

COFFEE BERRY BORER IN HAWAII

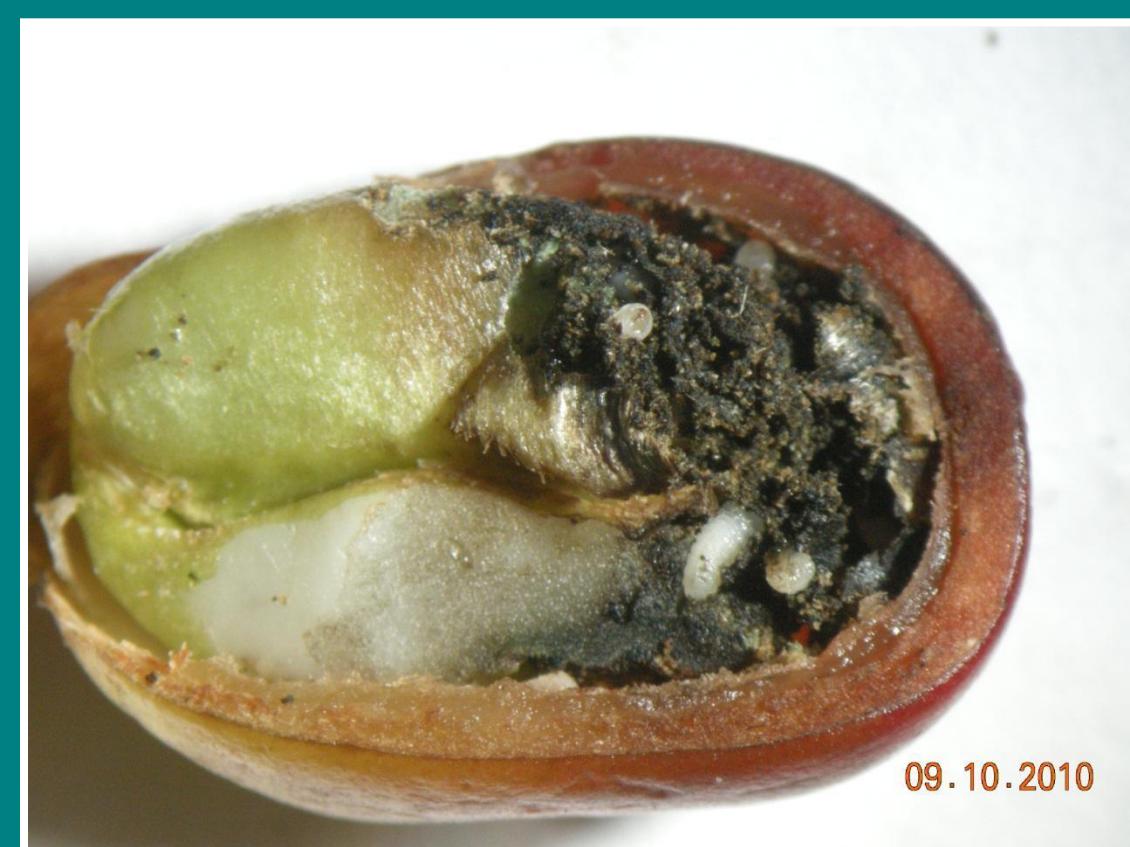
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ABSTRACT

The Coffee Berry Borer (CBB), *Hypothenemus hampei* (Ferrari), is a major pest in coffee-growing regions throughout the world. It bores through the berry and attacks the bean, rendering it unsuitable for market. CBB was first detected in Hawaii in late August 2010 in the Kona area on Hawaii Island, where world-premier coffee is grown. The initial identification was made by Hawaii systematists, and the final determination was made by the USDA Systematic Entomology Laboratory. Since this was a pest of known economic importance, the National Plant Diagnostic Network (NPDN) Standard Operating Procedure for APHIS-PPQ Pest of Concern was utilized to enhance rapid identification and notification. Following a delimiting survey, an interim quarantine was instituted on December 2, 2010 for Hawaii Island. In a collaborative effort, staff from the Hawaii Department of Agriculture and other government agencies are working together to develop methods to control CBB and to assist farmers in mitigating the effects of CBB on coffee crops.



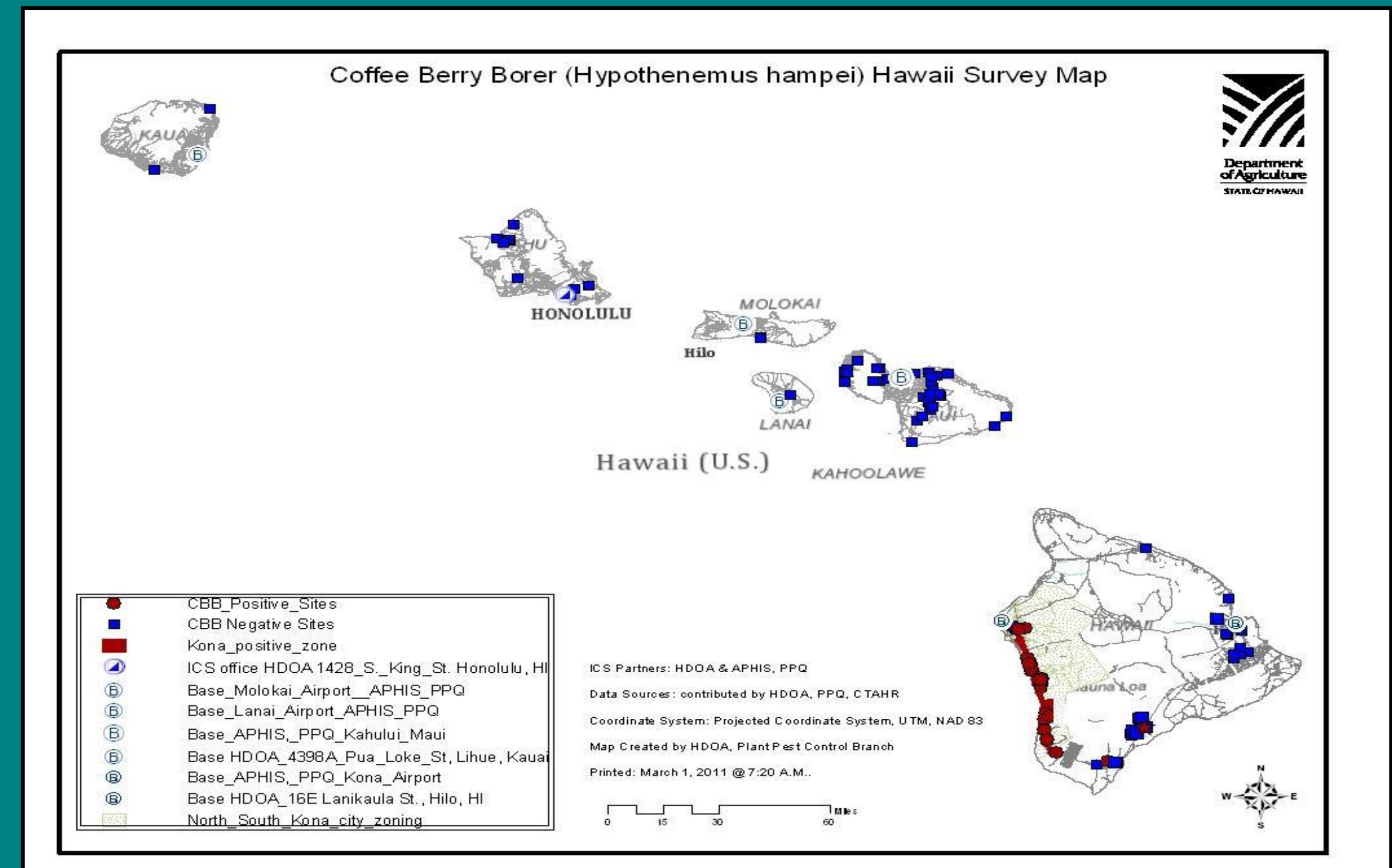
Hypothenemus hampei adult female.



CBB larvae devouring coffee bean.



The Hawaii Department of Agriculture (HDOA) first became aware of CBB, on September 2, 2010, when Elsie Burbano, University of Hawaii graduate student, and H.C. Bittenbender, UH, CTAHR, Extension Crop Specialist, brought beetle specimens from infested coffee berries to HDOA. Suspecting that it may be CBB, the most economically important insect pest of coffee in the world, Insect Taxonomist Bernarr Kumashiro immediately sent specimens to the Bishop Museum in Honolulu. Coleoptera specialist, G.A. Samuelson, concurred that it was in fact CBB. Simultaneously, because of the critical importance of this pest, HDOA processed the sample through the NPDN Standard Operating Procedure (SOP) for pests of serious concern. NPDN was created in 2002, in the aftermath of the 9/11/2001 attack, to protect agriculture in the U.S from agro-terrorism and other threats. In the SOP, established pathways are utilized to rapidly and authoritatively identify the pest and to notify USDA, state, and NPDN officials of the pending urgency. The USDA Systematic Entomology Laboratory at Beltsville, MD confirmed the identification of the beetle as CBB, *Hypothenemus hampei* (Ferrari), on September 8, 2010.



CBB trap.
Photo: Lori Carvalho, USDA-ARS-PBARC



Thousands of CBB adults collected in trap at Honaunau.
Photo: John Scharf, USDA-APHIS-PPQ

To further enhance surveys of CBB at Kona coffee farms and processing mills, use of special scolytid traps were initiated. Joint studies were conducted by HDOA and USDA-APHIS-PPQ, including identification of various insects in the traps, relative numbers of CBB and Tropical Nut Borer in each trap, trap designs, varying concentrations of alcohol lures, and placements of traps within the field. It appears that there are many abiotic and biotic variables involved in the field, and many of the results are inconclusive. Generally, however, the red Mexican traps (see photo) with a 3:1 ratio of methanol/ethanol has proven effective. As many as 6,000 CBB have been collected in a trap at a coffee farm in Honaunau within a 2 week period. Other scolytids collected from traps were sent to Donald Bright, scolytid specialist at Colorado State University, for identification.

CONCLUSION

CBB has developed into a serious pest of coffee on the Kona Coast of the Big Island, since its initial report in September 2010. Samples in traps indicate there was a steady increase in numbers in the months that followed. Many agencies have been involved in the studies, control, and regulatory aspects of CBB, and here, we have described some of the activities and involvement of the HDOA.

The HDOA and USDA-APHIS-PPQ will continue to monitor and study CBB in the Mexican traps at Kona coffee farms and processing mills. The numbers of CBB in the traps have declined in February primarily because most of the crop had been harvested by January. The HDOA PPC staff in Hilo will continue to monitor CBB traps on the outskirts of the quarantine zone and on the Hilo side of the island. No new areas outside of the quarantine zone have been reported.

The HDOA will continue to pursue methods for controlling CBB. It recently gained approval for the importation and use of *Beauvaria bassiana* strain GHA, a commercially available fungus, as a biopesticide.