

Palm borer

Paysandisia archon



Figure 1. Adult *Paysandisia archon*
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Background

In August 2002, a large adult moth was observed in a private garden in west Sussex. Martin Honey (Natural History Museum, London) confirmed its identification as the South American palm borer *Paysandisia archon* Burmeister (Lepidoptera: Castniidae). This was the first discovery of this non-indigenous pest in the UK. Currently on the EPPO Alert List, this serious pest of palms is established in parts of Southern Europe. The European Commission are in the process of introducing emergency measures to prevent the further spread of *P. archon* within the community.

Geographical Distribution

Paysandisia archon is native to South America (Argentina, Brazil, Paraguay and Uruguay), where it inhabits extensive open areas where wild palms grow. It has recently spread to Southern Europe where it has become a serious threat to many ornamental palm species. It was first discovered in Spain (Girona) and France (near Hyères) in 2001 and has since spread to other regions. It was first recorded from Italy in the Campania region in 2002. It is suspected that *P. archon* was first introduced to Europe between 1985 and 1995 on palm trees imported from Argentina.

Host Plants

In Argentina, *P. archon* is reported to attack native palms such as *Trithrinax campestris* and *Butia yatay*, as well as occasional exotic species. In Spain and France, the moth appears to have a large range of hosts, including *T. campestris*, *Chamaerops humilis*, *Livistona chinensis*, *L. decipiens*, *L. saribus*, *Sabal* spp., *Phoenix canariensis*, *P. dactylifera*, *P. reclinata*, *Trachycarpus fortunei* and *Washingtonia filifera*.

Pest Biology, Dispersal and Detection

The adult is a beautiful moth, with a wingspan of 9-11 cm. The fore-wings are olive brown and the hind-wings are brightly coloured with red, black and white (Fig. 1). The females are slightly larger than the males and are easily recognised by their large ovipositor. Eggs are oblong, 5 mm long and cream-coloured with longitudinal ribs and are laid on the palm stem near the growing point. Newly emerged larvae are pink in colour, less than 1cm long and turn white as they develop (Fig. 2). Young larvae bore into the stem and new leaves making large galleries. The larvae reach 6-7 cm by the final instar, and pupation takes place within the gallery inside a cocoon made of plant fibres (Fig. 3). In France, adults are observed from June to September and they are active during the day. The moths are said to be powerful flyers, indirect data indicates they can travel at least 25-30 km from where they emerged. It is probable that this species has a biannual life cycle, but more data is needed on the biology of this insect.

Except for the period when the adults are flying, it is difficult to detect the presence of the pest. During the larval stage the only sign may be the presence of plugs of debris (Fig. 4), like sawdust, visible at the outermost extremity of the gallery.



Figure 2. Larva of *Paysandisia archon*
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Figure 3. *Paysandisia archon* pupa extracted from its cocoon
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Figure 4. Sawdust plugs" ejected at the outside of the gallery by the larva of *Paysandisia archon*
© insectarium virtual



Figure 5. A *Paysandisia archon* cocoon within a gallery
© insectarium virtual



Figure 6. Damage to *Phoenix dactylifera* leaves caused by larval feeding
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Figure 7. Typical damage caused by the larvae of *Paysandisia archon* on a leaf of *Washingtonia filifera*

Economic Importance and Damage

Larvae bore galleries through the stem or young leaves, causing characteristic damage (Fig's 5 - 7). This results in retarded growth and/or deformation of the crown, but affected palms often die as a consequence of a heavy attack. There is a suggestion *P. archon* may also effect the date palm (*Phoenix dactylifera*) industry, but more data are needed on the susceptibility of this host, an important crop in parts of the Mediterranean and Middle East. Serious damage and plant mortality are reported in ornamental palm nurseries in Southern Europe, so economic losses are expected. Trade movement of palm trees within the EU, mostly for ornamental purposes, is a risk to more northern European countries where it is not yet established and could over-winter under glass. *Paysandisia archon* is also seriously threatening Europe's only native palm, *Chamaerops humilis*, a species protected in parts of Spain.

Control Measures

Paysandisia archon is not an economic pest in its native habitats, and as such, no control methods have been developed against it. Destruction of infested palms has been used to control the pest in Southern Europe, along with applications of insecticides to the canopy and trunk of palms. The pesticides used in Southern Europe were organophosphates (trichlorfon and acephate) and a carbamate (carbaryl), which are no longer approved for use in the UK. Imidacloprid tree injections have also been used against this pest in Europe, but currently there are no formulations approved for use of imidacloprid in this way in the UK. At present no biocontrol options are available, other than the destruction of infested trees.

Advisory Information

Suspected outbreaks of *P. archon* should be reported immediately to your local Fera Plant Health and Seeds Inspector or

Tel: 01904 465625

Email: planthealth.info@fera.gsi.gov.uk

Web: www.defra.gov.uk/fera/plants/plantHealth

and samples submitted to The Food and Environment Research Agency for identification.

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