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Florida CAPS Annual Workshop
February 15, 2017
Gainesville, Florida

Some *Nysius* bugs of concern to U.S.
(Hemiptera: Lygaeidae)

CLASSIFICATION

Insect Order: Hemiptera

Suborder: Heteroptera, or "True Bugs"

Family: Lygaeidae, **"Seed Bugs"**

Several *Nysius* species feed on sap in addition to seeds, and two feed only on dead or dying insects

DISTRIBUTION

World: 106 described species (revision needed)

North of Mexico: 12 species (2 pests)

Florida: 3 species, two in common with California

N. raphanus, the "false chinch bug"
N. scutellatus
N. tenellus

Nysius raphanus is common in USA and is intercepted regularly from California

©Google Map from Feb. 1, 2017 of some records of *Nysius raphanus* from "The Symbiota Collections of Arthropods Network" (SCAN).

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PEST STATUS

17 species are recorded as pests, but sporadic.
7 species are important pests:

Nysius raphanus Howard, USA

Nysius niger Baker, USA

Nysius simulans (Stål), Argentina

★ ***Nysius huttoni*** White, New Zealand (Europe)

Nysius vinitor Bergroth, Australia (complex)

Nysius caledoniae Distant, Australia (Hawaii)

Nysius plebeius Distant, Japan, Korea, Taiwan

They are pests on grains and/or vegetables and ornamentals

Lettuce is a common element in intercepted *Nysius* pests and a likely commodity for its transportation

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Nysius huttoni
"Wheat Bug"

DISTRIBUTION

From New Zealand, now in Europe, at least in Belgium, France, Netherlands and the UK.

PPQ Interception Records since 1984

From: mostly New Zealand, some from Australia, and the **Netherlands**.

Ports of entry: mostly in California (Los Angeles, Long Beach, San Francisco, Oakland), some in Pennsylvania (Philadelphia), a few in **Florida** (Tampa, Miami), and Delaware (Wilmington).

Life stage: all as live adults.

Cargo: on or with fruits (apples, pears, strawberries, blueberries, kiwi fruit, apricots), cut flowers, and cut herbs.

PATHWAYS

Naturally by flight

Hitchhiker on non-hosts

Considered a passenger pest, transported through trade on non-host material as a contaminant

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Nysius huttoni
"Wheat Bug"

Nysius huttoni. Photos 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.

HOSTS

Polyphagous (13 plant families), primarily feeding on weeds, but it severely affects wheat and **cole crops** (*Brassica* spp.). Pest also on clover, alfalfa, oats, rye, barley, strawberries, raspberries, beets, lettuce, turnips, and other crops.

DAMAGE

The enzymes in these bugs' saliva damage the gluten in the wheat kernels, making for runny dough unsuitable for baking.

The enzymes also cause flower and foliage damage. They cause wilting, leaf death, and stem collapse in **cole crops.**

BEHAVIOR

Highly mobile species, overwinters as adult, and forms large aggregations, which can become a nuisance.

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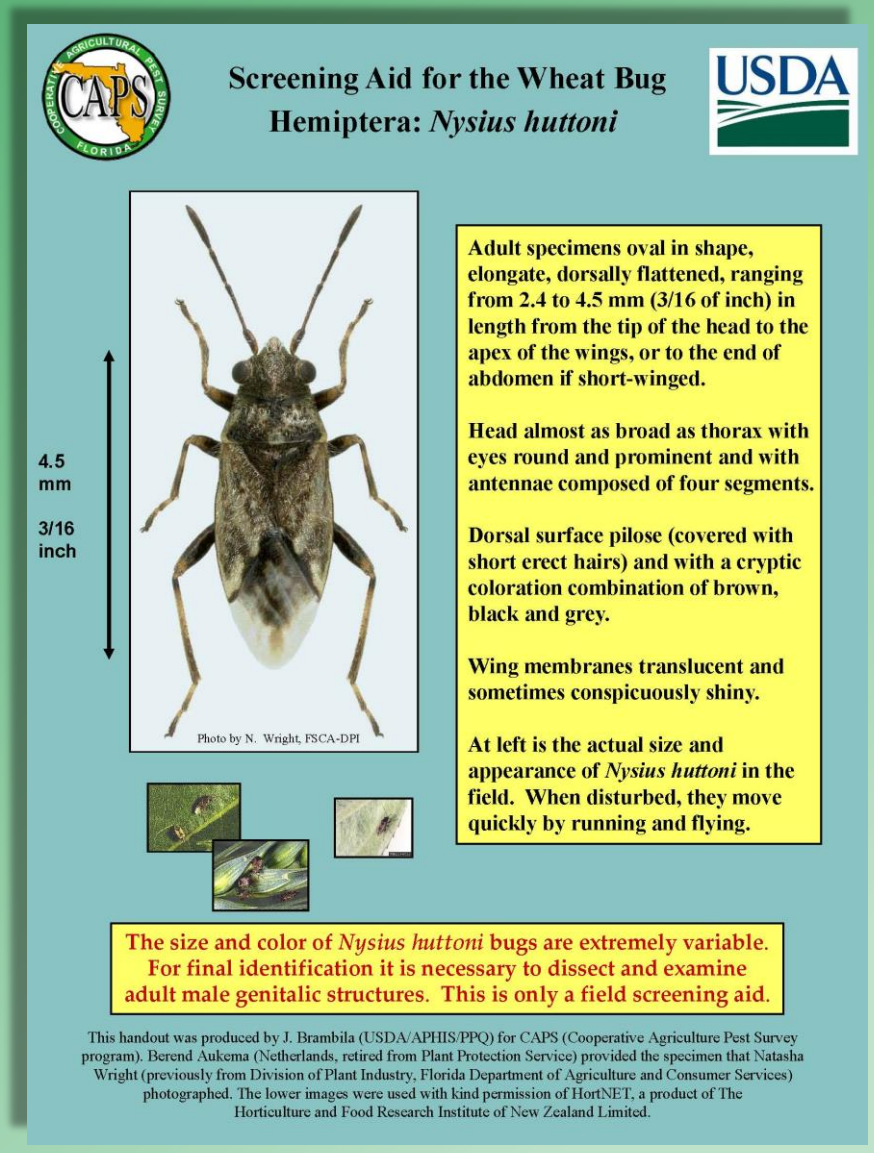

IDENTIFICATION

Nysius huttoni is characterized by its dorsal pilosity, that is, a cover by short erect hairs on its upper surface. This is the primary character needed to distinguish it from the false chinch bug, *Nysius raphanus,* a native pest species that is regularly interecepted in Florida from California. However, *N. caledoniae* is also pilose.

Screenig aid

A field screening aid has been prepared, but a microscope is still needed for close examination.

Identification aid

Dissection is required for final identification. An identification aid has been produced, which is based mostly on genitalic structures. A key that separates it from other species in US has not been prepared.

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Nysius caledoniae
"Caledonia Seed Bug"

Nysius caledoniae. From Eyles, A. C. and M. B. Malipatil. 2010. *Nysius caledoniae* Distant, 1920 (Hemiptera: Heteroptera: Orsillidae) a recent introduction into New Zealand, and keys to the species of *Nysius,* and genera of Orsillidae, in New Zealand. Zootaxa 2484: 45-52.

DISTRIBUTION

From the Pacific, including New Caledonia, Fiji, Japan, the Philippines, into New Zealand, Australia, Guam and Hawaii.

HOSTS and DAMAGE

Polyphagous, breeding on weeds, primarily Asteraceae and common purslane, where they can develop large populations.

Has caused serious damage to buds and flowers of vanda orchids (Hawaii).

May invade and damage some crops, including lettuce, sunflowers, safflower. It may be a threat to flower growers.

IDENTIFICATION

Based on dissected genitalia. No screening or identification aids available yet.

Has not been intercepted in U.S. ports

Some *Nysius* bugs of concern to U.S.
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Nysius vinitor
"The Rutherglen Bug"
"RGB"

DISTRIBUTION

Australia and Tasmania, Philippines, Caroline Islands. May have been introduced into Hawaii.

HOSTS and DAMAGE

Polyphagus, with feeding records of 20 plant families, mostly on native on native and introduced weeds, primarily Asteraceae.

Can invade field crops including sunflowers, potato, strawberry, papaya, canola, sorghum, cole crops, beans, tobacco, grapes, carrots, peaches, tomatoes, potatoes, beans, young citrus, wheat, barley, cherry, and many other crops; ornamentals such as calendula flowers; and pastures.

Frequently found in shipped vegetables and lettuce.

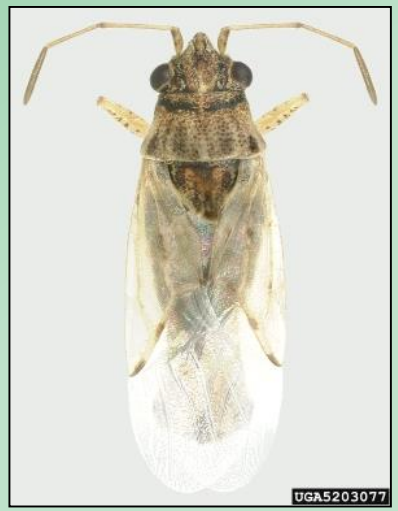

Photo of *Nysius vinitor* by Natasha Wright, previously from Division of Plant Industry, FDACS, Florida, now Cook's Pest Control.

Has not been intercepted in U.S. ports

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(Hemiptera: Lygaeidae)

Nysius vinitor
"The Rutherglen Bug"
"RGB"

BEHAVIOR

Breeds into large local populations.

Sporadic pest and outbreaks.

Displays strong dispersal behavior, fast and agile.

Highly migratory, traveling distances up to 300 km.

Nocturnal.

Painful bites and skin irritation reactions reported.

> "They will 'nip'. They are basically trying to find out if you're good enough to eat," she said.
>
> "It can be painful. They are trying to stick that proboscis in you, and that proboscis is quite tough. They can put it quite a way into hard objects," she said.
>
> Nov 16, 2016

Enters homes; known well by homeowners.

> Desks, houses, hair, even the coffee cup hasn't been able to escape a spike in numbers of the Rutherglen Bug.

> The bugs are not just bugging car owners - they are small enough to fit through insect screens and have been invading homes.

Rutherglen bugs are everywhere!

RUTHERGLEN BUGS ATTACK HUMANS

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Screening Aid for the Rutherglen Bug
Hemiptera: *Nysius vinitor*

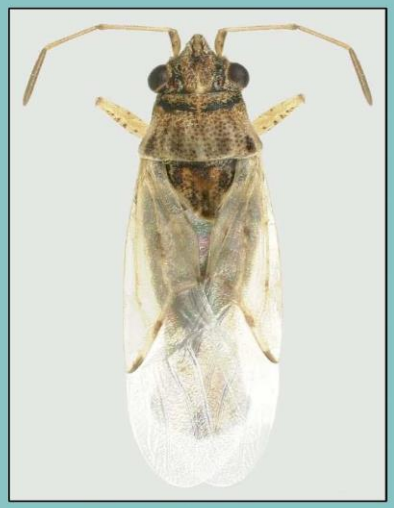

Photo by N. Wright, FSCA-DPI

Adult specimens elongate oval in shape, dorsally flattened, ranging from 2.9 to 4.2 mm in length from the tip of the head to the apex of the wings.

Head almost as broad as thorax with eyes round and prominent. Antennae with the second segment much longer than the first and the third segment nearly as long as the fourth.

Dorsum covered with fine short hairs close to the surface, not erect. Hemelytra smooth and translucent with costal margin slightly widened apically.

draft

The size and color of *Nysius vinitor* bugs are variable. For final identification it is necessary to dissect and examine adult male genitalic structures. This is only a field screening aid.

This handout was produced by J. Brambila (USDA/APHIS/PPQ) for CAPS (Cooperative Agriculture Pest Survey program). Natasha Wright (previously from Division of Plant Industry, Florida Department of Agriculture and Consumer Services) photographed the specimen held at FSCA.

February 2017

Identification aid – in process.

Dissection of genitalia is required for final identification, primarily to see the shape of the dorsal opening of the male capsule (pygophore).

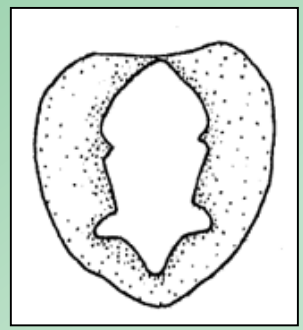

Illustration of the male capsule (dorsal view) of *Nysius vinitor,* from B. Malipatil, 2010. A review and revision of *Nysius* Dallas of Australia and South West Pacific (Hemiptera: Heteroptera: Orsillidae). *Zootaxa*, 2410, 29−44.