

# Invasive Insects on Guam



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# 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

*Aleurodicus dispersus*

spiralling whitefly

*Thrips palmi*

thrips

*Epitrix hirtipennis*

tobacco flea beetle

*Maconellicoccus hirsutus*

pink hibiscus mealybug

*Ceroplastes ceriferus*

Indian wax scale

*Aleurothrixus floccosus*

wooly whitefly

*Stenocatantops splendens*

grasshopper

# First Island Records for Guam 1985-89

*Steatococcus samaraius*

margarodid

*Heteropsylla cubana*

leucaena psyllid

*Rhyparida* sp.

chrysomelid

*Popillia lewisi*

scarab beetle

*Flaccia dione*

derbid

*Melormenis basalis*

flatid bug

*Chaetocnema confinis*

sweet potato flea beetle

*Hulodes caranea*

moth

*Melanagromyza splendida*

agromyzid fly

*Helicoverpa assulta*

moth

*Furcaspis biformis*

armored scale

*Genaparlatoris pseudaspidotus*

armored scale

*Lindingaspis tingi*

armored scale

*Pseudaonidia trilobitiformis*

armored scale

*Platyja umminia*

moth

*Parallelia palumba*

moth



# First Island Records for Guam 1990s

*Protaetia pryeri*

Midway emerald beetle

*Bemisia 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>Quadrastichus erythrinae</i>  | Erythrina gall wasp       | 2006 |
| <i>Lepisiota frauenfeldi</i>     | ant                       | 2006 |
| <i>Tetraleurodes acaciae</i>     | Acacia whitefly           | 2007 |
| <i>Epilachna sp.</i>             | Cucurbit lady beetle?     | 2007 |
| <i>Oryctes rhinoceros</i>        | Coconut rhinoceros beetle | 2007 |
| <i>Aphanisticus cochinchinae</i> | buprestid                 | 2009 |
| <i>Selitrichodes sp.</i>         | 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 endemism = 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          |
| <b>Total</b>        | <b>15</b>  | <b>13</b>  | <b>21</b>  | <b>25</b>  |
| <b>No. per Year</b> | <b>1.5</b> | <b>0.9</b> | <b>2.1</b> | <b>2.5</b> |

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 WASHDOWNNS: 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
  - *Myloccerus* sp. (10/27/1987; 6/10/1986)
- Elateridae
  - *Conoderus* sp. (6/11/1989)
- Chrysomelidae
  - *Altica* sp. (10/11/1984)
  - *Rhypanida* sp. (10/18/1984)
- Scarabeidae
  - *Adoretus sinicus* (8/28/1987; 4/1/1990; 7/29/1990)
  - *Anomola* 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](#)
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# Shipping Containers



# **6X Increase in Incoming Cargo**

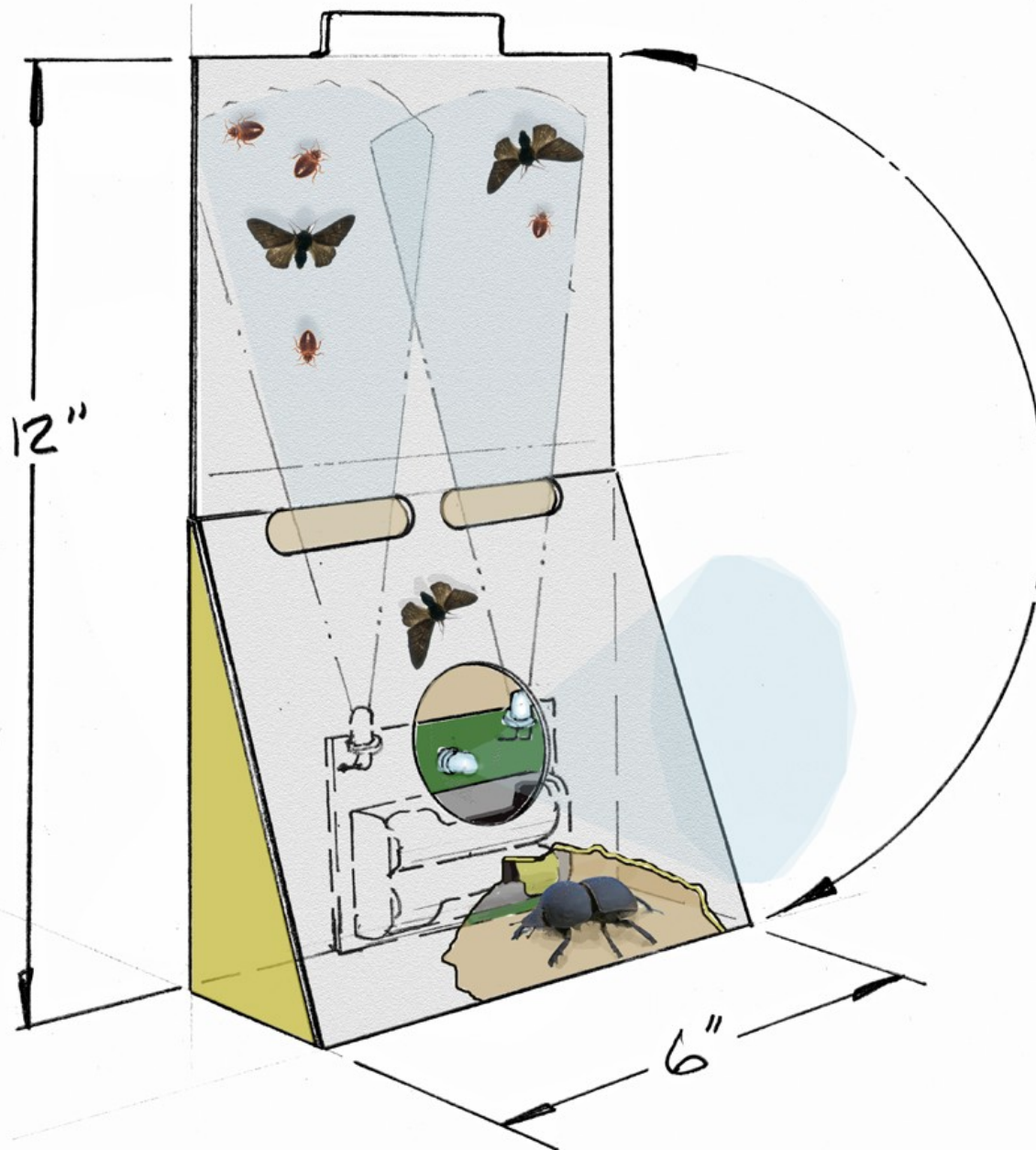
**Incoming cargo is expected to increase by 6X over the next few years.**

**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.**



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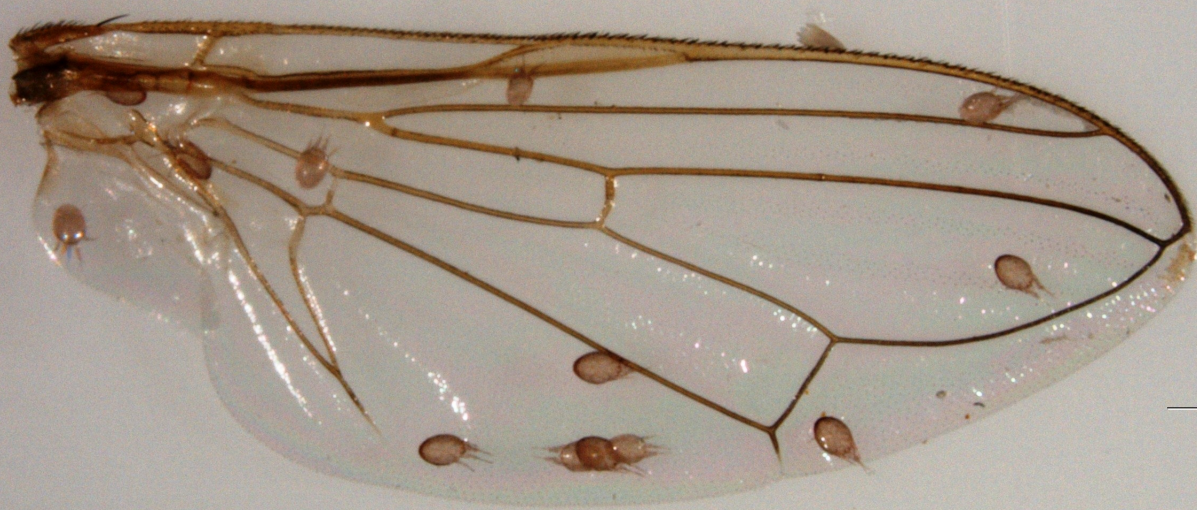
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# Pet Trade



# 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 \$\$\$