

# Bees and Trees: Problems of Honey Bee Nesting in Landscapes

ADRIAN G.B. HUNSBERGER<sup>1\*</sup> AND JUDE PLUMMER<sup>2</sup>

<sup>1</sup>University of Florida/IFAS, Miami–Dade County Extension, 18710 SW 288th Street, Homestead, FL 33030

<sup>2</sup>Miami–Dade County General Services Administration, Miami, FL 33128

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**Feral European honey bees (EHB) (*Apis mellifera* L.) commonly nest in tree hollows. In southern Florida, tree hollows are fairly common and are caused by internal decay, especially in trees that have storm damage or have been improperly pruned. The more aggressive Africanized honey bee (AHB) (*Apis mellifera scutellata* Lepeletier), takes over or usurps EHB nests. As the AHB spreads throughout Florida, their presence is causing increased “stinging events” to humans and in animal deaths. To be proactive, trees with hollows should be bee-proofed in high risk areas such as school yards, playgrounds, and recreational areas. Different methods of bee-proofing trees are discussed.**

In southern Florida, the Miami–Dade County Extension office fields multiple calls a week, especially during the spring and summer, about honey bees swarming and nesting on private property. There are concerns of property damage when bees nest inside building walls, and potential health and safety hazards when bees are nesting in landscapes. Now, with the increased awareness that Africanized honey bees (AHB) (*Apis mellifera scutellata*) are established in southern Florida, there is even less tolerance of bee nests in urban and suburban areas. AHB are the same species as the European honey bee (EHB) (*Apis mellifera*), but are more defensive around their hive. When AHB defend their nest, 10 times more bees pursue the intruder and the pursuit is 10 times further from the nest compared to the defense strategy of the more docile EHB. There are also differences in choices of nesting sites. AHB will nest anywhere but prefer small cavities close to the ground, whereas EHB often nest in larger tree voids and inside the wall of buildings (Sanford and Hall, 2005).

Many trees in southern Florida have internal decay and cavities caused by injury during tropical storms and hurricanes as well as damage from poor pruning practices. These cavities are exploited by honey bees as nesting habitats. Although many trees that have cavities are still viable, trees with hollows planted near buildings, playgrounds, parking lots, and walkways need monitoring for bee activity and should be bee-proofed.

**BEE SWARMS ON LIMBS.** The two honey bee activities that attract the most attention and concern from the public are swarming and nesting. Honey bees swarm as a reproductive strategy. A swarm is a temporary aggregation of bees that has left its original nest in search of a new nesting site. The swarm will temporarily settle somewhere and scout out a suitable new location. No comb is produced at this time. Thousands of bees can be in the aggregation (Fig. 1), which can be startling to the public. However, swarming bees are usually neither aggressive nor likely to sting unless disturbed. Bee swarms usually find a home within a day or so and the cluster will leave the tree limb on their own.

**BEE HIVES ON LIMBS.** By contrast, Africanized honey bees tend

to actually build hives on tree limbs more often than EHB. Honey bees are very defensive once they have invested their energies into the production of comb. The comb may not be visible in the early stages, but if a cluster of bees are aggregating on a tree limb for more than a few days, it is likely that they have begun building a hive. At this point, the services of a bee removal company are needed to remove the hive if it is in a public area.

**DETECTING BEES INSIDE TREES.** When working in the landscape, landscape workers and homeowners need to pay attention to unusual bee activity, especially around trees. Listen for buzzing, which indicates a hive is nearby. Look for large numbers of bees passing into and out of, or hovering in front of an opening. Avoid any activity in the area until a professional bee removal service has removed the nest.

**TREES WITH CAVITIES.** In high risk areas such as schoolyards, playgrounds, and recreational areas, trees with hollows may need to be bee-proofed as a precaution. Unfortunately, there is a dearth of information on how to correctly bee-proof trees. Gilman (2007) stated that spray foam insulation can be used to fill in large tree cavities to keep animals out. Although this practice does not reduce internal decay, it is unlikely to harm the tree if the material is soft and flexible, and no additional damage occurs during application. Prior to applying expanding foam, do not attempt to clean out the inside of the cavity or drill holes into the wood. Any injury to the plant protection zone will allow decay to spread into healthy wood (Shigo and Shortle, 1977).



Fig. 1. A bee swarm hanging from a tree branch. G. Keith Douce, University of Georgia, Bugwood.org.

\*Corresponding author; email: aghu@ufl.edu; phone: (305) 248-3311, ext. 236.



Fig. 2. Siphoning water from a tree cavity using a turkey baster.



Fig. 3. Filling tree cavity with expanding foam.

Avoid using concrete or asphalt to fill in tree cavities. The use of concrete has been shown to cause additional injury to the tree. As the tree moves in the wind, the concrete abrades the wood and allows decay to move into healthy wood. In cases where trees with large cavities need to be protected from animal interactions, the entire trunk can be protected by covering the cavity with a wire screen to allow for trunk expansion (Harris et al., 1999). To exclude bees from tree cavities fill or cover all holes 1/8-inch in diameter or larger with screens made of 1/8-inch hardware cloth (Pankiw, undated).

**BEE-PROOFING TREES WITH SMALL OPENINGS.** First, siphon out water that has collected in the cavity using a turkey baster or hand siphon (Fig. 2). Fill no more than one-third of the cavity with expanding polyurethane foam (Fig. 3). If aesthetics are a concern and the cavity is over-filled with foam, allow the foam to fully cure (about 24 h) and remove the excess using a serrated knife so that the foam is flush with the surrounding bark (Fig. 4). As the foam ages, it becomes a golden yellow. To help camouflage the foam, it can be painted to blend in with the surrounding tree bark.

For tree cavities that are unlikely to collect water, the opening can be stuffed with plastic or metal pot scrubbers, or plastic mesh body scrubbers (Fig. 5). Fiberglass or wire window screen (standard 18 × 16 mesh) or 1/8-inch wire screen can be glued over the hole using a multi-purpose indoor/outdoor latex-based adhesive (Fig. 6).

**BEE-PROOFING TREES WITH A LARGE OPENING.** After siphoning out any collected water, fill one-third of the cavity with expanding foam. After the foam has set (about 30 min), protect the foam by gluing window screening over the area with adhesive (see above) (Fig. 7). Trim excess window screening for a neater appearance. This procedure should also be used for trees with a history of bee infestations since bees cannot chew through the screening.

### Conclusion

As the Africanized honey bee spreads throughout Florida, their presence is causing increased “stinging events” to humans, animal



Fig. 4. Cured foam cut flush.



Fig. 5. Plastic mesh body scrubber stuffed into tree cavity opening.



Fig. 6. Screen can be cut to size with scissors for a neater appearance.



Fig. 7. Adhering window screening over cured expanding foam.

deaths, and increasing public concern. The public needs to “bee” more aware when working outdoors and to monitor bee nests. To be proactive, trees with hollows in high risk areas such as school yards, playgrounds, and recreational areas should be bee-proofed. The materials needed to bee-proof trees are inexpensive. Rapid installation, however, requires practice.

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