens in others.
- Sizes: Large – longer than ½ inch. Medium – ½ inch. Small – 3/8 inch. Tiny – shorter than ¼ inch.
- Thorax: Segment of the body where the wings are attached.

Bombus (Bumble Bee)

Ten species identified in California urban gardens. Most common: California Bumble Bee, Yellow-faced Bumble Bee, and Black-tailed Bumble Bee

Size and appearance: Medium to large. Typically black, very fuzzy with brown, white, or colored bands on thorax and abdomen. Female carries pollen in scopae on her hind legs.

Characteristics and behavior: In spring, queens and a few dozen to a few hundred female workers form colonies in cavities such as abandoned rodent nests, typically in the ground or under grass tussocks. The colonies persist through summer. Males and new queens are born near the end of the season. Males and new queens mate, and the new queens overwinter to begin a new cycle. Female workers' ability to buzz

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pollinate some flowers allows them to pollinate a range of crops, such as tomatoes, cranberries, apples, peppers, almonds, sunflowers, watermelons and blueberries.

Habropoda (Digger Bee)

12 species in California.

Size and appearance: Large, stout-bodied. Females carry pollen in white scopae on the outer part of their hind legs. Males have pale markings on their lower faces.

Characteristics and behavior: Flying season is February into May. Flight is noisy and fast. Extreme generalists, they forage for pollen on a wide variety of plants. Females gather pollen from wind-pollinated catkins and flowers; they buzz pollinate tomatoes. Females nest in soil in vertical banks and in flat, bare ground.

Andrena (Mining Bee)

Approximately 225 species found in California.

Size and appearance: Small to medium, slender. Usually black or dull metallic blue or green, often with buff colored hairs on the thorax. Visible bands of pale hair may grow on the abdomen. Females' distinctly noticeable scopae are on hind legs.

Characteristics and behavior: Females burrow into the soil, sometimes in lawns, to create nests that may accommodate up to thousands of bees. Flying season is February into June. Although some species are specialists that forage only on specific plants, most are generalists, valuable pollinators for spring blooming crops, such as orchard fruit, almonds, and blueberries.

Agapostremon (Green Sweat Bee)

Approximately 5 species in California, 40 in North America.

Size and appearance: Small to medium, slender. Females of most species are entirely bright green, but some combine a bright green head and thorax with a black and white striped abdomen. Males have a bright green head and thorax with a black and yellow striped abdomen. Females carry pollen in scopae on their hind legs.

Characteristics and behavior: Agapostremon nest in the ground. Females mate in late summer/early fall and hibernate in their old nests. They emerge in spring to build new nests and lay eggs that will hatch into females. New females will lay mostly unfertilized eggs that will hatch into males. Active from March to October, they visit many plant species for pollen and nectar and are excellent crop pollinators, especially for

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strawberries, watermelons, and squash. Unlike other sweat bees, Agapostremon do not drink human perspiration.

Megachile (Leafcutter Bee)

Approximately 75 species in California.

Size and appearance: Small to medium. Female abdomen is tapered; male is rounded. Females carry pollen in a scopa under the abdomen; when the scopa is full, the lower abdomen appears to be the color of the pollen.

Characteristics and behavior: Megachile nest in tubular cavities such as holes in wood or hollow stems; many will use man-made nests. Flight season is May into September. Flight is slow and deliberate. Females bite pieces of leaf into precise shapes to line and partition their nests. Leafcutter bees are generalists whose broad foraging habits make them excellent pollinators.

Melissodes (Long-horned Bee)

Approximately 50 species in California.

Size and appearance: Small to medium, stout. Males and females are golden brown, often with a banded abdomen. Thorax is fuzzy and legs are visibly hairy. Females carry pollen in conspicuously large scopae on their hind legs. Their common name is derived from the males' distinctively long antennae.

Characteristics and behavior: Females nest in flat bare ground. Bees emerge from their nests in mid- to late summer. In late afternoon, males may cluster inside a forage flower or sleep hanging upside down from a flower. Melissodes are generalists. (Lookalike *Svastra* are important pollinators for wild and cultivated sunflowers.)

Halictus (Sweat Bee)

Six species in California.

Size and appearance: Medium to small, elongate. Dark, with bands of pale hair on the abdomen. Females carry pollen in scopae extending along the entire hind legs.

Characteristics and behavior: Females mate before hibernating and emerge in spring ready to build new nests for offspring in flat bare ground. Multiple generations may emerge in a single season. Flight season is March to October. Halictus are generalists. When visiting California poppies, females of one Halictus species lie on their sides while circling around the

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base of the anthers to collect pollen. Pollinated crops include watermelon, strawberry, tomato, pepper & sunflower. Halictus drink human perspiration.

Anthidium (Mason Bee)

22 species in California.

Size and appearance: Large to small, stout. Black with yellow markings. Females' scopae are on the undersides of their abdomens. Unlike other bee species, males are larger than females.

Characteristics and behavior: Flight season is May into October. Females are generalists, but in urban gardens they are often found on Salvia. Most build nests in existing cavities. Females scrape hairs off of leaves and stuff them into their nesting cavities to create a soft mass in which they form a loaf of pollen and lay an egg. They close the individual brood chamber with more plant hairs.

Osmia (Mason Bee)

Approximately 135 species found in California.

Size and appearance: Medium to small, stout with rounded heads, usually dark metallic blue but some are bright metallic green. Females are larger than males, have dark hairs on the face, and carry pollen in a scopa on the underside of the abdomen.

Characteristics and behavior. Osmia nest in pre-existing wood tunnels, such as old beetle holes or holes drilled by humans. Females create brood cells in the tunnel with walls made of mud or chewed leaves. Flying season is March into June. Most females forage for pollen on a wide variety of plants and are valuable orchard and berry pollinators. A few species prefer specific plants.

Xylocopa (Large Carpenter Bee)

Three species in California.

Size and appearance: Large, shiny, stout, mostly black with sparse hair. Females' scopae are on hind legs.

Characteristics and behavior: Year-round flight season, with peak activity from March into August. Females are generalists for pollen and are businesslike in foraging at flowers but furtive in entering nests to unload pollen. Males are often territorial but cannot sting. Males and females overwinter in groups, drilling nests into soft or decaying wood or pithy stems.

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Ceratina (Small Carpenter Bee)

13 species in California.

Size and appearance: Small to tiny, nearly hairless, shiny and dark. Females' scopae are sparse, on outer hind legs.

Characteristics and behavior: Flight is quick and deliberate; flight season is spring to autumn. Females are generalists, often found on Asteraceae but also able to crawl deep inside tubular flowers. Common in urban gardens. Pollinated crops include apple, blueberry, plum, and peach. Females build nests in the centers of pithy or soft-core dead stems of plants. Some populations in Southern California consist solely of females and reproduce asexually.

Peponapis (Squash Bee)

One species found in California; six in North America north of Mexico.

Size and appearance: Medium. Golden brown. Females' scopae are pale brown, on hind legs.

Characteristics and behavior: Peponapis forage exclusively on pollen from Cucurbits (squashes and gourds) and emerge when squash are in bloom. Females and males may visit other flowers for nectar, including other vine crops and morning glories. Mating occurs inside squash flowers. Males sleep in squash flowers, which close overnight and open again in the morning. Females make their nests in flat, bare ground.

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3. Urban Bee Lab at the University of California, Berkeley (www.helpabee.org)

4. Pollinator Posse at the Gardens at Lake Merritt (www.pollinatorposse.org)

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