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Honey Bee Project

Archibald Rutledge students buzz around Annandale Plantation

by Meredith Reeves

Out at Annandale Plantation on the Santee Delta, the honey bees of Archibald Rutledge Academy's Bee Project buzz contentedly in the summer sun, collecting pollen from the natural flora of the plantation as well as from an expanse of lavender, which the students planted in March.

Sadly, honey bee hives, like the one on the plantation, are fast becoming a rarity in coastal South Carolina due to infestations of the lethal small hive beetle, *Aethina tumida.*

The Bee Project is one of the enrichment course electives that students at Archibald Rutledge Academy (ARA) in McClellanville can select during the school year. It is supported by a grant from WRITE TO CHANGE, a non-profit organization located at Clemson University's Strom Thurmond Institute, which supports community literacy projects.

Fred Singleton inspects hives at Annandale Plantation for small hive beetle infestation and finds them free of the lethal pest.

The goals of the class for the last two years have been to manage seven bee hives donated to the students by Pete Wilson, an internationally recognized bee expert and former Department of the Interior biologist; to learn about the biology and ecology of Lowcountry bees; and to establish connections in the community to teach citizens about the importance of honey bees as pollinators.

The Bee Project, whose primary goal is honey bee conservation, invited Fred Singleton to the plantation recently, for an update on the status of the hive beetle and to inspect their hives for the pest.

Singleton works with Clemson University's plant industry department in Summerville, tracking and inspecting potential threats to South Carolina's agricultural industry from insects and invasive plant species. He is the primary contact in South Carolina for small hive beetle problems, having documented the state's first case in Meggett nearly a year ago. He continues to track the beetles' invasion of the state.

Singleton explained to the students the devastating results of infestations by hive beetles he has witnessed in many Lowcountry hives. Unlike the Varroa mite, which kills the adult bees directly, the small hive beetles cause the bees to abandon the hives because they are so well adapted to defend themselves from the bees.

The bees become frustrated and leave the hives. The adult bees defecate in the honey, causing it to ferment which makes it unpalatable to the bees. The beetle larvae tunnel through the comb, destroying it and killing the brood. The results of a heavy infestation are easily detected as a mound of oozy honey and larvae at the bottom of the hive, where there are

thousands of the tiny black beetles scurrying around the hive.

The problem is exacerbated due to the fact that the beetle is able to spread much faster than research on it can be completed. No true solution for ridding the hives of the pest has yet been approved. Strong, healthy, isolated hives seem to have the greatest chance at survival, but no escape can be guaranteed.

After a somewhat sobering talk about the effects of the beetle, the students and Singleton went out to inspect the Bee Project's hives. Fortunately, not a trace of the beetle was found in any of the hives, not even in its favorite lurking places. Singleton concluded that the beetle had not naturally spread to Georgetown County – yet.

The Bee Project hopes that the salvation of the hives will lie in their isolation and their proximity to the lavender garden, which while it may not keep away the hive beetle, is reputed to contribute to healthy strong hives.

Singleton's talk at Annandale brought conclusion to a busy and successful second year in which honey was extracted and sold; and lavender was planted and studied in the context of bee health and in the context of natural dyes with the Clemson University Textile Department's Bhuvenish Goswami.

Also entomologist Dr. Dwight Williams arranged for the students to visit Cypress Gardens; students considered the global importance of bees by the purchase of hives donated to Uganda through Heifer Project International; and younger grades at Archibald Rutledge were included in the odyssey as Bee Project students went into the classrooms to teach conservation science as a part of the Academy's Salt Marsh Curriculum program.

Future goals of the Bee Project include honey extraction and building of hives, an intensive study of botany, and continuation and expansion of community outreach through distribution of lesson plans and information possibly via a web page.

The Bee Project was developed by and co-taught by Ms. Sally Burry, Head of School at the Archibald Rutledge Academy, and Meredith Reeves, a graduate of ARA, who is a biology major at Middlebury College.

Students participating in the project are Bochet Leland, Jeff Baldwin, Lesley Gooch, Lillian Reeves, Raynee Russell, and Rebecca Capps.