

# Insect Pests Impacting Guam's Forests

## Forestry Survey Workshop

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One of the penalties of an ecological education is that one lives alone in a world of wounds. Much of the damage inflicted on the land is quite invisible to laymen.

- Aldo Leopold, "Round River"

# Birds Exterminated by Brown Treesnake: Ecosystem Services Lost

- ▶ Accidentally introduced by U.S. Military in late 1940s
- ▶ Guam's forest birds are gone because of snake predation
- ▶ Ecosystem services provided by birds also gone: seed dispersal, pollination, insectivory

# Overbrowsing by Ungulates

- ▶ Much of Guam's forest is heavily damaged by deer and pigs which preferentially browse on native plants.
- ▶ Especially true on forested land occupied by the military, where hunting is prohibited. Andersen Air Force Base has deer population densities as high as anywhere in the world.

# Endemic Cycad Attacked by Asian Cycad Scale

- ▶ *Cycas micronesica* was listed as the most populous tree-sized plant (DBH>5") in the latest forest survey (Donnegan et al. 2002)
- ▶ Asian cycad scale, *Aulacaspis yasumatsui*, detected in 2003 on ornamental plants
- ▶ Infestation quickly spread to wild plants. By 2006, *C. micronesica* was placed on the IUCN Red List of Threatened Species.
- ▶ To date, 90% of Guam's *C. micronesica* have been killed.

# Coconut Palms Attacked by Coconut Rhinoceros Beetle (CRB)

- ▶ *Cocos nucifera* was listed as the 2nd most populous tree-sized plant (DBH>5") in the latest forest survey (Donnegan et al. 2002)
- ▶ CRB was detected on Guam in 2007; adults kill palms by boring into the crown to feed on sap
- ▶ To date, the CRB infestation has spread to most of central and northern Guam
- ▶ 50% tree mortality is to be expected if CRB population levels are not kept in check

And Now the Little Fire Ant? ...

# Many Invasive Species in Guam's Forests Remain Undetected

- ▶ Biological monitoring of Guam's forests is almost non-existent. We don't have a biodiversity inventory.
- ▶ Invasive species are almost always discovered accidentally, after establishment.
- ▶ Example: After the coffee berry borer (CBB) was discovered in Hawaii, I deployed a single CBB trap during Jan and Feb 2011 at a single site in a forested area on Guam. Trapped bark beetles (Scolytidae) were identified by Dr. Don Bright, Colorado State University.

**This single trap, at a single location, caught 7 species of bark beetles 4 of which were not previously reported from Guam.**



# Forestry pests which I would look at if I had the time

- ▶ katydids
  - ▶ attacking *Serianthes*
- ▶ termites
  - ▶ coconut termite
- ▶ bark beetles
- ▶ hemipterans
  - ▶ wax scale
  - ▶ whiteflies
- ▶ leaf gall mite on *Hybiscus*, similar galls on *Pipturus argenteus*
- ▶ microleps
- ▶ Cuban slugs