Palm Weevils

Palmetto weevil
(Rhynchophorus cruentatus)

Red Palm Weevil
(Rhynchophorus ferrugineus)

South American Palm Weevil
(Rhynchophorus palmarum)

Photos: (Left) - Jim Occi, BugPics, Bugwood.org, #2512047; (Center) - Amy Roda, USDA-APHIS; (Right) - F. J. Rodriguez, Wikimedia Commons
Palmetto Weevil

Rhynchophorus cruentatus

Photo: Top left: Doug Caldwell, Univ. Florida, Bugwood.org, #5429843; Right and Bottom Left: Robin M. Giblin-Davis, University of Florida
Palmetto Weevil Distribution

States where palmetto weevil is found

[Map showing states in red where palmetto weevil is found]
Palmetto Weevil Life Cycle

Photos: Robin M. Giblin-Davis, University of Florida
Palmetto Weevil Susceptible Plants

Native host plant:
- Sabal palms
- Saw palmetto
- Florida thatch palm
- Royal palms

Other host plants:
- Canary Island date palms
- Bismarck palms
- Fan palms
- Date palms
- Coconut palm
- Latania palms
- Fishtail palms

Photo: Wikimedia Commons, © Hans Hillewaert / CC-BY-SA-3.0
Palmetto Weevil Damage

From left to right, clockwise: “Popped neck” condition (sabal palm), larval damage in stem (sabal palm), larval damage of petioles and stem (*Phoenix canariensis*), larval damage (Canary Island date palm), damage to older *Washingtonia*

Photos: Robin M. Giblin-Davis, University of Florida
Palmetto Weevil Monitoring & Management

• Bucket traps for monitoring
• Prevention is key
  – Promote plant health
  – Avoid pruning/wounding
  – Plant non-susceptible species
• Once infestation is detected, little can be done to save the tree

Photos: Robin M. Giblin-Davis, University of Florida
Red Palm Weevil

- Native to southeast Asia and Pacific Islands
- Most damaging pest of palms in the world!
- $203 million U.S. palm industry at risk

*Rhynchophorus ferrugineus*

Photo: Amy Roda, USDA-APHIS
Red Palm Weevil Identification

Photos: Center for Invasive Species Research, University of California, Riverside
Red Palm Weevil Life Cycle

Photos: (Top left) Amy Roda, USDA APHIS; (Bottom right) - Mike Lewis, Center for Invasive Species Research, Bugwood.org #5430201; (Others) - Luigi Barraco, Wikimedia Commons
Red Palm Weevil Susceptible Plants

• Some of the hosts found in Florida include:
  – African oil palm
  – Canary Island date palms
  – Chinese fan palm
  – Coconut
  – Cuban royal palm
  – Fishtail palm
  – Sago palm
  – Queen palm
  – Washington palms
Red Palm Weevil Damage

Photos: *(Top left)* - Christina Hoddle, University of California - Riverside, Bugwood.org #5432623; *(Middle)* – Katja Schulz; *(Others)* - Center for Invasive Species Research, University of California, Riverside
Red Palm Weevil Monitoring & Management

- Control methods
  - Systemic insecticides (i.e. trunk injections, soil applications, etc.)
  - Mass trapping with aggregation pheromones
  - Chipping and burning infested material

- Refer to New Pest Response Guidelines: Red Palm Weevil (USDA PPQ)
South American Palm Weevil

- Native to Mexico, Central and South America
- Vector of Red Ring Nematode, *Bursaphelenchus cocophius*

*Rhynchophorus palmarum*

Photo: F. J. Rodriguez, Wikimedia Commons
South American Palm Weevil Life Cycle

Photos: Adult - Robin M. Giblin-Davis, University of Florida; Larva - Reinaldo Aguilar; Pupal cocoon and prepupa - Center for Invasive Species Research, University of California, Riverside; Pupa - Robin M. Giblin-Davis, University of Florida
South American Palm Weevil Susceptible Plants

• Primary hosts include:
  – Coconut palm
  – African oil palm
  – Sago palm
  – Canary Island date palm
  – Date palm
  – Sugar cane
  – Juçara palm
South American Palm Weevil Damage

Palm trunk damaged by *R. palmarum* in Costa Rica

Red ring disease showing the characteristic “red ring” in a coconut palm

Palm frond damage caused by larval tunneling of *R. palmarum*

Photos: (Top left) - Reinaldo Aguilar, [www.osaresearch.org](http://www.osaresearch.org); (Others) - Center for Invasive Species Research, University of California, Riverside; Pupa - Robin M. Giblin-Davis, University of Florida
South American Palm Weevil Monitoring & Management

• Monitoring by:
  – Pheromone traps
  – Visual inspection

• Management by:
  – Pheromone traps
  – Phytosanitation

• Management of red ring disease by control of *R. palmarum* populations

Photos: Amy Roda, USDA-APHIS
**Palmetto weevil**
*Rhynchophorus cruentatus*

**Pronotum**: anterior with **broad** shoulders (red arrow); posterior edge **flat** (yellow arrow)

**Red palm weevil**
*Rhynchophorus ferrugineus*

**Pronotum**: anterior with **tapered** shoulders (red arrow); posterior edge **flat** (yellow arrow)

**South American palm weevil**
*Rhynchophorus palmarum*

**Pronotum**: anterior with **tapered** shoulders (red arrow); posterior edge **lobed** (yellow arrow)

**Dorsal view: Scutellum of both sexes (blue arrows)**

**Tapers**
- **acutely**
- **broadly**

*Photos: 2012, Robin Giblin-Davis, University of Florida*
Lateral view of male head: Rostrum (blue arrows) & Mandible (yellow arrows)

Palmetto weevil
Rostrum: no setae
Mandible unidentate

Red palm weevil
Rostrum: with setae
Mandible tridentate

South American palm weevil
Rostrum: with setae
Mandible bidentate

Ventral view of head, both sexes: Submentum (red arrows)

Straight subgenal sutures

Concave subgenal sutures

Narrow suture and sculpturing between antennal scrobes

Photos: 2012, Robin Giblin-Davis, University of Florida
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References


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