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# CARPENTER BEES

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## Integrated Pest Management In and Around the Home

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Carpenter bees build nests in wood, creating galleries that can weaken structures; however, they rarely cause severe damage. People may be frightened by carpenter bees because of their large size, their similarity to bumble bees, and their annoying noise.

### IDENTIFICATION

Most carpenter bees, *Xylocopa* spp., are large and robust insects resembling bumblebees. Females range from about 5/8 to 1 inch long and are shiny black or with metallic blue reflections. Their abdomens are shinier than those of bumblebees with fringes of hairs on some segments. Males usually have pale hair on the thorax and the male valley carpenter bee is golden brown (Figures 1 and 2).

### LIFE CYCLE

Female carpenter bees bore into sound wood, and sometimes decaying wood, to make nests (Figure 3). Nests usually consist of tunnels 1/2 inch in diameter and 6 to 10 inches deep that are partitioned into several chambers, each containing an egg and a supply of food (pollen). Carpenter bees may use old tunnels for their nests, which they occasionally enlarge; several bees may use a common entry hole connecting to different tunnels. Over a period of time, tunnels may extend as far as 10 feet into wood timbers. Tunnels are vacated after the brood's larval and pupal stages complete their development. Development from egg to adult may take about 3 months. New adults emerge in late summer, feed on nectar and pollen and overwinter, often in old tunnels they have provisioned with pollen. They emerge in spring to mate, create and provision nests, and lay eggs. There is only one generation a year.

### DAMAGE

Carpenter bees cause damage to wooden structures by boring into timbers and siding to construct nests. The nests weaken structural wood and leave unsightly holes and stains on building surfaces. Sound, undecayed wood without paint or bark is usually selected for nests. Carpenter bees also frequently attack dead wood on trees or lumber from southern yellow pine, white pine, California redwood, cedar, Douglas fir, cypress, mimosa, mulberry, ash, and pecan trees. They avoid most hardwoods. The presence of carpenter bees around buildings and wooden structures can be annoying or even frightening; however, males cannot sting and females sting only when provoked or handled roughly.

### MANAGEMENT

Prevention is the main approach to managing carpenter bees. If possible, susceptible exterior parts of a building should be constructed out of hardwoods, which are not normally attacked by the bees for nest building. On all buildings, fill depressions and cracks in wood surfaces so they are less attractive. Paint or varnish exposed surfaces regularly to reduce weathering and attack by bees. Fill unoccupied holes with steel wool and caulk to prevent their reuse. Wait until after bees have emerged before filling the tunnels. Once filled, paint or varnish the repaired surfaces. Protect rough areas, such as ends of timbers, with wire screening or metal flashing.

Carpenter bees are generally considered beneficial insects because they help pollinate various crop and non-crop plants. Under most conditions their damage can be successfully managed using the preventive measures



Figure 1. Adult male valley carpenter bee. (R.S. Vetter)



Figure 2. Adult female mountain carpenter bee. (J. K. Clark)



Figure 3. Carpenter bee nest in redwood beam showing immature stages. (L. Dunning)

described above and insecticide use is not recommended.

If infestation is high or risk of damage to structural integrity is great, insecticides may be used to augment other

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## PEST NOTES

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methods of control. To do this, treat tunnels with adult bees in early spring before nesting activity has begun, or in fall after all adult bees have emerged and are settling in to hibernate through the winter. It does little good to treat active nests (those containing eggs, larvae, or pupae) in late spring to summer as indicated by females bringing in loads of pollen, since each brood chamber is sealed with partitions of wood particles at each end which prohibits pesticides from penetrating to the brood. These developing bees can chew their way out after the pesticide is no longer viable. It is best to treat at night when the adults have returned to the tunnel. Wait a day or two after the treatment before sealing the tunnel to make sure all adults have been exposed to the insecticide.

Apply dust formulations of insecticides or desiccant dusts into nest holes with a bulb applicator. Dusts containing pyrethrin (Drione Dust), borate or disodium octaborate tetrahydrate (Tim-bor), and pyrethroids including deltamethrin (Bonide Termite and Carpenter Ant Dust) and cyfluthrin (Tempo Dust) are currently labeled for use against carpenter bees. Avoid inhaling these materials, because they can cause serious lung irritation. Many of these products are available only to licensed pest control professionals. After the adults are killed, repair and fill holes with steel wool and caulking, then repaint or varnish the repaired surfaces.

## REFERENCES

Revised adaptation from Marer, P. 1991. *Residential, Industrial and Institutional Pest Control*. Oakland: Univ. Calif. Agric. Nat. Res. Publ. 3334.

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To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products that are not mentioned.

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Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original, labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Pesticides applied in your home and landscape can move and contaminate creeks, rivers, and oceans. Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits or vegetables ready to be picked.

Do not place containers containing pesticide in the trash or pour pesticides down the sink or toilet. Either use the pesticide according to the label, or take unwanted pesticides to a Household Hazardous Waste Collection site. Contact your county agricultural commissioner for additional information on safe container disposal and for the location of the Household Hazardous Waste Collection site nearest you. Dispose of empty containers by following label directions. Never reuse or burn the containers or dispose of them in such a manner that they may contaminate water supplies or natural waterways.

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