



The University of Georgia

College of Agricultural and Environmental Sciences
Department of Entomology



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Africanized Honey Bees Discovered in Albany, Georgia



On October 11, 2010, Mr. Curtis Davis, 73 years of age, was clearing a portion of his property in Dougherty County, Georgia, when he disturbed a colony of Africanized Honey Bees (AHBs). According to an eyewitness, the blade of the bulldozer Mr. Davis was operating scraped against a discarded house column, splitting it open. Within seconds a cloud of bees swarmed out of the column surrounding both the bulldozer and Mr. Davis. He was able to exit the dozer and

run, however the bees stayed in pursuit. He collapsed about 100 yards from where the hive existed. The coroner believed Mr. Davis probably died of cardiac arrest brought on, of course, by the stinging incident. The above pictures Mr. Davis' bulldozer with the bucket blade touching the column that housed the colony.

At first, emergency responders were unable to approach Mr. Davis due to the number of angry bees in the vicinity stinging everything that moved. Hence, the fireman quickly donned protective gear in order to retrieve Mr. Davis. Shortly afterwards, a local Georgia Master Beekeeper, Dale Richter, arrived at the scene and even at a distance of over 200 yards, he too was being stung. He attributed the extraordinarily aggressive behavior to the facts that there were numerous piles of burning debris set by Mr. Davis, the bulldozer was still



Bulldozer blade at edge of damaged column

running next to the colony, and fire trucks and other emergency response vehicles were in the area. Bees, of any background, are easily agitated by large, loud, vibrating machinery. It was determined that the bulldozer needed to be shut off before any investigation of the scene could occur.

Dale approached the bulldozer without a veil, (his and extras were passed out to the emergency crew) and with the help of an EMT, finally turned it off. While doing so, he noticed a two-pound ball of bees clustered in the corner of the cab just a few feet from his exposed head and face. The bees paid no attention to what he was doing. Next he found the exposed colony at the edge of the bulldozer blade with only a few bees remaining. After samples were collected the bees were exterminated.



Inside the exposed column

Samples of the bees were sent to the USDA lab in Gainesville, Florida for examination and identification. The bees tested positive for Africanization. This was the first case of AHBs being officially identified in Georgia. AHBs are established in south Florida with occasional incidences flaring up north of Tampa Bay. Barry Smith, Georgia State Inspector, immediately began to set up trap hives in the vicinity of the accident. He also started collecting other samples from nearby colonies to be analyzed.

It is still unclear as to where these bees came from. However, once the initial shock of the tragic scenario began to lessen some interesting facts surfaced raising numerous questions. According to Curtis Simmons, who was with Mr. Davis on the day of the attack, Mr. Davis and a neighbor

had cut a portion of a column full of bees from his house back in April and transported it to the dump site several miles from where the incident occurred. They wore no protective gear and never received a sting. So, was this the same colony that attacked Mr. Davis, or was it later usurped by an Africanized colony?

Last week the Georgia Department of Agriculture released a statement announcing the discovery of two additional AHB colonies a few miles from the initial site:

Since this tragic event, The Georgia Department of Agriculture has been monitoring bee swarms, trapping and testing suspect bees. Testing of more than 90 samples identified two more colonies in the southern half of the state near the first confirmed colony. “The bees could have come from almost anywhere,” said Agriculture Commissioner Tommy Irvin. “It is unclear how Africanized honeybees arrived in Dougherty County.”

Africanized bee swarms are occasionally found on cargo ships coming from South or Central America. A container from one of these ships could have been transported via rail or truck from almost any seaport. Some beekeepers from other states winter their bees in Georgia. Some commercial beekeepers that produce honey or pollinate crops move their bees to California, Florida, Texas and other states where Africanized honeybees are established. Finally, a beekeeper in the area could have purchased bees or queens that had African genes from a commercial beekeeper in another state.

“The important thing to keep in mind, says Irvin, is that other states and countries have learned to live with Africanized honeybees. We need to move beyond the hype of ‘killer bees.’ Just as we have learned to live with fire ants and rattlesnakes, we will learn to take certain precautions when in areas where Africanized bees may be established.”

Both the Georgia Department of Agriculture and the University of Georgia stress that beekeepers are the best defense Georgians have against Africanized honey bees. Without responsible beekeepers managing hives in the area, the density of docile European bees will decrease, leaving that area open to infestation by Africanized bees. Removing managed bee colonies is equivalent to “abandoning territory to the enemy.” Only beekeepers have the knowledge and resources to maintain high densities of European bees that can genetically dilute Africanized populations.

“Because of the fear that accompanies the arrival of Africanized bees, some groups and even lawmakers may want to ban beekeeping in their city or county. These actions have taken place in other states and the result has been the same – it benefits Africanized honey bees rather than protecting a community,” says Dr. Keith Delaplane, Professor and Program Director of the University of Georgia Honey Bee Program.

Although budget cuts have affected the department’s ability to offer services, Georgia agriculture officials are evaluating how to best monitor for Africanized honeybees in 2011 but plan to resume trapping in middle to late February when they start to become more active.

Georgia is a major queen and package bee producer. In 2007, agriculture officials in Alabama, Florida, Georgia, and Mississippi worked together to develop Best Management Practices (or BMPs) for commercial beekeepers in effort to preserve European genetics. The Georgia Department of Agriculture recommends that commercial queen and package beekeepers consider adopting these BMPs. Georgia Agriculture officials recommend that hobbyists purchase bees and queens from licensed beekeepers that have taken steps to preserve the European honey bee traits.

Africanized honey bees are a sub-species of the more gentle and well-known European honey bee which is responsible for pollinating crops and producing honey. To the untrained eye, AHBs are similar in size to European bees, however there are subtle physical differences. These bees are capable of inter-breeding with European bees, thus passing on the more aggressive, defensive AHB genes. Behaviorally, they are extremely defensive and respond to little provocation by pouring out of the hive in large numbers and stinging anything in their path. They are also more difficult to manage because of the frequency in which they swarm and their flighty, nervous behavior. Most fatalities in the US have been the result of colonies being disturbed by heavy equipment such as tractors.



In 1990, AHBs first entered the US from Mexico into Texas. Once in the US, AHBs headed west towards California, temporarily sparing states east of Louisiana. Their movement was monitored and beekeepers in Georgia felt somewhat safe from an eastward invasion. We weren't looking to our South. In 2005, established populations of AHBs were confirmed in Florida. Since that time, the Georgia Department of Agriculture and the UGA Bee Lab have been planning for their arrival, putting together best management practices, along with training sessions for emergency personnel across the state. We knew it was only a matter of time before a confirmed case of AHBs would be discovered in Georgia.

At this point, educating the public has become a priority. Below is a list of the most important things to be aware of:

1. Be cautious around places where Africanized bees are likely to nest, such as abandoned sheds, bee hive equipment, discarded tires and subterranean cavities.
2. If you are attacked, RUN AWAY. You may think this sounds silly, but experience has taught us that people do NOT run away. Instead, they stand and swat, which simply escalates the defensive frenzy until it reaches lethal proportions.
3. Get inside a closed vehicle or building as fast as possible, and STAY there. Do not worry if a few bees follow you inside. Here's another hard lesson we've learned: People do not stay inside a closed vehicle if a few bees follow them inside. Instead, they panic and flee back outside where tens of thousands of angry bees attack them. Get inside. Stay inside.
4. European bees and local beekeepers are our best defense against AHBs. In response to Africanized honey bees, some communities may consider zoning restrictions against all forms of beekeeping. This essentially cedes territory to the enemy. Only gentle European bees can genetically dilute the defensive Africanized variety, compete with them, and minimize their local impact.

Bears in Athens Clarke County Oh My!

Not only have Africanized honey bees made their unwelcomed presence known in southern Georgia, but now it seems that bears have made their presence known in the Piedmont region. A few weeks back a gentleman by the name of David Hutchinson called our lab asking if we could come by his apiary and inspect it for bear activity. He left a message explaining that 5 out of 7 colonies had been destroyed during the previous night. Frames, supers, lids, and pieces of equipment peppered the ground. Upon further investigation, he noticed most of the honey remained intact, but the brood had been devoured. He decided to stick around the following night to see for himself who or what had caused the devastation. Just after dark, a black bear, probably weighing 200-250 pounds showed up for a second helping; it demolished the remaining 2 colonies.



Upon hearing David's initial message on our lab recorder, I instantly thought the damage was caused by someone looking for trouble, but definitely not a bear. Bears were supposed to reside in the North Georgia mountains or further south near the Okefenokee swamp, but not here in the Piedmont region. But, after speaking with Mr. Hutchinson, it was clear that we had a bear in Athens Clark County. Great, now there's one

more thing we have to worry about! What's next? A wax devouring, pollen engorging, bee eating, wood wrecking, predator that not only eats the entire hive but also loves duck tape!



Equipment tossed about from a hungry bear. Notice the claw marks in the deep frame above.

David mentioned he had spoken to the Georgia DNR. They reported there had been two separate incidents of bears being found dead along side the road in Jackson County in 2010, a county just north east of Athens Clark. Is it due to global warming, habitat loss, or over-development? Whatever the reason, bears are moving to town. There goes the neighborhood!



Unless you have colonies in the mountains or further down south, you probably have not thought about protecting your hives from bears. Well, you may want to re-consider. The best defense against a hungry bear is an electric fence. The lab has had colonies in the north Georgia area for numerous years now. Since that time we have had only one mishap on the UGA research station in Blairsville, but that was before we had an electric fence. We always assumed that since there was plenty of human activity around the farm, there was no need for an electric fence. Our colonies made it through 4

years without incident, but the 5th year, they got nailed. Fortunately, we only lost a few colonies. In response, Joe Garner, the station manager, constructed an electric fence, and we've had no hungry-bear encounters since.

All pictures for this segment were provided by David Hutchinson.

Ohad Afik returns to Israel



UGA's bee lab post doctorate, Ohad Afik, has returned home to Israel after he and his family spent two years in Athens, Georgia. Ohad expanded our investigations into the effects of honey bee disorders on pollination by examining viruses and Nosema disease, as well as Varroa. He also traveled to Mexico to pursue his interest in nectar minerals as regulators of pollinator visitation. At this time we are still analyzing his data with results to hopefully be released next year. He was an excellent addition to our lab and we will all miss him greatly.

UGA Bee Lab Welcomes Megan Taylor, Graduate Student from Canada

Entomology doctoral student Megan Taylor has joined us at the Honey Bee Lab this fall. Megan hails from Ontario, Canada where she completed her Bachelor of Science degree in Biology and Psychology (with honors) at Trent University (2005). She has also earned a Master of Science degree in Biology (specializing in Entomology) at the University of Guelph (2008). In 2006 and 2007, Megan was awarded the Gordon F. Townsend Scholarship for the outstanding M.Sc. student in apiculture at the University of Guelph. Megan's publications to date have focused primarily on the cryopreservation of honey bee spermatozoa in research for breeding purposes.

Megan assures us that she hasn't brought her hometown Canadian weather with her to Georgia. We're hoping, though, that she'll have such an impact through one of our otherwise hot and humid Georgia summers.



Bees From Australia Banned So far

This past month, the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) made a decision to ban Australian bee importation into the United States. APHIS reconsidered the potential risk of importing new pests and diseases along with the Australian honey bees brought into the US. Based on the continuing spread of a non-native bee (*Apis cerana*) in Australia and the related uncertainties about what new viral diseases it may be carrying, APHIS now believes honey bee imports from Australia pose an unacceptable risk of introducing such diseases into the United States.

Over the past decade, hundreds of swarms and established colonies of the Asian honey bee, (*Apis cerana*), have been discovered in and around the city of Cairns, Australia. One swarm that probably came into Cairns by ship has since spawned these unwanted swarms, and now they are being found even outside the quarantine area. According to Dr. Denis Anderson, Principle Research Scientist at CSIRO (Commonwealth Scientific and Industrial Research Organization) in Australia, these bees have been "cleared" of carrying *Varroa destructor*, leaving Australia the last remaining major beekeeping country free of mites. However, beekeepers in the US are not as concerned with whether or not these bees are carrying *Varroa destructor* (since they're already established here), but are more concerned with the bees themselves. *Apis cerana* is a vector for other bee diseases and competes with managed honeybees for floral resources. They also multiply rapidly, and are not easily managed for honey production or pollination. They will nest just about anywhere (under eaves of houses, recesses in floors, mailboxes, discarded tires, and other suitable urban trash) similar to Africanized honey bees. And, finally, they will invade managed bee hives and rob out honey stores. Having these bees in the US would not be a good thing. Beekeepers in the States have enough to with which to contend and don't need yet another pest.



Comparison of *Apis mellifera* (right) with the Asian honey bee *Apis cerana*

Last year Australia exported about 200,000 packages and even more queens to the US. Out of those packages, how many were examined for diseases, or the presence of *Apis cerana*? Plus, since *cerana* isn't too particular about where they build a nest or cluster, think about how easy it would be for them to stow away or be accidentally collected and shipped along with *mellifera* to the US. While news of the ban may be a relief to most US beekeepers, it is certainly a disappointment to Australian bee exporters and at least one US importer, B Weaver apiaries,

along with the California Almond producers who have relied heavily on these bees to pollinate their seemingly boundless orchards.

The halt is not solely due to the Asian bee incursion in northern Queensland, as many suspect but due to a virus called Slow Paralysis Virus (SPV). In a rebuttal to the ban, Dennis Anderson questions the decision, saying the virus has never been found in Australia. “I wish to inform you that Slow Paralysis Virus has not been detected in or reported from Australia,” Anderson says. “This is despite a number of surveys for it.” But does it really matter? It is the humble opinion of this editor that it’s the Asian bee we need to keep out.

In a one-page update about *Apis cerana* in the November issue of the Australian Bee Journal, Trevor Weatherhead, National President of the Australian Queen Bee Breeders Association, reported over 28 new swarms and nests discovered in a three-week period. Some were six to seven kilometers outside the quarantined area. But here’s the kicker. The funding for the *Apis cerana* eradication program will lapse as of December 31st; not good for the Aussies. The following is a quote from Trevor Weatherhead printed in this month’s Australian Bee Journal:

“We have a once only opportunity to eradicate the Asian bee from mainland Australia. If we were to pull the pin, then I believe in years to come many would question why we acted so hastily. If *cerana* became established, it would be compared to cane toads and rabbits. The cost of eradication will pale into insignificance when compared with control costs in the future. Beekeepers will not collect *cerana* swarms as they are of no use. So, the public will bear the cost of destruction of hives and swarms. We have had four swarms in letter boxes. Look out posties. We had a budgerigars nests [small parakeet native to Australia] invaded and the young killed. We have a record of a native nest being robbed out. So the environmental costs will be great. With all the talk about our environment, it is surprising that the “greenies” are not out there warning of the cost to the environment if the Asian bee is allowed to get away.”

Importing Australian bees into the US may make up for the shortage of package bees and queens in the short term, but at what long-term consequences?

EPA Asked to Pull Pesticide Linked to Bee Kills
Reproduced From “Catch the Buzz” and Tom Philpott’s story “Leaked document shows EPA allowed bee-toxic pesticide despite own scientists’ red flags”

Beekeepers and environmentalists called on the U.S. Environmental Protection Agency (EPA) December 8 to ban a pesticide linked to Colony Collapse Disorder (CCD). They cited a leaked EPA memo that discloses a critically flawed scientific support study. The November 2nd memo identified a core study, underpinning the registration of the insecticide “clothianidin” as unsound. This follows a quiet re-evaluation of the pesticide by the EPA just as they were preparing to allow a further expansion of its use.

Clothianidin (product name “Poncho”) belongs to the neonicotinoid family of systemic pesticides, which are taken up by a plant’s vascular system and expressed through pollen, nectar and gutation droplets from which bees then forage and drink. Scientists are concerned about the mix and cumulative effects of the multiple pesticides bees are exposed to in these ways. It has been widely used as a seed treatment on many of the country’s major crops for eight growing seasons while the EPA waited for Bayer Crop Science, the pesticide’s maker, to conduct a field

study assessing the insecticide's threat to bee colony health. Back in February 2003, Bayer applied for registration of clothianidin. At that time the EFED (Environmental Fate and Effects Division) withheld full registration, declaring that it wanted more evidence that it wouldn't harm bee populations. Hence, Bayer's field study was the contingency on which clothianidin's "conditional registration" was held. An EFED scientist explained the decision:

"The possibility of toxic exposure to non-target pollinators [e.g., honeybees] through the translocation of clothianidin residues that result from seed treatment (corn and canola) has prompted EFED to require field testing that can evaluate the possible chronic exposure to honeybee larvae and the queen. In order to fully evaluate the possibility of this toxic effect, a complete worker bee life cycle study (about 63 days) must be conducted, as well as an evaluation of exposure to the queen."

Yet, in April of the same year, the EPA granted clothianidin the conditional registration without the completion of any field test by Bayer. As a result that spring, and contrary to the warnings of the EFED scientist against it, billions to trillions of seed-treated plants were grown, which produced pollen and nectar rich with clothianidin. Clothianidin's effects were noted as "persistent", "toxic to honey bees", and as having the "potential for expression in pollen and nectar of flowering crops."

March 2004 Bayer requested an extension on its December 2004 deadline for delivering the life cycle study. The EPA granted the extension until May 2005. That date came and went with still no completed field study. Meanwhile, farmers throughout the corn-belt continued sowing millions of seeds each month. Not until November 2007, four years and nine months since the initial request, did Bayer finally deliver a field trial study. However, it wasn't even conducted in the US. It was done in Canada, and the plant used wasn't corn (which is the largest crop grown in the US that is now being treated with clothianidin) but canola. And there's more...

The study consisted of 2.47-acre plots; where ones were sown with clothianidin treated seed and the other plots (no treatment) served as controls. Hives were placed in the center of the plots and the bees were allowed to roam freely. But, the disappointing thing was that both the test and control bees had equal access to each other's fields, since the control plots were only 968 feet apart. So, it wasn't surprising that the researchers found no differences in bee mortality, worker longevity or brood development. April 22, 2010 the EPA granted full registration, ending clothianidin's long period of "conditional purgatory".

The real kicker (plus leaked documents) is that the researchers essentially invalidated the Bayer-funded study -- i.e., the study on which the EPA based clothianidin's registration as a fully registered chemical. Referring to the pesticide, the authors write:

A previous field study [i.e., the Bayer study] investigated the effects of clothianidin on whole hive parameters and was classified as acceptable. However, after another review of this field study in light of additional information, deficiencies were identified that render the study supplemental. It does not satisfy the guideline 850.3040 (field testing for pollinators), and another field study is needed to evaluate the effects of clothianidin on bees through contaminated pollen and nectar. Exposure through contaminated pollen and nectar and potential toxic effects therefore remain an uncertainty for pollinators.

As such, the groups mentioned above are calling for an immediate stop-use order on the pesticide while the science is redone and redesigned in partnership with practicing beekeepers. They claim that the initial field study guidelines, which the Bayer study failed to satisfy, were insufficiently rigorous to test whether or not clothianidin contributes to CCD in a real-world scenario. The field test evaluated the wrong crop (canola vs. corn), over an insufficient time period and with inadequate controls.

According to beekeeper Jeff Anderson, who has testified before EPA on the topic, “The Bayer study is fatally flawed. It was an open field study with control and test plots of about 2 acres each. Bees typically forage at least 2 miles out from the hive, so it is likely they didn’t ingest much of the treated crops. And corn, not canola, is the major pollen-producing crop that bees rely on for winter nutrition. This is a critical point because we see hive losses mainly after overwintering, so there is something going on in these winter cycles. It’s as if they designed the study to avoid seeing clothianidin’s effects on hive health.”

According to James Frazier, PhD., professor of entomology at Penn State’s College of Agricultural Sciences, “among the neonicotinoids, clothianidin is among those most toxic for honey bees; and this combined with its systemic movement in plants has produced a troubling mix of scientific results, pointing to its potential risk for honey bees through current agricultural practices. Our own research indicates that systemic pesticides occur in pollen and nectar in much greater quantities than has been previously thought, and that interactions among pesticides occurs often and should be of wide concern.” Dr. Frazier said that the most prudent course of action would be to take the pesticide off the market while the flawed study is being redone.

With a soil half-life of up to 19 years in heavy soils, and over a year in the lightest of soils, commercial beekeepers are concerned that even an immediate stop-use of clothianidin won’t save their livelihoods or hives in time. Remember, clothianidin has been on the market since 2003.

Citing the imminent economic and environmental hazards posed by the continued use of clothianidin, the National Honey Bee Advisory Board, Beekeeping Federation, Beyond Pesticides, Pesticide Action Network, North America and Center for Biological Diversity are asking EPA administrator Lisa Jackson to exercise the Agency’s emergency powers to take the pesticide off the market.

“The environment has become the experiment, and all of us – not just bees and beekeepers – have become the experimental subjects,” said Tom Theobald, a 35-year beekeeper. “In an apparent rush to get products to the market, chemicals have been routinely granted ‘conditional’ registrations. Of 94 pesticide active ingredients released since 1997, 70% have been given conditional registrations, with unanswered questions of unknown magnitude. In the case of clothianidin those questions were huge. The EPA’s basic charge is ‘the prevention of unreasonable risk to man and the environment’ and these practices hardly satisfy that obligation. We must do better, there is too much at stake.”

Nature or Nurture, Queen and Worker By Alan Harman

The nature-nurture debate is a giant step closer to being resolved. Bee scientists have documented how environmental inputs can modify genetic hardware. Research teams at the Australian National University (ANU) and the German Cancer Institute uncovered the extensive

diversity in the molecular changes that occur in the brains of two types of genetically identical, but behaviorally different, female honey bees – worker bees and queen bees.

Workers and queens develop along very different paths. Their developmental path is predicated on the young receiving different diets. The research reveals for the first time the intricacies of the environmentally influenced chemical marking of DNA, called DNA methylation, which has the capacity to alter gene expression without affecting the genetic code – a process referred to as epigenetic, or “above the genome”. “This marking determines which genes are to be fine-tuned in the brains of workers and queens to produce their extraordinarily different behaviors” research team leader Ryszard Maleszka says at ANU. “This finding is not only crucial, but far reaching, because the enzymes that mark DNA in the bee are also the enzymes that mark DNA in human brains, he says. “In the bees, more than 550 genes are differentially marked between the brain of the queen and the brain of the worker, which contributes to their profound divergence in behavior.

“This study” continues Maleszka, “provides the first documentation of extensive molecular differences that may allow honey bees to generate different reproductive and behavioral outcomes as a result of differential feeding with royal jelly. This study represents a giant step towards answering one of the big questions in the nature-nurture debate, because it shows how the outside world is linked to DNA via diet, and how environmental inputs can transiently modify our genetic hardware,” he says. “Similar studies are impossible to do on human brains, so the humble honey bees are the pioneers in this fascinating area.”

Management Calendar: December – February in Georgia

Record-breaking low temperatures have been experienced all across the eastern half of the country these past few weeks, along with excessive snow fall causing power outages, school closings and even a dome to collapse in the northern portions. Winter has arrived with a vengeance this season. Hopefully you didn't forget to do your winter preparations, because now it may be too late.

However, temperatures here in the south will re-bound, some day, allowing us to make several midwinter inspections of our colonies. Don't delay; do so when the opportunity presents itself, because one of the main causes of winter losses is starvation. It could mean the difference between a live, healthy colony this spring or an empty box. Also make sure honey stores are within reach of the cluster. With temperatures fluctuating from the mid 50's to the low 20's bees often get separated from the honey stores. All the honey in the world is worthless if the bees are too chilled to reach it.

Lifting colonies from the rear is a quick method for determining quantities of honey stores. If the colony is light mix a heavy 2:1 (sugar:water) syrup solution and feed them with an inverted plastic pail, bucket or jar directly over the cluster. Do not rely on Boardman entrance feeders, division board feeders or even baggies since the bees are unable to travel far from the cluster in order to feed during cold weather. Avoid feeding your colonies poor quality feed like brown sugar, “mystery” feed, re-melted candy, pancake syrup, molasses, fermented honey and corn syrup with industrial food additives. These contain indigestible components that can have unknown and negative dietary consequences on bees. It can also cause dysentery. Stick to pure, cane sugar. It may be a little more expensive on the front end, but one can pay now or pay later.

If small hive beetles are a problem, several traps on the market can still work well this time of year: the Beetle Jail and the Beetle Blaster. Both are plastic traps, which fit down between the frames. You fill them with oil and the beetles crawl into the reservoir and hopefully drown. This time of year you need to put the traps right on top of or near the cluster because that is where the beetles are. They can't tolerate the cold and need the warmth of the bees to keep them alive hence they move into the center of the cluster. So the closer the traps are to the cluster the better for catching them.

Hive protection is another consideration. During times of colder weather, mice love the warm accommodations provided by honey bee colonies. To keep out these unwanted intruders, it is suggested to use an entrance reducer or mouse guard. Usually guards made of metal provide the best protection since mice cannot chew through them. These entrance reducers also provide protection from cold drafts.

If at all possible, it is a good idea to provide maximum sun with minimum wind exposure during these cold, blustery days. Once the end of January or first part of February arrives, don't forget to re-check colonies for honey and pollen stores and a viable queen. Colonies are gearing up for the upcoming nectar flow with increasing populations; therefore supplies will be dwindling at a rapid pace. Apply pollen patties if supplies are low and again feed sugar syrup.

This is also a good time of the year to do repairs, build new equipment and order queens and nucs for next spring.

We at the UGA Honey Bee Lab wish you and yours a Merry Christmas and a Happy New Year.

How to Get Georgia Bee Letter

GBL can be received electronically by emailing your request to Jennifer Berry at jbee@uga.edu

Regular Meetings

Bartow Beekeepers Association www.bartowbeekeepers.com/#/	7:00 pm, third Tuesday	Bartow County Extension Office, (behind the Cartersville Public Library)
Chattahoochee Valley Beekeepers Association www.chattahoocheebeekeepers.com	7:00 pm bimonthly (beginning January), second Monday	1/2011: Columbus State Univ. (Lindsey Creek Rd. & College Dr.) 3/2011: Oxbow Meadows Nature Center, Columbus
Cherokee Beekeepers Club www.cherokeebeeclub.com	7:00 pm third Thursday	Cherokee Arts Center, Canton
Coastal Empire Beekeepers Association www.cebeekeeping.com/contact.htm	6:30 pm second Monday	1026 Quacco Road, Savannah
Coweta Beekeepers Association www.cowetabeekeepers.org/	7:00 pm second Monday	Asa Powell Sr. Expo Center, Newnan, Georgia
Eastern Piedmont Beekeepers Association www.easternpiedmontbeekeepers.org	7:00 pm first Monday	UGA Bee Lab, 1221 Hog Mtn Rd, Watkinsville
Forsyth Beekeepers Club forsythbeekeepersclub.org/Forsyth_Beekeepers_Club/Home.html	6:30 pm fourth Thursday	Sawnee Mountain Preserve Visitor Center
Henry County Beekeepers www.henrycountybeekeepers.org	7:00 pm second Tuesday	Public Safety Bldg., 116 Zack Hinton Parkway South, McDonough
Heart of Georgia Beekeepers Association	7:00 pm third Tuesday	Old Perry Court House, Perry
Metro Atlanta Beekeepers Association www.metroatlantabeekeepers.org	7:00 pm second Wednesday	Atlanta Botanical Garden, Atlanta
Mountain Beekeepers Association	7:00 pm first Tuesday	Mountain Regional Library, Young Harris
Northeast Mountain Beekeepers Association	7:00 pm second Thursday	Northeast Georgia Regional Library, Clarksville
Northwest Georgia Beekeepers Association www.northwestgeorgiabeekeepers.com	7:00 pm second Monday, Jan - June & Sept	Walker County Agric. Center, Rock Spring
Oglethorpe County Bee Club www.ocbeeclub.org	7:00 pm, third Monday	Oglethorpe Farm Bureau Building
Southeast Georgia Beekeepers Association	7:00 pm fourth Tuesday, Aug-March	Contact Ben Bruce 912-487-2001
Southwest Georgia Beekeepers Association	7:30 pm last Tuesday, even months	Swords Apiaries. Moultrie
Tara Beekeepers Assn (Clayton Co. area) www.tarabeekeepers.org	7:00 pm third Monday	Kiwanis Room, Georgia Power Bldg, 752 Main Street, Forest Park
Troup County Association of Beekeepers	7:00 pm, third Monday	4-H Ag. Bldg. on Hwy 27 at Vulcan Rd.

Beekeeping Subscriptions

<i>American Bee Journal</i> , Hamilton, Illinois, 62341	217-847-3324
<i>Bee Culture</i> , 623 W. Liberty Street, Medina, Ohio, 44256	330-725-6677
<i>Bee World</i> , IBRA, 16 North Road, Cardiff, CF10 3DY, U.K.	
<i>The Speedy Bee</i> , P.O. Box 998, Jesup, Georgia, 31598-0998	912-427-4018

Resource People for Georgia Beekeeping

For a complete listing of resource people and associations please go to

<http://www.ent.uga.edu/bees/associations.html>