

Rapid Assessment of the need for a detailed Pest Risk Analysis for *Ceroplastes rusci* Takahashi

Disclaimer: This document provides a rapid assessment of the risks posed by the pest to the UK in order to assist Risk Managers decide on a response to a new or revised pest threat. It does not constitute a detailed Pest Risk Analysis (PRA) but includes advice on whether it would be helpful to develop such a PRA and, if so, whether the PRA area should be the UK or the EU and whether to use the UK or the EPPO PRA scheme.

STAGE 1: INITIATION

1. What is the name of the pest?

Ceroplastes rusci (Linnaeus) (Hemiptera: Coccidae) – fig wax scale

Synonymy:

Coccus rusci Linnaeus, 1758; *Coccus caricae* Fabricius, 1794; *Coccus artemisiae* Rossi, 1794; *Calypticus radiatus* Costa, 1829; *Calypticus testudineus* Costa, 1829; *Coccus hydatis* Costa, 1829; *Coccus mirti* Costa, O.G., 1829; *Columnea testudiniformis* Targioni Tozzetti, 1866; *Columnea testudinata* Targioni Tozzetti, 1868; *Ceroplastes denudatus* Cockerell, 1893; *Ceroplastes nerii* Newstead, 1897; *Ceroplastes tenuitectus* Green, 1907

2. What is the pest's status in the EC Plant Health Directive (Council Directive 2000/29/EC) and in the lists of EPPO?

Ceroplastes rusci is not listed in the EC Plant Health Directive and is not recommended for regulation as a quarantine pest by EPPO, nor is it on the EPPO Alert List.

3. What is the reason for the Rapid Assessment?

Ceroplastes rusci has been detected on many occasions in England and Wales and statutory action has been taken to eradicate incursions of the scale on five occasions. A rapid assessment is required to determine if continued statutory action is justified.

STAGE 2: RISK ASSESSMENT

4. What is the pest's present geographical distribution?

The majority of wax scales are native or endemic to the Neotropical and Afrotropical regions and according to Qin *et al.* (1998), there do not appear to be any species native to the Palaearctic. Pellizzari & Camporese (1994), however, discuss the possibility that *C. rusci* is native to the Mediterranean Basin. It is highly likely that *C. rusci* is much more widely distributed in the tropics and subtropics but is under-recorded due to difficulties in identifying *Ceroplastes* spp.

North America: United States of America.

Central America: (strongly suspected to be present despite the lack of official records)

South America: Argentina; Brazil; Galapagos Islands; Guyana.

Caribbean: Antigua and Barbuda; Guadeloupe; Haiti; Puerto Rico & Vieques Island; Saint Croix; U.S. Virgin Islands.

Europe: Azores; Canary Islands; Corsica; Crete; Cyprus; France; Italy; Madeira Islands; Malta; Netherlands; Portugal; Sardinia; Sicily; Spain; Turkey.

Africa: Algeria, Angola; Cape Verde; Egypt; Eritrea; Morocco; Sao Tome and Principe; Seychelles; South Africa; Tanzania; Zimbabwe.

Middle East: Iran; Iraq; Israel; Jordan; Lebanon; Saudi Arabia; Syria.

Asia: Afghanistan, Indonesia; Vietnam.

Oceania: absent.

5. Is the pest established or transient, or suspected to be established/transient in the UK? (Include information on interceptions and outbreaks here).

Ceroplastes rusci is absent from the UK.

The most recent checklist of British Coccidae (Boratynski & Williams, 1964) records *C. rusci* as present in Britain under artificial conditions so long as the host material remains suitable. ScaleNet records *C. rusci* as present in Britain based on the record by Green (1917).

Malumphy (2010), however, clarified the situation and confirmed that *C. rusci* is absent. It has been intercepted on 17 or 18 occasions on fruit, cut flowers and growing plants imported from Europe (mostly Italy), South America and the Caribbean.

Ceroplastes rusci was first detected in Britain on *Ficus carica* fruit imported from Italy, 1917 (Green, 1917). It was subsequently found on imported *Annona reticulata* from Spain, 2002; *Brahea armata* from Italy, 1999; *Citrus limon* plant from Italy, 2005; *Cyperus diffuses* from Israel, 1998; *Dictyosperma album* from as unknown origin at a botanical collection, 2001; *Heliconia* sp. from Colombia, 2006; *Mangifera indica* fruit and leaves from the Dominican Republic, 2006; *Mascarena* sp. palms from Spain (Canary Islands), 1994; *Mrytus* sp. from France, 2006 and Turkey, 2002; *Phoenix canariensis* from the Netherlands, 2007; *Phoenix roebelenii* foliage from Colombia, 2006; *Phoenix* sp. from Italy, 2002; *Strelitzia nicolai* from an unknown origin, 2004; *Strelitzia reginae* from Italy, 2006; *Strelitzia* sp. from Madeira (Portugal), 1984 (Seymour *et al.*, 1985b). Immature and adult specimens in poor condition suspected of being *C. rusci* were also detected on a palm from Italy, 1999.

6. What are the pest's natural and experimental host plants; of these, which are of economic and/or environmental importance in the UK?

It is broadly polyphagous occurring on plants belonging to at least 45 families. A summary of the host plant families and genera are listed in Appendix 1.

The most economically important host plants in the UK include the crops grapevine and pear; and the ornamentals *Crataegus*, *Cydonia*, *Hedera helix*, *Laurus nobilis*, *Pittosporum*, *Populus*, *Prunus*, *Rhus* and *Salix*. It is also recorded on many different species of *Ficus*.

7. If the pest needs a vector, is it present in the UK?

Ceroplastes rusci does not need a vector.

8. What are the pathways on which the pest is likely to move and how likely is the pest to enter the UK? (By pathway):

Yes - interceptions of live adults and nymphs have occurred in the past (see 2. above).

Pathway 1. Growing plants from EU and third countries where *C. rusci* occurs

It has occasionally been found on imported growing plants and transient populations have occurred in botanical collections. The movement of host plants within the EU is unregulated, so a pathway of introduction from the Mediterranean exists.

Very unlikely Unlikely Moderately likely Likely Very likely

Pathway 2. On produce (fruit and cut flowers)

Occasionally intercepted on cut flowers and fruit but it is unlikely that the active first instars will hatch and find their way to suitable hosts.

Very unlikely Unlikely Moderately likely Likely Very likely

9. How likely is the pest to establish outdoors or under protection in the UK?

Ceroplastes rusci occurs widely in tropical, subtropical and warm temperate areas. It is unlikely to be able to overwinter outdoors in the UK and therefore establishment is likely to be restricted to protected ornamental plants. All previous populations on indoor plantings have been transient.

Outdoors	Very unlikely	<input checked="" type="checkbox"/>	Unlikely	<input type="checkbox"/>	Moderately likely	<input type="checkbox"/>	Likely	<input type="checkbox"/>	Very likely	<input type="checkbox"/>
Under protection		<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

10. How quickly could the pest spread in the UK?

There is no specific data available on the dispersal rate of *C. rusci*. The main dispersal stage is the first instar which can actively crawl over short distances or be carried in air currents or on other animals (birds, other insects). Long distance dispersal is likely to be in trade.

Very slowly	<input checked="" type="checkbox"/>	Slowly	<input type="checkbox"/>	Moderate pace	<input type="checkbox"/>	Quickly	<input type="checkbox"/>	Very Quickly	<input type="checkbox"/>
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11. What is the area endangered by the pest?

The endangered area is protected ornamentals.

12. What is the pest’s economic, environmental or social impact within its existing distribution?

It is recorded as an economic pest of fig in the Mediterranean and an occasional pest of citrus in Israel.

Very small	<input type="checkbox"/>	Small	<input checked="" type="checkbox"/>	Medium	<input checked="" type="checkbox"/>	Large	<input type="checkbox"/>	Very large	<input type="checkbox"/>
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13. What is the pest’s potential to cause economic, environmental or social impacts in the UK?

Citrus and figs are not grown as crops in the UK. *Ceroplastes rusci* may lower the aesthetic appearance and therefore market value of ornamental plants although the potential losses are likely to be small.

Very small	<input checked="" type="checkbox"/>	Small	<input type="checkbox"/>	Medium	<input type="checkbox"/>	Large	<input type="checkbox"/>	Very large	<input type="checkbox"/>
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14. What is the pest’s potential as a vector of plant pathogens?

Ceroplastes rusci is not a known to be a vector.

STAGE 3: PEST RISK MANAGEMENT

15. What are the risk management options for the UK? (Consider exclusion, eradication, containment, and non-statutory controls; under protection and/or outdoors).

Exclusion is unlikely as there is no effective control over the main pathway of introduction (on ornamental plants imported from southern Europe). The simplest and most straightforward way of achieving eradication would be destruction of infested plants and precautionary treatment of those remaining. Non-statutory control of scales is usually difficult in practice, although biological control agents exist. Light infestations can be easily dealt with by physically removing the conspicuous waxy females. Contact chemicals must be applied before the scales have completely covered themselves with white wax since once the wax

cover is completed, it will shed pesticide applications. Horticultural oil, insecticidal soap and chlorpyrifos may be effective.

16. Summary and conclusion of rapid assessment.

This rapid assessment shows:

Risk of entry – moderately likely

The main route of entry is likely to be on growing ornamental plants from countries where the scale has been reported. Detection of early instars is difficult, particularly when present at low density. The scale may only be observed when mature specimens are present or numbers have built up to such a density that they are already causing damage.

Risk of establishment – in protected ornamentals is likely

It is very unlikely to naturalise and overwinter outdoors in Britain but could establish on indoor plantings, at least as transient populations (as it has in the past).

Rate of spread – very slow

Spread is most likely to be with infested plants in trade.

Economic impact – may have a small impact to indoor ornamentals

It is an economic pest of fig and citrus, neither of which are grown as commercial crops in the UK. It may have a small impact on the aesthetic quality and market value of indoor ornamental plants but there is little data available to quantify the economic implications.

Endangered area – protected ornamentals

Risk management

In the absence of phytosanitary measures the scale is likely to continue to enter the UK. It may be controlled using the same products used for other soft scales already present in the UK.

17. Is there a need for a detailed PRA? If yes, select the PRA area (UK or EU) and the PRA scheme (UK or EPPO) to be used.

With the information that we currently have available on the scale it is not of sufficient concern to the UK to justify a more detailed assessment. It is already present in many areas of Europe and the Mediterranean where it's most economically important hosts are found. As such a recommendation for no statutory action is proposed.

No	X				
Yes		PRA area: UK or EU		PRA scheme: UK or EPPO	

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References

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- Malumphy, C. 2010. The status of wax scales (Hemiptera: Coccidae: Ceroplastinae) in Britain. *Entomologists Monthly Magazine* **146**, 105-112.

IMAGES OF PEST AND SYMPTOMS



Images of *Ceroplastes rusci*

Appendix 1. Host plants of *Ceroplastes rusci*

Table 1: Hosts plants of *Ceroplastes rusci*
(source ScaleNet (2010) unless stated otherwise)

Plant family	Host plant	Comment
Anacardiaceae	<i>Mangifera indica</i>	Malumphy (2010)
	<i>Pistacia</i>	
	<i>Rhus</i>	
	<i>Schinus</i>	
Annonaceae	<i>Annona</i>	Malumphy (2010)
Apocynaceae	<i>Nerium oleander</i>	
	<i>Thevetia peruviana</i>	
Aquifoliaceae	<i>Ilex aquifolium</i>	
Araliaceae	<i>Hedera helix</i>	
Arecaceae	<i>Brahea armata</i>	Malumphy (2010)
Arecaceae	<i>Chamaerops humilis</i>	
	<i>Cocos</i>	
	<i>Dictyosperma album</i>	
	<i>Mascarena</i>	
	<i>Phoenix</i>	
Asteraceae	<i>Argyranthemum frutescens</i>	
	<i>Artemisia</i>	
Balsaminaceae	<i>Impatiens sultani</i>	
Boraginaceae	<i>Cordia myxa</i>	
Buxaceae	<i>Buxus balearica</i>	
Clusiaceae	<i>Psorospermum</i>	
Convolvulaceae	<i>Convolvulus</i>	
	<i>Ipomoea</i>	
Cyperaceae	<i>Cyperus</i>	Malumphy (2010)
Ebenaceae	<i>Euclea</i>	
Ericaceae	<i>Arbutus unedo</i>	
Euphorbiaceae	<i>Codiaeum variagatum</i>	
	<i>Euphorbia longan</i>	
Fabaceae	<i>Albizia</i>	
	<i>Phaseolus caracalla</i>	
	<i>Tamarindus</i>	
Heliconiaceae	<i>Heliconia</i> sp.	Malumphy (2010)
Juncaceae	<i>Juncus acutus</i>	
Lauraceae	<i>Laurus nobilis</i>	
	<i>Persea americana</i>	
Lythraceae	<i>Lawsonia inermis</i>	
Malvaceae	<i>Gossypium</i>	
Moraceae	<i>Ficus</i>	Malumphy (2010).
	<i>Morus</i>	
Musaceae	<i>Musa</i>	
Myrtaceae	<i>Myrtus</i>	
	<i>Psidium guajava</i>	
Ochnaceae	<i>Ochna</i>	
Pinaceae	<i>Cedrus deodora</i>	
Piperaceae	<i>Piper</i>	
Pittosporaceae	<i>Pittosporum</i>	
Platanaceae	<i>Platanus orientalis</i>	
Proteaceae	<i>Grevillea robusta</i>	
Punicaceae	<i>Punica granatum</i>	
Rosaceae	<i>Amygdalus communis</i>	

	<i>Crataegus</i>	
	<i>Cydonia</i>	
	<i>Mespilus germanica</i>	
	<i>Prunus dulcis</i>	
	<i>Pyrus communis</i>	
Rubiaceae	<i>Pavetta</i>	
Ruscaceae	<i>Ruscus aculeatus</i>	
Rutaceae	<i>Citrus</i>	Malumphy (2010)
Salicaceae	<i>Populus alba</i>	
	<i>Salix babylonica</i>	
Santalaceae	<i>Osyris alba</i>	
Sapindaceae	<i>Dodonaea viscosa</i>	
	<i>Litchi chinensis</i>	
	<i>Nephelium lappaceum</i>	
	<i>Sapindus saponaria</i>	
Sapotaceae	<i>Sideroxylon oxyacantha</i>	
Smilacaceae	<i>Smilax aspera</i>	
Strelitziaceae	<i>Strelitzia</i>	Malumphy (2010)
Umbelliferae	<i>Bupleurum subfruticosum</i>	
Vitaceae	<i>Vitis vinifera</i>	