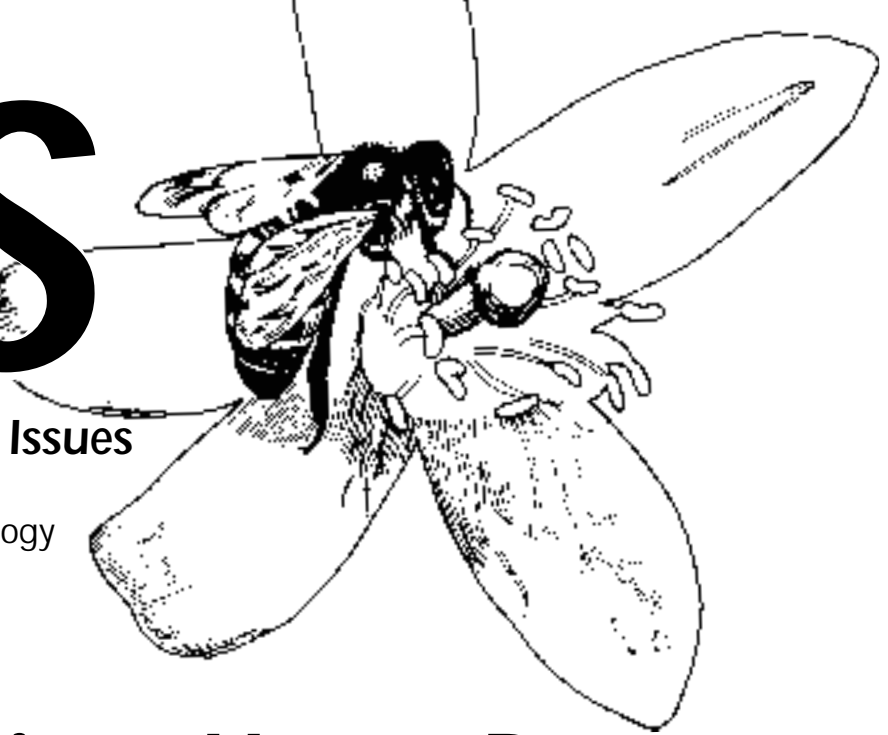


APIS



Apicultural Information and Issues

From IFAS/University of Florida
Department of Entomology and Nematology

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Inside APIS:

African Honey Bee Surprises Again

These insects continue to surprise beekeepers and the general public in many ways.
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The Nemesis Effect

Biological surprises may come at any level due to unpredictable interactions caused by introducing substances or organisms that are not normally part of the system (honey bee colony).
Page 4.

African Honey Bee Surprises Again

THE RECENT DISCOVERY of two African honey bee (AHB) colonies was a surprise. They were found in bait hives in a container yard that holds cargo shipped from Puerto Rico at Blount Island in Jacksonville. Puerto Rico has been infested with these bees, presumably introduced off a ship, since 1994¹. The insects were subsequently identified by USDA morphometrics and confirmed by Dr. Glenn Hall in the Entomology and Nematology Department, University of Florida, through DNA analysis. These are the first colonies of this type to be found in a bait hive, according to a press release by Agriculture Commissioner Bob Crawford's office. There have been only seventeen AHB colonies discovered since 1983 in Florida, and all were found on and associated with specific ships near ports. Perhaps the most celebrated of these was when a suspected colony was taken off a ship by a well-meaning beekeeper, who subsequently installed it in his back yard². Some 500 bait hives are in place throughout Florida for AHB detection.

As a result of the find, according to the release, apiary inspectors will intensify bait hive surveillance in the Jacksonville area by adding an additional 24 bait hives throughout the port area. This latest incident is just one of a long list of surprises that this insect has been responsible for during its checkered history. Some of the major ones to date include:

1. Release of these bees in Brazil resulted in a wild migrating population of extremely defensive honey bees that have colonized practically all of tropical America. Hives of this population often attacked by surprise many rural and urban inhabitants who had no experience with honey bees.
2. A more positive surprise is that AHBs appear to be quite tolerant to *Varroa* and require few chemical treatments, which are deemed necessary for their European cousins³.
3. Although not slowing down in northern Mexico and moving westward in the United States, AHBs stumped all the experts by stopping their migration eastward after entering Texas.

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¹<http://www.ifas.ufl.edu/~mts/apishtm/apis94/apoct94.htm#3>

²<http://www.ifas.ufl.edu/~mts/apishtm/apis87/apmay87.htm#1>

³<http://www.ifas.ufl.edu/~mts/apishtm/apis97/apmay97.htm#2>

The last event provided a windfall grace period of several years to southeastern states. Many officials and scientists had predicted the AHB to colonize most of that area, including all of Florida, as early as 1994. I predicted their arrival by 1995 in a fact sheet on the generalized differences between AHB and European honey bees⁴. If there turns out to be a significant population in northeast Florida, it again would be a surprise. Most believed a population developing independently of the overland invasion was not probable, in spite of the Puerto Rican experience.

FLORIDA RESIDENTS and officials need not feel alone in being surprised by AHB. Dr. Eric Mussen, in his *From the UC Apiaries* (May/June 1998), stated the following concerning readiness of officials in California, where the bee had been established for a number of years⁵:

“The truth of the matter is that we have fallen behind. When AHBs arrived in southern California, they caught the attention of the general public and public officials. Local and regional task forces were assembled and training sessions were held for decision-makers and emergency responders. Funds were made available for production and distribution of printed information, slide sets, videotapes and a school curriculum targeting AHBs. We did a lot of information dissemination. So how did we get behind?”

“Over the years, AHBs did not spread as fast as we anticipated. They just were discovered in the southernmost tip of Nevada and a portion of San Bernardino County, the fourth “colonized” county in California. We have had only seven stinging incidents in California attributed to AHBs since they arrived nearly four years ago, but in the most recent incident a field worker was stung over 300 times. We were concerned that the attending physician may not have been aware of the problems with “organ failure” (kidney failure) that can occur up to a week after such a sting patient is released from the hospital. (Three different Steering Committee agencies conveyed the message to the doctor, independently).

“The greatest problem is personnel turnover. A substantial portion of the previously trained health and emergency providers have ‘moved up’ or ‘moved out.’ New replacements are ignorant of the problems encountered working around defensive colonies of honey bees.

“Also, at least in Imperial County, pest control operators (PCOs) prefer to work an 8 a.m. to 5 p.m. day. They have found dealing with honey bee colonies during flight time to be difficult at best, and AHBs are just that much worse. Even if they are willing to work at night, PCO’s insurance companies are reluctant to cover removal of bees from buildings. So, who is going to become involved in AHB removal if the commercial exterminators bow out? In Tucson, there are nearly 30 new bee removal companies that are kept very busy. Maybe something similar will develop in southern California.

“Thus, it is time for the networking to be reestablished, the information to be disseminated, again, and the people of southern California to plan how they will respond to the presence of this nuisance.”

As the AHB made its way through Mexico in the late 1980s, there was a lot of activity in preparation for its arrival. Significant events included:

1. Publication of *The Africanized Honey Bee in the United States: What Will Happen to the U.S. Beekeeping Industry*, Agricultural Economic Report (AER) 519, by Robert McDowell. This 1985 publication suggested four possible scenarios with economic losses ranging from \$26 million to \$58 million, depending on the bee’s defensiveness and extent of the area it might colonize in the United States.
2. Introduction of AHB near Lost Hills, California. The incident caused the Animal and Health Plant Inspection Service (APHIS) federal action plan for these insects to be triggered. It generated more publicity and more readiness funding⁶. The current Florida find will not do this. The Federal action plan was inactivated soon after the AHB crossed into Texas from Mexico. APHIS’s role is defined as keeping out introduced pests. Once they become part of the landscape, the agency usually no longer stays involved.
3. Publication in this newsletter and elsewhere about many topics, including collecting swarms (not recommended)⁷, using soapy water to kill bees⁸, risks surrounding purposeful stock importation⁹, trapping bees¹⁰, and others. For a more complete listing see <http://www.ifas.ufl.edu/~mts/apishtm/threads/ahb.htm>.

In 1990, as the AHB was nearing the Texas border, The Florida action plan was

“
Five states
in all now
have AHB
populations.

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published under the auspices of the University of Florida, the Africanized Honey Bee Task Force and Honey Bee Technical Council of the Division of Plant Industry, Florida Department of Agriculture and Consumer Services (FDACS). This document requested certain monies be made available for education and readiness training from the legislature. It was never funded, but remains the only semblance of a plan the state has at the moment¹¹. Another educational activity was development of Plan Bee through a program called Ag in the Classroom for grades one through six in the public schools¹². Funding for this program is derived from memberships and the Florida license tag “Agriculture Keeps Florida Green.” Plan Bee remains one of the most used curricula in this program. The telephone number is 850-487-8140.

Once it was perceived that the bees went toward the west and not north, interest waned about AHB in the east. The reason the migration stopped short is not known, although it is thought an entrenched Varroa population might have had an influence¹³. Since then, there has been no discernable movement of the population north or east. The migratory front remains south of Houston.

As the bee moved westward, educational programs were developed surrounding this insect in affected areas. Texas has perhaps the most information, as it has more experience. Texas A & M University originally published the AHB home page on the World Wide Web, but that URL appears to be no longer valid. It does, however, house another page that includes information on identification, habitat, economics, stings and other issues identified with this insect¹⁴. This site also has an “ask the expert” function. When the AHB ar-

rived in southern New Mexico, specific information about the insect was published in that state¹⁵. Arizona was next affected. Several electronic resources are available, including an overview of AHB by Michael Kunzmann and colleagues¹⁶ and a series of lesson plans for children in grades one through 12, including information and general activity sheets¹⁷. Kids were also a focus of a book on AHB bee and San Diego even declared “Bee Smart Week,” blanketing public schools with information in 1994¹⁸. The Carl Hayden Bee Research Center in Tucson also prominently features AHB information on its home page¹⁹. This includes advice to both homeowners and fire fighters. The latter have also been targeted by *Bee Culture Magazine*, which published a video on dealing with honey bee emergencies (Catalog No. X218, \$40). Search for it on their Web site²⁰.

California came into the picture with introduction of AHB in 1994²¹. I published a retrospective on the situation both there and in other western states in the September 1997 *APIS*²², much of the information coming from Dr. Eric Mussen’s *Apiculture Newsletter*²³. Dr. Kirk Visscher at the University of California, Riverside also maintains a database of AHB information²⁴. This includes analysis of how beekeepers in Sinaloa, México are dealing with this insect. Other information indicates that Nevada also has been invaded, presumably due to the El Niño phenomenon of 1998. Thus, five states in all now have AHB populations.

Since introduction of the AHB, information has proliferated. Two of the best and most complete sources of knowledge about this most interesting insect are Wallace White’s September 16, 1991, story in *The New Yorker* and a fine piece of work compiled for the Armed Forces Pest Management Board by then Navy LCDR H.R. Stevenson and Dr. Charles Cole of Texas A & M (Technical Information Memorandum No. 34), published in 1995²⁵.

Results of the Florida find echo Dr. Mussen’s sentiments above about the current California situation. We are back to square one with reference to informing people about AHB. As soon as the commissioner’s press release was published on May 5, a flurry of calls to both the University (my office) and FDACS (Mr. Cutts’s office) revealed the lack of knowledge most reporters and other individuals have about this insect. Misinformation is endemic. Use of the “killer” word

grabs the public’s and press’s attention, especially on a slow news day. But to me, the word brings to mind not a horrific insect attack, rather something more frightening, sensationalistic reporting by even mainstream newspapers giving the public a jaundiced view of honey bees in general²⁶. Much of this is the result of hype, reminiscent of the kind generated by Hollywood. Sometimes this is engendered by well-meaning folks who often wind up showing the bees at their worst. No more personal and candid story of how events surrounding these insects can be manipulated has appeared than “My Life with Killer Bees,” published by Ed Zuckerman in *Buzz*, 1995²⁷. Appropriately, Mr. Zuckerman has graduated from journalist to executive producer of the new Universal Television action-adventure series “Players.”

IN THE FACE of the current find, it is difficult to determine where Florida beekeepers might go from here. At the present time, these colonies must be considered incidental. They do not indicate a population of AHB has been established in the Sunshine State. It will take some time to ascertain whether this is so. In the meantime, the industry will have to be prepared to answer the myriad questions these and other subsequent finds may generate. As a consequence, I am republishing here an outline of remarks made by Mr. Michael O’Hara, communications and education division director, Florida Fruit and Vegetable Association, on crisis communica-

tions as reported in the August 1992 *APIS*²⁸. The following should always be kept in mind when talking to reporters:

1. **Individual Rights:** No one from the press has the right to violate your individual rights.
2. **Honesty:** Never mislead or lie to a reporter. If the situation is under litigation, say this is so; if there is a question about profits, dollars or proprietary information, you can defer/refuse answering based on not informing competitors in the marketplace.
3. **Buzz Words:** Never repeat an expression or inflammatory statement made by a reporter. For example, if you are asked to what do you attribute this catastrophe, do not repeat the word “catastrophe.” It then becomes attributable to you and you alone; you will “own” it.
4. **Hostility:** Never get angry; keep cool and remember the reporter always has the last word.
5. **Off the Record:** There is no such thing; if you don’t want it reported, don’t say it.
6. **Estimates:** Never make numerical estimates in time or dollars. Say that the incident is under investigation and you will provide accurate information when it becomes available.
7. **Reporter Verification:** Ask for identification, the purpose of a reporter’s activities, media affiliation and telephone number.
8. **Bridging:** Try to bridge the gap between a reporter’s wish to be negative and providing a positive statement about your activity.

⁴ http://edis.ifas.ufl.edu/scripts/htmlgen.exe?DOCUMENT_MG113

⁵ <http://entomology.ucdavis.edu/faculty/mussen/5-6-98.html#ahb>

⁶ <http://www.ifas.ufl.edu/~mts/apishtm/apis85/apaug85.htm#2>

⁷ <http://www.ifas.ufl.edu/~mts/apishtm/apis89/apnov89.htm#1>

⁸ <http://www.ifas.ufl.edu/~mts/apishtm/apis89/apnov89.htm#2>

⁹ <http://www.ifas.ufl.edu/~mts/apishtm/apis89/apapr89.htm#2>

¹⁰ <http://www.ifas.ufl.edu/~mts/apishtm/apis90/apnov90.htm#4>

¹¹ <http://www.ifas.ufl.edu/~mts/apishtm/apis90/apjan90.htm#1>

¹² <http://www.ifas.ufl.edu/~mts/apishtm/apis93/apnov93.htm#1>

¹³ <http://www.ifas.ufl.edu/~mts/apishtm/apis94/apjul94.htm#1>

¹⁴ <http://agnews.tamu.edu/bees/navigation.htm>

¹⁵ <http://www.zianet.com/SNM/bees.htm>

¹⁶ <http://biology.usgs.gov/s+t/noframe/x189.htm>

¹⁷ <http://ag.arizona.edu/pubs/insects/ahb/ahbhome.html>

¹⁸ <http://www.ifas.ufl.edu/~mts/apishtm/apis94/apapr94.htm#5>

¹⁹ <http://gears.tucson.ars.ag.gov/>

²⁰ <http://www.airoot.com/beeeculture/shop.cgi>

²¹ <http://www.ifas.ufl.edu/~mts/apishtm/apis94/apnov94.htm#1>

²² <http://www.ifas.ufl.edu/~mts/apishtm/apis97/apsep97.htm#4>

²³ <http://entomology.ucdavis.edu/faculty/mussen/news.html>

²⁴ <http://cnas.ucr.edu/~ento/CAAHB/ahb-index.html>

²⁵ <http://www-afpmb.acq.osd.mil/pubs/tims/tim34.htm>

²⁶ <http://www.ifas.ufl.edu/~mts/apishtm/apis91/apapr91.htm#1>

²⁷ <http://beenet.com/texmex.htm>

²⁸ <http://www.ifas.ufl.edu/~mts/apishtm/apis92/apaug92.htm#1>

9. **Statistics:** If you are not aware of statistics provided by a reporter, say so and ask for it in writing before commenting.
10. **Deadlines:** All reporters are on deadlines, but you are not. Take all the time necessary to avoid hasty comments. The fact that a microphone is stuck in your face doesn't mean you have to say something. Dead air time is not likely to appear on television.

Finally, it is best to have a communications plan in place and persons trained in this area. Defer all questions to one or two designated (and trained) persons to avoid giving conflicting information. An offensively oriented public relations/communications plan is the best defense against sensationalistic reporting based on negativism. The appointing and training of designated persons to speak for the group would be a

good activity for beekeeping associations both now and in the future. Questions about AHB can, of course, be deferred to Mr. Cutts or myself. We will have information on the very latest developments. I will also publish up-to-date information on this and other crises, as it becomes available through the Department of Entomology and Nematology's Pest Alert system²⁹ and this newsletter. ■

The Nemesis Effect: Are More Surprises Due?

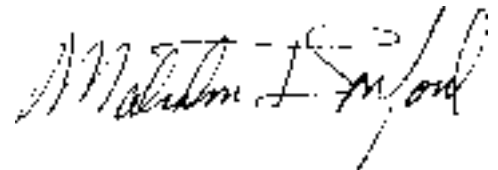
TWO RECENT ARTICLES in *World Watch* magazine by Mr. Chris Bright have focused on the surprise factor involved when biological systems are disrupted. The first "Crawling Out of the Pipe: The Hazardous Waste That Makes More of Itself," (Vol. 12: No. 1, pp. 22-33, January/February 1999) focuses on the accelerating spread of biological material around the globe. Examples are legion. These include introduction of exotic plants such as water hyacinth, purple loosestrife, knotweeds, and salt cedars or tamarisks. Other introduced organisms include everything from Asian tiger mosquitoes (*Aedes albopictus*) to walking catfish, zebra mussels and honey bees. Yes, *Apis mellifera* is also an exotic, brought to the Americas from Europe. It surprised the aborigines in North America, who called it "the white man's fly." *Apis* too has also been affected by several organisms introduced to its adopted land that surprised beekeepers, including tracheal mites³⁰, Varroa³¹, and the South African small hive beetle, just discovered last year³².

Although problematic in its own right, Mr. Bright also discusses something more insidious than the introduction itself. He calls this "The Nemesis Effect" (Vol. 12, No. 2, pp. 12-23, May/June 1999). It is a result of the system's response to an introduction. As Mr. Bright concludes, "... effects are determined, not just by the activities that initially produced them, *but by each other and by the ways ecosystems respond to them*. They are in other words part of an enormously complex system. And unless we can learn to see them *within the system*, we have no hope of anticipating the damage they do."

Beekeeping is a microcosm of both Mr. Bright's concerns. Introduced organisms have dramatically affected both the honey bee itself and its management. In general, these have without exception driven costs up and eroding the bees' productivity. The introductions, however, may be more problematic precisely because their final results are indirect and not easily detected within the context of the honey bee system

(colony). One example is appearance of parasitic mite syndrome (BPMS), a new bee disease lacking a common symptomology and no specific, identified causal organism³³. The effects of sublethal dosages of fluvalinate on queens and drones also have surprised us, while at the same time the mites themselves are becoming resistant to this chemical. Beekeepers also put grease patties, essential oils, smoke and other chemicals into colonies in an attempt to manage certain conditions. The number of surprises that might surface due to these materials used alone, or in concert with each other through synergism, is unknown. The Nemesis Effect should give all beekeepers pause when contemplating more extensive use of these and other substances in their colonies. ■

Sincerely,



²⁹ <http://extlab7.entnem.ufl.edu/PestAlert/>

³⁰ <http://www.ifas.ufl.edu/~mts/apishtm/threads/tracheal.htm>

³¹ <http://www.ifas.ufl.edu/~mts/apishtm/threads/varroa.htm>

³² <http://www.ifas.ufl.edu/~mts/apishtm/apis98/apjul98.htm#1>

³³ <http://www.ifas.ufl.edu/~mts/apishtm/apis94/apdec94.htm#3>

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