

Invasive Insects on Guam



Micronesia Biosecurity Plan Meeting, Guam, January 20, 2010

**Aubrey Moore, PhD
College of Natural & Applied Sciences
University of Guam**

Important Invasive Insects on Guam

**263 species of insects on Guam
are listed as agricultural pests**

**>95% of these are invasive
species**

First Island Records for Guam 1940s

Bactrocera dorsalis

Oriental fruit fly (**eradicated**)

Epilachna philippinensis

Philippine lady beetle

Adoretus sinicus

Chinese rose beetle

Bactrocera cucurbitae

Melon fly

First Island Records for Guam 1950s

Coptotermes gestroi

Philippine milk termite

Aleurocanthus spiniferus

citrus spiny whitefly

Liriomyza brassica

agromyzid leafminer

Ophiomyia phaseoli

agromyzid bean fly

Aulacophora similis

orange pumpkin beetle

Protaetia fusca

scarab beetle

Furcaspis oceanica

coconut red scale

Plutella xylostella

diamondback moth

Papilio polytes

citrus swallowtail butterfly

Erionota thrax

banana skipper

First Island Records for Guam 1960s

Physomeris grossipes sweet potato bug

Conotelus mexicanus nitidulid beetle

Brachyplatus sp. pentatomid bug

Liriomyza sativae agromyzid vegetable leafminer

First Island Records for Guam 1970s

<i>Delta pyriforme</i>	eumanid potter wasp
<i>Delta circinalis</i>	eumanid potter wasp
<i>Pericyma cruegeri</i>	poinciana looper
<i>Phaenococcus gossypii</i>	mealybug
<i>Protaetia orientalis</i>	oriental flower beetle
<i>Brontispa palauensis</i>	Palau coconut hispine beetle
<i>Brachycyttarus griseus</i>	bagworm
<i>Nipaecoccus vastator</i>	mealybug
<i>Liriomyza trifolii</i>	leafminer

First Island Records for Guam 1980-84

<i>Aleurodicus dispersus</i>	spiralling whitefly
<i>Thrips palmi</i>	thrips
<i>Epitrix hirtipennis</i>	tobacco flea beetle
<i>Maconellicoccus hirsutus</i>	pink hybiscus mealybug
<i>Ceroplastes ceriferus</i>	Indian wax scale
<i>Aleurothrixus floccosus</i>	woolly whitefly
<i>Stenocatantops splendens</i>	grasshopper

First Island Records for Guam 1985-89

<i>Steatococcus samaraius</i>	margarodid
<i>Heteropsylla cubana</i>	leucaena psyllid
<i>Rhyparida</i> sp.	chrysomelid
<i>Popillia lewisi</i>	scarab beetle
<i>Flaccia dione</i>	derbid
<i>Melormenis basalis</i>	flatid bug
<i>Chaetocnema confinis</i>	sweet potato flea beetle
<i>Hulodes caranea</i>	moth
<i>Melanagromyza splendida</i>	agromyzid fly
<i>Helicoverpa assulta</i>	moth
<i>Furcaspis biformis</i>	armored scale
<i>Genaparlatoris pseudaspidotus</i>	armored scale
<i>Lindingaspis tingi</i>	armored scale
<i>Pseudaonidia trilobitiformis</i>	armored scale
<i>Platyja umminia</i>	moth
<i>Parallelia palumba</i>	moth

First Island Records for Guam 1990s

Protaetia pryeri

Midway emerald beetle

Bemesia argentifolia

Silverleaf whitefly

First Island Records for Guam

2000-2004

<i>Paracoccus marginatus</i>	papaya mealybug	2002
<i>Aulacaspis yasumatsui</i>	Asian cycad scale	2003
<i>Myllocerus sp.</i>	calamansi weevil	2004
<i>Pseudaulacaspis cockerelli</i>	false oleander scale	2004
<i>Metaleurodes cardini</i>	Cardin's whitefly	2004
<i>Nipaecoccus nipae</i>	coconut mealybug	2004
<i>Orthezia insignis</i>	greenhouse ensign coccid	2004

First Island Records for Guam 2005-2009

<i>Chilades pandava</i>	cycad blue butterfly	2005
<i>Daphnis nerii</i>	Oleander hawk moth	2005
<i>Quadraesticus erythrinae</i>	Erythrina gall wasp	2006
<i>Lepisiota frauenfeldi</i>	ant	2006
<i>Tetraleurodes acaciae</i>	Acacia whitefly	2007
<i>Epilachna</i> sp.	Cucurbit lady beetle?	2007
<i>Oryctes rhinoceros</i>	Coconut rhinoceros beetle	2007
<i>Aphanisticus cochinchiniae</i>	buprestid	2009
<i>Selitrichodes</i> sp.	Casuarina gall wasp	2009

Insects on Guam

Gressitt 1954. Introduction. Insects of Micronesia 1.

Order	No. of Species
Coleoptera (beetles)	260
Lepidoptera (moths, butterflies)	240
Diptera (flies)	230
Hymenoptera (wasps, bees)	150
Hemiptera (true bugs)	99
Homoptera (aphids, psyllids, scales, mealybugs, whiteflies)	95
Other orders	117
TOTAL	1191

Estimated total species = 2000

Estimated endemicity = 45%

New Insect Pests on Guam (1945-89)

Schreiner, I. 1991. New insects in Guam. *Micronesica Suppl.* 3.

Order	No. of Species
Homoptera (aphids, psyllids, scales, mealybugs, whiteflies)	12 (48%)
Coleoptera (beetles)	5
Lepidoptera (moths, butterflies)	3
Orthoptera (grasshoppers)	1
Thysanoptera (thrips)	1
Diptera (flies)	1
Hymenoptera (bees, wasps, ants)	1
Acari (mites)	1

New Insects on Guam (1945-89)

Schreiner, I. 1991. New insects in Guam. Micronesica Suppl. 3.

Source	1945-54	1955-69	1970-79	1980-89
Asia	7	2	9	8
Micronesia	1	1	4	2
Hawaii	0	2	2	8
Unknown	7	8	6	7
Total	15	13	21	25
No. per Year	1.5	0.9	2.1	2.5

Unintended Consequence of Change in Quarantine Regulation

**Coqui frog scare has increased
risk of pest insects arriving from
Florida**

Guam undoubtedly has many undetected hemipterans

Survey Needed



Fruit fly monitoring system needs to be revived



Melon fly

PATHWAYS



USDA-APHIS Interceptions of Insects on USAF Aircraft Flying from Guam to Honolulu

[1] [Armed Forces Pest Management Board Technical Guide No. 31 RETROGRADE WASHDOWNS: Cleaning and Inspection Procedures Published and Distributed by the DEFENSE PEST MANAGEMENT INFORMATION ANALYSIS CENTER Forest Glen Section Walter Reed Army Medical Center Washington, DC 20307-5001 November 2004](#)

[Appendix J - USDA APHIS History of Interceptions](#) contains a list of insects intercepted on USAF aircraft arriving in Honolulu from Guam.

- **Coleoptera**

- Curculionidae
 - *Myllocerus* sp. (10/27/1987; 6/10/1986)
- Elateridae
 - *Conoderus* sp. (6/11/1989)
- Chrysomelidae
 - *Altica* sp. (10/11/1984)
 - *Rhyparida* sp. (10/18/1984)
- Scarabeidae
 - *Adoretus sinicus* (8/28/1987; 4/1/1990; 7/29/1990)
 - *Anomala* sp. (11/27/1986; 8/20/1987; 6/14/1985; 5/16/1990; 5/12/1989; 6/8/1992; 6/11/1990; 5/25/1991)
 - *Popillia lewisi* (7/22/1991; 8/2/1991; 6/8/1990)
 - *Protaetia orientalis* (11/22/1984; 5/10/1993)
- Tenebrionidae
 - *Caedius* sp. (7/2/1990; 6/9/1990; 6/9/1990)
 - *Gonocephalum* sp. (4/8/1990; 6/15/1990; 6/15/1990)

- **Lepidoptera**

- unidentified sp. (7/30/2003)
- Sphingidae
 - unidentified species (11/24/1987)
- Noctuidae
 - unidentified sp. (9/18/1987; 11/30/1984; 9/17/1989; 9/17/1989)
 - *Chrysodeixis chalcites* (11/11/1984)
 - *Helicoverpa armigera* (4/6/1986)
 - *Leucania* sp. (8/30/1987; 12/14/1985)
 - *Mocis frugalis* (9/18/1987; 7/6/1990)
 - *Platysenta* sp. (10/23/1986; 8/16/1987; 8/31/1987; 12/11/1984; 11/7/1984)
 - *Pseudaletia* sp. (9/4/1987; 3/31/1990)
 - *Spodoptera* sp. (4/21/1987; 9/20/1987; 5/9/1987; 8/17/1987; 7/10/1987; 12/14/1985; 8/28/1993; 6/29/1989; 6/30/1990)
 - *Spodoptera litura* (1/29/1985; 11/30/1984; 10/6/1984; 8/5/1986)

Military Aircraft

navigation

- [Main Page](#)
- [Community portal](#)
- [Current events](#)
- [Recent changes](#)
- [Random page](#)
- [Help](#)
- [Donations](#)

search

toolbox

- [What links here](#)
- [Related changes](#)
- [Upload file](#)
- [Special pages](#)
- [Printable version](#)
- [Permanent link](#)

Shipping Containers



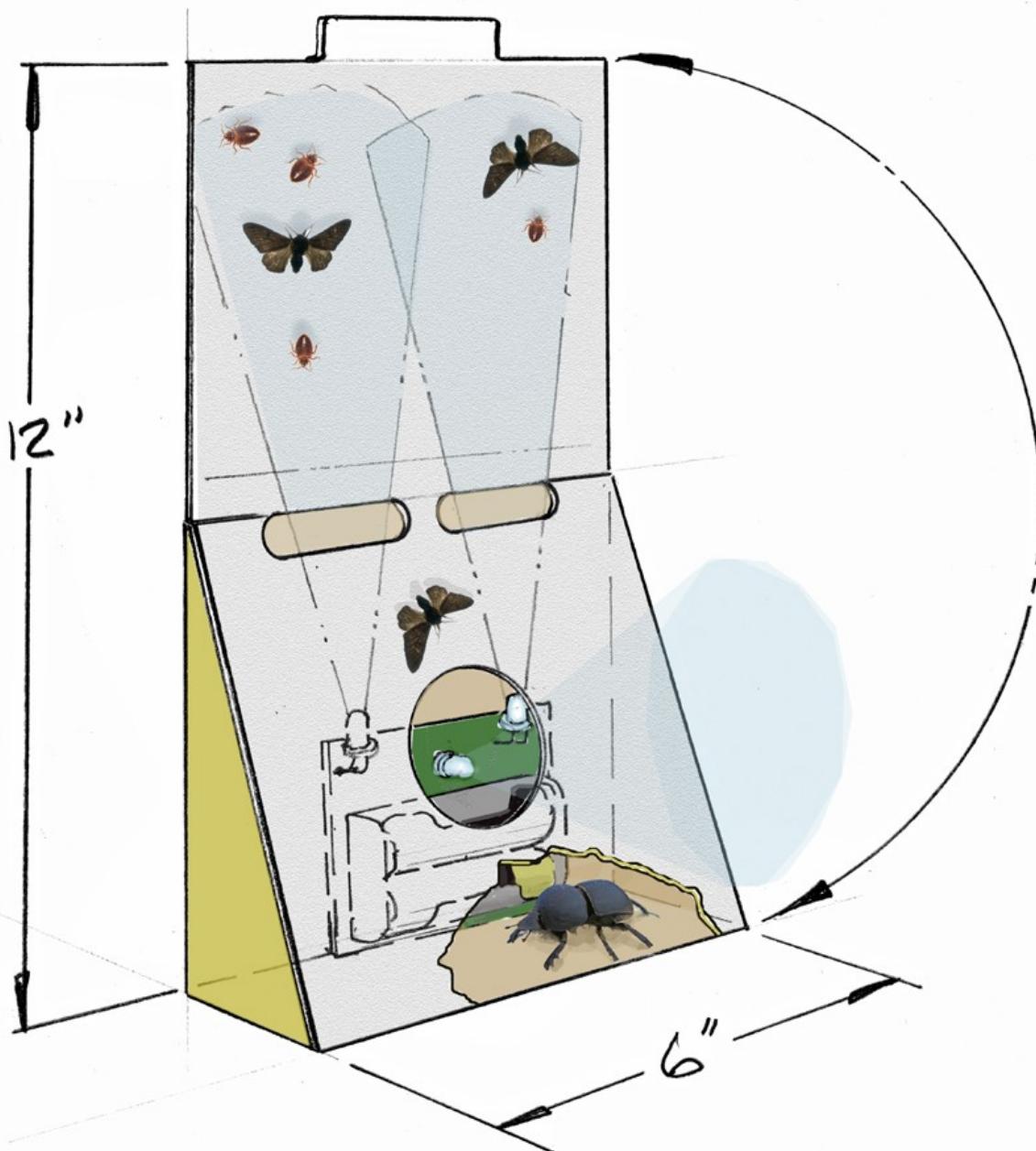
6X Increase in Incoming Cargo

Incoming cargo is expected to increase by 6X over the next few years.

GovGuam needs to hire, train 6X the number cargo inspectors to stay at the same level of vigilance.

Unless significant increases in efficiency can be found.

Q-Trap™ Shipping Container Insect Trap

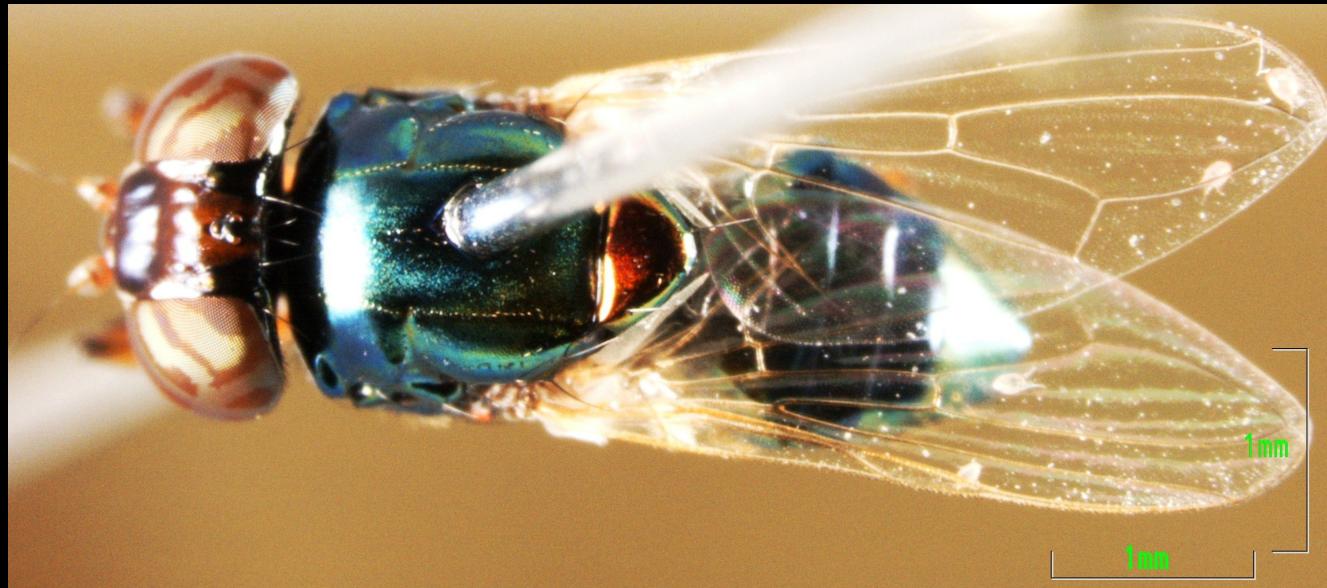


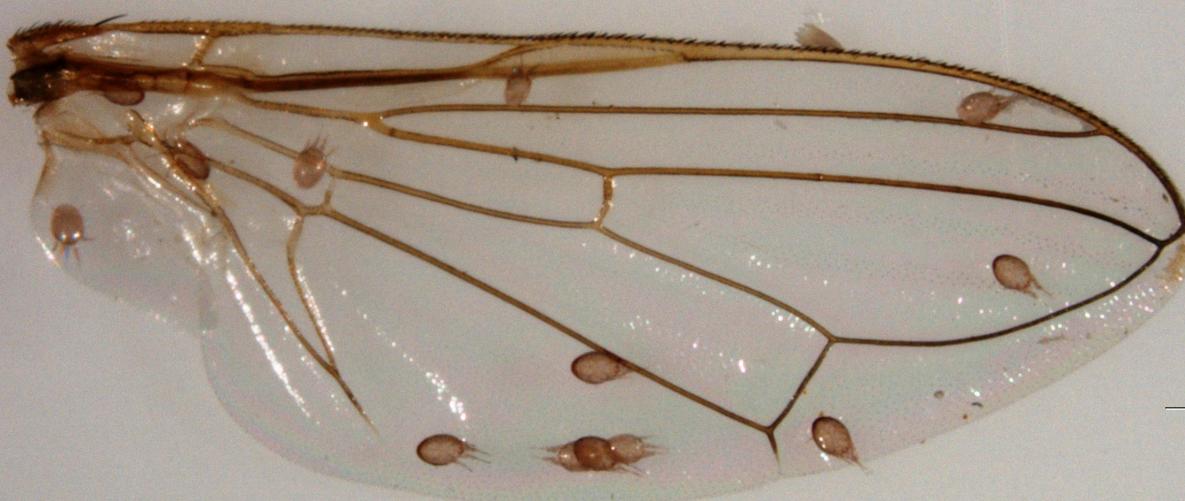
APTIV Inc.
2828 SW Corbett Ave.,
Suite 206, Portland
Oregon 97201
www.apтивinc.com

Soil is a Potential Pathway









1 mm



Pet Trade



10 Suggestions for Improving Guam's Biosecurity

- Treat Christmas trees
- Stop soil imports
- Stop double standard for treatment of infested imports from US vs elsewhere
- Equip biosecurity officers with hand lenses in addition to 9 mm pistols
- Staff the Guam Plant Inspection Station
- Set up invasive species detection systems at ports and plant nurseries
- Use technology to improve efficiency
- Set up a biosecurity emergency fund
- Hire an invasive species coordinator for Guam
- Provide lots and lots of \$\$\$