



Department
for Environment
Food & Rural Affairs

Rapid Pest Risk Analysis (PRA) for: *Platynota stultana*

March 2015

Stage 1: Initiation

1. What is the name of the pest?

Platynota stultana Walsingham (Lepidoptera: Tortricidae), omnivorous leafroller

2. What initiated this rapid PRA?

Platynota stultana was identified as a priority pest for PRA by the UK Plant Health Risk Register in 2013.

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/EC¹) and in the lists of EPPO²?

Platynota stultana is not listed in the EC Plant Health Directive.

It is also not currently listed by EPPO. However, *P. stultana* was on the EPPO Alert List (along with two other *Platynota* species), between October 1998 and January 2002.

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

Native to arid parts of North-West Mexico and South-West USA (Brown, 2013), this species has spread to other parts of the USA, with records of outdoor populations from California (Powell, 1983), Florida (Brown, 2009) and Hawaii (Miller & Hodges, 1995). The status of an outdoor record from Michigan (Atkins *et al.*, 1957a) is unclear.

Table 1: Distribution of *Platynota stultana*

North America:	Mexico USA (native to Arizona and Texas; now also present outdoors in California, Florida and Hawaii; plus glasshouse records from many other states)
Central America:	No records
South America:	No records
Europe:	Spain
Africa:	No records
Asia:	No records
Oceania:	No records

There are a number of glasshouse records, or putative glasshouse records, from more northern states in the USA, e.g. Virginia in 1933 (Nelson, 1936) and 1970 (Lam *et al.*, 2011); Illinois, Massachusetts and Washington DC (Atkins *et al.*, 1957a); Pennsylvania (Pennsylvania Department of Agriculture, 2013); North Carolina, Oklahoma, Colorado and

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

² <https://www.eppo.int/QUARANTINE/quarantine.htm>

Oregon (in Brown, 2013). CABI (2014) additionally records *P. stultana* in Arkansas and Maryland and at least the latter seems likely to be a glasshouse record.

Platynota stultana was detected in 2009 in Spain (in four southern provinces, namely, Almeria, Murcia, Alicante and Granada), both in glasshouses and the wider environment (Groenen & Baixeras, 2013). It is thought to have been present since around 2005 ('Hymenoptera', 2011), and it is not known how the species was first introduced to Europe.

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

(Include summary information on interceptions and outbreaks here).

In the UK, there was a finding of a single *P. stultana* larva at a nursery in 2004 (on *Lantana* from the USA). As only one larva was detected, and could not be fully identified until reared to adult, no statutory action was recommended on that occasion (though advice on control options was given on an advisory basis). There has been no evidence of the pest since, and it is no longer present in this country.

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?

This larva is highly polyphagous (as its common name, omnivorous leafroller, suggests), and will feed on many hosts from over 20 plant families. Only a small proportion of hosts are listed below: for a more complete list, see Gilligan and Epstein (2012), Brown *et al.* (2011) or Atkins *et al.* (1957a), from whom the following information has been extracted, unless otherwise cited.

In the USA, *P. stultana* is primarily recorded as a pest of outdoor crops in California, especially grapes (*Vitis*), *Citrus* and cotton (*Gossypium*). It has also been found in protected crops including roses (*Rosa*) in greenhouses (e.g., Nelson, 1936).

In protected cultivation in Spain, it has been reported on sweet pepper (*Capsicum annum*), aubergine (*Solanum melongena*) and basil (*Ocimum*) ('Hymenoptera', 2011).

Hosts of importance to the UK include:

Outdoor crops: Raspberries and blackberries (*Rubus*), maize (*Zea mays*), celery (*Apium graveolans*), plum (*Prunus domestica*) (Yokoyama & Miller, 1999), and even pine (*Pinus*).

Protected cultivation: Tomatoes (*Solanum lycopersicon*) and pepper (*Capsicum annum*); additionally, strawberries (*Fragaria*) are reported by Nelson (1936).

Protected ornamentals: Carnation (*Dianthus*), *Chrysanthemum*, geranium (*Pelargonium*) and *Cyclamen*.

Wider environment: Walnut (*Juglans*), yew (*Taxus*) and various grasses (Poaceae).

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: Eggs, larvae and pupae are associated with all parts of the plant, and larvae and pupae are cryptic, hidden in leaves spun together with silk. Growing plants will give larvae time to complete their life cycle, and this is a known glasshouse pest. Many plants imported will be small, and this means that eggs, larvae or pupae are more likely to be detected if the plant is inspected as they are likely to be relatively conspicuous. However, as *P. stultana* is present in Spain, entry is still considered to be likely, as trade within the EU is not regulated, and such plants will not be the main target of phytosanitary inspections. Overall, this pathway is assessed as **likely** with **medium confidence**.

Imported produce packed in the UK: This pathway was assessed for both produce and for hitchhikers on or in the packing material it is transported in (e.g., cardboard boxes). *Platynota stultana* is present in glasshouses in Spain, including in Almeria (one of the main salad production areas in Spain), and UK growers often import and pack fruit from Mediterranean countries (including Spain) during the periods when their own crops are not productive. This species is known to be moving in traded fruit: the USA has frequently intercepted *P. stultana* on sweet pepper fruit from Mexico (Brown, 2013), and has detected the species twice from Spain in 2011, also on sweet pepper (Netherlands National Plant Protection Organization, 2012). As with the plants for planting pathway, produce from Spain will not be a priority for phytosanitary inspections. Larvae could survive chilled transport of fruit or vegetables: a small proportion of larvae have been shown to be able to survive longer than 6 weeks at temperatures of 0-1°C (Yokoyama & Miller, 2000), though when low temperatures were combined with slow-release sulphur dioxide pads, all larvae were dead after 3 weeks (Yokoyama *et al.*, 1999). Adults are nocturnal and may hide in crevices, such as corners of boxes or pallets, during the daytime, and pupae may be also be associated with packaging. UK packhouses are often located in very close proximity to a growing crop, adult moths are reasonably mobile, and past experience with a tomato pest, *Tuta absoluta*, has shown that infested produce and/or packing material can be the source of UK outbreaks. However, while hitchhiking adults may be capable of finding a growing crop, larvae transported with fruit are much less mobile and thus less likely to be capable of finding a growing crop to complete their development. Overall, this pathway is rated as **likely**, with **low confidence**.

Produce packed at origin: Produce that goes straight to market or consumers presents a much lower risk, as it will be rapidly dispersed, then eaten, processed or disposed of; thus immature stages of this moth are unlikely to have enough time to complete development. However, due to the highly polyphagous nature of this species, if produce were discarded,

e.g., on a domestic compost heap, larvae and/or adults may be able to find suitable hosts. Overall, this pathway is rated as **unlikely** with **medium confidence**.

Plants for planting Very unlikely Unlikely Moderately likely Likely Very likely

Confidence High Confidence Medium Confidence Low Confidence

Produce packed in UK Very unlikely Unlikely Moderately likely Likely Very likely

Confidence High Confidence Medium Confidence Low Confidence

Produce packed at origin 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 likelihood rating should be based on the area of potential establishment, e.g. where hosts are present and the climate is suitable, within the UK/PRA area)

As this species is highly polyphagous, host availability will not be a limiting factor in its potential distribution.

Climate is more likely to limit the potential area of establishment. The distribution of the species in North America outdoors suggests that *P. stultana* is not likely to be able to survive overwinter outdoors in the UK. In California, it was first detected in Los Angeles county in 1898, had moved north to Santa Barbara county by 1940, and was found in Glenn County, north of Sacramento in 1968, an overall northwards expansion in range of 5° of latitude in 70 years (Powell, 1983). Commenting on the expansion of the species' range in California, Powell (1983) stated that *P. stultana* showed adaptation to a much wider range of climatic conditions, including more days of frost as it spread northwards, and higher rainfall as it moved into less arid parts of the state.

Experimentally, a very small proportion of larvae has been shown to survive (and subsequently develop to adult) after 6 weeks at temperatures of 0-1°C, with second instars

apparently the most cold-hardy (Yokoyama & Miller, 2000). Loughner (1977) reports that the number of generations per year was lower when the mean minimum temperatures were below 4–6°C in early spring and autumn. Atkins et al. (1957a) determined the development of *P. stultana* life stages at three temperatures, from which the threshold for development can be calculated, but the calculated values for the larvae are unexpectedly low, and so these data are not included here. However, Kido et al. (1982) also provide threshold development values for *P. stultana* (Table 2), which are broadly similar to other tortricids that are capable of overwintering in the UK, such as *Epiphyas postvittana* and *Cacoecimorpha pronubana*. The latter two species were introduced to the UK many decades ago and are now found outdoors in large parts of England and Wales.

Table 2. Lower threshold development temperatures and degree days above threshold for *Platynota stultana* and two species of tortricid previously introduced to the UK, and now established outdoors.

Species	Life stage	Lower threshold development temperature (°C)	Degree days above threshold	Source
<i>Platynota stultana</i>	Egg-adult	8.9	649	Kido et al. (1982)
<i>Epiphyas postvittana</i>	Egg-adult	7.5	620.5	Danthanarayana (1975)
<i>Cacoecimorpha pronubana</i>	Egg-adult	8.8	665.2	Quaglia (1983)

Third to fifth instar larvae show a limited capacity to overwinter outdoors in California, at least as far north as Fresno. They construct shelters out of webbing, either on the plant or in dead leaves and other plant material on the ground, but do not demonstrate a true diapause: they appear to be partially active during this time and continue feeding at a lower rate (Aliniazev & Stafford, 1972). Comparing the mean monthly temperatures between sites where *P. stultana* occurs outdoors in California and Spain with sites in England shows that the mean monthly maximum temperatures are markedly higher in the pest's current distribution than the situation in England (see Fig. 1 in Appendix 1). The mean monthly minimum temperatures show less of a difference (Fig. 2), which is consistent with inland, more mountainous regions in the native range. The nights in winter may be quite cold, but the daytime temperatures are substantially warmer. As the larvae do not have a true diapause, these warmer day temperatures could be crucial as they are still active, albeit at a lower rate. Aliniazev and Stafford (1972) also noted that populations of *P. stultana* are lower following a wet winter. As the species is native to an arid region (Powell, 1983), high rainfall may be important as it reduces winter survival. The mean monthly rainfall between December and March in Fresno (where Aliniazev and Stafford (1972) carried out their studies) is approximately the same as Cambridge in the UK (see Fig. 3 in Appendix 1), though the mean monthly maximum temperatures in Cambridge are between 5 and 9°C lower than Fresno over the same period (and 3 to 10°C lower in Truro). Summer rainfall is almost non-existent in California and very low in Spain, whereas in

eastern England it is approximately constant throughout the year. However, it is unknown what effect rainfall in seasons other than winter has on *P. stultana*.

Overall, therefore, it seems that *P. stultana* requires warmer temperatures than are found in the UK to be capable of overwintering successfully. The rating for outdoor establishment is considered to be **unlikely** with **low confidence**, based on a comparison of the temperatures in the pest's existing range and the UK.

Protected cultivation is, however, considered **very likely** to be suitable for establishment, with **high confidence**. This species has been found in glasshouses in northern parts of the USA for at least 80 years (e.g., Atkins *et al.*, 1957a; Lam *et al.*, 2011; Nelson, 1936; Pennsylvania Department of Agriculture, 2013), and has recently been found in glasshouses in Spain, in crops including peppers, aubergine and basil ('Hymenoptera', 2011). Whatever the exact temperature or other climatic requirements of *P. stultana* may be, protected cultivation appears to provide a suitable environment for this species to persist.

<i>Outdoors</i>	Very unlikely	<input type="checkbox"/>	Unlikely	<input checked="" type="checkbox"/>	Moderately likely	<input type="checkbox"/>	Likely	<input type="checkbox"/>	Very likely	<input type="checkbox"/>
<i>Confidence</i>	High	<input type="checkbox"/>	Medium	<input type="checkbox"/>	Low	<input checked="" type="checkbox"/>				
<i>Under Protection</i>	Very unlikely	<input type="checkbox"/>	Unlikely	<input type="checkbox"/>	Moderately likely	<input type="checkbox"/>	Likely	<input type="checkbox"/>	Very likely	<input checked="" type="checkbox"/>
<i>Confidence</i>	High	<input checked="" type="checkbox"/>	Medium	<input type="checkbox"/>	Low	<input type="checkbox"/>				

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

No vector is required. This is a free-living organism.

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

Platynota stultana shows a limited ability to disperse naturally. Though adults can fly, it is not a migratory species and has not been recorded flying long distances. First-instar larvae actively disperse from the egg mass. While they usually crawl around the plant, they are also capable of ballooning (floating in air currents beneath strands of silk) (Aliniaze & Stafford, 1972; Atkins *et al.*, 1957a), which, depending on weather conditions, will enable them to disperse locally, but again, the distances are unlikely to be significant.

In trade, *P. stultana* has apparently been moved very substantial distances in the past, presumably on plants or plant products, and has become established in several new countries as a result, e.g., Hawaii (Miller & Hodges, 1995) and Spain (Groenen & Baixeras, 2013). The glasshouse records from northern USA and the species' introduction into Hawaii and Spain suggests that this species has a history of moving in trade. The larvae are cryptic (feeding concealed in rolled leaves) and thus low infestations may not be detected before plants are moved, and host availability will not be a limiting factor. Therefore, if *P. stultana* was to be introduced to the UK, it would potentially be able to move very quickly in trade.

Natural Spread Very slowly Slowly Moderate pace Quickly Very quickly
 Confidence High Confidence Medium Confidence Low 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?

Platynota stultana has a history of being an economically damaging pest in the USA, with literature on damage in assorted crops. The University of California (2014) has a number of pages on *P. stultana* in its online guide to Integrated Pest Management for crops including apple, citrus, cotton, grape, kiwi, nectarine, peach, pear, pepper, plum and pomegranate, as well as ornamental nurseries. Generally, in fruit, damage often occurs where two fruit touch, or where a leaf can be attached to the surface with silk by the larva. It then chews grooves on the surface of the fruit, creating scarring, and occasionally may tunnel deeper inside the fruit (depending on the host) (University of California, 2014). Surface scarring is usually cosmetic, but means that the affected fruit cannot be sold as 'table fruit', i.e., to high-quality markets, but must be processed instead. However, as with any wound, the larval feeding damage can allow the entry of secondary pathogens and much greater losses can result.

The USA has detected *P. stultana* larvae in imports of *Capsicum* from Spain (Netherlands National Plant Protection Organization, 2012), but no economic damage has apparently been seen in any Spanish crops ('Hymenoptera', 2011). However, an article by the company DuPont (2011) states that fruit damage can occur in sweet pepper, the larvae tunnelling in from the stem and feeding internally around the seeds. Additionally, at least one company in Spain offers *P. stultana* pheromone traps for sale, which suggests that growers find it worthwhile monitoring populations at a local level.

There are a few more specific reports of damage on a number of crops, discussed below, but many of these are very dated. Current control programmes may be successful in reducing damage by this pest to below economic thresholds (hence the lack of more contemporary information), but evidence for this could not be found. Welter *et al.* (2005) commented that the use of pheromones to control *P. stultana* in Californian vineyards had increased since 1998, and also noted that infestations of this pest were unpredictable in severity. An outbreak of *P. stultana* in a Pennsylvanian glasshouse was initially difficult to control; an IPM programme was subsequently implemented, but the moth was still being detected in pheromone traps six months later (Spichiger, July 2014, pers. comm.).

Roses in a glasshouse in Virginia were infested at an estimated rate of 15% (Nelson, 1936), but it is not known if economic damage to the crop resulted.

Plum damage (as “fresh prunes”) was assessed by Yokoyama and Miller (1999) in laboratory no-choice feeding experiments. While plums did not seem to be a preferred host for *P. stultana* (as few adults reared successfully), damage observed included a mean of 20 larval feeding sites per fruit, as well as ripe fruit that was significantly softer.

Grape leaf feeding usually has little impact on yield, though feeding on terminal shoots can affect plant growth (Aliniaze & Stafford, 1972). Attacks on inflorescences will reduce yield, both through direct flower damage, and larval webbing reducing pollination of the surviving flowers. Damage to grape fruit early in the season often results in minor superficial scarring, but surface wounds later in the growing period allow the entry of secondary pathogens, meaning the grapes are spoilt even for processing; additionally, rot can spread through the bunch at a rapid rate (Aliniaze & Stafford, 1972). Overall yield loss in the San Joaquin Valley (California) was estimated at around 25% by Lynn (1969), with the loss mostly due to pre-harvest bunch rot, and additional costs were noted due to the need to re-grade fruit.

Cotton leaf damage does not usually have a significant effect on the crop, unless terminal shoots are attacked. Damage to bolls ranges from complete loss, when a young boll is destroyed or secondary pathogens invade an older boll, but can also be relatively minor, with some loss of lint in the damaged area (Atkins *et al.*, 1957b).

Citrus rind may be scarred around the calyx, though in navel oranges, they may be found in the cavity at the base (McGregor, 1934). Larvae also feed on the calyx and stem, and damage round the calyx is thought to account for dwarfed or “pee-wee” fruit, which are unmarketable; McGregor (1934) estimated that these pee-wee fruit accounted for around 6–10% of the crop. Green oranges averaged an infestation rate of about 25% over 42 Californian orchards, though some sites had rates of over 70%, and one orchard had damage rates of 96% (McGregor, 1934).

Nectarine fruit from California had rates of *P. stultana* infestation (both larvae and pupae) of about 40 fruit per 100,000, making this the second most prevalent arthropod associated with the fruit (Curtis *et al.*, 1992); the commonest species was a predatory lacewing causing no damage. Of all lepidopterous damage to nectarines, *P. stultana* accounted for

at least half, though, depending on cultivar, the proportion of damage due to this species could be much greater (Curtis *et al.*, 1992).

Cyclamen plants in a major commercial production glasshouse in Pennsylvania were severely damaged by *P. stultana* in 2013 (Spichiger, July 2014, pers. comm.).

<i>Impacts</i>	Very small <input type="checkbox"/>	Small <input type="checkbox"/>	Medium <input checked="" type="checkbox"/>	Large <input type="checkbox"/>	Very large <input type="checkbox"/>
<i>Confidence</i>	High Confidence <input type="checkbox"/>	Medium Confidence <input checked="" type="checkbox"/>	Low Confidence <input type="checkbox"/>		

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

While there is some evidence of economic impacts in the native range, much of the more recent data appears to concentrate on control methods rather than impacts. In protected cultivation, crops are high-value, with little consumer tolerance for damage either to ornamentals or to fruit. Thus, even small amounts of feeding damage may cause economic impacts.

Damage to crops grown outdoors would not seem as likely, as, even if the species is able to establish outdoors (which is considered unlikely, though with low confidence), then the UK climate would seem to be unsuitable for multiple generations to occur, and hence populations are less likely to build up to damaging levels. However, if *P. stultana* were to establish in protected cultivation, then there is also the possibility that individuals could move into the wider environment in spring or summer, forming transient populations which may be capable of causing local damage if these populations can build up to high numbers. Unverified reports from a recent glasshouse outbreak in Pennsylvania suggest that the moth was able to move out of protected cultivation and onto field crops, but definitive identification of the species causing the damage is still ongoing (Spichiger, July 2014, pers. comm.).

Overall, the potential for economic damage is assessed as **medium** in protected cultivation, and **very small** outdoors.

Environmental impacts could be higher than currently assessed if the species is able to establish outdoors. However, even if populations in the wider environment were to occur, there are no records of *P. stultana* having an environmental impact in North America or Spain, and the overall assessment is that environmental impacts in the UK would be **very small**.

Social impacts again have medium confidence due to the uncertainty of transient summer populations outdoors. If *P. stultana* was able to survive outdoors, it might cause damage to plants in gardens and allotments; indoor plants are often grown for their appearance and even a small amount of cosmetic damage is unlikely to be tolerated. However, indoor

plants grown by members of the public are likely to be quite isolated (e.g. houseplants), and thus damage is likely to be rather localised. Overall, the social impact is judged to be **very small**.

Economic Impacts: indoors Very small Small Medium Large Very large

Confidence High Confidence Medium Confidence Low Confidence

Economic Impacts: outdoors Very small Small Medium Large Very large

Confidence High Confidence Medium Confidence Low Confidence

Environmental 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?

Platynota stultana is not known to vector any plant pathogen.

15. What is the area endangered by the pest?

As the species is highly polyphagous and a known glasshouse pest, all UK protected cultivation is at risk from *P. stultana*.

While its current distribution in the USA suggests that it is unlikely to be capable of establishing outdoors in the UK, studies on various aspects of the biology of *P. stultana* create some uncertainty about this statement. If it was established in protected cultivation, local transient populations may be able to develop outdoors in the warmer months.

Stage 3: Pest Risk Management

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

(Consider exclusion, eradication, containment, and non-statutory controls; under protection and/or outdoors).

Eradication: If a population was to establish and be confined to a glasshouse, then eradication or containment would be feasible, at least in theory. However, previous UK experience with another moth in protected cultivation, *Tuta absoluta*, is that it is not possible to eradicate it within a growing season and even with a crop break at the end of a growing season there is a high likelihood of the pest being carried over into the following season.

If *P. stultana* is able to establish outdoors, which is considered unlikely, eradication would be unlikely because: 1) it has a very wide range of potential hosts, many of which are not crops and therefore they would be difficult to survey or treat with plant protection products and 2) early stage infestations are likely to go unnoticed so the pest could spread considerably before the outbreak is detected. The adult is also superficially similar to a number of native moths, and thus could easily be overlooked.

Continued exclusion: Preventing entry could be difficult. Due to the highly polyphagous nature of this pest, there are a very large number of hosts and potential pathways it could travel on. As the species is present within the EU (in limited parts of Spain), many of the pathways are unregulated and thus a wide range of trades would need to be controlled to prevent this species moving in trade. Alternatively, there would need to be requirements for pest free areas or pest free places of production.

Non-statutory controls: Pheromone traps are available for detecting *P. stultana* and these have been recommended for use in packhouses receiving host material from Spain in order to monitor for the pest. The larvae have some protection from insecticide treatments because they can roll leaves and are surrounded by silk. Products containing spinosad (e.g. Conserve) and *Bacillus thuringiensis* (e.g. Dipel DF) have been recorded as being effective against this pest in the USA and are approved for some protected crops in the UK. Products containing chlorantraniliprole (Coragen) are used for the control of *Tuta absoluta* in Europe and may also be effective against *P. stultana*. The potential efficacy of the biocontrol agents that could be used against the pest in the UK is unknown. Raising awareness within industry, both for fruit packers and growers that import young plants, would be helpful. A Fera Plant Pest Factsheet on *P. stultana* has already been produced (Korycinska & Eyre, 2013), with details on pest biology, identification and detection, and is available through <http://www.defra.gov.uk/fera>.

17. Summary and conclusions of the rapid PRA

Provide an overall summary and conclusions and then short text on each section:

This rapid PRA shows that:

Platynota stultana is a polyphagous tortricid moth, native to a small, arid area of North America. It is now distributed in a number of southern states in the USA, has been found in glasshouses in northern states, and, more recently, it has been detected further afield, in Hawaii and in Spain, both in glasshouses and the wider environment.

Risk of entry

As *P. stultana* is now established in Spain, there is a possibility it may be moved more widely within the EU. Entry on plants for planting was assessed as likely, as this is a known glasshouse pest which is highly polyphagous and could be associated with many hosts. For imported produce packed in the UK, entry was also considered to be likely, as many packhouses are located close to growing crops. Entry on imported produce packed at origin was thought to be unlikely, due to the rapid dispersal and consumption of the fruit, though the polyphagous nature of *P. stultana* means that it is likely to be able to find suitable hosts in the wider environment to complete development.

Risk of establishment

As this is a known glasshouse pest in parts of the USA and now Spain, establishment is considered very likely in UK protected cultivation. Establishment outdoors has a low level of confidence but overall, is considered unlikely. As this pest is relatively mobile over shorter distances, transient field populations may be able to occur in the vicinity of any infested glasshouses in the warmer months.

Economic impact

While there are data on impacts to various crops in the USA, much of it is old and it is unclear if *P. stultana* has caused economic damage more recently. No reports of economic damage in Spanish glasshouses have been found. Overall, impacts are considered to be medium in the existing range, and potentially medium in protected cultivation in the UK, though only very small outdoors.

Endangered area

Protected cultivation in the UK is at risk, and as the species is highly polyphagous, all crops and protected ornamentals are at risk. Due to the uncertainties over establishment outdoors, the risk to hosts in the wider environment has low confidence, but is likely to be minimal, as even if transient summer populations occur, they are unlikely to be able to build up to sufficient numbers to cause economic impacts.

Risk management options

Due to the presence of this species in Spain and the fact that it could be associated with so many plants, statutory measures against entry of *P. stultana* would best be met by requirements for pest free areas or pest free production sites. Surveillance with pheromone traps and raising awareness with the industry may help to identify incursions.

Key uncertainties and topics that would benefit from further investigation

The key area of uncertainty would be the ability of this species to establish outdoors in the UK. If it was able to do so, the prospects for eradication if there was an outbreak would be much reduced, and the potential for damage to a wider range of crops would be higher.

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.

(For completion by the Plant Health Risk Group) ✓ (put a tick in the box)

No	<input type="checkbox"/>				
Yes	<input checked="" type="checkbox"/>	PRA area: UK or EU	EU	PRA scheme: UK or EPPO	

19. Images of the pest

More photos and information on detection and identification of *Platynota stultana* can be found in Korycinska and Eyre (2013).



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Platynota stultana adult male: set specimen. In life, the moth rests with the wings folded over its back in a bell shape, with the hindwings completely hidden.

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UGA1127012

Platynota stultana young larva in webbing on cotton

© Barry Freeman, Auburn University, Bugwood.org

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

[For completion by the Plant Health Risk Group] (put a tick in the box)

Yes
Statutory action

No
Statutory action

References

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Appendix 1.

Data on climate where *Platynota stultana* is known to occur outdoors in California (USA) and Spain, compared with three sites in England. Information from the World Meteorological Organisation (2014), based on a 30-year time period.

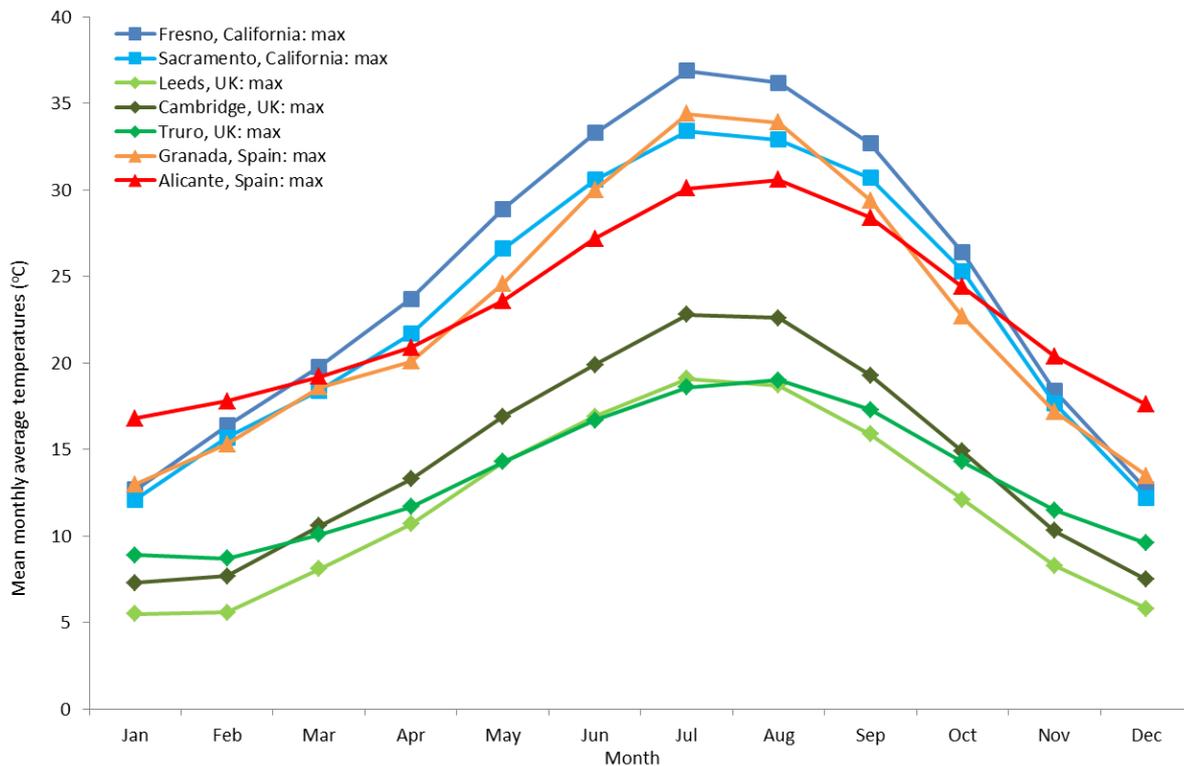


Figure 1. Comparison of mean monthly maximum temperatures (°C): blue squares: two sites in California; red triangles, two sites in Spain; green diamonds, three sites in the UK.

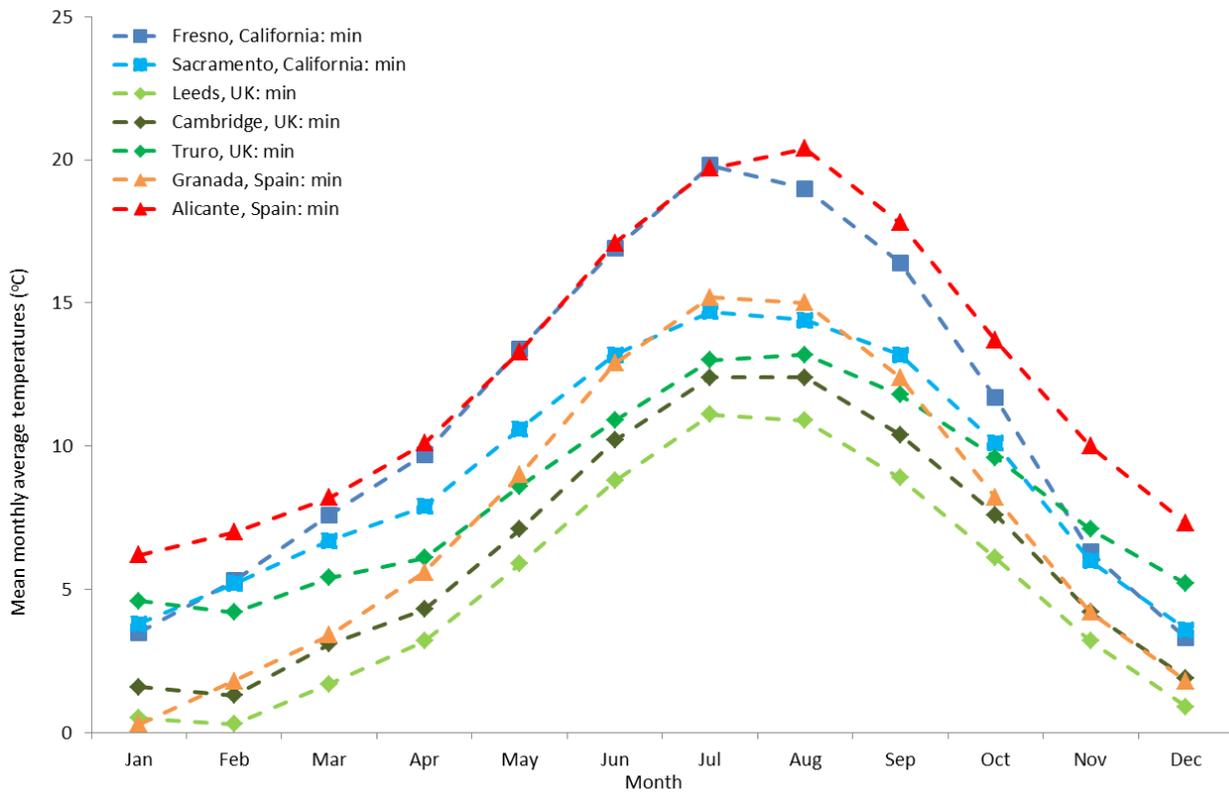


Figure 2. Comparison of mean monthly minimum temperatures (°C): blue squares: two sites in California; red triangles, two sites in Spain; green diamonds, three sites in the UK.

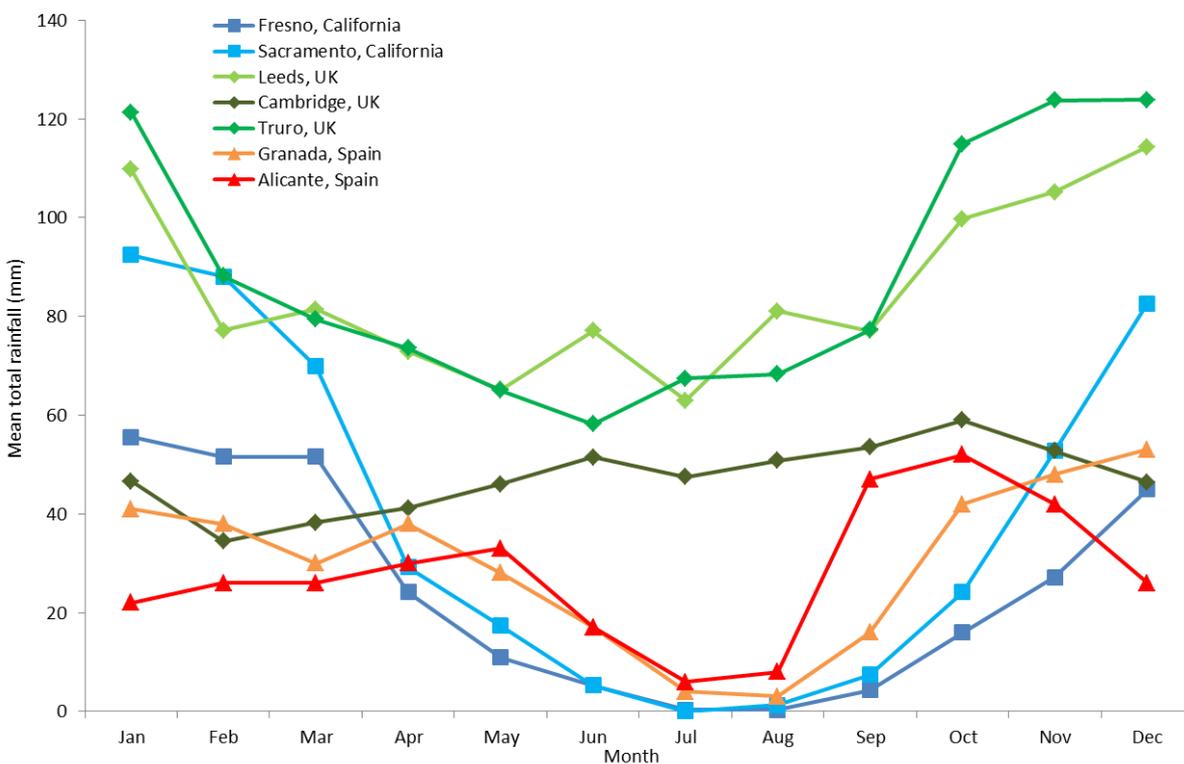


Figure 3. Comparison of mean monthly rainfall (mm): blue squares: two sites in California; red triangles, two sites in Spain; green diamonds, three sites in the UK.



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