

Attack of the Killer Bees: Will Regulation Save Us?

INTRODUCTION

“Good for our society, our laws are very bad for the individuals whereof it is composed; for, if they one time protect the individual, they hinder, trouble, fetter him for three quarters of his life.”¹

Even before the Africanized² honey bee's arrival in Texas in 1990,³ the media stirred the American population into a frenzy with images of African bees chasing and stinging the terrified populace to death.⁴ In light of this widespread fear, efforts to regulate the Africanized honey bee may be essential. Of greater concern, however, are the effects Africanized bee regulations have had and might have on a certain segment of agriculture, the beekeepers.

This comment examines efforts to regulate expansion of the Africanized honey bee, with emphasis on Texas. Next, the comment examines whether Africanized bee regulations would be appropriate or acceptable to California beekeepers and compares Africanized bee regulations with imported fire-ant regulations, weighing potential benefits against disadvantages of regulation.

I. CHARACTERISTICS OF THE AFRICANIZED BEE

The Africanized Honey Bee (AHB), *Apis mellifera scutellata*, or killer bee as it is often portrayed in the media, evolved from the same species as the domesticated or European Honey Bee (EHB), *Apis mellifera*.⁵ Physically the AHB and EHB are difficult to distinguish from one another; distinguishing by physical attributes alone requires com-

¹ MARQUIS DE SADE, IN *PHILOSOPHY IN THE BEDROOM*, “Dialogue the Fifth” (1795).

² AFRICANIZED HONEY BEE TASK FORCE, DIV. OF PLANT INDUS., FLA. DEPT. OF AGRIC. & CONSUMER SERV. AND THE INST. OF FOOD AND AGRIC. SERV., UNIV. OF FLA., INFO. ON THE AFRICAN HONEY BEE (1995). “Africanized” refers to any cross between European and African bees.

³ P. Kirk Visscher et al., *Africanized Bees, 1990-1995: Initial Rapid Invasion Has Slowed in the U.S.*, 51 CAL. AGRIC., Jan.-Feb. 1997, at 22.

⁴ Gregory McNamee, *Coming Soon to a County Near You: Reasonably Peaceful Africanized Bees*, OC WKLY., Jan. 17, 1997, at 12.

⁵ BASTIAAN M. DREES ET AL., UPPER COAST AFRICANIZED HONEY BEE PROGRAM PLANNING COMM., PUB. NO. 10M-8-93, THE AFRICANIZED HONEY BEE (1993).

plex genetic testing.⁶ However, the behavior of the AHB often distinguishes it from the EHB.⁷

AHBs will move, together with the queen bee, four to eight times per year to start a new colony, compared with the EHB, which averages less than one move per five colonies annually.⁸ The AHB also produces more offspring than the EHB, leaving less room in the nest for honey storage.⁹

Although the public considers AHBs to be aggressive, scientists believe they are more accurately described as defensive.¹⁰ Pure African bees have more biological competitors, including humans, in their native Africa.¹¹ Thus, nature selected only the most aggressive bees for survival.¹² Additionally, apicultural activity in Africa consists mostly of bee hunting rather than beekeeping, resulting in bees with defensive and unpredictable behavior.¹³

II. HISTORY OF MIGRATION

In 1956, British Professor Warwick Kerr was commissioned by the Brazilian government to introduce African bees to Brazil.¹⁴ At that time, Brazil ranked 47th among the world's honey producers. After introduction of the bees, it rose to seventh.¹⁵

African bees were supposed to be confined to certain areas of Brazil;¹⁶ however, Kerr maintained that the bees got loose and escaped.¹⁷ By 1984, the African bees had spread to Mexico and were mating with EHBs and establishing hives throughout the Yucatan.¹⁸

The AHB was first discovered in the United States in October, 1990, near Brownsville, Texas, in the Rio Grande valley.¹⁹ It spread

⁶ *Id.*

⁷ *Id.*

⁸ COOP. EXTENSION UNIV. OF CAL. DIV. OF AGRIC. AND NATURAL RESOURCES, PUB. NO. 93-EXNP-1-5191, BEE ALERT: AFRICANIZED HONEY BEE FACTS (1993).

⁹ Telephone Interview with Richard Adee, South Dakota beekeeper (Mar. 29, 1997).

¹⁰ DREES, *supra* note 5.

¹¹ AFRICANIZED HONEY BEE TASK FORCE, *supra* note 2.

¹² *Id.*

¹³ *Id.*

¹⁴ McNamee, *supra* note 4.

¹⁵ *Id.*

¹⁶ Pat Brennan, "Killer Bee" traps not fool proof warning device, THE ORANGE COUNTY REG., Nov. 6, 1996, at B1.

¹⁷ *Id.*

¹⁸ Interview with Dr. Norman Smith, staff entomologist, Fresno County Agricultural Commissioner's Office, in Fresno, Cal. (Feb. 13, 1997).

¹⁹ Kathleen Davis, *Henderson County Quarantined for Africanized Bees* (visited

through the southern half of Texas from south of Houston to Temple, Lamesa and El Paso.²⁰ The AHB continued its westward migration into southern New Mexico²¹ and Arizona, where it was discovered in 1993.²²

By October 1994, the AHB had crossed the Colorado River into Southern California.²³ By July 1996, thirty swarms of AHBs had been found in Southern California, mostly in Imperial County.²⁴ Approximately six to seven colonies were found in Riverside County, half in Blythe and half in the Coachella Valley.²⁵

There is no evidence of AHBs north of the 35th parallel.²⁶ Scientists suspect the AHB does not adapt well to the climate conditions occurring north of this region.²⁷ However, there is some evidence that imported bees were present in Kern County as early as 1985. It is likely, however, that these bees were Egyptian, not African, brought over on oil-rigging equipment from Venezuela.²⁸

III. THE REGULATORY CONTROVERSY

A. Arguments for Regulation

1. Honey Producers

Although there is little difference in taste and quality of honey made by AHBs and EHBs,²⁹ honey producers have an interest in keeping their hives free of Africanization. The AHB tends to be more prolific than the EHB. More offspring in a colony leaves less room for honey storage, making the AHB less desirable for honey production.³⁰

Aug. 1, 1997) <<http://www.agnews.tamu.edu/stories/ENTO/AHBS>>.

²⁰ *Id.*

²¹ N. M. DEPT. OF AGRIC. REPORT, NEW MEXICO REPORT, (Mar. 10, 1995), at 5.

²² ARIZ. DEPT. OF AGRIC., PLANT SERV. DIV., IPM FIELD SERV., ARIZONA REPORT, (Apr. 7, 1995), at 1.

²³ Interview with Dr. Norman Smith, *supra* note 18.

²⁴ Susan M. Loux, *District out to detect killer bees*, THE RIVERSIDE PRESS-ENTERPRISE, July 25, 1996, at B1.

²⁵ *Id.*

²⁶ Interview with Dr. Norman Smith, *supra* note 18.

²⁷ *Id.*

²⁸ Telephone Interview with Gene Brandi, Executive Committee member, American Beekeeping Federation (Feb. 20, 1997).

²⁹ E-mail Interview with Dr. Christine Peng, professor of Entomology, University of California at Davis (Mar. 31, 1997).

³⁰ Telephone Interview with Richard Adey, *supra* note 9. "The taste and quality of the honey is dependent upon the floral source. AHBs and EHBs are attracted to and

Honey producers who also use their bees for pollination face additional problems. Mexican beekeeping is primarily related to honey production, but some beekeepers rent their bees for pollination. Mexican honey producers have encountered problems when transporting Africanized bee colonies between pollination sites. If the AHBs are disturbed too much during transport, they withdraw all of their honey and leave the hive in search of another home. EHBs do not behave in this way.³¹

In areas where AHB colonies have been found, professional beekeepers requeen annually with certified EHB queens to avoid Africanization of their hives.³² Regulations would ensure that all beekeepers complied with this practice, thus decreasing AHB absconding behavior.

2. Pollinators

Although the AHB migration through the western hemisphere has slowed at about 34 degrees north latitude,³³ this lull may be temporary. If climate conditions change or if the AHB makes its way to cooler and moister coastal areas with good forage and nesting sites, AHB populations will increase, especially in the southern agricultural areas of California.³⁴

Beekeeping and agriculture as they are now practiced in these areas will be disrupted. In regions where AHBs are colonized, beekeepers are able to maintain EHB colonies, but the costs are high. Public fear of bees and liability concerns contribute to an already difficult economic existence, making apiary sites harder to find.³⁵ More and more beekeepers will probably leave the business, an unfortunate occurrence as EHBs are probably the best defense against AHB infestation.³⁶

What does all of this mean for agriculture? Currently, honey bees in the United States pollinate about \$10 billion worth of crops and produce \$150 million in honey every year.³⁷ Fewer beekeepers mean

use the same flora.”

³¹ KIM J. KAPLAN, U.S. DEPT OF AGRIC., BUZZING ACROSS THE BORDER: SCIENTISTS AND BEEKEEPERS SEARCH FOR WAYS TO LESSEN THE IMPACT OF AFRICANIZED HONEY BEES ON U.S. AGRICULTURE AND SOCIETY, 44 AGRIC. RES. (Mar. 1996), at 4.

³² *Id.*

³³ Visscher et al., *supra* note 3, at 24.

³⁴ *Id.*

³⁵ *Id.*

³⁶ *Id.*

³⁷ TEX. AGRIC. EXTENSION SERV., TEX. A. & M. UNIV., THE ECONOMICS OF BEES, HONEY AND FOOD PRODUCTION (1997).

fewer bees for pollination-dependent crops, resulting in lower fruit and vegetable yields. Additionally, farmers can expect to pay more for bee colony rental because of shortages.³⁸

The introduction of the AHB could cause losses to the U.S. beekeeping industry of up to \$58 million annually.³⁹ Losses will occur because domestic honey bees bred with Africanized bees will become harder to manage for use as pollinators and honey producers.⁴⁰

In light of these concerns, regulating the AHB will: (1) assuage public fears and (2) ensure an economically viable honeybee industry. When the AHB began rapidly infesting Texas, officials determined that:

a rapid and well-defined regulatory response to the first few positive finds . . . is critical to the perceived effectiveness of the Texas AHB Plan by both the beekeeping industry and the general public. Such a response will go far in assuring . . . sister states to work with Texas migratory beekeepers and will reduce . . . sensational news media coverage . . . lessening . . . panic . . . by the general public.⁴¹

Public fear underlies liability concerns for the beekeepers. Henry Graham, a 6,000-colony beekeeper from Donna, Texas, favors the quarantine and certification requirements for one reason: the United States is a very litigious country.

When I take my bees to an area outside the quarantine it makes me feel more secure that I have a certificate declaring the hives AHB free. We have a very strong farmworker union down here and if a worker is stung, I can fight the charge of negligence by showing my hives are AHB free.⁴²

Additionally, growers feel protected from suits for negligence related to beekeepers placing hives in their orchards.⁴³

Privately, Graham states that were it not for our litigious society, he would use the AHB. He finds that the AHB are more resistant to mites, better pollinators because they produce more offspring, and are more resistant to drought.⁴⁴ Practically speaking, the regulations allowed Graham to move his bees out of state with less worry about lia-

³⁸ Visscher et. al., *supra* note 3, at 25.

³⁹ TEX. AGRIC. EXTENSION SERV., *supra* note 37.

⁴⁰ *Id.*

⁴¹ DEPT. OF AGRIC. COMM., TEX. A. & M., TEX. APIARY INSPECTION SERV., TEX. AHB MANAGEMENT PLAN, (1990), at 7 [hereinafter *Texas AHB Plan*].

⁴² Telephone Interview with Henry Graham, Texas Beekeeper (Feb. 28, 1997).

⁴³ Ferreira v. D'Asaro, 152 So.2d 736, 737 (Fla. 1963) "[B]eekeeper is liable . . . for injuries resulting from his negligence."

⁴⁴ Telephone Interview with Henry Graham, *supra* note 42.

bility. Solid regulations will help to ease public fears. Officials do not want the public to perceive that they are letting the AHBs run amok, wreaking havoc and destruction. Such perceptions would lead to increased difficulty in locating apiary sites, affecting agricultural production.⁴⁵ In Mexico, many jurisdictions have doubled the required distance between apiaries and houses or roads. The beehives must now be 500 feet from neighboring houses and 200 feet from roads.⁴⁶

B. *Is Regulation of the AHB Necessary?*

1. Comparison with the Fire-Ant

a. *Characteristics*

Like the AHB, imported fire-ants are aggressive and defend their mounds vigorously.⁴⁷ A human who pokes the mound with a stick may look down to discover the fire-ants rapidly running up the stick to attack the intruder.⁴⁸

b. *Migration*

Originally from South America, there are dozens of fire-ant species. Two introductions have led to problems in the United States. First is the black imported fire-ant, *Solenopsis richteri*, probably brought aboard ship to Mobile, Alabama, in 1918.⁴⁹ Second and most damaging is the *Solenopsis invicta*, the red imported fire-ant, which arrived in Mobile sometime in the late 1920s or early 1930s, also aboard ship.⁵⁰ Over the past seventy-six years, the imported fire-ant has infested nine southern states and more than 270 million acres in the United States.⁵¹

⁴⁵ Visscher et. al., *supra* note 3, at 25.

⁴⁶ KAPLAN, *supra* note 31.

⁴⁷ Teresa Juarez, Comment, *Will the Fire-Ant Be California's Next "State of Emergency?"*, 6 SAN JOAQUIN AGRIC. L. REV., 144 n.19 (1996).

⁴⁸ *Id.*

⁴⁹ Ray Frisbie, *Fire-Ant Plan, Executive Summary* (visited Aug. 1, 1997) <<http://www.agnews.tamu.edu/plan/esummary.htm>>.

⁵⁰ *Id.*

⁵¹ *Id.*

c. *Imported Fire-Ant Regulations in California and Texas*

California currently follows federal law to prevent the spread of fire-ants into California,⁵² and has state laws with the same intent.⁵³ The federal quarantine restricts plants and related articles that might carry the fire-ant. These include soil, separately or with attachments, plants with roots with soil attached, grass sod, hay and straw.⁵⁴ Like Texas' AHB quarantine regulations, California requires certification that these articles are free of imported fire-ants.⁵⁵ Although the fire-ant problem is not as extensive in California as in Texas, California has such regulations because the imported fire-ant is considered a class A rated pest,⁵⁶ calling for immediate eradication upon detection.⁵⁷

Texas, like California, follows federal regulations concerning fire-ants.⁵⁸ Texas is considered infested, with more than thirty counties currently under quarantine.⁵⁹

d. *Damage to Agriculture*

In Texas alone, the imported red fire-ant causes an estimated \$300 million in damage annually.⁶⁰ The migration of the imported fire-ant to Texas caused damage to the beef industry. Young beef calves are vulnerable to stinging incidents, which cause death, blindness and de-

⁵² 7 C.F.R. § 301.81 (1998) provides: "[N]o person may move interstate from any quarantined area any regulated article"

⁵³ CAL. FOOD & AGRIC. CODE § 6301 (1998) states:

If any article is found to have been transported into this state from any other country or state, or territory or district of the United States, in violation of any provision of a quarantine that is established by the Secretary of Agriculture . . . the article is subject to seizure or destruction

⁵⁴ 7 C.F.R. § 301.81 (1998).

⁵⁵ *Id.*

⁵⁶ CAL. DEPT. OF FOOD & AGRIC., CALIFORNIA PLANT QUARANTINE MANUAL, FEDERAL QUARANTINE NO. 301.81, IMPORTED FIRE-ANT, Section A, at 95, July 12, 1990, defines pest as: "an insect that interferes with farming operations, causes damage to certain crops, and is a pest of livestock and pets as well as of people in rural and urban areas."

⁵⁷ Telephone Interview with Oreleo Posadas, program supervisor for Pest Detection and Emergency Response, Cal. Dept. of Food and Agric. (Mar. 4, 1997).

⁵⁸ 7 C.F.R. § 301.81-3(a) (1998) states: "The Administrator will quarantine each State or each portion of a State that is infested."

⁵⁹ U.S. DEPT. OF AGRIC., ANIMAL AND PLAN HEALTH INSPECTION SERV., PLANT PROTECTION AND QUARANTINE COOPERATING WITH AFFECTED STATES (1993).

⁶⁰ Edith A. Chenault, *Fire-Ant Management Plan Announced* (visited Aug. 1, 1997) <<http://www.fireant.tamu.edu>>.

creased animal quality.⁶¹ An estimated 70.8 percent of cattle ranchers will suffer some economic loss because of the imported fire-ant.⁶² Calves that are slow-moving or weak are at risk of being killed by the fire-ant.⁶³ Mounds containing hundreds of ants each can number up to 1,000 per acre.⁶⁴ Unlike the AHB, the imported fire-ant is not territorial, thus it can rapidly infest an acre of land.⁶⁵

Damage to urban areas has also occurred because imported fire-ants may occupy electrical equipment such as traffic and airport runway lights.⁶⁶ This equipment is essential to the smooth functioning of urban society and is extremely costly to repair. Additionally, the imported fire-ant may infest home lawns and gardens, causing an overuse of pesticides resulting in contamination of water through runoff.⁶⁷

e. Regulation of the Fire-Ant

The imported fire-ant, although potentially beneficial to agriculture, can have devastating effects.⁶⁸ The imported fire-ant, like the native species, feeds on cotton boll weevils, caterpillars, fly larvae and ticks. However, unlike the native species, they are also protectors for certain groups of pest insects, like aphids. The imported fire-ant eats beneficial insects such as the lace-wing larvae, which consume aphids. With one of the primary predators of aphids being consumed by these ants, aphid populations swell in areas infested with the imported fire-ant,⁶⁹ aggravating problems for agriculture.⁷⁰

Lastly, when a native fire-ant mound is disturbed, the ants will usually ignore the intruder. Imported fire-ants, when disturbed, will sting en masse and are a health hazard to humans and animals.⁷¹

⁶¹ Bart Drees, *Texas Imported Fire-Ant Research & Management Plan* (visited Aug. 1, 1997) <<http://www.fireant.tamu.edu/summary.htm>>.

⁶² Ray Frisbie, *Fire-Ant Plan, Impact* (visited Aug. 1, 1997) <<http://www.tamu.edu/plan/impact.htm>>.

⁶³ *Id.*

⁶⁴ Ray Frisbie, *Fire-Ant Plan, Background Information* (visited Aug. 1, 1997) <<http://www.fireant.tamu.edu/plan/backgrnd.htm>>.

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ Telephone Interview with Charles Barr, research assistant, Texas Agricultural Extension Service (June 30, 1997).

⁶⁹ *Id.*

⁷⁰ Frisbie, *supra* note 64.

⁷¹ Telephone Interview with Charles Barr, *supra* note 68.

Unlike the nests of the AHBs, mounds of imported fire-ants may contain more than one queen, occasionally hundreds of reproductive queens. Because of their reproductive potential, these ants are having a greater impact on the environment, people and property.⁷² Therefore, the maintenance of a strong quarantine program⁷³ and money to fund further research into the eradication of the imported fire-ant is essential. In contrast to the AHBs, the fire-ant cannot be self-regulated. The beneficial purposes served by the imported fire-ant are better served by the native fire-ant, which tends to leave beneficial predators alone.⁷⁴

2. Laws Governing The AHB

a. Federal Law

Although there are no federal laws that pertain specifically to Africanized honey bees, the United State Department of Agriculture (USDA) gives the Secretary of Agriculture authority to eradicate and control undesirable species of honeybees.⁷⁵ Because there are no federal mandates, states are free to make their own regulations or do nothing.⁷⁶

b. AHB Regulations in Texas

In 1990, after discovery of the first AHB colony, Texas' chief apiary inspector was authorized under the Agricultural Code to implement a quarantine in designated areas.⁷⁷ An area was subject to quarantine when an AHB colony, through natural migration, was caught in established traps.⁷⁸ There were two basic ideas in the quarantine plan. First,

⁷² Frisbie, *supra* note 64.

⁷³ Drees, *supra* note 61.

⁷⁴ Telephone Interview with Charles Barr, *supra* note 68.

⁷⁵ 7 U.S.C. § 284(a) (1997) states: "The Secretary of Agriculture . . . in cooperation with States . . . is authorized to carry out operations or measures in the United States to . . . retard the spread of undesirable species . . . of honeybees."

⁷⁶ Telephone Interview with Dr. Eric Mussen, Extension apiculturist, University of California at Davis (Mar. 6, 1997).

⁷⁷ TEX. AGRIC. CODE § 131.022(a)(2) (West 1997) states: "If the chief apiary inspector determines that the public welfare requires the establishment of a quarantine, the inspector may: . . .

(2) declare a restrictive quarantine of a district, county, precinct, or other defined area in which a disease of bees or deleterious exotic species of bees is located."

⁷⁸ 4 TEX. ADMIN. CODE § 71.7(a)(11) (West 1997) defines a quarantined area as: "A

whenever an Africanized swarm was confirmed, that positive colony, colonies or apiary and all other colonies were quarantined within a two-mile radius.⁷⁹ However, the chief apiary inspector determined that this part of the plan was not workable for lack of manpower.⁸⁰ The next part of the plan required an additional quarantine of land within a 100-mile radius of a positive AHB find.⁸¹ The quarantine plan stated that: 1) no bee colonies could be moved out of the quarantined area without permission from the Texas Apiary Inspection Service (TAIS), and 2) all hives within the 100-mile quarantine must be registered with TAIS and have operational permits.⁸² By 1996, there were eighty-eight Texas counties under quarantine.⁸³

The quarantine was developed to protect not only the beekeepers in Texas, but out-of-state beekeepers who take their hives to Texas for the winter months.⁸⁴

c. California Apiary Regulations

While there are no statutes specifically regulating the entry of Africanized honey bees into California, there are general apiary regulations. In addition to a yearly registration fee,⁸⁵ in 1972 the Legislature amended the Agricultural Code⁸⁶ to regulate the movement of bees into the state and add assessment fees.⁸⁷ These fees were to be used

county or counties in which it has been determined that Africanized honey bees have been established through natural migration, based on trapping or random sampling”

⁷⁹ *Texas AHB Plan*, *supra* note 41, at 8.

⁸⁰ Telephone Interview with Dave Mays, communication specialist, Dept. of Agric., Tex. A & M (Mar. 6, 1997).

⁸¹ *Texas AHB Plan*, *supra* note 41, at 7.

⁸² *Id.*

⁸³ Davis, *supra* note 19.

⁸⁴ Telephone Interview with Dave Mays, *supra* note 80.

⁸⁵ CAL. FOOD & AGRIC. CODE § 29044 (Deering 1997) states: “Each beekeeper, apiary owner . . . shall pay . . . an annual registration fee of ten dollars (\$10) to the commissioner of the county where the bees reside on January 1, to cover the cost of apiary registration”

⁸⁶ CAL. FOOD & AGRIC. CODE § 29242 (repealed 1987) stated: “Every person who moves bees into the state . . . after the first day of November shall register the number of colonies moved into the state or so acquired within 30 days after coming into possession of the apiary.”

⁸⁷ CAL. FOOD & AGRIC. CODE § 29301 (repealed 1988) stated:

Each beekeeper . . . or . . . person in possession of an apiary shall pay to the director an annual assessment fee as determined by the director to be necessary to carry out the provisions of this article. However, such fee shall only be paid once each year . . . and shall

for research and control of bee diseases.⁸⁸ Funds were used to inspect hives for tracheal and varroa mites.⁸⁹ The assessment was repealed on January 1, 1991,⁹⁰ after a two-year extension.⁹¹ Today, colony strength inspections are voluntary.⁹²

Beekeepers, in general, prefer to regulate their own colonies. There is speculation by agricultural officials that beekeepers resented their assessments being used to fund apiary inspectors whom the beekeepers believed spent most of their time researching and eradicating the Mediterranean fruit fly.⁹³ This resentment is also believed to be the reason why the additional assessment of three cents per colony was not renewed after July 1, 1992.⁹⁴

Lastly, the California Food and Agricultural Code allows the secretary of the California Department of Food and Agriculture to approve programs designed to instruct beekeepers on the maintenance of colonies free of Africanization.⁹⁵ However, these programs call for only voluntary compliance.⁹⁶

not exceed the following schedule:

- (a) For nine or less colonies there shall be no fee.
- (b) For 10 to 49, inclusive, colonies the fee shall be seven dollars and fifty cents (\$7.50).
- (c) For 50 to 299, inclusive, colonies the fee shall be fifteen dollars (\$15).
- (d) For 300 to 999, inclusive, colonies the fee shall be thirty dollars (\$30).
- (e) For 1,000 to 2,499, inclusive, colonies the fee shall be sixty dollars (\$60).
- (f) For 2,500 to 4,999, inclusive, colonies the fee shall be ninety dollars (\$90).
- (g) For 5,000 to 7,499, inclusive, colonies the fee shall be one hundred twenty dollars (\$120).
- (h) For 7,500 or more colonies the fee shall be one hundred fifty dollars (\$150).

⁸⁸ CAL. FOOD & AGRIC. CODE § 29303 (repealed 1987).

⁸⁹ Interview with Dr. Norman Smith, *supra* note 18.

⁹⁰ CAL. FOOD & AGRIC. CODE § 29301 (repealed 1987).

⁹¹ CAL. FOOD AND AGRIC. CODE § 29030(d) (repealed 1988) stated: "This section shall remain in effect only until January 1, 1991, and as of that date is repealed, unless a later enacted statute . . . deletes or extends that date."

⁹² CAL. FOOD & AGRIC. CODE § 29193 (Deering 1997).

⁹³ Telephone Interview with Gene Brandi, *supra* note 28. "New hires to the Agriculture Commissioner's Office were designated as apiary inspectors. It was not a specialty."

⁹⁴ CAL. FOOD & AGRIC. CODE § 29030.5 (West 1997).

⁹⁵ CAL. FOOD & AGRIC. CODE § 29320 (West 1997).

⁹⁶ *Id.*

C. Arguments Against Regulations

The need for regulation stems from the media's sensationalism of AHBs.⁹⁷ Although the presence of AHBs in urban settings, such as on roofs and under eaves, is cause for concern, the AHBs are not the killers the media portray them to be.

In June 1993, a man and his granddaughter were driving in an old farm truck toward town when hundreds of angry bees flew into the cab and began stinging them. Although painful, even the 200 AHB stings that each sustained were not enough to kill the pair.⁹⁸

Of the forty-one people who died from bee stings in 1993, only one was stung by a bee of African origin. That individual was an 82-year-old man with a heart condition who died after being stung fifty times. A normally healthy person can be stung up to 500 times by AHBs and still survive.⁹⁹

Although AHBs vigorously defend their hive if humans go near it, they do not seek out human victims.¹⁰⁰ Additionally, a single sting from an AHB actually has less venom than an EHB sting.¹⁰¹ If a person is allergic to bee venom he will suffer, regardless of whether the bee is an AHB or EHB.

If an AHB colony is found in an urban area, taking simple precautions such as removing piles of lumber, old tires or prunings from around homes¹⁰² will lessen the risk of being injured by the AHB.¹⁰³ Additionally, the nest is confined to one area with all the bees living in that nest, unlike the imported fire-ant, which may have a thousand nests in one area. The AHB nest can be removed and the danger of stinging during eradication reduced by waiting until the evening hours, when all the bees are back in the hive and are more docile, making the hive easier to seal and move.¹⁰⁴

Governmental regulations are not needed because the best regulators

⁹⁷ Richard Stewart, *Buzzed Off; Killer Bees, Once the Subject of Terrifying Headlines, Never Quite Made it to Houston and Are Now Largely Forgotten*, THE HOUSTON CHRON., Feb. 2, 1997, at S1.

⁹⁸ *Id.*

⁹⁹ McNamee, *supra* note 4.

¹⁰⁰ TEX. AGRIC. EXTENSION SERVICE, TEX. A & M UNIV., AFRICANIZED BEES: MYTH OR FACT? (1997).

¹⁰¹ *Id.*

¹⁰² COOP. EXTENSION UNIV. OF CAL. DIV. OF AGRIC. AND NATURAL RESOURCES, PUB. NO. 93-EXNP-1-5191, BEE ALERT: AFRICANIZED HONEY BEE FACTS (1993).

¹⁰³ *Id.*

¹⁰⁴ Interview with Dr. Norman Smith, *supra* note 18.

are the beekeepers themselves.¹⁰⁵ Dependent for their livelihood on manageable colonies, beekeepers cull and replace queen bees¹⁰⁶ if their hives contain bees too aggressive to handle, Africanization notwithstanding. In Texas, because of the influx of African bees in 1990, beekeepers requeen once per year instead of every other year and would do so¹⁰⁷ even if regulations did not require it.¹⁰⁸ The potential for loss of pollination contracts and lawsuits is too high.¹⁰⁹

Beekeeper Bill Vanderput echoes the sentiments of beekeepers who prefer to regulate themselves: "Outside of the beeyard, Africanization is a public-relations problem."¹¹⁰ Self-regulation seems to be the desired way of controlling Africanization, whether a beekeeper is a pollinator or honey producer. "If the hives are unmanageable, the beekeeper cannot make a living and runs the risk of incurring liability either from stinging incidents in orchards or under public nuisance laws when the AHBs swarm and perhaps come into contact with an urban dwelling."¹¹¹

D. Downsides to Regulation

The best defense against AHBs is to allow mating with EHBs. If a small area has been colonized with AHBs, prohibiting movement of EHBs into that area for pollination purposes destroys any chance of EHB genes being introduced into the AHB population, diluting undesirable traits.¹¹²

Is the AHB, despite its bad publicity, a viable resource for pollination? There is evidence that the numbers of the domesticated honeybee are falling. Decimated by parasites and poor weather, approximately one-half of America's domestic bee population has been lost since World War II.¹¹³ These losses are not from Africanization, but from

¹⁰⁵ Telephone Interview with Gene Brandi, *supra* note 28.

¹⁰⁶ MICROSOFT ENCARTA '95, COMPLETE INTERACTIVE MULTIMEDIA ENCYCLOPEDIA (1995). "The queen is the only sexually productive female in the community . . . thus she is the mother of all drones, workers, and future queens. Her daily output of eggs often exceeds 1,500 eggs."

¹⁰⁷ Telephone Interview with Henry Graham, *supra* note 42.

¹⁰⁸ 4 TEX. ADMIN. CODE § 71.7(b)(4)(B) (1997).

¹⁰⁹ Telephone Interview with Dr. Eric Mussen, *supra* note 76.

¹¹⁰ Bill Vanderput, *African Bees from Beekeeper's Perspective*, THE SPEEDY BEE, Mar. 1994, at 10.

¹¹¹ Telephone Interview with Bill Vanderput, Texas beekeeper (Mar. 28, 1997).

¹¹² Telephone Interview with Richard Adee, *supra* note 9.

¹¹³ Mark Petix, *The Plight of the Honey bee; Disease, pesticides, cold weather are killing them, that's bad news for crops*, THE RIVERSIDE PRESS-ENTERPRISE, Dec. 8, 1996,

parasites such as the tracheal and varroa mite.¹¹⁴ In California, competition among almond growers is fierce because there are twice as many almond trees in California as bees to pollinate them.¹¹⁵ With the 800,000 hives required each year to pollinate almond and fruit-bearing trees,¹¹⁶ diversifying the pollinator portfolio is one solution.¹¹⁷

Africanized bees, though more aggressive, can be managed. Mexican beekeepers have dealt with the more aggressive bees for about seven years by adopting new management practices, such as wearing thicker clothing¹¹⁸ and queen rearing¹¹⁹ to ensure a manageable stock. Queen rearing allows beekeepers to produce manageable colonies headed by a European queen, mated to Africanized drones. The Mexican beekeepers report that two-thirds of the hives are manageable and one-third display undesirable Africanization traits such as excessive brood rearing and defensiveness. Those hives are identified and re-queened annually.¹²⁰

Although the Sinaloa, Mexico, beekeepers have been economically affected by the African bees, they are not bankrupt.¹²¹ Similar to California, Sinaloa has extensive agriculture and needs bees for pollination. Sinaloa beekeepers manage to provide sufficient hives for pollination despite the Africanization of their hives. They simply learned to work with the bees. Severe stinging incidents have resulted from feral colonies of both EHB and AHB, not from hives the beekeepers manage.¹²² Strategies for eradicating feral colonies can be implemented, similar to those employed in Texas. In accordance with the Texas AHB Management Plan, any feral swarm detected within the 100-mile quarantine is destroyed if found to be Africanized.¹²³

In Fresno County, there is no specific regulation for the eradication of feral bee colonies.¹²⁴ Anyone who calls the Agriculture Commissioner's Office to report a feral bee colony is directed to call a pest-

at B1.

¹¹⁴ *Id.*

¹¹⁵ *Id.*

¹¹⁶ Telephone Interview with Oreleo Posadas, *supra* note 57.

¹¹⁷ Petix, *supra* note 113.

¹¹⁸ Dr. Francis Ratniecks and Dr. Kirk Visscher, *African Bees and Crop Pollination*, THE CAL. BEE TIMES, Summer 1995, at 6.

¹¹⁹ *Id.*

¹²⁰ *Id.*

¹²¹ *Id.*

¹²² *Id.*

¹²³ *Texas AHB Plan*, *supra* note 41, at 8.

¹²⁴ Interview with Martin Najarian, apiary inspector, in Fresno, Cal. (July 3, 1997).

control agency for eradication. Their office will investigate whether a commercial beehive was destroyed by pesticides, however.¹²⁵

Ultimately, Texas and other states may decide to work with the AHB. Although there is an extensive quarantine throughout the southern half of Texas, the USDA will lift the quarantine when more than 50 percent of the quarantined area becomes Africanized.¹²⁶ Like Mexican beekeepers, the Texas beekeepers will wear thicker clothing, move the bees at night when they are less active and requeen the more aggressive hives.

CONCLUSION

AHB regulations are not needed in California for two reasons. First, no swarms have been found above the 35th parallel. The mass invasion of the AHB into California did not occur as predicted. Second, beekeepers have a history of self-regulation.

It is not known how much of California will be colonized by the AHB or what the consequences will be in terms of stinging incidents and bee management. However, the impact on beekeeping and public health has been less than expected. If the northward spread of the AHB levels out, much of California will be spared from dealing with the AHB and regulation will be unnecessary.

The public must understand that the AHB has arrived and is here to stay. Education, as opposed to regulation, will help make this reality more palatable. Effective responses to the AHB as an urban pest, such as emergency responses to stinging incidents and public education, will reduce fear and minimize the AHB's impact. In southern California, urban dwellers can be taught to reduce the possibility of AHB nests around their homes.

Regulations enacted solely to assuage public fear will stifle a beekeeper's ability to move bees into pollination-dependent orchards, greatly impacting agriculture. Beekeepers who find compliance too difficult will leave the business. Pollination-dependent crops will produce lower yields and food prices will increase.¹²⁷

Beekeepers, dependent for their livelihood on manageable hives, have a long practice of maintaining those hives through self-regulation. A beekeeper's practice of requeening an unmanageable hive is the best way to control Africanization. Additionally, if California should expe-

¹²⁵ *Id.* "This is known as a 'bee kill.' "

¹²⁶ *Texas AHB Plan*, *supra* note 41, at 8.

¹²⁷ Visscher et al., *supra* note 3, at 25.

rience a significant influx of AHBs, beekeepers may be able to benefit from their use because of diminishing EHB populations. The AHB may offer hope to those farmers dependent upon pollination services.

If regulations are passed limiting the movement of bees in and out of California, almond growers in particular will suffer economic losses. The total requirements of growers in California for pollination services cannot be met solely by California beekeepers. Most public-health problems are caused by feral colonies, and strategies for their elimination can be implemented. Allowing the beekeepers to manage their hives as they have always done renders regulation unnecessary.

More importantly, the public must understand the needs of beekeepers and pollination-dependent growers. To supply grower demand for bees and to remain profitable, beekeeping requires manageable hives. To do otherwise would spell economic disaster. Those in the best position to manage their hives are the beekeepers themselves. Thus, the beekeepers, rather than the government are the best regulators of their livelihood.

Evidence in favor of self-regulation is demonstrated by the fact that queen rearing is highly developed in many places, including California.¹²⁸ Large numbers of replacement queens of EHB origin can be reared to control any Africanization problems that might exist in the future, ensuring bees for pollination-dependent crops and continued profits for beekeepers and growers.

Laurie A. Mitchell

¹²⁸ Ratniecks and Visscher, *supra* note 118.