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Current Status of the Kudzu Bug, *Megacopta cribraria*, in North America

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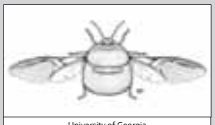


University of Georgia
College of Agricultural and Environmental Sciences
Megacopta Working Group

The Insect
Megacopta cribraria
Hemiptera: Plataspidae

Development time from egg to adult = 24 to 56 days.

Numbers of eggs produced per female = 26 to 274 with 15 eggs per egg mass.

Eggs usually deposited in 2-3 parallel rows stuck black substance deposited by female.

5 nymphal instars.

Adult longevity = 23 to 77 days.

Overwinter as adults in groups usually under debris or under bark.

2 to 2.5 overlapping generations observed in Georgia; maybe 3 in 2012.

Upper images provided by Jeremy Greene, Clemson University

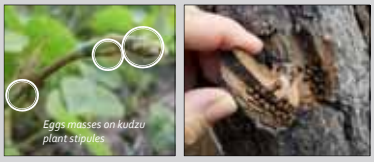


Image provided by Phillip Roberts University of Georgia

Image provided by John Ruberson University of Georgia

Initial Discovery
October 2009

Samples submitted to the UGA Homeowner Insect & Weed Diagnostics Laboratory.

October 28, 2009: Site visit to Jackson Co., GA, thousands of adult kudzu bugs on homes.

Kudzu growing 30 m from homes harbored large numbers of adults and some late-instar nymphs.

Adults seeking overwintering sites at the homes.

Megacopta cribraria deemed "a serious home invader and potential legume pest."

Confirmed in 9 counties covering 7050 km²

Images by and courtesy of Daniel R. Suiter & Lisa Ames (University of Georgia) & Center for Invasive Species and Ecosystem Health, UGA (www.insectimages.org)

Range Expansion
2009 - 2012

Megacopta now confirmed in 8 states: Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, Tennessee, Virginia .

Area Infested by Year:
2010: 98,816 km² (14x increase)
2011: 188,577 km² (41x inc)
2012: 417,025 km² (59x inc)

75% of additional area reported in 2011 was in a northeasterly direction; likely affected by weather (La Niña).

2012 reports from Mississippi likely due to hitchhiking.

Map compiled by Wayne A. Gardner, University of Georgia

Origin of Introduction

Native Range: Southeast Asia, China, Japan, India, northern Australian, Malaysia, etc..

Genetic analyses (mtDNA) show that insects in expanded range are from SINGLE FEMALE ANCESTOR (GA1).

Genetic comparisons indicate source of origin is Japan.

Likely will NEVER know mode of introduction.

Reported Host Plants in Expanded Range

Images courtesy of Center for Invasive Species and Ecosystem Health, UGA www.insectimages.org

Legumes

- Kudzu
- Soybean
- Lima Bean
- Pole/String/Green Bean
- Lablab Bean
- American Wisteria
- Chinese Wisteria
- Japanese Wisteria
- American Yellowwood
- Lespedeza
- Peanut
- Crimson Clover
- Clover
- Alfalfa
- Sicklepod
- Black Locust

Non-Legumes

- Alligatorweed
- Cocklebur
- Cotton
- Fig
- Pine Trees
- Wheat
- Loquat
- Wild Blackberry
- Satsuma mandarin
- Black Willow

Impacts

Kudzu Biomass Reduced (33% in one year's growth).

Soybean Yield reduced an average of 18% over 19 tests conducted in GA and SC.

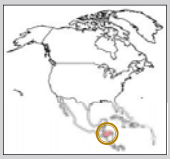
Edible Bean Yield?

Nuisance Pest in urban areas – abundance and activity of adults, staining, odor.

Localized Skin Reactions for some individuals.

International Trade

Exporting *Megacopta*



Honduras

50.7% of Honduran imports are from the United States. Primarily machinery, transportation equipment, and agricultural products (cotton, poultry products).

11 February 2012:
Honduran inspectors discover 7 dead *Megacopta* adults in the bottom of a shipping container of poultry meat products from Georgia. Inspectors had previously found 2 dead adults in a container shipment of fertile chicken eggs from same Georgia facility.

27 February 2012:
Honduran Servicio de Proteccion Agropecuaria (SEPA; Agricultural Protection Service) halted all agricultural imports from Georgia, Alabama, and South Carolina citing 11 February discovery.

29 February 2012:
North Carolina agricultural exports were added to the ban by the Honduran SEPA.

01 March 2012:
Honduran officials ease restrictions to begin inspecting and unloading individual containers (primarily cotton) to support local industries.

Possibility for Classical Biological Control

Native predators in expanded range have little impact (generalists).

No native parasitoids known.

Exotic enemies from native range of pest best option.

Egg parasitoid *Paratelenomus saccharalis* ideally suited for importation: wide distribution, strong knowledge base, high specificity.

Currently in quarantine in Stoneville (USDA ARS).

Release permit application in development.

Paratelenomus saccharalis (Hymenoptera: Ichneumonidae)