

EUROPEAN AND MEDITERRANEAN PLANT PROTECTION ORGANIZATION
ORGANISATION EUROPEENNE ET MEDITERRANEE
POUR LA PROTECTION DES PLANTES

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This PRA document was modified in 2021 to clarify the phytosanitary measures recommended

Report of a Pest Risk Analysis for *Megaplatypus mutatus*

This summary presents the main features of a pest risk analysis which has been conducted on the pest, according to EPPO Decision support scheme for quarantine pests.

Pest:	<i>Megaplatypus mutatus</i> (syn. <i>Platypus sulcatus</i> , <i>Platypus mutatus</i> , <i>Platypus plicatus</i> (Wood & Bright, 1992; Bright & Skidmore, 1997))
PRA area:	EPPO region
Assessors:	EPPO EWG for performing PRA on <i>Megaplatypus mutatus</i> : Gianni ALLEGRO (Mr) IT, Hugh EVANS (Mr) GB, Rosana GIMENEZ (Mrs) AR, Raffaele GRIFFO (Mr) IT, Antti POUTTU (Mr) FI, Karl THUNES (Mr) NO EPPO Secretariat
Date:	2007-01-10/12

STAGE 1: INITIATION

Reason for doing PRA:	An established infestation of <i>Megaplatypus mutatus</i> has been discovered in the PRA area: An outbreak was detected in Italy near Caserta (Campania) in 2000 (Tremblay <i>et al.</i> , 2000). This pest was listed on the EPPO Alert List in 2004-04. The Working Party on Phytosanitary Regulations recommended that an Expert Working Group should be constituted to perform a PRA on this pest.
Taxonomic position of pest:	<i>Coleoptera: Curculionidae, Platypodinae</i>

STAGE 2: PEST RISK ASSESSMENT

Probability of introduction

Entry

<u>Geographical distribution:</u>	Native range: Argentina, Brazil, Uruguay, Paraguay, Bolivia, French Guiana, Peru and Venezuela. Exotic range: Campania (Italy)
<u>Major host plants or habitats:</u>	Hosts recorded in South America <i>Acacia, Acer, Ailanthus, Citrus, Eucalyptus, Fraxinus, Laurus, Ligustrum, Liquidambar, Magnolia, Malus, Melia, Pinus, Platanus, Populus, Prunus, Pyrus, Quercus, Robinia, Salix, Taxodium, Tilia, Ulmus</i> (Etiennot <i>et al.</i> , 1998) Additional hosts recorded in Italy <i>Juglans, Corylus, Castanea</i> .(Griffo, personal communication, 2007)

Which pathway(s) is the pest likely to be introduced on:

Origins concerned: Argentina, Brazil, Uruguay, Paraguay, Bolivia, French Guiana, Peru, Venezuela and Campania (Italy)

- Wood of host plants of *M. mutatus*:

The EWG considered that round wood (with or without bark) and sawn wood should both be considered as pathways. Nevertheless the risk presented by sawn wood was perceived to be lower because the survival of larvae in sawn wood will be lower as humidity declines. The risk presented by fuel chips (in particular extra-large fuel chips) needs to be further evaluated.

The genera mostly traded as wood are *Acer*, *Balfourodendron*, *Castanea*, *Cedrela*, *Eucalyptus*, *Juglans*, *Pinus*, *Platanus*, *Populus*, *Quercus* and *Ulmus*.

- Wood Packaging material

There is evidence that platypodids have been found in wood packaging material (Haack, 2006).

- Plants for planting of woody hosts of more than 15 cm diameter.

According to the literature the pest usually only attacks plants of more than 15 cm diameter (Etiennot *et al.*, 1998). Trade of large plants presents a risk, but not young woody plants. There is a growing trade in large plants for landscaping (e.g. *Quercus*, *Castanea*).

- Natural spread

The adult is not a very good flyer. Although precise data on flight distances are not available, dispersal is regarded as local only (generally not more than 100 m for a few individuals when there is a large infestation). After emergence the adult has to find a new host within a maximum of 5 days (Santoro, 1963).

Establishment

Plants or habitats at risk in the PRA area:

Host plants recorded in South America and present in the PRA area *Acacia*, *Acer*, *Ailanthus*, *Citrus*, *Eucalyptus*, *Fraxinus*, *Laurus*, *Ligustrum*, *Liquidambar*, *Magnolia*, *Malus*, *Melia*, *Pinus*, *Platanus*, *Populus*, *Prunus*, *Pyrus*, *Quercus*, *Robinia*, *Salix*, *Taxodium*, *Tilia*, *Ulmus* (Etiennot *et al.*, 1998)

Additional hosts recorded in Italy

Juglans, *Corylus*, *Castanea*.(Griffo, personal communication, 2007)

Climatic similarity of present distribution with PRA area (or parts thereof):

Present distribution is climatically largely similar to the coastal Mediterranean area (see Appendix 1).

Abiotic factors and competition with other species are very unlikely to limit its establishment, and no enemies are known.

M. mutatus is a polyphagous species and can exploit alternative

hosts and is therefore considered to be very adaptable.

Characteristics (other than climatic) of the PRA area that would favour establishment:

The management of host trees tends to favour rapid growth and, therefore, favours the pest indirectly. If the wood or plants for planting from an infested area are transported into new locations, they will spread the pest.

Which part of the PRA area is the endangered area:

The Mediterranean coasts are most likely to be at risk, this is confirmed by the fact the species settled in Caserta. The EPPO countries at risk are therefore: Albania, Algeria, Bosnia Herzegovina, Croatia, France, Greece (including Crete), Egypt, Israel, Italy, Lebanon, Montenegro, Morocco, Palestine, Portugal, Romania, Serbia, Spain, Syria, Tunisia, Turkey.

POTENTIAL ECONOMIC CONSEQUENCES

How much economic impact does the pest have in its present distribution:

In Argentina it has an effect mainly on the quality of wood of *Populus* and can cause stem breakage (Alfaro, 2003). Similar damage is recorded in Campania (Italy) where, in addition, reduction in fruit production (*Malus*, *Corylus*) is noted as well as tree mortality (*Corylus*) (Griffo, personal communication, 2007). Similar damage would occur in the PRA area.

Describe damage to potential hosts in PRA area:

How much economic impact would the pest have in the PRA area:

The Expert Working Group considered that the pest is likely to have a high economic impact.

CONCLUSIONS OF PEST RISK ASSESSMENT

Summarize the major factors that influence the acceptability of the risk from this pest:

Estimate the probability of entry:

Probability of entry is low

- Plants for planting of host plants of more than 15 cm diameter: low
- Round Wood of host plants of *M. mutatus*: medium
- Sawn wood of host plants of *M. mutatus*: very low
- Wood packaging material: very low

The probability of entry is considered to be low mainly because few commodities are imported from the areas where the pest is present. The pest is only likely to survive in living trees or round wood. Nevertheless it should be noted that it is suspected that one single trial consignment of round wood of *Populus* with bark may have resulted in the introduction of the pest to the Campania region in Italy.

Estimate the probability of establishment:

Probability of establishment is high in Albania, Algeria, Croatia, France, Greece (including Crete), Egypt, Israel, Italy, Lebanon, Montenegro, Morocco, Palestine, Portugal, Romania, Serbia, Spain, Syria, Tunisia, Turkey.

Estimate the potential economic impact:

The economic impact is high. Main impact is on wood quality but reductions in production have also been noted for fruit trees.

Degree of uncertainty

The degree of uncertainty is considered to be low to medium and concerns the following areas:

- Spread capacity (flight capacity); too little is known about the dispersal capacity of the adult beetles
 - Existence of natural enemies; there is very limited knowledge about natural control factors in either its native range or in Italy
 - Success of reproduction on different host plants; although regarded as highly polyphagous, there is relatively limited knowledge on reproductive rates on different hosts
 - Data on non compliance notifications for platypodids and not species specific; the limited data on movement of platypodids in international trade do not provide sufficient information to quantify movements along the different pathways
 - Survival of the pest in sawn wood; information from researchers in South America and in Canada (Alfaro, personal communication 2007) suggests that the pest does not survive well in sawn wood. However, further information is required on this aspect
 - Behaviour of the pest in Campania; the pest is relatively new to Italy and biological parameters which would be suitable for improving risk analysis for Europe would be valuable
 - Specific data on trade of host plant commodities; more detail is needed on the volumes of different plant genera in the different pathway categories
 - There is uncertainty about the necessary thermal requirements of the pest. The only available data are from a single population
- OVERALL CONCLUSIONS** The pest presents a risk for the Mediterranean coastal area and management measures should be considered.

STAGE 3: PEST RISK MANAGEMENT

IDENTIFICATION OF THE PATHWAYS

Pathways studied in the pest risk management

Pathway 1: Plants for planting of host plants of more than 15 cm diameter

Pathway 2: Round wood of host plants

Pathway 3: Sawn wood of host plants

Pathway 4: Wood Packaging material

Other pathways identified but not studied

Fuel chips

IDENTIFICATION OF POSSIBLE MEASURES

Possible measures for pathways

- **Pathway 1:** Plants for planting of host plants of more than 15 cm diameter

Measures related to consignments:

No measures identified

Measures related to the crop or to places of production:

- Treatment of the place of production is possible (poplar stands are treated in Argentina) although it is considered that it provides a lower level of protection
- Physical protection against attacks (the recommendation regarding physical protection of the trunks against attacks of *Megaplatypus mutatus* is based on Italian observations in Campania region, there is

no specific data on effectiveness of such measure, it is thus considered to provides a lower level of protection)

- Pest-free area

- Pest-free place of production and buffer zone of 200 meters (the distance of the buffer zone has been set at 200 m but there is uncertainty about the capacity of flight of the insect).

Other possible measures

No other possible measures; surveillance and eradication in the importing country would be very demanding for the importing country.

- **Pathway 2:** Round wood of host plants

Measures related to consignments:

Fumigation, heat treatment, chemical pressure impregnation of the wood

Measures related to the crop or to places of production:

- Treatment of the place of production although this is considered that it provides a lower level of protection

- Wood originating in a pest-free area

- Wood originating in a pest-free place of production and buffer zone of 200 m (the distance of the buffer zone has been set at 200 m but there is uncertainty on the capacity of flight of the insect).

Other possible measures

No other possible measures, surveillance and eradication would be very demanding for the importing country.

- **Pathway 3:** Sawn wood of host plants

Measures related to consignments:

Fumigation, heat treatment, chemical pressure impregnation of the wood

Measures related to the crop or to places of production:

- Treatment of the place of production although it is considered that it provides a lower level of protection

- Wood originating in a pest-free area

- Wood originating in a pest-free place of production (no buffer zone required as the risk of sawn wood is lower).

Other possible measures

No, surveillance and eradication would be very demanding for the importing country.

- **Pathway 4:** Wood Packaging material

Measures related to consignments: ISPM 15

EVALUATION OF THE MEASURES IDENTIFIED IN RELATION TO THE RISKS PRESENTED BY THE PATHWAYS

Degree of uncertainty

The degree of uncertainty is low to medium. It concerns
 The absence of specific data on trade of host plant commodities
 Efficacy of chemical treatments of consignments and places of production.
 Efficacy of physical protection
 Distance of the buffer zone.

CONCLUSION:

Recommendation for possible measures:

PC= Phytosanitary certificate, RC=Phytosanitary certificate of re-export

<p>Pathway 1: Plants for planting of host plants of more than 15 cm diameter</p>	<p>PC and, if appropriate, RC</p> <p>Area freedom for <i>Megaplatypus mutatus</i> Or Place of production freedom for <i>Megaplatypus mutatus</i> and buffer zone of 200 m</p> <p>A lower level of protection can be achieved with: Physical protection against attacks Or Treatment of the place of production</p>
<p>Pathway 2: Round wood of host plants</p>	<p>PC and, if appropriate, RC</p> <p>Fumigation or heat treatment or chemical pressure impregnation of the wood Or Area freedom for <i>Megaplatypus mutatus</i> Or Place of production freedom for <i>Megaplatypus mutatus</i> and buffer zone of 200 m</p> <p>A lower level of protection can be achieved with: Treatment of the place of production</p>
<p>Pathway 3: Sawn wood of host plants</p>	<p>PC and, if appropriate, RC</p> <p>Fumigation or heat treatment or chemical pressure impregnation of the wood Or Area freedom for <i>Megaplatypus mutatus</i> Or Place of production freedom for <i>Megaplatypus mutatus</i></p> <p>A lower level of protection can be achieved with: Treatment of the place of production</p>
<p>Pathway 4: Wood Packaging material</p>	<p>Compliance with ISPM 15</p>

APPENDIX 1

Megaplatypus mutatus climatic prediction

The CLIMEX model is a computer program aiming at predicting the potential geographical distribution of an organism by considering its climatic requirements. It is based on the hypothesis that climate is an essential factor for the establishment of a species in a country.

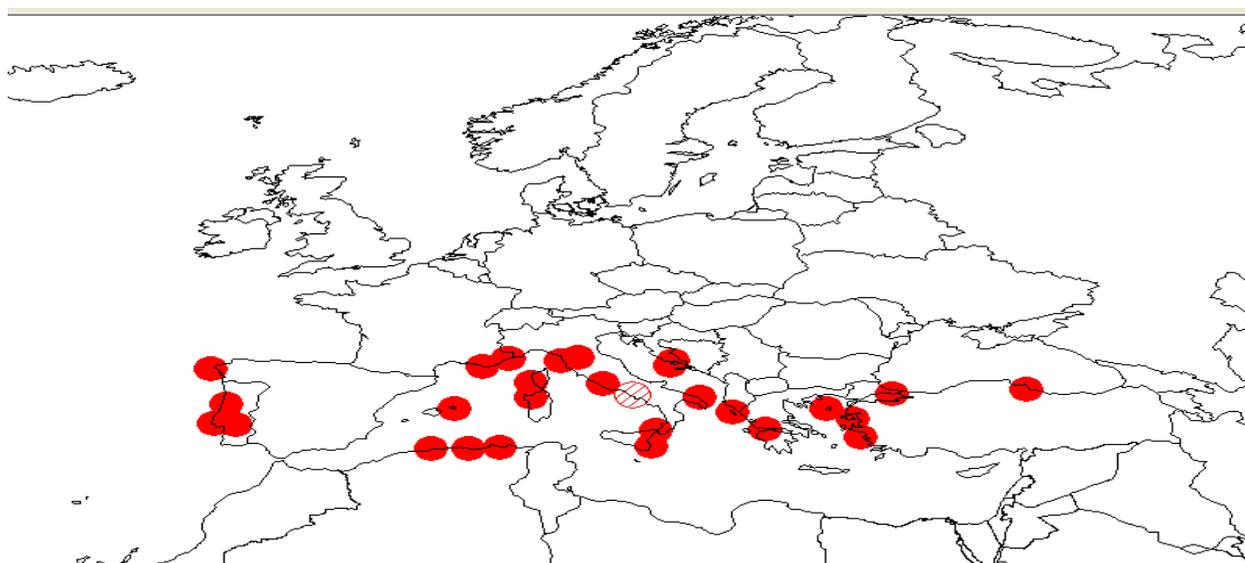
CLIMEX provides tools for predicting and mapping the potential distribution of an organism based on:

- (a) climatic similarities between areas where the organism occurs and the areas under investigation (Match Index)
- (b) a combination of the climate in the area where the organism occurs and the organism's climatic responses, obtained either by practical experimentation and research or through iterative use of CLIMEX (Ecoclimatic Index).

1. Match index

In its exotic range, the pest is only recorded in Italy, Province of Caserta. The closest city entered in the CLIMEX database is Napoli.

Match climate between Napoli (Italy) and the EPPO region with a match level at 0.7 (70% similarities).
The CLIMEX 1.1 version has been used as the match level cannot be set with the version 2.2.

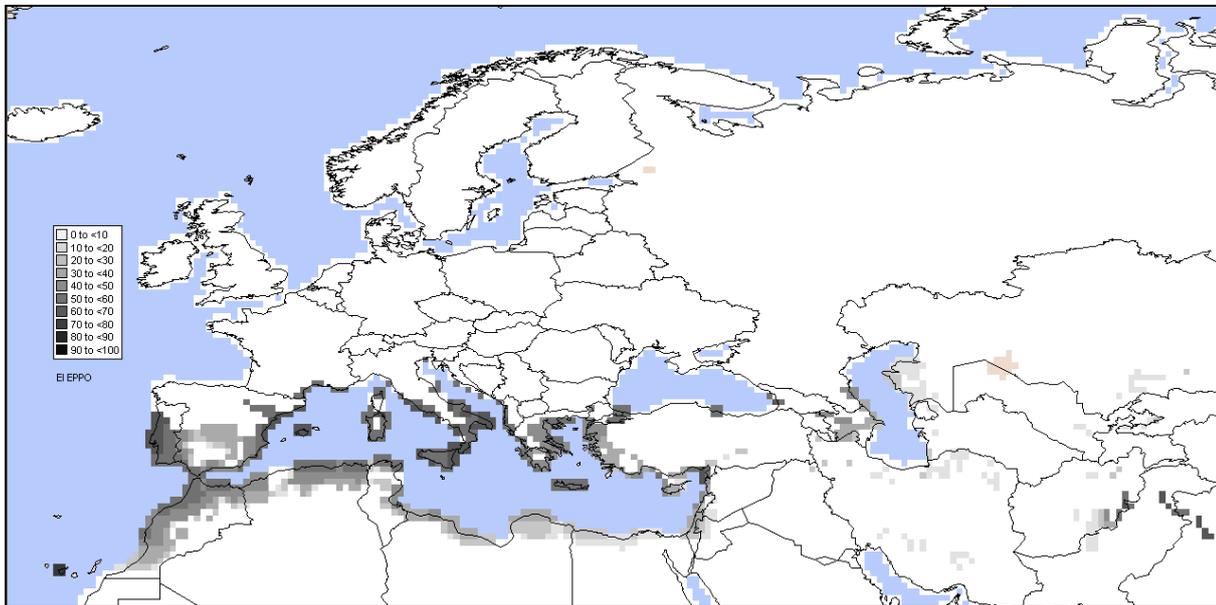


In the EPPO region, the coasts of the following Mediterranean countries have a match index up to 70% of similarities and have therefore a largely similar climate to the place of establishment of the pest in Italy: Albania, Algeria, Croatia, France, Greece, (Italy), Portugal, Spain, Turkey.

2. Ecoclimatic Index

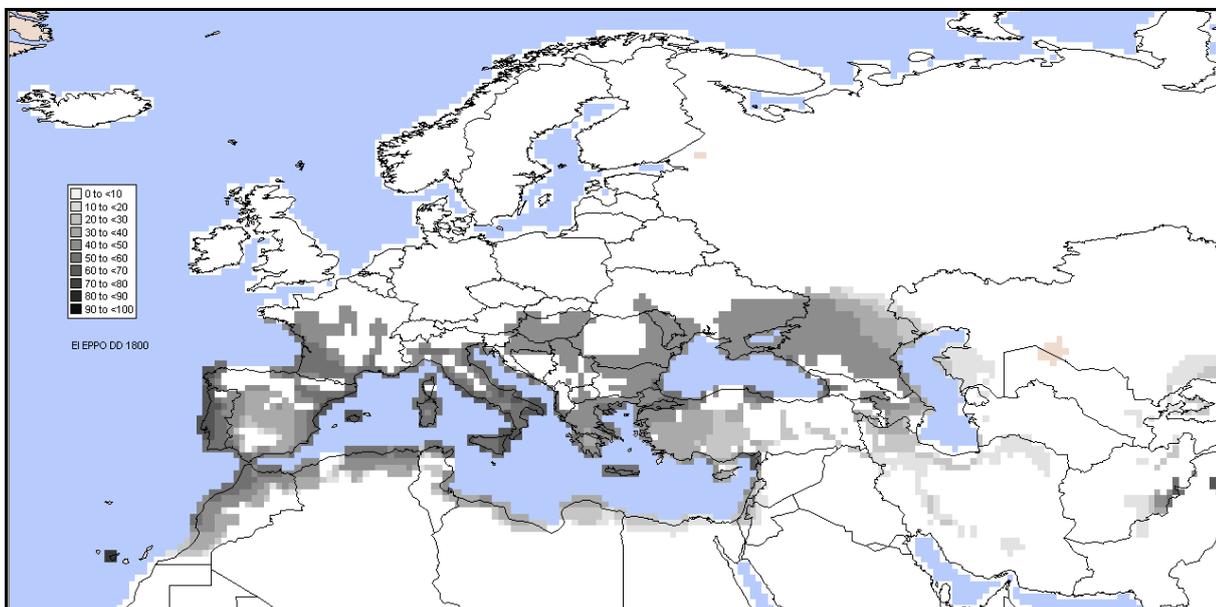
a. Scenario 1: with Degree days set at 2600°C

Compare location for *Megaplatypus mutatus* in the EPPO region (detail) with the parameter described in Appendix 1 of the PRA record (with worldgrid30)



b. Scenario 2: with Degree days set at 1800°C

Compare location for *Megaplatypus mutatus* in the EPPO region (detail) with the parameter previously described in the PRA record Appendix 1 and a Degree Day per generation set to 1800°C (with worldgrid30)



Conclusion

Both compare location and match climate functions, though having a high degree of uncertainty give the same indications concerning the endangered area.

The Mediterranean coasts are most likely to be at risk, this is confirmed by the fact the species settled in Caserta. The EPPO countries at risk are therefore: Albania, Algeria, Croatia, France, Greece (including Crete), Egypt, Israel, Italy, Lebanon, Montenegro, Morocco, Palestine, Portugal, Romania, Serbia, Spain, Syria, Tunisia, Turkey.

Considering that the species may have a lower degree day per generation requirement than expected, additional countries and provinces may be at risk: the Pianura padana in Italy there is where extensive production of poplar, Austria, Bulgaria, Georgia, Hungary, Moldova, Republic of Macedonia, Romania, Russia, Slovakia, Slovenia, Ukraine.

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