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**14.65 – *Paysandisia archon* (Burmeister, 1879) - The castniid palm borer
(Lepidoptera, Castniidae)**

Carlos Lopez-Vaamonde & David Lees

Description and biological cycle: Large dayflying moth with clubbed antennae, wingspan 75–120 mm, upperside forewing greenish brown in both sexes, hindwing bright orange with a black band postdiscal to white spots (*Photo left*). Forewing underside orange, excepting beige tips. Upright fusiform eggs, about 4.7 mm. long and 1.5 mm wide, laid by the female's extensible ovipositor between mid-June and mid-October. Fertile eggs pink, laid among palm crown fibres, at the base of leaf rachis. Larvae hatch after 12–21 d, whitish and grub-like, up to 9 cm long, endophytic cannibals, forming galleries 20–30 cm long inside palm trunks, towards the crown (*Photo right*). 7–9 larval instars, overwintering as larva, in a false cocoon. Pupation occurs at the rachis base or between inflorescences, where larvae form a cryptic cocoon of palm fibres, pupating for 43–66 d. Pupae remain attached to the cocoon after adult emergence. Adults observed from mid May to late September, males especially exhibiting powerful territorial flight in hot sunshine. Males live about 24 d and females about 14 d. One generation per year (sometimes bivoltine) in Mediterranean locations. Larvae can live > 18 months and overall life cycle 13–22 months, exceptionally three years. Castniid palm borer infests a wide range of palm genera including *Chamaerops*, *Latania*, *Livistona chinensis*, *Phoenix canariensis*, *Syagrus* spp., *Trithrinax campestris* (probable import host), in the native area. Reported from *Brabea*, *Butia*, *Chamaerops*, *Livistona* spp. *Phoenix* spp., *Sabal*, *Trachycarpus*, *Trithrinax campestris* and *Washingtonia*, in the introduced area.

Native habitat (EUNIS code): G2 - Broadleaved evergreen woodland.

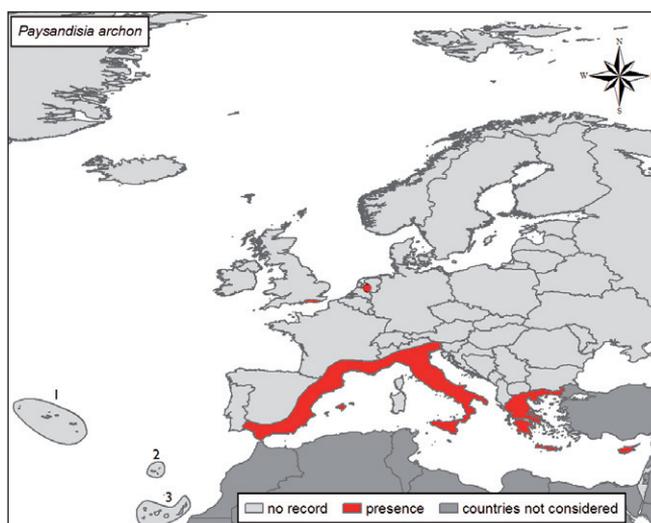
Habitat occupied in invaded range (EUNIS code): I2- Cultivated areas of gardens and parks; X24 Domestic gardens of city and town centres; J100- Greenhouses.

Native range: Neotropical region: western Uruguay, northwest Argentina, Paraguay and southeastern Brasil.

Introduced range: First introduced with its foodplant to Spain and France in the 1990's, well established by 2001 when first reported from Catalonia in Northeastern Spain. Rapidly spread



Credit: Laurence Olivier



to coastal areas of the other Mediterranean regions where palms are widely used as ornamentals. Now common and widespread in Spain (along the Mediterranean coast from Girona to Alicante and the Balearic islands) southeastern France (Var and Hérault), Italy (Campania, Lazio, Toscana, Marche and Sicily), and in Greece mainland and Crete); also introduced in England (Sussex, one example in 2002) and Netherlands (one example in 2006) (*Map*). Spreading tendency.

Pathways: Introduced with trade of palm trees as ornamentals.

Impact and management: Pest species in parks and palm nurseries, causing severe damage (such as holes in leaves and deformation) and death of plants. Conservation concern exists for the native Mediterranean Fan Palm, *Chamaerops humilis*; numerous larvae may be found in one plant. Biological control in Europe is not yet achieved. As last resort, palms can be pulled up and burned. Chemical control of this species is also difficult since larvae are endophytes. Best control has been obtained by wetting crown and trunk with contact or systemic organophosphorus insecticides (Chlorpyrifos, Acephate and Dimethoate). Ostrinil (*Beauveria bassiana* 147 strain) biological insecticides normally used for the European Corn Borer cause egg and up to 80% larval mortality for crown treatment every two weeks during flight season, and can be used as a curative. Trials done with “glue” used as physical barrier (both preventing adult females from ovipositing and developing adults from emerging) have had positive results.

Selected references

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