Department for Environment Food & Rural Affairs

Plant Pest Factsheet

Red Palm Weevil

Rhynchophorus ferrugineus

Figure 1. Red palm weevil adult intercepted in the UK on a gourd imported from Sri Lanka © Fera

Background

The red palm weevil (Coleoptera: Curculionidae) is a highly invasive pest of palms that can have a significant economic, environmental and social impact when introduced into new geographical areas. It is the most important pest of date palm (*Phoenix dactylifera*) in the world and a serious pest of coconut (*Cocos nucifera*). It is native to southern Asia and Melanesia and since the 1980s it has rapidly expanded its geographical range westwards. It reached Saudi Arabia and the United Arab Emirates in about 1985, spreading throughout west Asia and North Africa into Egypt. In 1994 it was detected in Spain and in 1999 in Israel, Jordan and the Occupied Palestinian Territories. It has since spread widely in the Mediterranean region where the two main palm species of concern are date palm and Canary Island date palm (*Phoenix canariensis*), the main crop and ornamental species. It also attacks several other ornamental palms that are regularly imported into Britain, such as chusan palm (*Trachycarpus fortunei*). It has devastated ornamental palms in many areas of the Mediterranean, changing the landscape. It is a regulated quarantine pest in Great Britain, and parts of the European Union (EU) have protected zone status, to prevent further spread of the pest. In 2013, an outbreak of red palm weevil was found in Brittany, France, in plants imported from Spain. In 2016 there were further findings in France on imported palms, in Normandy and Auvergne-Rhône-Alps. These findings suggest that despite the emergency measures that were in place at the time the pest was still moving in trade. These emergency measures have now ended and in 2019 The red palm weevil was classified by the EU as a Regulated Non-Quarantine Pest (RNQP), meaning there are limitations on movement of certain planting material from countries in the EU where it is present. In October 2016 a large number of weevil *larvae* and a few adults were found inside a round-leaf fountain palm (*Saribus* (= *Livistona*) *rotundifolia*) in Essex. The palm had been imported from the Netherlands in March 2016. The infested palm was destroyed, and the surrounding area surveyed by the Plant Health and Seeds Inspectorate. A single live adult had been previously intercepted in association with a gourd imported from Sri Lanka in 2014. It has also been intercepted as a contaminating pest with fresh *Brassica oleracea* imported from Spain in 2020, 2022 (twice) and 2024.

Figure 2. Red palm weevil larva © Luigi Barraco

Figure 3. Red palm weevil pupa © Luigi Barraco

Figure 4. Red palm weevil cocoon, consisting of tightly woven fibres, removed from the base of a dead palm, China © C. Malumphy

Figure 5. Red palm weevil adult on an adult hand to indicate the size of the beetle, China © C. Malumphy

Figure 6. Red palm weevil adult feeding damage to palm foliage © 2003 International Palm Society

Figure 7. Collapsed palm due to red palm weevil infestation, Italy © V. Martino - NPPO Campania region

Figure 8. Red palm weevil larva (indicated by an arrow) tunnelling inside the stem of a palm, Italy © G. Pesapane - NPPO Campania region

Figure 9. Palm with a broken apex due to red palm weevil infestation, Italy © R. Griffo - NPPO Campania region

Figure 10. Dying and dead Canary Island date palms, Greece © C. Malumphy

Figure 11. Red palm weevil adult killed by an entomopathogenic fungus, China © C. Malumphy

Figure 12. Dying Canary Island date palm, Montenegro © C. Malumphy

Figure 13. Dead and infested palms in a park, Italy © C. Malumphy

Figure 14. Pheromone trap for monitoring red palm weevil, China © C. Malumphy

Geographical Distribution

Red palm weevil is absent from GB and is present in the following regions and countries: **Europe and Mediterranean**: Albania, Algeria, Croatia, Cyprus, Egypt, France, Georgia, Greece, Israel, Italy, Jordan, Libya, Malta, Morocco, Palestinian Authority Territories, Portugal, Slovenia, Spain, Tunisia and Turkiye. It may also be more widespread in North Africa. **Asia**: Bahrain, Bangladesh, Cambodia, China, Georgia, India, Indonesia, Iran, Iraq, Japan, Jordan, Kuwait, Laos, Lebanon, Malaysia, Myanmar, Oman, Pakistan, Philippines, Qatar, Saudi Arabia, Sri Lanka, Syria, Taiwan, Thailand, United Arab Emirates, Vietnam and Yemen. **Caribbean**: Aruba, Curaçao and Netherlands Antilles. **Oceania**: Australia, Papua New Guinea, Solomon Islands, Vanuatu, Western Samoa.

Host Plants

Red palm weevil feeds primarily on palms (Arecaeae) although it has occasionally been found feeding on non-palm hosts such as *Saccharum officinarum* (sugar cane). Palm hosts include: *Areca catechu* (betel nut palm), *Arecastrum romanzoffianum* (Queen palm), *Arenga saccharifera* (sugar palm), *A. pinnata* (sugar palm), *Borassus flabellifer* (toddy palm), *Borassus* sp. (palmyra palm), *Brahea armata* (Mexican blue palm), *Butia capitata* (pindo palm), *Calamus merrillii* (rattan), *Caryota cumingii* (fishtail palm), *C. maxima* (giant mountain fishtail palm), *Chamaerops humilis* (dwarf fan palm), *Cocos nucifera* (coconut), *Corypha utan* (Synonyms *C. gebang* and *C. elata*, gebang palm), *C. umbraculifer* (talipot palm), *Elaeis guineensis* (oil palm), *Howea forsteriana* (Kentia palm), *Jubaea chilensis* (Chilean wine pam), *Livistona australis* (cabbage tree palm), *L. decipiens* (ribbon fan palm), *L. chinensis* (Chinese fan palm), *L. saribus* (serdang palm), *L. subglobosa*, *Metroxylon sagu* (sago palm), *Oneosperma horrida*, *O. tigillarium* (nibong palm), *Phoenix canariensis* (Canary Island date palm), *P. dactylifera* (date palm), *P. sylvestris* (Indian date palm or silver date palm), *P. theophrasti* (Cretan date palm), *Roystona regia* (synonym *Oreodoxa regia,* royal palm), *Sabal umbraculifera* (pygmy date palm), *Saribus rotundifolia* (round-leaf fountain palm), *Trachycarpus fortunei* (Chusan palm) and *Washingtonia* spp..

Description

Adults are large, about 35 mm long and 10 mm wide, although they can be up to 42 mm long and 16 mm wide (Figs. 1 and 5), with a long rostrum (an elongate projection from the front of the head), a weevil characteristic. They are reddish-brown with variable dark markings on the pronotum (section of the body behind the head). Eggs are whitish-yellow, smooth, shiny, cylindrical, with rounded ends, slightly narrower at the anterior end, and about 3 mm long and 1 mm wide. Larvae (Fig. 2) are legless, with a creamy-white body and brown hard head capsule and grow up to 50 mm in length. The wing cases, legs and other appendages can be seen on the pupa (Fig. 3). Pupation occurs in an elongate oval, cylindrical cocoon made of fibrous strands, about 40 mm in length (Fig. 4). The cocoons are remarkably tough.

Biology

All life stages may be found inside the host palm. Each adult female deposits between 200 to 300 eggs in separate holes or cavities on the host plant. Eggs hatch in two to five days, and larvae bore into the interior of the palms (Fig. 8), feeding on the soft succulent tissues, discarding all fibrous material. The larval period ranges from 36-78 days (average 55 days) depending on temperature and host species. Pupation occurs in a fibrous cocoon and the adult weevils (Fig. 5) emerge 2-3 weeks after pupation. Thus, the life cycle is completed in about 4 months under optimal conditions in its native range.

Dispersal and Detection

It is very difficult to detect red palm weevil in the early stages of infestation. Generally, it is detected only after the infested palm has been severely damaged. Early symptoms of attack include egg laying notches; cocoons inserted into the base of the palms; an eccentric growing crown; holes at the base of cut palms; symptoms resembling those caused by lack of water such as wilting, desiccation and necrosis of the foliage (Fig. 6); tunnelling within the stems and trunk. Larvae and adults destroy the interior of the palm, often without the plant showing signs of deterioration unless damage is severe. Hollowing out of the trunk reduces its mechanical resistance, making the plant susceptible to collapse (Figs 7 and 9). In most cases, attack on *Phoenix* and other palms leads to the death of trees whatever their size (Figs 10, 12 and 13). Visual examination allows detection of symptoms but cannot determine if there are larvae and adults present inside the trunk. Pheromone traps (Fig. 14), acoustic detection or infrared systems can be used to detect this pest.

Economic Impact

Rhynchophorus ferrugineus is a major economic pest of coconut palm, date palm, oil palm, sago palm and a range of ornamental palms. Severely attacked plants exhibit a total loss of foliage and rotting of the trunk due to internal feeding by the larvae, which eventually results in the death of the tree. It has proved to be a devastating pest in many parts of the Mediterranean where large numbers of mature palms in urban areas and parks have had to be removed as infested palms may collapse and are a danger to the public. It can also have a detrimental social impact in areas such as the west Asia where the date palm is closely associated with culture and religion.

Pest Management and Reporting

UK garden centres and nurseries should be aware of the risk of red palm weevil when purchasing palm trees and where possible source responsibly from stock from pest free areas. UK importers should ensure that palms they purchase and sell comply with current measures and monitor their plants for any signs of infestation.

Suspected outbreaks of red palm weevil or any other non-native plant pest should be reported to the relevant authority:

For **England and Wales**, contact your local **APHA Plant Health and Seeds Inspector** or the **PHSI Headquarters**, York.

Tel: 0300 1000 313

Email: planthealth.info@apha.gov.uk

For **Scotland**, contact the **Scottish Government's Horticulture and Marketing Unit:**

Email: hort.marketing@gov.scot

For **Northern Ireland**, contact the **DAERA Plant Health Inspection Branch:**

Tel: 0300 200 7847 Email: planthealth@daera-ni.gov.uk

Web: https://www.daera-ni.gov.uk/topics/plant-and-tree-health

For additional information on UK Plant Health please see:

https://planthealthportal.defra.gov.uk/pests-and-diseases/uk-plant-health-risk-register/

https://planthealthportal.defra.gov.uk/

https://www.gov.uk/plant-health-controls

Authors

C. Malumphy and H. Moran (Fera), D. Eyre, H. Anderson, and D. Allen (Defra)

June 2024 (Version 3)