



KUDZU BUG

MEGACOPTA

CRIBRARIA

(HETEROPTERA: PLATASPIDAE)

JULY/AUG
2012

Introduction

Megacopta cribraria is commonly called the kudzu bug, bean plataspid, lablab bug and the globular stink bug. It was first discovered in northeast Georgia in October 2009, following reports from homeowners of large aggregations of the insect on residential structures. Onsite inspections by University of Georgia personnel revealed large populations of the insect in nearby kudzu stands. *M. cribraria* had not been previously reported in the Western Hemisphere, in fact this is the first member of the family Plataspidae reported in the United States.

In its native range, kudzu is a preferred host plant, but *M. cribraria* also feeds on numerous economically important legume (bean) crops including soybeans, of which it is considered a serious pest. *M. cribraria* feeds by piercing stems, petioles and leaves of the host plants with its needle-like mouthparts to extract plant juices. There is also a concern that this pest could become a pest in Georgia's peanut crop, which is worth approximately \$2 billion a year.



Figure 1. *M. cribraria* on window trim (D. Suiter, University of Georgia)

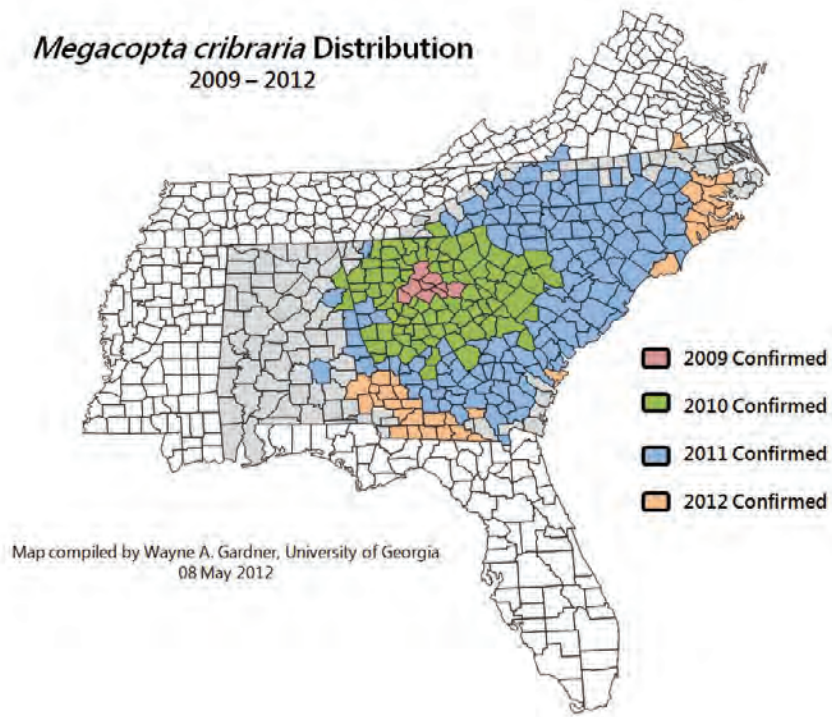


Figure 2. *M. cribraria* distribution 2009 - 2012 (W.A. Gardner, University of Georgia)

Kudzu is an exotic invasive vine that was imported from Asia more than 100 years ago. The vine is commonly found through the southeastern United States and is characterized by dense mats of vines and roots. Although originally introduced as a forage crop and to help control erosion, the plant quickly outcompetes native vegetation and grows unimpeded throughout most of its range. *M. cribraria* feeding has been shown to reduce kudzu biomass in the field by more than 30 percent.

Description

M. cribraria adults are light brown to olive green in color with numerous dark brown speckles. The adults range from 4–6 mm in length and are rounded to slightly oblong in shape. Adults possess an enlarged scutellum that is widest posteriorly and broadly truncate. Like all true bugs, they have piercing-sucking mouthparts. Similar to stink bugs, *M. cribraria* produces a mildly offensive odor when handled or disturbed.

M. cribraria can be distinguished from related insects in the United States by having two-segmented tarsi, and enlarged scutellum (a triangular plate on the dorsal side of the thorax, usually where the wings attach) that is widest at the posterior margin and relatively truncate posteriorly. Other members of the North American Pentatomoidea exhibiting enlarged scutelli include the Scutelleridae, Thyreocoridae, Pentatomidae: Asopinae and Podopinae. These groups have three-segmented tarsi and a more narrowly rounded scutellum posteriorly compared to *M. cribraria*.

Distribution

A native of Asia, *Megacopta* spp. have been reported from Australia, China, India, Indonesia, Japan, Korea, Macao, Malaysia, Myanmar, New Caledonia, Pakistan, Sri Lanka, Taiwan, Thailand and Vietnam. Currently, *M. cribraria* is established throughout Georgia and South Carolina, much of North Carolina, eastern Alabama and at least one county in southwestern and one county in southeastern Virginia. Details about when and where



this insect was introduced to the United States are unknown, although it is noted that since the first report of *M. cribraria* in 2009, its spread throughout the southeastern states has been rapid. Adult *M. cribraria* are active, strong fliers and fly readily when disturbed, which may account for the rapid dispersal of this pest. The extent of *M. cribraria*'s eventual spread not yet known. *M. cribraria* can feed on alternate hosts such as soybean, but overwintering adults feed on existing kudzu plants in the spring before soybeans are planted, so expansion beyond the southeastern United States (where kudzu is available as an initial food source) is still unknown.

Biology

Overwintering adults lay small (<1 mm length) barrel shaped eggs on new vine growth of kudzu plants from mid-April to early May. Freshly laid eggs are white, but soon develop an off-white or pinkish color. The operculum (the hatch through which nymphs emerge from the eggs) is surrounded by short spine-like projections. Eggs are typically laid in groups of two or three parallel rows. On average, each egg mass contains approximately 15 eggs.

M. cribraria exhibits an unusual behavior related to the symbiotic bacteria in its gut. Before laying eggs the female deposits particles of her gut microorganisms, which the first instar nymphs eat upon hatching. Nymphs that did not receive this inoculation of symbiotic gut bacteria exhibit slower growth, smaller body sizes and higher levels of mortality.

M. cribraria undergoes five nymphal instars and two generations each year, with egg laying activity peaking in spring and early summer. (In its native range, *M. cribraria* is reported to have two or three generations per year.) In the southeastern United States, adult kudzu bugs overwinter near kudzu patches and soybean fields, in plant debris, behind tree bark and other protected places.

Pest Status

Similar to other overwintering pests like brown marmorated stink bugs and multicolored Asian ladybeetle, kudzu bugs are attracted in large numbers to structures and may be observed aggregating on the south-facing sides of buildings in the autumn. These aggregations can become quite large, with thousands of bugs alighting on building surfaces, which often prompts calls to pest management professionals. USDA Forest Service research performed in Georgia indicates that light-colored traps are more effective at capturing kudzu bugs in the field. However, it is not clear if kudzu bugs prefer light-colored houses over darker houses as overwintering sites. Bugs do seem to prefer light colored surfaces, even on dark-colored structures. As cooler weather approaches, kudzu bugs seek out protected harborages to overwinter. It is not clear to what extent *M. cribraria* will enter structures; however, it is evident that the large numbers of bugs on the exteriors are a nuisance to homeowners. The large populations and invasive behavior of these insects make them an important emerging nuisance pest.

IPM Measures

Kudzu bugs can be managed with the use of a vacuum to remove large aggregations of invading bugs. Bags from vacuums should be disposed of outside to prevent bugs from escaping and reinfesting the structure. Although it is not yet clear to what extent *M. cribraria* will enter structures, exclusion efforts are a common-sense approach that will have the added benefit of keeping other invading overwintering pests outdoors too. Mechanical exclusion, although labor intensive, is often the best method for keeping overwintering pests from entering a structure. Seal cracks and crevices around windows and door trim, and repair or install vent screening in soffits and gables. Exclusion is best performed in the late spring or summer. Late fall or winter exclusion efforts can trap pests inside the structure, causing them to emerge into living spaces.

Inside the structure, seal around windows, doors, baseboards, exhaust fans, ceiling lights and other potential entry points with caulk or other suitable sealant to keep bugs from entering the living spaces. It should



be noted that although applications to void spaces may help control overwintering kudzu bugs inside walls, secondary infestations of carpet beetles, feeding on the dead bugs may occur and become a nuisance.

Exterior applications of insecticides can be made according to label instructions. Focus efforts on the likely resting places including around windows and doors, and under soffits and eaves. Since kudzu bugs migrate from host plants to overwintering sites over multiple weeks, it may be difficult to time treatments to coincide with the arrival of overwintering bugs. *M. cribraria* does seem to prefer light-colored surfaces (even on dark-colored structures), so spot treatments with an appropriately labeled insecticide may help with control. Since extremely large populations of kudzu bugs can develop in nearby kudzu stands, sustained control is difficult unless the host plants can be eliminated. «

References

Eger, J.E., L.M. Ames, D.R. Suiter, T.M. Jenkins, D.A. Rider and S.E. Halbert. 2010. Occurrence of the Old World Bug *Megacopta cribraria* (Fabricus) (Heteroptera: Plataspidae) in Georgia: a serious home invader and potential legume pest. *Insecta Mundi* 0212: 1-11.

Horn, S. and J.L. Hanula. 2010. Influence of Trap Color on Collection of the Recently-introduced Bean Plataspid, *Megacopta cribraria* (Hemiptera: Plataspidae). *Journal of Entomological Science* 45: 85-87.

Suiter, D.R., L.M. Ames, J.E. Eger and W.A. Gardner. 2010. *Megacopta cribraria* as a Nuisance Pest. UGA-CAES Extension Circular No. 991.

Suiter, D.R., J.E. Eger, W.A. Gardner, R.C. Kemerait, J.N. All, P.M. Roberts, J.K. Greene, L.M. Ames, G.D. Buntin, T.M. Jenkins and G.K. Douce. 2010. Discovery and Distribution of *Megacopta cribraria* (Hemiptera: Heteroptera: Plataspidae) in Northeast Georgia. *Journal of Integrated Pest Management* 1: 1-4.

Zhang, Y., J.L. Hanula and Scott Horn. 2012. The Biology and Preliminary Host Range of *Megacopta cribraria* (Heteroptera: Plataspidae) and Its Impact on Kudzu Growth. *Environmental Entomology* 41: 40-50.



Figure 3. *M. cribraria* aggregation on fascia along roofline (D. Suiter, University of Georgia)