Heteroptera of Concern to Southern U.S.

Julieta Brambila, USDA-APHIS-PPQ
Invasive Arthropod Workshop
Southern Plant Diagnostic Network
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# Heteroptera of Concern to Southern U.S.

## Coreidae
- *Leptoglossus zonatus*
- *Leptoglossus occidentalis*

## Lygaeidae
- *Blissus antillus*
- *Dieuches armatipes*
- *Dimorphopterus gibbus*
- *Nysius huttoni* and *N. vinitor*
- *Oxycarenus hyalinipennis*
- *Spilostethus pandurus*

## Miridae*
- *Adelphocoris lineolatus*
- *Creontiades dilutus*
- *Creontiades pallidus*
- *Lygus gemellatus, L. rugulipennis, and L. pratensis*
- *Notostira elongata*
- *Pycnoderes quadrimaculatus*
- *Stenodema calcarata*

## Pentatomidae
- *Aelia acuminata* and *A. rostrata*
- *Bagrada cruciferarum*
- *Biprorulus bibax*
- *Dichelops furcatus* and *D. melacanthus*
- *Edessa meditabunda*
- *Euschistus heros* and *E. quadrator*
- *Halyomorpha halys*
- *Loxa deducta*
- *Musgraveia sulciventris*
- *Oebalus poecilus* and *O. ypsilongriseus*
- *Scotinophara lurida*
- *Tibraca limbavitventris*

## Scutelleridae
- *Eurygaster integriceps*

*Not included in this presentation*
Western Conifer Seed Bug
*Leptoglossus occidentalis* Heidemann
Coreidae

- Original distribution is western Canada, western U.S., and Mexico. Has spread to NE Canada, midwestern states, NE U.S., and SE U.S.
- WV, AL
- Italy!

Of concern for homeowners because large numbers congregate around windows and doors in late fall in northeastern U.S. looking for overwintering sites. Prevent their entry to homes by fixing door and window frames, cracks, etc.

Photo from David Cappaert
www.forestryimages.org
Western Conifer Seed Bug
*Leptoglossus occidentalis* Heidemann
Coreidae

- Hosts: conifers, including many pine species, Douglas fir, white spruce, eastern hemlock
- Feeds primarily on developing seeds, also on mature exposed seeds and terminal shoots
- Seeds collapsed (emptied) or shrunken, cones aborted
- Damage may be caused by sucrase enzymes
- Most damage by females
- Most damage early in the season
- In other areas no damage reported (or not yet reported)
- Single generation per year

In orchards for reforestation seed losses up to 50%

Photo by Whitney Cranshaw at www.insectimages.org
Western Conifer Seed Bug
*Leptoglossus occidentalis* Heidemann
-Coreidae-

Adults are 16 to 19 mm long, dark brown with dilated, flattened hind tibiae. Distinguished by the “M” zigzag band across corium and by the bright color of abdomen.

Most similar to *L. corculus*. Distinguished by shorter hind tibia dilations and dorsal surface of abdomen (under wings) orange and black.

*Leptoglossus corculus*, the southern pine seed bug, is one of the most destructive pine pests in southeastern U.S.
Leaf Footed Bug
*Leptoglossus zonatus* Dallas
Coreidae

- Has been found in SE U.S.
- Louisiana and Florida

Original distribution is California, Arizona, Texas, Kansas, and Mexico to Brazil

Photo with permission by Ailene and Shane Long, www.bugguide.net

Photo with permission by Lyle Buss, Univ. of Florida - IFAS
# Leaf Footed Bug

*Leptoglossus zonatus* Dallas

**Coreidae**

- Polyphagous (fruits, vegetables, field crops)
- Damage reported to cotton, lime, orange, guava, melons, avocado, sorghum, tomato, cucumber, eggplant, pomegranate
- Also feeds on sunflower, passion fruit, soybean, others

- Damage includes aborted fruit, malformed seeds, reduced seed weight, lowered oil content, cracking of fruit, lesions on fruit, or decomposition of fruit
- External and internal damage to Satsuma oranges, in part due to yeast transmitted

- In a Brazil study, a plant trypasonomatid pathogen was obtained from the digestive tract and salivary glands. It is a potential vector for these protozoans, especially for corn.
Leaf Footed Bug
Leptoglossus zonatus Dallas
Coreidae

Adults are 19-21 mm long, dark brown with dilated, flattened hind tibiae. Distinguished by the zigzag band across corium and by the two pale-yellow spots on the pronotum.

Photo with permission by Lyle Buss, Univ. of Florida - IFAS
Leaf Footed Bugs

*Leptoglossus*
Coreidae

Other species of concern

- *L. australis*, polyphagous (Africa to, India, Asia and Australia)
- *L. conspersus*, various fruits (Mexico to S. America)
- *L. occidentalis* (presented)

*Leptoglossus australis* (F.)

Photo with permission from Michelle Pilon, Canada
Taken in Dominican Republic 2005, *Parcours Nature*
http://parcours.pilonm.org
Chinch Bug
Blissus antillus Leonard
Lygaeidae

- Not in mainland U.S.
- Described from Puerto Rico
- Serious grass pest in Brazil
- Damages and can kill some lawn and pasture grasses
- Heavy infestations reach 20,000 bugs per square meter
- IPM research has found parasitic mites, egg parasitoids, and entomopathogenic fungi that infect the eggs
- ”Blissidae” in newer classification
African Peanut Bug
Dieuches armatipes (Walker)
Lygaeidae

- Introduced into the U.S.
- Originally from Africa and Spain
- Introduced to Caribbean long ago
- In Florida at least since 1992
- Feeds on several types of mature seeds on the ground
- Pest in Africa of harvested/stored peanuts (i.e. of mature peanuts)
- 10.5 to 11.5 mm long, dark brown, with a subapical white marking on corium and fore legs armed with two rows of spines
- Overlapping generations
- "Rhyparochromidae" in newer classification

Photo with permission from Dr. Michael Thomas, FDOACS-DPI
Sugarcane Black Bug
*Dimorphopterus gibbus* (F.)
*Lygaeidae*

- Not in U.S.
- Not commonly intercepted
- West Africa, Oriental and Australian regions
- Pest of sugarcane and at least 35 other grass species
- Feeds on upper tender shoots
- 4 to 5 mm long, slender fore femora without spines, some brachypterous (=short wing forms)
- Two generations per year
- Adults diapause in dry season
- Resistant varieties of sugarcane with smaller, tighter leaf sheaths
- Scelionid egg parasitoids
- ”Blissidae” in new classification

Causes severe damage to sugarcane
Very high economic potential

Other species of concern are *D. similis*, *D. cornutus*, *D. brachypterus*, *D. hesseii*, *D. spinolae*, *D. pallipes*, and *D. pilosus* (on rice and other grasses)

Very high economic potential
Wheat Bug
*Nysius huttoni* Buchanan-White
Lygaeidae

- Not in U.S.
- New Zealand
- Netherlands and Belgium (1996)
- Damages wheat
- Enzymes damage gluten, runny dough unsuitable for baking

**Economically important**

**Serious wheat Pest**

**Also causes serious damage to cruciferous crops**

Photo with permission from J.M. McKenzie.
'Material used with kind permission of HortNET, a product of The Horticulture and Food Research Institute of New Zealand Limited.'
Wheat Bug
*Nysius huttoni* Buchanan-White
Lygaeidae

- Polyphagous on weedy plants annual weeds
- Native host is a composite shrub
- Cruciferous crops attacked, leaves wither and die, stems collapse
- Reported damage on many other plants including clover, strawberry, and beets
- Difficult to control, mostly with insecticides, resistance seen, no natural enemies recorded

Considered a passenger pest: intercepted on apple packages from New Zealand

Photo with permission from J.M. McKenzie.
'Material used with kind permission of HortNET, a product of The Horticulture and Food Research Institute of New Zealand Limited.'
Wheat Bug
Nysius huttoni Buchanan-White
Lygaeidae

- Migrates to wheat and feeds on developing kernels
- Migrates to diapause in winter in sheltered places
- Wide ecological tolerance, from seaside to high altitudes
- Two generations
- 2.4 to 4.4 mm long
- “Orsillidae” in newer classification

Other Nysius of concern are N. plebeius (flowers and sorghum) and N. vinitor (sunflowers)
The Rutherglen Bug
*Nysius vinitor* Bergroth
Lygaeidae

-Not in U.S.
-Australia
-Sunflowers and other economically important plants: flaxseed, rapeseed (canola), potatoes, tomatoes, cruciferous crops, cotton, beans, carrots, capsicums, beet, tobacco, sorghum, strawberries, cotton, grapevines, young citrus, stone fruits
-All are introduced species

In 2006 was declared a regulated pest by the Canadian Food Inspection Agency for blueberry fruit from Australia
The Rutherglen Bug
*Nysius vinitor* Bergroth
*Lygaeidae*

- Feeds on seeds
- Climbs on sunflowers to feed on the seed heads
- Saliva toxic to plants: strawberries severely affected, flower buds and flowers destroyed, fruits deformed
- Builds up large populations
- Strong dispersal behavior
- Fast, mobile, agile
- Moves mostly at night
- Prefers drier habitats
- Migratory,

**Well adapted to exploit temporary habitats such as weedy fields or agricultural crops**
The Rutherglen Bug
*Nysius vinitor* Bergroth
Lygaeidae

-Nuisance:
-Enters homes
-Painful bites
-Skin irritation reactions

-Short bucculae, costal margin glabrous and convex
-Insecticides only when necessary, otherwise, tachinid flies, entomopaghogenic fungus, egg parasites are available
The Cottonseed Bug

*Oxycarenus hyalinipennis* Costa

*Lygaeidae*

- Not in U.S.
- From Africa, now in some countries in South America, Central America, and Caribbean
- Intercepted in U.S. ports (+ Israel)
- Cotton, okra, hibiscus, kenaf
- May suck liquids from quince, persimmon, apple, apricot, peach, pear, fig, plum, grapes, dates, avocado, nectarines
- Up to 4.3 mm long, black with whitish wings, apex rounded, antennae black
- "Oxycarenidae" in newer classification
Milkweed Bug, “The Pandar”
Spilostethus pandurus (Scopoli)
Lygaeidae

- Not in U.S.
- Widespread from South Africa to southern Europe and China
- Predominantly on Asclepiadaceae
- Also on Compositae and 14 other families of plants
- Includes sesame, sorghum, okra, peanuts, alfalfa, sugarcane, citrus grape, sweet potato, garbanzo
- Sucks sap from flowers, fruits, shoots, leaves, and seeds
- Plants wither, pods dry and wither
- Can transmit phytopathogenic fungus

An economically important milkweed bug in India
Polyphagous
Seed Bug
Spilostethus pandurus (Scopoli)
Lygaeidae

- Can sequester cardiac glucoside poisons for defense
- Brightly colored insect
- Variable in color
- Conspicuous

Warning coloration
Wheat Stink Bug

Aelia acuminata L.
Pentatomidae

- Not in the U.S.
- Has been intercepted many times in past 10 years, mostly from Italy
- Feeds on a wide range of grains, including wheat
- Feeds on stalks and grains
- Damages seeds by injecting amylase and protease, killing a proportion of them
- Cannot make bread from dough because the gluten protein is broken down

Of economic importance because it feeds on wheat

Photo with permission by Josef Dvořák www.biolib.cz
Czech Republic
**Wheat Stink Bug**  
*Aelis acuminata* L.  
*Pentatomidae*

- Found in Europe to north Africa, east to central Russia and Iran  
- 25 species described, one in the Western Hemisphere  
- Hosts are *Festuca*, *Poa*, *Agrostis*, *Dactylis*, *Lolium*, *Bromus* spp., and other Graminaceae  
- Non-migratory  
- Also known as the “pointed wheat shield bug” and as one of the “sunn pests”

**Adult** is elongate, cream colored with longitudinal brown stripes, 7.5 to 9.5 mm long

**Most similar in U.S. to**  
*Aelis americana*

Photo with permission by Vladimír Motyčka www.biolib.cz, Czech Republic

Photo with permission by John Haarstad Cedar Creek Natural History Area, Minnesota
Wheat Stink Bug
*Aelia rostrata* Boheman
Pentatomidae

- Not in the U.S.
- Preferred host is wheat, but feeds also on barley, rye, oats, and other grains
- Important because wheat is the most widely grown grain in the world
- Enzymatic action of saliva degrades the gluten protein

Photo with permission by Josef Dvořák www.biolib.cz Czech Republic
**Wheat Stink Bug**

*Aelia rostrata* Boheman

Pentatomidae

- Found in Turkey, Iran, Iraq, Afghanistan, Spain
- Occurs with *Eurygaster integriceps* in central Turkey
- One generation per year
- Migratory, hibernating in higher elevations
- Tachinid flies and scelionid egg parasitoids are main natural enemies
- Also called “sunn bug”

**Adult** is elongate, pale to creamy grey with brown stripes, 10.5 to 11.5 mm long

**Most similar in U.S. to**

*Aelia americana*

**Other species of concern**

*Aelia furcula*
*Aelia germari*
*Aelia melanota*
The Painted Bug, Bagrada Bug
*Bagrada cruciferarum* Kirkaldy
*Pentatomidae*

-Outbreak began in Dec. 2006 on cabbage and spinach

-Not in US
-Africa, Arabia, India, Sri Lanka
-Major pest on *Brassica* spp., especially cabbage and spinach
-Other hosts are peanuts, cotton, millet, potato
-Builds up its population in a wild cruciferous host prior to outbreaks
-Sucks sap from shoots and young plants
-Prevents formation of cabbage heads, may kill plants
-Chemical insecticides used during outbreaks. Otherwise, year long cultural practices available.

“Strange bug terrorizes farmers in Taita Taveta, Kenya”
(Unofficial Report)
March 2007
The Painted Bug, Bagrada Bug
*Bagrada cruciferarum* Kirkaldy
Pentatomidae

- Black but with yellow, orange, pink, or white spots, 5 to 7 mm long
- Several generations per year
- Prefers cooler conditions
- Lays clusters of eggs mostly in the soil
- Namibia has a strong program
- ICIPE is starting a project in Kenya to prevent present situation (pouring kerosene on vegetables)

Another species of concern is *Bagrada hilaris* from Asia and Africa (pest records mixed) with occasional outbreaks on cruciferous plants.
Spined Citrus Bug
*Biprorulus bibax* Breddin
Pentatomidae

- Not in the U.S.
- Emerged as a major citrus pest in Australia in the late 1980s
- Feeds on citrus fruits, including lemon, mandarin, orange, and grapefruit
- Damages fruit internally and externally and causes fruit to drop
- Can damage 70 to 90% of a crop
- Most damage in early spring
- Mostly chemical control

**PLANT PEST OF QUARANTINE SIGNIFICANCE**

**SUMMARY OF PLANT PROTECTION REGULATIONS**

Photo with permission from Bruce Ward
NSW Department of Primary Industries
Australia

Citrus pest
Spined Citrus Bug
*Biprorulus bibax* Breddin
Pentatomidae

- Native to Australia
- Original host is *Eremocitrus glauca*, known as wild kumquat or desert lime
- Preferred host is lemon
- Three to 4 generations per year
- Large aggregations
- Long lived adults
- Overwinters in adult stage in clumps in nearby trees
- Egg parasitoids and reduviid bugs are its primary natural enemies

Photo with permission by Peter Chew
Australia, Brisbaneinsects.com
Stink Bug
*Dichelops furcatus* (F.)
Pentatomidae

- Not in U.S.
- South America
- Adults brown to brownish green, 10.6 to 11.7 mm long
- Mainly pest on soybean
- Host plants mostly legumes such as soybean, alfalfa, beans, but also feeds on tobacco, strawberry

Photo with permission from Dr. R.E. Lecuona, Instituto Nacional de Tecnología Agropecuaria, Argentina

*Soybean pest in Brazil*
<table>
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<th>Stink Bug</th>
<th>Dichelops melachanthus (Dallas)</th>
<th>Pentatomidae</th>
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<tbody>
<tr>
<td>Similar to <em>D. furcatus</em></td>
<td>-Not in U.S.</td>
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<td>-South America</td>
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<td>-Main hosts in Leguminosae, but</td>
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<td>also attacks Gramineae</td>
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<td>-Feeds on soybean pods</td>
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<td>-Feeds also on stems of corn and</td>
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<td>wheat seedlings</td>
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<td>-Reduces wheat yield</td>
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<td>-Occasional dramatic outbreaks</td>
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<td></td>
<td>-Chemical insecticides used, but</td>
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<td>egg parasitoids reported</td>
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Pest in Brazil on soybean, wheat, corn
Stink Bug

*Edessa meditabunda* (F.)

Pentatomidae

- Not in U.S.
- South America
- Most important host is soybean
- Pest of many Solanaceae, especially tomato and potato
- Also feeds on peas, alfalfa, cotton, eggplant, tobacco, sunflower, papaya, and grapes
- Feeds on stems and leaves
- Reduces soybean yield
- Can kill potato plants
- Causes cotton squares to rot by transmitting yeast
Stink Bug

*Edessa meditabunda* (F.)

**Pentatomidae**

- Adults oval, green, dark brown hemelytra, 11.8 to 13 mm long.
- Chemical insecticides
- Egg parasites and tachinid flies have been recorded as natural enemies

**Nymph of Edessa meditabunda**

http://www.inta.gov.ar/imyza/info/gal/edessa.htm

Instituto Nacional de Tecnologia Agropecuaria

Another neotropical species of concern is *E. rufomarginata*, which attacks tobacco, potato, eggplant, soybean, sunflower, rice, and corn

http://www.inta.gov.ar/imyza/info/gal/edessa.htm

Instituto Nacional de Tecnologia Agropecuaria
Neotropical Brown Stink Bug
*Euschistus heros* (F.)
Pentatomidae

- Not in U.S.
- Panama and South America
- Polyphagous
- Leguminosae, Solanaceae, Brassicaceae, and Compositae
- Major pest of soybean (and of pigeon pea)
- Feeds on soybean pods and leaves
  - If pods young, they are aborted
  - If pods are more mature, seeds are shriveled and deformed
- Causes abnormal leaves and pods and delayed maturation
- Also damages sunflower seeds
Neotropical Brown Stink Bug

*Euschistus heros* (F.)

Pentatomidae

- Summer adults are dark brown with longer pronotal spines than overwintering forms, which are light brown.
- Overwinters under dead leaves.
- Chemical insecticides used.
- Tachinids and egg parasitoids known.
- Brazil has developed an effective pest management program.
Sting Bug
*Euschistus quadrator* Rolston
Pentatomidae

- Described from Mexico
- Texas, Louisiana
- Florida 1994
- May be in Georgia
- Soybean and cotton pest

Has become abundant in some areas in Florida

Photo by Herb Pilcher, USDA-ARS
www.forestryimages.org
**Brown Marmorated Bug**  
*Halyomorpha halys* Stål  
Pentatomidae

- Has been introduced into U.S.  
- China, Japan, Korea, Taiwan  
- Has been intercepted at U.S. ports associated with machinery  
- In U.S. at present it is a nuisance pest, congregating in large numbers on or inside buildings and RV-trailers while seeking suitable hibernation sites  
- In Asia it damages apples, peaches, figs, mulberries, citrus, persimmons, soybeans and many ornamental plants

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**Serious pest of fruit trees and ornamentals in Asia**

**At present only homeowners’ nuisance**

*Some records are single sightings, or in ports, or unverified, or specimens eliminated*
Brown Marmorated Bug
_Halyomorpha halys_ Stål
_Pentatomidae_

-Gregarious
-17 mm long, brown, with white bands on last two antennal segments, and no teeth on the edges of the pronotum
-Most similar to species in genus _Brochymena_

Another “brown marmorated bug” of interest is _Halyomorpha mista_ from Japan

Photo by permission from Laura www.bugguide.net
Stink Bug
*Loxa deducta* Walker
Pentatomidae

- Not in U.S.
- South America
- Pest on soybeans in Brazil
- Has been reported on citrus
- Feeds and reproduces on two ornamental privet (Oleaceae)
Species: *Ligustrum lucidum* and *L. ovalifolium*
- Adult is a large, green pentatomid bug

Photos with permission from A. Panizzi, EMBRAPA

Soybean pest in Brazil

Bronze Orange Bug
*Musgraveia sulciventris* Stål
*Tessaratomidae*

- Not in the U.S.
- First recorded as a citrus pest in 1892,
- Feeds on oranges, lemon, and lime trees
- Damages by killing young shoots and stalks, causing leaves, fruits, and flowers to drop, reducing crop
- Most damage in spring and early summer
- Control is mostly with insecticides
- Primarily a home garden pest
- Chemical defense mechanism aimed at face

**PLANT PEST OF QUARANTINE**

*SUMMARY OF PLANT PROTECTION REGULATIONS*

The National Plant Board
State of Florida

*Citrus pest*
Bronze Orange Bug

*Musgraveia sulciventeris* Stål

Tessaratomidae

- Native to eastern Australia
- Native hosts are *Microcitrus australasica* and *Atalantia glauca*
- One generation per year
- Overwinters in nymphal stage
- Large aggregations
- CAUSTIC defensive secretions burn plant tissue and skin
- Birds and reduviid bugs are their main natural enemies

Bronze to black, 25 mm long, stout, with small head

Photos with permission by Peter Chew Australia, Brisbaneinsects.com
Small Rice Stink Bug
*Oebalus poecilus* (Dallas)
Pentatomidae

- Not in U.S.
- Most important pest of rice in South America.
- Also pest on barley, oat, corn, wheat, soybean, cotton, guava, sorghum (more than 40 host plants reported)
- Feeds on developing grain rice
- Grains emptied or atrophied if fed on early stage, chalky and brittle if fed on late in grain development
- Young plants wither
- Lowers rice production and lowers quality of crop
Small Rice Stink Bug
*Oebalus poecilus* (Dallas)
Pentatomidae

- 6.9 to 9.5 mm long, orange brown to dark reddish brown with yellowish spots
- Summer morph is dark brown with lateral angles of pronotum spinose, overwintering morph light brown with pronotal angles rounded

-No effective control methods because of the mobility of this species, but insecticides used
- Proposed changing planting time and use of egg parasitoids and tachinid flies already recorded
Stink Bug
*Oebalus ypsilongriseus* (De Geer)
**Pentatomidae**

- Has established in U.S.
- Originally from South America
- Introduced to Dominican Republic, Puerto Rico, Florida and Texas
- Serious rice pest in Brazil and Colombia
- Also attacks cotton, barley, oat, wheat
- Similar damage as by *O. poecilus*
- Mostly chemical insecticides
- Egg parasitoids reported
- 8 to 10 mm long, dark yellowish with yellow marks on scutellum, with hibernating morphs distinct

**Widespread in Florida rice fields since 1994**
“Black Rice Bug”
Scotinophara lurida (Burmeister)
Pentatomidae

- Not in U.S.
- Asia (Indonesia, Korea, Philippines)
  - Major rice pest in Asia
  - Feeding damage causes half-filled and empty grains
  - Stunts and weaken rice plants
  - One generation per year
  - Overwinters as adult
  - Egg parasitoids reported

Photo of S. coarctata could with permission from G. Hettel, International Rice Research Institute, www.irri.org

Another rice pest is S. coarctata, “the Malayan black bug”, known from Malaysia, Philippines and other Asian countries
Stem Rice Stink Bug
*Tibraca limbativentris* Stål
Pentatomoidea

- Not in US
- Found in northern South America and Central America (Panama and Costa Rica)
- Primary economic crop is rice
- Also attacks soybean, tomato and wheat and other grasses
- Damages stems, leaves wilt
- Rice seeds opaque, break easily, of generally reduced quality
- Drastically reduces grain production

**Major rice pest in South America**
**Stem Rice Stink Bug**

*Tibraca limbativentris* Stål

**Pentatomidae**

- Adults light grown, 13 mm long
- Two generations per rice cycle
- Control includes insecticides, egg parasitoids, and possibly entomopathogenic fungi

*In Dominican Republic 1997*

*One interception from Trinidad in 2005*

Photo with permission from Tad Dobbs USDA-APHIS-PPQ
Sunn Pest
*Eurygaster integriceps* Puton
Scutelleridae

- Not in the U.S.
- No interceptions reported
- Primary host is wheat (over 15 varieties of wheat)
- Feeds on leaves and stems, killing plants or causing abortion of spikes
- Also feeds on grains, damaging starch and gluten with enzymes (reducing bread-making quality)
- Yield loss can be 50 to 90%
- Periodic outbreaks can cause 100% crop loss
- Importation of wheat (and barley) to US is prohibited to prevent introduction of this scutellerid

It is the most important plant pest in central and western Asia because it is the WORST PEST OF WHEAT.
Sunn Pest
*Eurygaster integriceps* Puton
Scutelleridae

- Feeds also on barley
- Yield loss in barley can be from 20 to 30%
- Also feeds on wild graminaceous plants and nongrain plants in up to nine different families
- Feeding is gregarious
- Yearly migration to higher elevations for overwintering and lower elevations for breeding
- One generation per year

Adults are usually grey but can be creamy brown, dark brown, reddish brown, or black, and are 10 to 12 mm long.
Sunn Pest
_Eurygaster integriceps_ Puton
Scutelleridae

- Found in western Asia (Afghanistan, Iraq, Iran, Lebanon, Syria, Turkey), Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan), Bulgaria, Romania, Russia, Ukraine, and other countries
- In 2006, according to the U.S. National Agricultural Statistics Service, 1.81 billion bushels of wheat were produced in 46.8 million acres for a value of $7,721,028,000.00

In US many states produce wheat.

The top five producer states are Kansas, North Dakota, Montana, Washington, Oklahoma

Their crops would be endangered if the Sunn pest became established.

In 2006, Texas planted wheat in 5,550 thousand acres, produced 33,600 thousand bushels for a value of $152,880 thousand dollars
Sunn Pest

*Eurygaster integriceps* Puton

*Scutelleridae*

The genus *Eurygaster* includes 18 described species, five of which live in the Nearctic:
- *E. alternata*, VA, MD, NC
- *E. amerinda*
- *E. minidoka*
- *E. paderewskii*
- *E. shoshone*

Other foreign species that are of concern are *E. maura* and *E. austriaca*

- Various chemical insecticides
- Egg parasitoids are the most important natural enemy
- IPM programs are investigating the use of entomopathogenic fungi
## Heteroptera of Concern to Southern U.S.

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**Native to U.S., but extending their range**

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**Adventive = exotic and already established in the U.S.**

**Scutelleridae**

*Eurygaster integriceps*
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