

## **AFRICANIZED HONEYBEES**

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- I. INTRODUCTION

In 1956, African honeybee queens were imported into Brazil by researchers attempting to boost the productivity of the resident European honeybee.

The intent was to cross the highly productive African honeybee with the common European variety to produce a hybrid bee that would possess the increased honey production of the African honeybee while maintaining the gentle characteristics of the European honeybee. During the experiment, swarms of the bees accidentally escaped into the Brazilian countryside.

The swarms developed into feral (or wild colonies), and began to spread throughout South America. These hybrid bees were named Africanized Honeybees and have since migrated at a rate of 200 to 300 miles annually through Latin America and into the Southern United States. The bees thrive in warm tropical and semi-tropical climates similar to those found in Southern, and Central California. The California Department of Food and Agriculture is currently monitoring this migration.

## II. CHARACTERISTICS AND BEHAVIOR

Field Identification of the Africanized honeybee is difficult, as these bees look very similar to the European honeybee in size, color, and overall appearance. The difference lies in the behavioral traits of the Africanized honeybee (AHB). Whereas the European honeybee is considered docile, the AHB is extremely aggressive with a great tenacity to protect its hive. These bees have the ability to detect the vibrations of a person or animal walking up to 100 feet away and will send out large numbers of bees to investigate / attack the disturbance. Once the first sting occurs, the bee releases an “attack pheromone” scent, which fills the air and signals to the hive that an attack has begun. Several hundred bees will join forces to repel the invader with an average defensive action of 85 stings per 30 seconds. Unlike the European honeybee that will drive a man or animal as far as 400 yards before ceasing an attack, the AHB will chase an intruder up to a half-mile with the defensive action lasting 8 hours or more.

### III. PUBLIC HEALTH IMPACT

As the Africanized honeybees become colonized in Los Angeles County, we can anticipate an increase in multiple stinging incidents. This is especially true for the elderly, children, and any other person or animal unable to rapidly retreat from an attack. Additionally, people with an inherent allergic reaction to bee venom will be at greater risk (anaphylactic shock). The sting of an AHB is no more venomous than a common honeybee, but the increase in quantity of stings from an attack poses a potential health risk.

### IV. DEFINITIONS

1. Africanized Honey Bee (AHB): An aggressive species of bee, not visibly distinguishable from the common European honeybee.
2. Colony: A community of bees that is stationary (hive) with a small number of bees flying in close proximity to the hive.
3. Swarm: A cluster of bees that have left the hive.
4. Active Swarm: Numerous agitated bees flying wildly around, occupying a wide area.
5. Exclusion Zone: A minimum 300-foot area established around the insects. This area is subject to change according to swarm activity.
6. Safe Refuge Area: Inside structures, vehicles, or areas clear of the exclusion zone.
7. Anaphylactic Shock: An exaggerated allergic reaction manifested by bronchospasm and vascular collapse.

V. CONTROLLING MEASURES AND PERSONNEL SAFETY

A. STINGING INCIDENTS:

1. Prior to responding into the area of an attack, all personnel involved shall don full protective clothing including turnout pants, turnout coat, helmet, firefighting gloves, and bee veil. Pant cuffs, coat sleeves, collar, and coat waist shall be secured against the body with duct tape to prevent the bees from entering the turnouts. (Figure A)

**Note: Survival of the victim depends on a rapid and aggressive attack on the bees. It is important for rescue personnel to be fully dressed in their PPE and ready to effect a rescue operation immediately after arriving on scene.**

2. All personnel not immediately involved with the rescue should seek shelter in an enclosed vehicle or structure.
3. Place a 1" hose line with a spray nozzle into service. The nozzle should be adjusted to a wide-angle fog pattern and directed to drive the insects away from the victim(s). The fog spray should be applied in a circular motion covering the ground and 30 feet of air space around the victim(s). If possible, a second 1" hose line should be placed into service to further protect rescuers and the victim(s). Cover the victim(s) with a blanket for additional protection and continue fog spray until rescue personnel and the victim(s) are in a safe refuge area.

The above procedure should be used for apparatus without Class A foam capability. **"Water only"** will only temporarily drive the bees away. They may become more agitated and continue to attack. Request an additional resource with Class A foam capability be assigned to the incident.

For apparatus with Class A foam capability, a 1% solution of Class A foam sprayed upon the AHB is sufficient to immediately immobilize the bees and kill them within minutes. Foam agents establish a physical and odor barrier against the bees, neutralizing the alarm pheromone produced by AHB stings. Foam also blocks the breathing tubes of the bees, causing suffocation and death.

4. Establish an exclusionary zone of 300' minimum around the swarm. Bystanders should be directed to remain inside structures, vehicles, or areas clear of the exclusionary zone.
5. Provide medical aid to any bee sting victim(s), including:
  - a. Perform primary patient survey.
  - b. Ensure adequate airway and administer high flow oxygen.
  - c. Remove stingers as soon as possible, to prevent further injury.
  - d. Perform secondary patient survey.
  - e. Treat for anaphylactic shock if necessary.
  - f. Remove patient's outer layer of clothing to assist in dislodging stingers and trapped bees prior to loading patient into transport vehicle.
  - g. Apply cold packs to affected areas.
  - h. Place patient in the position of comfort, minimizing the patient's activity. Continue to monitor patient's condition and transport.

#### **B. ACTIVE SWARM – NO ATTACK**

1. Prior to responding into the area of a reported swarm, all personnel involved shall don full protective clothing including turnout pants, turnout coat, helmet, firefighting gloves, and bee veil. Pant cuffs, coat sleeves, collar, and coat waist shall be secured against the body with duct tape to prevent the bees from entering the turnouts. (Figure A)
2. If an active swarm is found, an exclusionary zone shall be established 300 feet around the swarm. Bystanders should be directed to remain inside structures, vehicles, or areas clear of the exclusionary zone.
3. If an active swarm is found, and the Incident Commander determines that an immediate, or future possibility for injury to humans or animals exists, the bees are to be eradicated using a 1" spray nozzle with a 1% solution of Class A foam.
4. The dead insects shall be recovered and disposed of by placing them in a rubbish container secure from access to children, animals, and birds.

**C. INACTIVE SWARM OR COLONY – NO ATTACK:**

1. Prior to entering into the area of a reported colony (hive), all personnel involved shall don full protective clothing including turnout pants, turnout coat, helmet, firefighting gloves, and bee veil. Pant cuffs, coat sleeves, collar, and coat waist shall be secured against the body with duct tape to prevent the bees from entering the turnouts. (Figure A)
2. If a colony (hive) is found, an exclusionary zone shall be established 300 feet around the colony.
3. If a colony (hive) is found, and the Incident Commander determines that an immediate, or future possibility for injury to humans or animals exists, the bees are to be eradicated using a 1" spray nozzle with a 1% solution of Class A foam.

**Note: If a colony of bees is located inside a structure, such as in a wall, attic, or crawl space, the Incident Commander shall advise the property owner to select and request a pest control operator (listed in the yellow pages) to eradicate the bees. Fire Department personnel shall not attempt to remove bees located inside a structure.**

4. The dead insects shall be recovered and disposed of by placing them in a rubbish container secure from access to children, animal, and birds.

A)

(Figure



#### VI. SURPRISE ATTACKS

1. When personnel encounter flying, stinging insects, without a protective hose line, or a safe refuge area, they should retreat rapidly from the area.
2. Do run away in a straight line.
3. Do protect your eyes, nose, and mouth, as the bees tend to attack and sting these areas of the body.
4. Do try to reach a structure, vehicle or other enclosed area to escape the bees.
5. Do not stay in one location trying to remove / fend off the bees with your hands. Staying in one area can prove fatal. You will quickly be overcome with bee stings.
6. Do not jump into a body of water, this will only temporarily deter the bees. The bees will remain a threat since the AHB is persistent and will wait for you to come up for air.

#### VII. WILDLAND ENCOUNTERS

1. When personnel encounter active bees in wildland areas without a protective hose line, safe refuge area, or full protective clothing; they shall don the bee veil and retreat rapidly from the area.
2. Wildland protective clothing must be properly worn with all openings wrapped securely against the body. This will prevent entry of flying, stinging insects.
3. In fire conditions, heavy smoke has been known to disorient the bees, which can assist potential victims in escaping to a safe refuge area.
4. Only personnel wearing full wildland protective clothing and bee veils should perform rescue procedures in a wildland setting. Victims should be removed to a safe refuge area and treated.

#### VIII. BEE VEIL (HOOD)

To provide additional personal protection for Department members during encounters with flying, stinging insects, all emergency first responder apparatus have been equipped with an AHB kit. Each kit contains a plasticized sheet of procedural instructions, a roll of duck tape, and bee veils.

The bee veil should be donned according to the following sequence:

- Veil must be worn over the firefighting helmet.
- Place veil over helmet with the widest section of the veil to the front. Place drawstrings to the rear.
- Bring strings to the front (under each arm) and thread the ends of the strings through the plastic ring on the front of the veil. (Thread strings through the ring from opposite directions.)
- Pull strings through the ring and tie tightly to secure a bee-tight closure against the body.

