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## GIANT RESIN BEES!

### Exotic Bee Species Makes Its Way from East Coast to Alabama

*Takumasa Kondo, Michael L. Williams, and Robert Minckley*

They aren't killer bees. They're giant resin bees (*Megachile sculpturalis* Smith). And discovery of several nests of these bees in Auburn during the past two summers is a sure sign that this exotic species native to Japan and eastern Asia is spreading rapidly westward in North America.

Although that may spell trouble for hole-drilling carpenter bees in Alabama, humans need have no fear. Giant resin bees do not pose a threat to homeowners or to people in general.

The giant resin bee was first reported in the United States in June 1994 in North Carolina, where it is believed to have arrived by ship. It then spread into Virginia, South Carolina, and Georgia before being discovered in Auburn in late June 1999. The giant resin bee's dispersal in North America has been well documented because of its large size and its association with human habitation.

AAES entomologists began studying the giant resin bee when it was first sighted in Auburn in June 1999. Before summer's end, the new bee had been discovered at four other locations in the city. This year, it has been sighted, not only at three additional locations in Auburn, but also in Opelika, Jacksonville, and Athens (see table). Although the giant resin bee has been seen in Alabama from June through August only, it likely occurs on into September, as reported in North Carolina.

Records of the Giant Resin Bee in Alabama	
Locality	Date
Bowden Dr., Auburn, Lee Co., AL	Late June, 1999
N. Ross St., Auburn, Lee Co., AL	July 7, 1999
Longwood Dr., Auburn, Lee Co., AL	August 1, 1999
Canary Dr., Auburn, Lee Co., AL	August 1999
Lee Co., Auburn, AL	Mid May, 2000
Jacksonville, Calhoun Co., AL	June 6, 2000
Butternut Dr., Auburn, Lee Co., AL	May 29, June 8-9, 2000
Dean Rd., Auburn, Lee Co., AL	June 8-9, 2000
Waverly Parkway, Opelika, Lee Co., AL	June 11, 2000
Athens, Limestone Co., AL	July 6, 2000
Longwood Dr., Auburn, Lee Co., AL	July 9, 2000

The giant resin bee is one of the largest members of the leafcutting bee family, *Megachilidae*. It's called "giant" because, at sizes of from one-half inch to almost one inch, it is conspicuously larger than other leafcutting bees. The "resin" in the name comes from the bee's habit of collecting plant resin to seal the cells in which it lays its eggs. The giant resin bee also uses plant sap and mud when making the cells.

The body of the giant resin bee is mainly black with dense yellowish hairs covering the thorax. Although the giant resin bees vary considerably in size, they are longer and more cylindrical than the carpenter bee (*Xylocopa virginica* L.).

The females are usually much larger—about 1.25 times—than the males. Female giant resin bees have a pointed abdomen (photo, below left), whereas the abdomen in the males is truncated (photo, below right).

*Female giant resin bee with pointed abdomen.*      *Male giant resin bee with truncated abdomen.*



Giant resin bees may appear intimidating when large numbers of males hover around the nests in search of females, but they are essentially harmless to people and quickly fly away when disturbed. Although the females are capable of stinging, they tend to avoid human contact. As in other bees, the males cannot sting.

*Giant resin bee at entrance  
of carpenter bee nest hole.*



In Alabama, giant resin bees usually nest in vacated tunnels constructed by carpenter bees. They also nest in holes made in wood by other insects, in hollow stems of bamboo, and in small spaces between boards of buildings.

It remains uncertain whether giant resin bees forcibly evict carpenter bees from their active nests or use abandoned nests. The point is that giant resin bees don't drill holes in your wood decks, so there is no worry about damage.

Many years of tunneling and nesting by carpenter bees can fatigue wooden structures, but giant resin bees are simply renters. Although they have large mandibles, they are unable to drill or enlarge the tunnels they occupy, so they do not contribute to further structural problems. Homeowners who have carpenter bees, on the other hand, may have to consider treating the house, i.e., sealing the holes, painting the wood, or using chemicals.

Based on observations of giant resin bees in Alabama and states eastward, it is common to see them nesting next to carpenter bees. It can be easy to confuse these two, because they can be similar in size, appearance, and habits. Both carpenter bees and giant resin bees nest above ground in wood, but carpenter bees excavate their own tunnels, while the giant resin bee locates and occupies tunnels made by other insects.

*Carpenter bee*



*Bumble bee*



Both sexes of the giant resin bee are usually much longer and more cylindrical than the carpenter bee and have transparent wings with dark tips. Carpenter bees have a much rounder body with a hairy thorax and a shiny abdomen.

Male carpenter bees can be recognized easily by a white spot on their faces; females lack the white spot. Giant resin bees do not have this characteristic, and, although the abdomen is not hairy, neither is it shiny like that of a carpenter bee. Carpenter bees can also be mistaken for bumblebees, which they closely resemble. However, bumblebees have a characteristic hairy abdomen and usually nest in the ground.

Bees are the most important group of pollinators for agricultural and native plants. Carpenter bees and the giant resin bee are “generalists,” meaning that they visit many flowering plant species; some other bees visit just one or a few plant species. In Japan, the main floral resource of giant resin bees is kudzu, but they also feed on crape myrtle and numerous other plants. In North Carolina and Virginia, giant resin bees have been reported to forage on golden rain tree, privet, vitex, sourwood, and catalpa. Scientists do not yet know about their food preferences here in Alabama, since none of the bees have yet been sighted or collected while foraging.

Future studies by AAES researchers will focus on the impact giant resin bees have on native bees, especially carpenter bees. Since carpenter bees are known to reuse old nests, the giant resin bee will certainly be a source of competition for nesting sites. This recently introduced bee provides a good opportunity to study the ecological impact of an exotic species on the fauna and flora of Alabama and the continental United States.

**Kondo is a Graduate Research Assistant, and  
Williams is Associate Professor and Chair of Entomology and Plant Pathology;  
Minckley is Professor in Biology at the University of Utah.**

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