Department for Environment Food & Rural Affairs

# Rapid Pest Risk Analysis (PRA) for:

## *Aphis nerii*

### April 2015

# Stage 1: Initiation

## 1. What is the name of the pest?

*Aphis nerii* Boyer de Fonscolombe (Hemiptera: Aphididae). Up to 11 synonyms are associated with *A. nerii*, though only *Aphis lutescens* appears regularly in the literature. Common names: oleander aphid, milkweed aphid.

## 2. What initiated this rapid PRA?

In November 2014 entomologists at Fera received samples of an aphid from a private residence in London that were confirmed as *Aphis nerii* (Sharon Reid *pers. comm.* 05.11.2014). These samples had been requested after the presence of the pest was published online in a blog (Taylor 2012). The species has been present at the residence every year since 2008, indicating an established population. An update to the 2002 PRA (MacLeod, 2002) was initiated to determine the implications of this establishment and the impacts the pest may have in the UK.

## 3. What is the PRA area?

The PRA area is the United Kingdom of Great Britain and Northern Ireland.

# Stage 2: Risk Assessment

## 4. What is the pest's status in the EC Plant Health Directive (Council Directive 2000/29/EC[1]) and in the lists of EPPO[2]?

The pest 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.

## 5. What is the pest's current geographical distribution?

The distribution of *A. nerii* has been described as found in "tropical to warm temperate regions throughout the world" (McAuslane, 2014) as well as including many of the remote pacific islands (Blackman *et al.*, 1994). The more northern records are discussed below, but usually refer to temporary summer populations or those found in urban hotspots or under glass.

There is some uncertainty surrounding the distribution of *A. nerii* due to the lifecycle of the pest. Females are viviparous (bear live young) and parthenogenetic (reproduce asexually) (McAuslane, 2014), so overwintering occurs as an adult. Though reported widely across the USA, the pest does not overwinter in all regions. It is described as an irruptive and adventive species in Canada (Foottit & Maw, 2014), with occasional rapidly growing populations that suffer sharp declines and eventual local extinction in the winter months. Though present and relatively abundant in southern Illinois during the summer, the species is rarely found before mid-summer and colonies are killed by frost in the autumn (Kagezi *et al.*, 1999). It appears that only the most southern states in the USA (Florida and Southern California are known overwintering locations), where freezing temperatures are not common, can support *A. nerii* adults all year round and northern records represent migrants that will not overwinter (Harrison & Mondor, 2011). In Japan it was theorised that populations collected in Hokkaido may originate from central Honshu where winters are milder (Takada & Miyazaki, 1993). However, though never observed in the wild, under laboratory conditions (including within an experimental glasshouse where a population was present) *A. nerii* produced both males and females, and laid eggs that overwintered indicating that this species does have the potential to overwinter in more northerly locations (Takada & Miyazaki, 1993).

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[1] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2000L0029:20100113:EN:PDF

[2] https://www.eppo.int/QUARANTINE/quarantine.htm

The distribution of *A. nerii* within the EU is summarised in Table 1 categorised by outdoor findings, those under protection, and those where the current status is uncertain. *Aphis nerii* is relatively common in southern Europe where winters are mild, including Greece (John *et al.*, 2007), Italy (Cavalloro, 1986), Malta (Misfud *et al.*, 2013), Mediterranean France (Staray, 1976), Portugal (Costa & Starý, 1988) and Spain (Cambra *et al.*, 2000). However there are also more northerly records. In Poland it is recorded under protection in an experimental glasshouse on oleander (Osiadacz & Roman, 2012). The location of the Dutch finding is less clear. It was reported on stems of *Asclepias* sp. (Piron, 2009), in Arnhem; it is unknown if this finding was outside or inside and whether the species was able to overwinter since *Asclepias* species are not evergreen. It has also been observed several times in Hungary, but there was no evidence that it is overwintering (Haltrich & Vas, 1996), However, *A. nerri* was collected from Hungary in 2009 for a study comparing North American and EU populations from along old fields and roadsides (Bukovinszky *et al.,* 2014) so summer populations may be a more common occurence than it appears from the literature, and it is possible the pest does overwinter in Hungary or arrives from southern Europe each summer.

Table 1: Distribution of *Aphis nerii* in Europe

| | |
|---|---|
| Outdoors: | Greece, Italy, Malta, France, Portugal, Spain |
| Under Protection: | Poland |
| Uncertain or Transient: | Hungary, Netherlands |

## 6. Is the pest established or transient, or suspected to be established/transient in the UK/PRA Area?

Records indicate that *A. nerii* has at least one small population established in the UK. A population has been recorded in one garden in London every year since 2008 (Sharon Reid *pers. comm.* 05.11.2014; Taylor, 2012). Reports of *A. nerii* at another private residence in London in Wimbledon date back to 2004 – in both of these instances the infested plant was *Dregea sinensis* (Chinese Dregea) (Defra 2004, unpublished data). Stroyan, 1984 lists *A. nerii* in the handbook for the identification of British Insects, however the entry clearly indicates this is not a native species and that it has been “found in one or two nurseries in the home counties” on oleander.

The pest has been regularly intercepted by the UK on *Nerium oleander*, with records dating back to 1978. Between 2001 and 2014 *A. nerii* was intercepted on 9

occasions on planting material originating from the EU. Though taken in the past, statutory action was not recommended against findings in 2014 as evidence suggested the pest was present in the UK, and likely to continue to enter on planting material.

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

*Aphis nerii* is polyphagous, but its main hosts (and the ones it is most often considered a pest on) belong to the Apocynaceae (dogbanes, a large family that includes the periwinkles), and in particular members of the subfamily Asclepiadoideae, with the hosts most often referenced being: *Nerium oleander, Vinca* (periwinkles) and various milkweeds of the genus *Asclepias* (McAuslane, 2014). Other hosts in this family include *Araujia sericifera* (cruel plant or moth plant), a species native to South America but invasive in several European countries as well as New Zealand. It is occasionally grown as an ornamental in the UK and populations of *A. nerii* have been observed to build up on this plant in both its native and invasive range (Waipara *et al.*, 2006). In the UK it has been observed on *D. sinensis* (Taylor, 2012). In Malta it is commonly found on *Stephanotis floribunda* (Madagascan jasmine) (Misfud *et al.*, 2013) and in Japan it has been collected from *Metaplexis japonica* and *Oxypetalum coeruleum* (Takada & Miyazaki, 1993).

It is found occasionally on plants of other families including Compositae, Convolvulaceae and Euphorbiaceae (McAuslane, 2014), and is an occasional pest on *Citrus* (Stoetzel, 1994). It is commonly found in *Carica* papaya (papaya)plantations in Mexico (Teliz *et al.*, 1991). In Illinois *A. nerii* were frequently observed colonising milkweeds next to fields containing bell peppers (*Capsicum annum*). In the lab it was successfully reared on *Capsella bursa-pastoris* (shepherd's purse) and also fed on *C. annum,* but it was never observed on *C. annum* plants in the field (Hobbs *et al.*, 2000, Kagezi *et al.*, 1999). It has also been recorded as a pest in *Phaseolus vulgaris* (green bean) fields in South America (Muruaga de l'Argentier & Agostini de Manero, 1990). Since large and damaging populations are usually only recorded on Apocynaceae, it is likely many other host records represent those which *A. nerii* feeds on without impacts, or upon which alates (winged aphids) were present without feeding (Chris Malumphy *pers. comm.* 30.4.2015).

Several members of the Apocynaceae are grown as ornamentals in the UK, including *N. oleander*. There are no native members of this genus, but *Vinca* is commonly found in the wild and is naturalised (Anon, 2015). Potential minor hosts are abundant.

# 8. What pathways provide opportunities for the pest to enter and transfer to a suitable host and what is the likelihood of entering the UK/PRA area?

## Plants for Planting

The UK has intercepted *A. nerii* on planting material of *Nerium oleander* on at least ten occasions; all were on planting material of EU origin and for oleander there is no routine inspection upon arrival into the UK. The pest is relatively widespread in the EU, and given that its host range includes ornamental plants imported by nurseries in the UK, continued entry on plants for planting is very likely, with high confidence.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Plants for Planting* | Very unlikely | ☐ | Unlikely | ☐ | Moderately likely | ☐ | Likely | ☐ | Very likely | ☑ |
| *Confidence* | High Confidence | ☑ | Medium Confidence | ☐ | Low Confidence | ☐ | | | | |

## Natural Spread

*Aphis nerii* is described as a “migratory” species, though not in the true sense as an aphids own flight capacity is low – the only regions where it can overwinter are those which have mild winters and host plants present all year round, and as such more northerly locations in North America are re-populated each summer and extinction occurs each autumn (Groeters, 1989). It is not known what distance a single female aphid may fly to establish a new population. There is some evidence that *A. nerii* may also migrate in Europe – as populations have been recorded in summer months in Hungary but were not thought to be able to survive the winter (Haltrich & Vas, 1996). To arrive in the UK by natural spread, migration would likely have to occur from the north of France, Netherlands or Belgium – of these countries the pest is only recorded in the Netherlands (Piron, 2009) and its status there is uncertain. No evidence of migration from Mediterranean France northwards could be found. There are no records of *Aphis nerii* within the Rothamsted suction trap network for the UK which has been collecting data since 1965 – and although there are many records of unidentified *Aphis* species, the very distinctive nature of *A. nerii* means that if it was present within the suction traps it is very likely to have been identified (Mark Taylor, *pers. comm.* 05.05.2015).

Nevertheless, in the USA it was observed that a single female could found colonies successfully (Groeters, 1989) and aphids are known to move long distances in air currents. However the lack of findings of this distinctive species in suction traps

indicates *A. nerii* is not regularly arriving in air currents, and entry by natural spread is rated as unlikely with high confidence.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Natural Spread* | Very unlikely | ☐ | Unlikely | ☑ | Moderately likely | ☐ | Likely | ☐ | Very likely ☐ |
| *Confidence* | High Confidence | ☑ | Medium Confidence | ☐ | Low Confidence | ☐ | | | |

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

The preferred hosts of *A. nerii* are grown as ornamentals in the UK, and oleander is a popular species in gardens. Several sources list the relatively widespread *Vinca* (periwinkle) species as a host, but no evidence of large colonies of this pest on this genus could be found, perhaps suggesting it is not a preferred host. Thus the suitability of *Vinca* as a host for *A. nerii* is uncertain.

Aleosfoor and Fekrat, 2014, studied the development of *A. nerii* at five constant temperatures between 10-30 °C and observed development occurred at all temperatures. This is in contrast to an earlier study where no development was observed at 10°C (Kuo & Chiang, 1999). Table 2 contains the threshold temperatures for development as published in the English abstract of work by Villanueva Jimenez *et al.* 1993 – the main publication is not available in English and thus it is uncertain which temperatures *Aphis nerii* were reared at to develop these threshold temperatures. In southern Illinois, where *A. nerii* does not appear to be able to overwinter, it was observed that colonies of females occurred until killed by frosts (Kagezi *et al.*, 1999). This would suggest that winter temperatures in the UK would be too cool to allow for establishment, and this fits with the generally tropical to warm temperate distribution of the pest.

Table 2: Threshold temperature for the development and degree days required for *Aphis nerii* development on *Asclepias curassavica* (Villanueva-Jimenez *et al.* 1993)

| Nyphal Instar | Threshold temperature for development (°C) | Degree-days above threshold required for development |
|---|---|---|
| 1st | 5.9 | 35.0 |
| 2nd | 8.2 | 25.1 |
| 3rd | 8.0 | 25.0 |
| 4th | 8.1 | 26.8 |

However, at least one population is established in London as discussed in section 6. This may be due to the urban heat island effect. London is significantly warmer than the surrounding area, the urban heat island intensity (difference between the warmest urban area and baseline rural temperature) of 7°C has been measured in the summer (Watkins *et al.*, 2002) and in winter can reach as high as 9°C (Giridharan & Kolokotroni, 2009). The fact that the pest has not been more widely recorded in the UK despite being present in London since 2008 supports the hypothesis that *A. nerii* can only establish in sheltered locations where freezing temperatures do not regularly occur in the winter months, which was the conclusion of the earlier PRA (MacLeod, 2002). However it could also be that *A. nerii* is better adapted to cooler winter temperatures than previously thought. Though only observed under experimental conditions, *A. nerii* does have the potential to produce overwintering eggs (Takada & Miyazaki, 1993).

Establishment outdoors is rated as very likely, but only in highly sheltered locations in the south of the UK such as gardens in urban heat islands, or regions in the south-west where there are fewer and less severe frosts. Confidence associated with this rating is medium. This is because it is not entirely certain where the pest is overwintering – the aphids involved in the outbreak in London are described as dying off when the leaves drop off the *D. sinensis* in winter and re-invading in the summer (Taylor, 2012). Winged morphs were observed (Sharon Reid *pers comm.* 05.11.2015), this often occurs when plants are senescing to allow for migration to other host plants (McAuslane, 2014). It is thus possible that members of the population are migrating and overwintering within protected cultivation (garden greenhouse, conservatory etc.) nearby, rather than outdoors.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Outdoors* | Very unlikely | ☐ | Unlikely | ☐ | Moderately likely | ☐ | Likely | ☐ | Very likely | ☑ |
| *Confidence* | High Confidence | ☐ | Medium Confidence | ☑ | Low Confidence | ☐ | | | | |

The temperatures provided by protected cultivation are likely to be suitable for the establishment of *A. nerii*. However there are very few records of *A. nerii* as a pest of protected cultivation, despite the fact it regularly migrates north into regions where year round protected cultivation would be common. It has been recorded under glass at experimental breeding stations in Poland (Osiadacz & Roman, 2012) and Japan (Takada & Miyazaki, 1993), on oleander in New Jersey (though described as 'uncommon') (Weiss, 1916) and within greenhouses at an exhibit at EPCOT, Florida (Bell *et al.*, 2004). In all of these instances the pest was present on a host from its preferred family, the Apocynaceae. The limited reports of this pest under protection may be due to the fact that in most areas Apocynaceae are not widely grown under protection. In the UK some Apocynaceae ornamentals, such as *Stephanotis floribunda,* are grown in heated conservatories or indoors generally (RHS, 2015),

and where a number of Apocynaceae are present under protection establishment may occur. Establishment under protection is rated as moderately likely, with medium confidence. Establishment on hosts outside of the Apocynaceae is not expected and the number of locations suitable for *A. nerii* is thought to be low, but no data on Apocynaceae production occurring under glass in the UK are available. Small populations of *A. nerii* could be eliminated under protection by appropriate treatments, preventing establishment.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Under Protection* | Very unlikely | ☐ | Unlikely | ☐ | Moderately likely | ☑ | Likely | ☐ | Very likely ☐ |
| *Confidence* | High Confidence | ☐ | Medium Confidence | ☑ | Low Confidence | ☐ | | | |

## 10. If the pest needs a vector, is it present in the UK/PRA area?

*Aphis nerii* is a free living organism and does not require a vector.

## 11. How quickly could the pest spread in the UK/PRA area?

Although *A. nerii* is known to move long distances great distances from the overwintering sites in the south of the USA to as far north as Canada, it has apparently failed to spread from east London despite being present since at least 2008, with no records within the Rothamsted insect survey as discussed in section 8. This is possibly because of a combination of the limited areas it can infest all year round, and a lack of its preferred hosts. In the USA milkweeds (*Asclepias*) are abundant across the country, whereas many of the preferred hosts of *A. nerii* in the UK are only grown as ornamentals and cannot survive outside of sheltered garden environments. The exception is *Vinca*, which is found widely, however no details of significant colony numbers such as those recorded on *N. oleander, Asclepias* and *D. sinensis* could be found. Based on the lack of spread seen, despite the pest being present for at least 7 years, natural spread is rated as very slowly with high confidence.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Natural Spread* | Very slowly | ☑ | Slowly | ☐ | Moderate pace | ☐ | Quickly | ☐ | Very quickly ☐ |
| *Confidence* | High Confidence | ☑ | Medium Confidence | ☐ | Low Confidence | ☐ | | | |

Interceptions of *A. nerii* on imported plants show it can move in trade of nursery stock. However the bright orange aphids are conspicuous and would be spotted easily and nurseries are likely to apply appropriate treatments to remove colonies which may otherwise reduce the marketability of the plants. Many plants may be moved to locations where *A. nerii* cannot overwinter, meaning colonies die off and do not establish at the new site. Despite repeated interceptions in trade, this pest has still only been recorded from London, and spread with trade is rated as slowly with high confidence.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *With trade* | Very slowly | ☐ | Slowly | ☑ | Moderate pace | ☐ | Quickly | ☐ | Very quickly ☐ |
| *Confidence* | High Confidence | ☑ | Medium Confidence | ☐ | Low Confidence | ☐ | | | |

## 12. What is the pest's economic, environmental and social impact within its existing distribution?

There is little evidence that *A. nerii* is a significant pest in any part of its range. In Florida the main impact of the pest was described as the "large and unsightly colonies" that form on hosts, occasional deformation of growing terminals, and production of honeydew that encourages sooty mould growth (McAuslane, 2014). Misfud et al., 2013 noted that in Malta and other parts of the Mediterranean the heavy infestations of *A. nerii* on *N. oleander* and *S. floribunda* can spoil foliage and blossoms, but also stated that it is not considered an economically important pest. It has also been described as a principle pest of oleander in Egypt (El-Shazly, 2002), but no details of impacts on this pest aside from those already described from other areas could be found. In Argentina, it was listed as one of the most damaging aphids in fields of *Phaseolus vulgaris* (Muruaga de l'Argentier & Agostini de Manero, 1990) – the only apparent record of *A. nerii* as a significant pest on this host. Given the fact the pest is widespread in the tropics and warm temperate regions of the world, and is a highly conspicuous species, if it was regularly a pest of vegetable crops in its current distribution it is likely this would be reported more widely in the literature (Chris Malumphy, *pers. comm.* 30.4.2015).

The economic importance of *A. nerii* as a direct pest in its current distribution is rated as very small, with high confidence. No evidence of economic losses could be found, though large populations and associated sooty mould growth can be a nuisance on ornamental plants.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Impacts* | Very small | ☑ | Small | ☐ | Medium | ☐ | Large | ☐ | Very large ☐ |

| | | | | | | |
|---|---|---|---|---|---|---|
| *Confidence* | High Confidence | ✓ | Medium Confidence | ☐ | Low Confidence | ☐ |

## 13. What is the pest's potential to cause economic, environmental and social impacts in the UK/PRA area?

The limited area that *A. nerii* can establish in means that all impacts in the UK are predicted to be very small, with high confidence. Where environmental conditions are suitable, substantial and unsightly populations may build up and produce honeydew, encouraging sooty mould growth, as is reported to be the case with the *A. nerii* population in London (Taylor, 2012). Such populations would be a nuisance to nursery growers or gardeners. Appropriate treatments such as those discussed in section 16 can reduce population numbers. The potential of *A. nerii* as a virus vector is discussed in section 14. When feeding on certain plants, *A. nerii* is able to sequester cardenoloids, which are toxic, and help to protect the species against predation (A Mooney *et al.*, 2008).

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Economic Impacts* | Very small | ✓ | Small | ☐ | Medium | ☐ | Large | ☐ | Very large ☐ |
| *Confidence* | High Confidence | ✓ | Medium Confidence | ☐ | Low Confidence | ☐ | | | |
| *Environ - mental Impacts* | Very small | ✓ | Small | ☐ | Medium | ☐ | Large | ☐ | Very large ☐ |
| *Confidence* | High Confidence | ✓ | Medium Confidence | ☐ | Low Confidence | ☐ | | | |
| *Social Impacts* | Very small | ✓ | Small | ☐ | Medium | ☐ | Large | ☐ | Very large ☐ |
| *Confidence* | High Confidence | ✓ | Medium Confidence | ☐ | Low Confidence | ☐ | | | |

## 14. What is the pest's potential as a vector of plant pathogens?

The viruses known to be vectored by *A. nerii* are summarised in Table 2.

The majority of viruses transmitted by *A. nerii* are either potyviruses or cucumoviruses. These viruses are transmitted in a non-persistent manner by aphid vectors, they are acquired quickly and there is a rapid loss of ability to transmit (Van Emden & Harrington, 2007). There are many UK species of aphid which will transmit potyviruses and cucumoviruses. *Citrus tristeza virus* differs from the other viruses transmitted by *A. nerii* in that it is an EU regulated pest which is transmitted in a

semi-persistent manner, however other species of aphid widespread in the UK will transmit this virus (Cambra *et al.*, 2000). All of these viruses in Table 2 have been shown to also be vectored by aphids that are present and widespread in the UK, such as *Myzus persicae* (references within table). Though *A. nerii* has been reported as a vector of *Sugarcane Mosaic Virus* (Lal & Bhargava, 1972), a latter study found it could not transmit this virus between sugarcane and maize in the laboratory (Noone *et al.*, 1994) and thus its status as a vector of this virus is uncertain. Similarly, it has been reported as a vector of *Soybean Mosaic Virus* in the lab, but was rarely caught from surveys in soybean fields (only 2 over a 3 year period) and testing showed they were negative for the presence of the virus (Halbert *et al.*, 1981).

*A. nerii* is expected to have very little impact as a virus vector – especially on non-preferred hosts. The non-persistent manner in which it transmits viruses means it is also very unlikely to introduce a new virus to the UK should it arrive, unless it arrives in conjunction with an infected plant.

The pest could have a minor impact vectoring viruses on species that it is rare for other aphids to frequent, such as those in its preferred plant family of Apocynaceae. For example it is a major vector of *Araujia Mosaic Virus* (a potyvirus) which was noted to be widespread in the plants native range in South America causing mosaic and leaf distortion symptoms (Elliott *et al.*, 2009), though there are no reports of economic impacts. Species of the genus *Araujia* are occasionally grown as ornamentals in the UK. However, as noted above, entry of the virus via *A. nerii* in the absence of an infected plant is very unlikely.

Furthermore, *A. nerii* is not widely noted for its impacts as a virus vector. In the UK, the very limited area where this pest is expected to be able to persist year round also significantly limits its ability to cause impacts as a vector.

Table 2: Viruses shown to be transmitted by *A. nerii* usually within the laboratory. The UK distribution is noted. Those listed as absent have never been recorded in the literature or by plant health services in the UK (Adrian Fox, *pers. comm.* 15.04.2015), though because official surveys have not been carried out there will be some uncertainty over their status, for example some sources state that *Watermelon Mosaic Virus* is likely to have a worldwide distribution (Purcifull, 1981). Those viruses which are not italicised have not been officially recognised by the International Committee on the Taxonomy of Viruses and may be synonyms of others viruses.

| Virus | UK Distribution | References |
|---|---|---|
| Araujia Mosaic Virus | Absent | (ICTVdB, 2006, Waipara et al., 2006) |
| Bean Yellow Mosaic Virus | Present | (Skaf & Makkouk, 1988) |
| Bittergourd Mosaic Virus | Absent | (Nagarajan & Ramakrishnan, 1971) |
| Citrus Tristeza Virus | Absent | (Cambra et al., 2000) |

| | | |
|---|---|---|
| Cucumber mosaic virus | Present | (Hobbs et al., 2000) |
| Leek Yellow Stripe Virus | Absent | (El-Wahab, 2009) |
| Lentil mosaic virus | Absent | (Kumar & Mohan, 1994) |
| Lettuce Mosaic Virus | Present | (El-Wahab, 2012) |
| Onion Yellow Dwarf Virus | Present | (El-Wahab, 2009) |
| Papaya Ringspot Virus | Absent | (Mora-Aguilera et al., 1993) |
| Tobacco Etch Virus | Absent | (Cerkauskas, 2005, McDonald, 2005) |
| Watermelon mosaic virus | Absent | (Srivastava et al., 2012) |
| Zucchini yellow mosaic virus | Present | (Katis et al., 2006) |

## 15. What is the area endangered by the pest?

Sheltered outdoor environments or protected cultivation where preferred hosts are grown, particularly within urban areas, may allow the pest to build up to populations sizes that are a nuisance and require control.

# Stage 3: Pest Risk Management

## 16. What are the risk management options for the UK/PRA area?

Given that *A. nerii* is found across much of southern Europe and continued entry is very likely, and since it has established in at least one location in the UK, exclusion is not considered appropriate. Aphids found in Europe are generally not suitable as quarantine pests, as they are able to also be dispersed long distances by wind currents.

There are a number of cultural practices available that could reduce the impacts of *A. nerii*, and may be used to eradicate any small populations that occur under glass. In Florida insecticidal soaps and oils are recommended for home use (McAuslane, 2014). Insecticides that are licenced for use against aphids in protected ornamental or vegetable production should be effective against *A. nerii*.

# 17. Summary and conclusions of the rapid PRA

This rapid PRA shows that *Aphis nerii* is a minor pest of several ornamental species that is likely to continue to enter the UK, but can only establish in protected or sheltered conditions and is likely to cause only minor impacts.

## Risk of entry

Entry is very likely in association with planting material, and unlikely via natural spread.

## Risk of establishment

Establishment has occurred in at least one sheltered, urban location where hosts where grown. The pest is only expected to be able to establish in the UK in similar situations.

## Economic, environmental and social impact

There is little evidence that *A. nerii* is an economically important pest in its current range, and all impacts in the UK are expected to be very small.

## Endangered area

Sheltered outdoor environments, particularly within urban areas or protected cultivation where preferred hosts are grown.

## Risk management options

Future exclusion prospects are poor because the pest is widely established in continental Europe and is moved on traded plants. In addition, it is known to be established at one location in London and could be established at other locations.

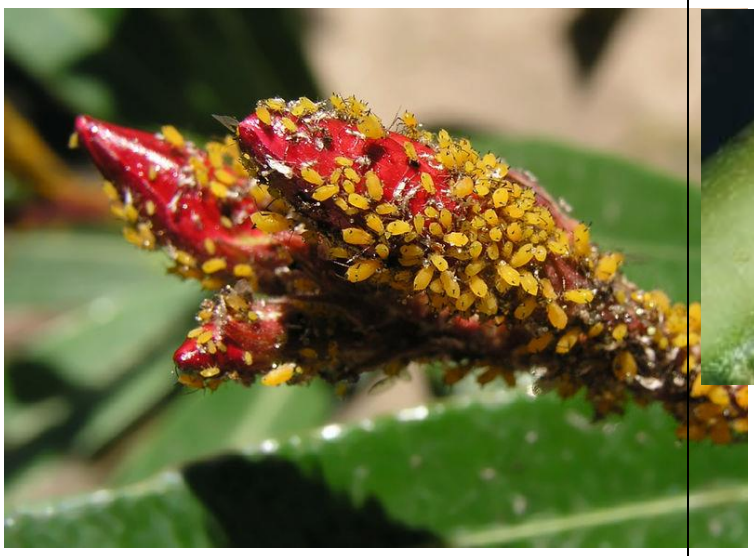
## Key uncertainties and topics that would benefit from further investigation

The long distance movement of *A. nerii* in Europe is relatively understudied, as is the status of this pest in some more northern EU locations from which it has been reported.

## 18. Is there a need for a detailed PRA or for a more detailed analysis of particular sections of the PRA? If yes, select the PRA area (UK or EU) and the PRA scheme (UK or EPPO) to be used.

| | | | | | |
|---|---|---|---|---|---|
| No | ✓ | | | | |
| Yes | | PRA area: UK or EU | | PRA scheme: UK or EPPO | |

## 19. Images of the pest

| | |
|---|---|
|  |  |
| *Aphis nerii* colonising oleander. (Luis Fernández García L. Fdez. / 2005-06-05 / Barrio del Pilar, Madrid.) | An adult *Aphis nerii* (Fera, 2007) |

## 20. Given the information assembled within the time scale required, is statutory action considered appropriate / justified?

The pest is already established in the PRA area, is common within Europe and is not known to cause significant impacts statutory action is not considered appropriate.

| | | | |
|---|---|---|---|
| Yes Statutory action | | No Statutory action | ✓ |

# References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