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The castniid palm borer, *Paysandisia archon* (Burmeister), is a Neotropical pest of palm trees (Arecaceae). Native to South America (Argentina, Brazil, Paraguay, Uruguay), it was first found in Europe in 2001, and it is currently present in France, Italy, the Czech Republic, and Spain. Larvae have been recorded feeding on palms in the following genera: *Brahea*, *Butia*, *Chamaerops*, *Cocos*, *Latania*, *Livistona*, *Phoenix*, *Sabal*, *Syagrus*, *Trithrinax*, *Trachycarpus*, and *Washingtonia*; although it appears that this species can expand its host range when introduced to new areas. Larvae bore into the trunks of palms, causing serious damage or even plant death. Larvae overwinter in the palm, and may take up to two years to develop. In coastal Catalonia (Spain), adults are present May-September.



Fig. 1: *Paysandisia archon* resting adult (Photo by David Villafruela).

Paysandisia archon is a member of the family Castniidae. Castniids are large moths that are often mistaken for butterflies because they fly during the day and have clubbed antennae. There are approximately 200 species of castniids, with the most diversity occurring in the Neotropics. Many species, such as *P. archon*, have dull brown or gray forewings and brightly colored hindwings.



Fig. 2: *Paysandisia archon* larva (Photo by Victor Sarto i Monteys, Servei de Protecció dels Vegetals, Bugwood.org).

Adult *P. archon* are active during the day and are very strong fliers. Their large size (wingspan of 80-90 mm for males and 90-110 mm for females) and distinctive wing pattern (dull gray-brown forewings and bright reddish-orange hindwings with white and black markings) easily distinguish them from all other Lepidoptera encountered in North America.

This aid is designed to assist in the detection of *P. archon* suspects through visual surveys for adults and larval damage. The pupa is also partially described because empty cocoons may be found in the larval tunnels long after the adult has emerged. Because female castniids apparently do not produce pheromones, it is not possible to survey for this species using typical traps with long-range female pheromones, and adults are only active during the day and are not attracted to light. If a suspect *P. archon* adult is found, capture it and submit it to your regional domestic identifier along with the location of where it was found and any associated host. Similarly, report any suspect *P. archon* larval damage with the name and location of the host.



Fig. 3: *Paysandisia archon* pupa (Photo by Victor Sarto i Monteys, Servei de Protecció dels Vegetals, Bugwood.org).

CAPS Approved Survey Method: General pest observation (visual)

Screening: Adults

Castniid Palm Borer *Paysandisia archon* (Burmeister)



actual
size

Fig. 4: *Paysandisia archon* spread male (actual size). Wingspan is 80-90 mm for males and 90-110 mm for females. Males are territorial and can be observed patrolling their territories or perching on the larval hosts.



Fig. 5: *Paysandisia archon*; a: resting adult in France (Photo by Didier Descouens); b: resting adult (Photo by Daniel Villafrauela); c: spread adults, top - female, bottom - male (Photo by Victor Sarto i Monteys, Servei de Proteccio dels Vegetals, Bugwood.org); d-e: resting adults (Photos by Daniel Villafrauela).

Paysandisia archon larvae have oval dorsal and ventral spines patches that somewhat resemble cerambycid larvae. The abdominal prolegs are poorly developed. Damage may appear similar to that caused by other palm pests such as the red palm weevil. Unlike beetle larvae, caterpillars have adfrontal sutures and a tubular spinneret. The following are signs that a palm may be infested (summarized from Sarto i Monteys and Aguilar 2005; see this reference for illustrations of each symptom). Plants imported from Europe and southern South America pose the highest risk.

1. Presence of sawdust on the palm crown and/or palm trunk.
2. Presence of perforated or nibbled leaves (non specific).
3. Presence of gallery holes (axial and transversal) within the palm trunk (observable when the palm trunk is cut in slices).
4. Abnormal development of axillary leaf buds.
5. Deformation and abnormal twisting of palm trunks.
6. Abnormal drying up of the palms, specially the core leaves. Heavy larval attack may kill the palm tree.



Figs. 6-7: *Paysandisia archon* larva damage to *Trachycarpus fortunei* in Spain (Photo by Victor Sarto i Monteys, Servei de Proteccio dels Vegetals, Bugwood.org).



Fig. 8: Perforated fronds on *Trachycarpus fortunei* in Spain caused by *P. archon* larvae (Photo by Victor Sarto i Monteys, Servei de Proteccio dels Vegetals, Bugwood.org).

Key to Sort and Screen *Paysandisia archon* Suspects in the United States

Adults

- 1. Antennae clubbed..... 2
- 1'. Antennae not clubbed..... Not *P. archon*

- 2. Large moths (wingspan of 80-90 mm for males and 90-110 mm for females) colored with dull gray-brown forewings and bright reddish-orange hindwings with white and black markings ***P. archon suspect***
- 2'. Moths not reaching a wingspan of 80-90 mm for males and 90-110 mm for females, or if that large, then without dull gray-brown forewings and bright reddish-orange hindwings..... Not *P. archon*

Larvae

- 1. Adfrontal sutures and a tubular spinneret present..... 2
- 1'. Adfrontal sutures and a tubular spinneret absent..... Not typical Lepidoptera

- 2. Oval dorsal and ventral spines patches present; abdominal prolegs poorly developed; borer in palms ***P. archon suspect***
- 2'. Oval dorsal and ventral spines patches absent; abdominal prolegs usually well developed; usually not on palms Not *P. archon*

Pupae

- Pupa in a cocoon of palm fibers; almost 5.5 cm long; most abdominal segments with two dorsal transverse rows of short spines pointing backwards, the anterior one larger than the posterior row ***P. archon suspect***

- Pupa not in a cocoon of palm fibers; if most abdominal segments have two dorsal transverse rows of short spines pointing backwards, then the pupa is much shorter than 5.5 cm..... Not *P. archon*

Citation

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References for more information on *P. archon*

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