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2006/178 New additions to the EPPO Lists

In September 2006, the EPPO Council approved the addition of the following pests to the EPPO A1 and A2 Lists of pests recommended for regulation. In order to draw the attention of NPPOs to these newly added pests, they will also be placed on the EPPO Action List.

A1 List (pests absent from the EPPO region):

- *Homalodisca coagulata* (Homoptera: Cicadellidae, vector of *Xylella fastidiosa*),
- *Phytophthora lateralis*.

A2 List (pests locally present in the EPPO region):

- *Paysandisia archon* (Lepidoptera: Castniidae),
- *Rhynchophorus ferrugineus* (Coleoptera: Curculionidae),
- *Crassula helmsii* (Crassulaceae),
- *Pueraria lobata*, (Fabaceae),
- *Solanum elaeagnifolium* (Solanaceae).

For each individual pest, datasheets and distribution maps are being prepared and will be available in due course on the EPPO web site (http://www.eppo.org/QUARANTINE/action_list.htm).

Source: **EPPO Secretariat, 2006-09.**

2006/179 Eradication of *Clavibacter michiganensis* subsp. *sepedonicus* in Austria

In Austria, *Clavibacter michiganensis* subsp. *sepedonicus* (EPPO A2 list) was detected in 2003 during the annual monitoring programme on a lot of ware potatoes (*Solanum tuberosum* cv. Agria), in the east of Niederösterreich (EPPO RS 2004/043). Investigations showed that the lot had originally been produced from certified German seed potatoes. The German authorities have been informed. All necessary measures according to the EU Directive 93/85 EC were taken by the Plant Protection Service. In particular, a safety zone was established, covering the whole farm where the potatoes had been grown, and all potatoes grown in 2003 on the affected farm were destroyed under official supervision. Intensive official monitoring surveys done in 2004/2005 showed that the bacterium has no longer been detected since 2003, neither in Niederösterreich nor in other region.

The pest status of *Clavibacter michiganensis* subsp. *sepedonicus* in Austria is officially declared as: **Absent, eradicated.**

Source: NPPO of Austria, 2006-11.

Additional key words: absence, eradication

Computer codes: CORBSE, AT



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2006/180 Joint PRA carried out for *Meloidogyne minor* by the Netherlands and the United Kingdom

In 2004, Karssen *et al.* described *Meloidogyne minor* as a new species of root-knot nematode. *M. minor* appeared to be the causal agent of yellow patch disease on several golf courses on the British Isles and root-knot symptoms in one potato field in the Netherlands in 2000. The Netherlands and the United Kingdom decided to carry out a joint pest risk analysis (PRA) for the EU region. *M. minor* has been observed mainly on coastal sand dunes, golf courses and sport grounds in the British Isles. A survey in the Netherlands, carried out in 2006 as part of the PRA, revealed the presence of *M. minor* in several golf courses, sport grounds and pasture fields. It is not known if *M. minor* is indigenous to Europe and present in other European countries. Surveys would be needed to clarify this issue. The pest risk analysts concluded that, with the current knowledge, *M. minor* was primarily a problem for golf courses. There is currently insufficient knowledge about the species distribution in the PRA area and its potential economic impact to determine whether official measures are appropriate. It is presumed that its spread cannot readily be controlled since it can be carried on footwear and sport equipments. Additional surveys are therefore recommended. The PRA document will be available on the websites of the Dutch and British NPPOs (www.minlnv.nl/pd - www.defra.gov.uk).

The situation of *Meloidogyne minor* in both the United Kingdom and the Netherlands can be described as follows: **Present: only in some areas where host plants occur, based on limited surveys.**

Source: NPPO of the Netherlands, 2006-11.

Karssen G, Bolk RJ, Van Aelst AC, Van den Beld I, Kox LFF, Korthals G, Molendijk L, Zijlstra C, Van Hoof R, Cook R (2004) Description of *Meloidogyne minor* n. sp. (Nematoda: Meloidogynidae), a root-knot nematode associated with yellow patch disease in golf courses. *Nematology* **6**(1), 59-72.

Additional key words: new pest, PRA

Computer codes: MELGSP, GB, NL



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2006/181 Incursion of Stolbur phytoplasma in potatoes in Germany

The German NPPO recently informed the EPPO Secretariat of the first incursion of stolbur phytoplasma (EPPO A2 list) in potatoes in Germany (Hesse). In August 2006, symptoms of potato stolbur (aerial tubers, discoloured reddish leaves, quick decay of the plants) were detected in potato plants at a company producing ware potatoes. This suspicion was confirmed by PCR. The phytoplasma was only detected in the tubers and stems, but not in the aerial tubers. Weeds growing nearby the field edges were inspected and symptomatic plants of *Convolvulus arvensis* were observed. Laboratory tests showed that they were infected by the same type of phytoplasma. The origin of the infection is not known. Planting material as a possible source of infection may be excluded, and it is more probable that the phytoplasma was spread by insect vectors from latently infected weeds. The grower will not be allowed to use potatoes of the infected lot as seed potatoes and to plant potatoes in the infected field. During the next vegetation period, suitable measures will be taken to eradicate weeds in the neighbourhood of the infected field. Potato fields and their surroundings will intensively be inspected for symptoms of stolbur phytoplasma. The pest status of stolbur phytoplasma on potatoes in Germany is officially declared as follows: **Single limited incursion; under eradication.**

Source: NPPO of Germany, 2006-11.

Additional key words: new record

Computer codes: PHYP10, DE

2006/182 Outbreak of *Citrus tristeza virus* in Calabria, Italy

In Italy, during testing for breeding purposes in a large citrus orchard at Rosarno (province of Reggio di Calabria, Calabria), a large number of mandarin trees (satumas: *Citrus unshiu* and mandarins: *C. reticulata* cv. 'Fortune') showed symptoms of tristeza. A high percentage of mandarin trees were already dead. All trees were grafted on sour orange (*C. aurantium*). Samples were collected from approximately 100 trees and were tested for *Citrus tristeza virus* (*Closterovirus*, CTV – EPPO A2 list) by DAS-ELISA, DTBIA and PCR. As a result, 20 trees were found infected by CTV. It was also found that the Calabrese isolate was almost identical to a Spanish isolate (98% sequence similarity) but was slightly different from isolates previously found at Cassibile (Province of Siracusa, Sicilia) on the same mandarin cultivar 'Fortune' (see EPPO RS 2005/089). Field infections of CTV had been reported in Calabria since 1983 on a few plants that had been illegally imported, but the present outbreak concerns hundreds of trees. In addition, the infected plants have not been imported from abroad but produced in Italy. The authors considered that the present situation in Calabria was alarming and proposed the following measures: immediate eradication of this CTV outbreak; surveys in nurseries, use of certified plants grafted onto tolerant rootstocks when establishing new orchards; typing of CTV strains



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present in Calabria. It was stressed that the recent introduction of *Toxoptera citridicus*, the most efficient aphid vector of CTV, into parts of Portugal and Spain was of concern to Italy and that surveillance programmes on aphids should be carried out. Finally, experiments on tolerant rootstocks which could replace the susceptible *C. aurantium* should be intensified.

The situation of *Citrus tristeza virus* in Italy can be described as follows: **Present, 4 outbreaks have been reported in Puglia (province of Taranto), Calabria (province of Reggio di Calabria) and Sicilia (provinces of Syracuse and Catania), under official control.**

Source: Caruso A, Davino S, Sorrentino G, Agosteo GE, Davino M (2006) Gravi infezioni del virus della 'tristeza' degli agrumi (CTV) mettono a rischio l'agrumicoltura calabrese. *Informatore Fitopatologico* no. 7/8, 5-6.

Additional key words: detailed record

Computer codes: CTV000, IT

2006/183 Incursion of *Tomato ringspot virus* in *Hosta* plants in Germany

The German NPPO recently informed the EPPO Secretariat of the first incursion of *Tomato ringspot virus* (*Nepovirus*, ToRSV – EPPO A2 list) in *Hosta* plants in Brandenburg. On 2006-09-29, plants of *Hosta* sp. (cv. 'Janet Day') from a registered company were specifically tested for ToRSV with ELISA and were found infected. The plants did not show any symptoms. It is suspected that the virus was introduced with imported planting material. The infected lot was destroyed, and other *Hosta* lots in the company have been placed under quarantine for further observation.

The pest status of *Tomato ringspot virus* in Germany is officially declared as follows: **Absent, single incursion, under eradication.**

Source: NPPO of Germany, 2006-10.

Additional key words: incursion

Computer codes: TORSV0, DE



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2006/184 Tomato infectious chlorosis and Tomato chlorosis viruses found in Campania and Calabria, Italy

Tomato infectious chlorosis virus (*Crinivirus*, TICV - EPPO Alert List) and *Tomato chlorosis virus* (*Crinivirus*, ToCV - EPPO A2 list) were reported for the first time in Italy in 1991 and 2001, respectively. During studies done on two farms at Torre del Greco (Campania) and Amantea (Calabria) symptoms of viral diseases were observed on tomato crops grown under glass. Leaf samples were collected and tested for criniviruses (DNA probes, RT-PCR) and also for the presence of whiteflies. In samples from Campania, ToCV and TICV were both detected (sometimes in mixed infections) whereas in samples from Calabria only TICV was detected. In Campania, virus infections were found associated with infestations of *Trialeurodes vaporariorum* and *Bemisia tabaci* biotype Q. In Calabria, only *T. vaporariorum* was identified.

The situation of *Tomato infectious chlorosis virus* in Italy can be described as follows: **Present, found in Calabria, Puglia, Sardegna and Sicilia.**

The situation of *Tomato chlorosis virus* in Italy can be described as follows: **Present, found in Calabria, Campania, Puglia, Sardegna and Sicilia.**

Source: Parrella G, Scassillo L (2006) [First report of *Tomato chlorosis virus* (ToCV) in Campania and of *Tomato infectious chlorosis virus* (TICV) in Calabria (Southern Italy)]. *Informatore Fitopatologico* no. 6, 33-34 (in Italian).

Additional key words: detailed records

Computer codes: TICV00, TOCV00, IT

2006/185 First report of *Tetranychus evansi* in Italy

In November 2005, *Tetranychus evansi* (Acari: Tetranychidae – EPPO Alert List) was observed for the first time in Italy. It was found in 3 fields of tomato (*Lycopersicon esculentum*) in the vicinity of San Remo (Liguria region), and on *Solanum nigrum* in the same area. *T. evansi* was not observed on other crops commonly grown in this area (roses, chrysanthemums, *Pelargonium*, artichokes) where only *T. urticae* was found. This is the first report of *T. evansi* in Italy.

Source: Castagnoli M, Nannelli R, Simoni S (2006) [*Tetranychus evansi* (Baker and Pritchard) (Acari: Tetranychidae), a new pest for Italy.]. *Informatore Fitopatologico* no. 5, 50-52 (in Italian).

Additional key words: new record

Computer codes: TETREV, IT



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2006/186 First records of *Raoiella indica* in Guadeloupe and in Trinidad and Tobago

Raoiella indica (Acari: Tenuipalpidae – EPPO Alert List) continues to spread within the Caribbean. It was recently reported from Martinique, St Lucia, Dominica and on the island of Trinidad (Trinidad and Tobago; pers. comm., 2006) mainly on palms and bananas. In 2006, surveys were conducted in Guadeloupe and showed that *R. indica* was present in large populations on coconut (*Cocos nucifera*), ornamental palms (*Caryota mitis*, *Pritchardia pacifica*, *Ptychosperma macarthurii*, *Veitchia merrillii*, *Washingtonia robusta*), various ornamentals (*Alpinia purpurata*, *Etilingera elatior*, *Heliconia rostrata*, *Strelitzia reginae*) and bananas (*Musa* sp.). In June 2006, the mite was also collected from coconut leaves at Rambaud, on the island of Saint Martin (belonging to Guadeloupe). As on the island of Réunion, the presence of predator mites (*Amblyseius largoensis*, Acari: Phytoseiidae) was often noted in Guadeloupe in association with *R. indica*.

Source: Etienne J, Flechtmann CHW (2006) First record of *Raoiella indica* (Hirst, 1924) (Acari: Tenuipalpidae) in Guadeloupe and Saint Martin, West Indies. *International Journal of Acology* **32**(3), 331-332.

Personal communication with Deoraj Lalchan-Vine, Trinidad and Tobago, 2006-05.

Additional key words: new records

Computer codes: RAOIIN, GD, TT

2006/187 *Blastopsylla occidentalis*: a new eucalyptus psyllid found in Italy

The NPPO of Italy informed the EPPO Secretariat that a new eucalyptus psyllid has been found in Campania (IT). The pest was identified as *Blastopsylla occidentalis* (Homoptera: Psyllidae). It was found in a public park in the city of Napoli. This is the first report of this species in Europe. Little information is available from the literature on its biology and damage it can cause to eucalyptus. Apparently, it is not as damaging as *Glycapsis brimblecombei* (formerly on EPPO Alert List – pest absent from Europe). Similarly, *B. occidentalis* originates from Australia and has recently been introduced into other parts of the world. According to data available, its current distribution is the following:

EPPO region: Italy (Campania).

North America: Mexico, USA (California, Florida, Hawaii).

South America: Argentina, Brazil, Chile.

Oceania: Australia, New Zealand (introduced).



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- Source:** NPPO of Italy, 2006-09.
- Bouvet JPR, Harrand L, Burckhardt D (2005) [First record of *Blastopsylla occidentalis* and *Glycaspis brimblecombei* (Hemiptera: Psyllidae) from Argentina.]. *Revista de la Sociedad Entomologica Argentina* **64**(1-2), 99-102.
- Burckhardt D, Elgueta M (2000) *Blastopsylla occidentalis* Taylor (Hemiptera: Psyllidae), a new introduced eucalypt pest in Chile. *Revista Chilena de Entomologia* **26**, 57-61 (abst.).
- Eldredge L, Evenhuis NL (2003) Hawaii's biodiversity: a detailed assessment of the numbers of species in the Hawaiian Islands. *Bishop Museum occasional papers*, Honolulu (US), no. 76, 28 pp.
- de Queiroz Santana DL (2005) Introduced Eucalyptus psyllids in Brazil. XXII IUFRO World Congress. *The International Forestry Review* **7**(5), p 255 (abst.)
- University of Florida. Featured Creatures: *Blastopsylla occidentalis* and *Glycaspis brimblecombei* by S. Halbert, 2003. http://creatures.ifas.ufl.edu/trees/eucalyptus_psyllids.htm

Additional key words: new pest

Computer codes: IT

2006/188 First records of *Ophelimus eucalypti* on eucalyptus in Italy, Greece and Spain

It is estimated that approximately 35 species of leaf-galling Hymenoptera occur on *Eucalyptus* species in Australia. Among them, several species of *Ophelimus* (Eulophidae) have been described but many uncertainties remain in relation to their taxonomy, biology, geographical distribution, host range, and natural enemies. During the last few years, several records have been made in Europe about the presence of *Ophelimus (Rhicnopeltella) eucalypti* on eucalyptus. In Europe, these new records were apparently not associated with heavy damage to eucalyptus trees. In New Zealand where *O. eucalypti* has also been introduced, the situation is different. Damage has been reported in the 1990s in commercial plantations of *E. globulus* and severe defoliations were noted on *E. botryoides*. *O. eucalypti* produces round (around 2 mm diameter), protruding galls on the leaves with elliptic exit holes. The adult wasp is 1.3-1.7 mm long, with a black and yellow body, grey antennae and hyaline wings. According to the literature, the distribution of *O. eucalypti* is the following, but as taxonomy is still unclear, there may be confusion between different species:

EPPO region: Greece (first record in 2002), Israel (no detail), Italy (2000), Morocco (no detail), Spain (2003).

Africa: Morocco, Kenya, Uganda.

Asia: Iran, Israel.

Oceania: Australia, New Zealand (introduced in 1987).

In Italy, *O. eucalypti* was first found in Toscana (province of Livorno) in 2000, and later in Campania (provinces of Napoli and Caserta), Calabria (province of Catanzaro) and Sicilia (province of Catania). Interestingly, in Lazio (city of Roma), Calabria (province of Catanzaro) and in Sicilia, another unidentified species attributed to the genus *Aprostocetus* (Hymenoptera: Eulophidae) was found on eucalyptus trees planted along the streets, causing galls along the leaf



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mid-rib. In Italy, these insects did not seem to cause serious economic damage to eucalyptus trees.

Ophelimus eucalypti (Hymenoptera: Eulophidae) was found for the first time in Greece (Attiki) in October 2002, infecting *Eucalyptus camaldulensis*. In Greece, parasitoids of *O. eucalypti* belonging to the genus *Cirrospilus* were also noted. No detail is given on the severity of damage. In Spain, in 2003, *O. eucalypti* was found in the provinces of Cádiz and Huelva (Andalucía) and in Barcelona (Cataluña). Another unidentified species of Eulophidae causing galls along the mid-rib of eucalyptus leaves was also found in the provinces of Cádiz, Huelva, Sevilla (Andalucía) and Barcelona (Cataluña).

- Source:**
- Arzone A, Alma A (2000) [A gall Eulophid of *Eucalyptus* in Italy]. *Informatore Fitopatologico* no. 12, 43-46.
 - Bella S, Loverde G (2002) Presenza nell'Italia continentale e in Sicilia di *Ophelimus* prope *eucalypti* (Gahan) e *Aprosptocetus* sr, galligeni degli eucalipiti. *Naturalista siciliano*, S. IV, XXVI(3-4), 191-197.
 - Kavallieratos NG, Kontodimas DC, Anagnou-Veroniki M, Emmanouel NG (2006) First record of the gall inducing insect *Ophelimus eucalypti* (Gahan) (Hymenoptera: Chalcidoidea: Eulophidae) in Greece. *Annals of the Benaki Phytopathological Institute* (NS) 20, 125-128.
 - Pujade-Villar J, Riba-Flinch JM (2004) [Two Australian eulophids, very harmful to *Eucalyptus* spp., introduced into the north-east of the Iberian Peninsula (Hymenoptera: Eulophidae)]. *Boletín SEA* no. 35, 299-301.
- INTERNET
FAO website - New website on forest invasive species.
<http://www.fao.org/newsroom/en/news/2005/100308/index.html>

Additional key words: new records

Computer codes: ES, FR, GR

2006/189 First report of two new eucalyptus pests in the South of France: *Ophelimus maskelli* and *Leptocybe invasa*

In December 2005, the presence of *Ophelimus maskelli* and *Leptocybe invasa* (both Hymenoptera: Eulophidae) was confirmed in France, in samples of eucalyptus showing leaf galls. Samples had been collected from the communes of Fréjus and Sainte-Maxime, in Var department (region Provence-Alpes-Côte d'Azur). It has been observed that *O. maskelli* could cause numerous galls on eucalyptus in areas where it occurs. Galls caused by *L. invasa* had already been observed in 2004 in Corsica and in 2005 in Provence-Alpes-Côte d'Azur, but at that time the identification of the pest could not be confirmed because no adults could be obtained. It is noted that since 2000, both eucalyptus pests are actively spreading in the Near-East, as well as in Mediterranean and African countries, causing serious damage to young plantations and nurseries.

Source: NPPO of France, 2006-05.

Additional key words: new pests

Computer codes: FR



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2006/190 Addition of *Leptocybe invasa* to the EPPO Alert List

The EPPO Secretariat would like to draw the attention of Mediterranean countries to the current spread of insects damaging eucalyptus foliage. Some insect psyllids have already been added to the EPPO Alert List (*Ctenarytaina spatulata*, and previously *Glycaspis brimblecombei*) but it was felt that leaf gall-inducing insects such as *Leptocybe invasa* (Hymenoptera: Eulophidae) could also present a risk to eucalyptus nurseries and plantations. At the moment, only *L. invasa* is being added to the Alert List, but there are other species (e.g. *Ophelimus eucalypti*, *O. maskelli*, *Aprostocetus*) which could present similar risks.

Leptocybe invasa (Hymenoptera: Eulophidae – Blue gum chalcid)

Why	<i>Leptocybe invasa</i> is a newly described species which is currently spreading in many countries around the Mediterranean Basin and in Africa, causing damage to eucalyptus young plantations and nurseries.
Where	EPPO region: Algeria, France (including Corsica), Israel, Italy, Jordan, Morocco, Spain, Turkey. Africa: Algeria, Jordan, Kenya, Morocco, Syria, Tanzania, Uganda. Asia: Iran, Israel, Thailand, Turkey, Vietnam. Oceania: <i>L. invasa</i> is thought to originate from Australia, but its situation in this country is unknown.
On which plants	<i>L. invasa</i> attacks many <i>Eucalyptus</i> species (e.g. <i>E. botryoides</i> , <i>E. bridgesiana</i> , <i>E. camaldulensis</i> , <i>E. globulus</i> , <i>E. gunii</i> , <i>E. grandis</i> , <i>E. saligna</i> , <i>E. maidenii</i> , <i>E. robusta</i> , <i>E. tereticornis</i> , <i>E. viminalis</i>).
Damage	<i>L. invasa</i> causes galls on the mid-ribs, petioles and stems of new shoots of eucalyptus trees. Heavy infestations can lead to deformed leaves and shoots, and a growth reduction of the tree. Serious damage to young plantations and nursery seedlings has been reported but tree mortality has apparently not been observed. Adult females (1.1-1.4 mm) insert their eggs in the epidermis of young leaves, on both sides of the mid-rib, in the petioles and in the parenchyma of twigs. Larvae develop inside round galls (about 2.7 mm wide), adults then emerge leaving round exit holes. So far, only females have been observed (reproducing by parthenogenesis), with the exception of one record describing males in Turkey. In Iran, Israel and Turkey, two to three overlapping generations per year have been observed.
Dissemination	Adult can fly but no data is available on natural spread of this insect. Trade of plants for planting can move the pest over long distances.
Pathway	Plants for planting of eucalyptus, cut foliage?
Possible risks	Eucalyptus are widely grown around the Mediterranean Basin for forestry and ornamental purposes. Currently, no control measures are available against <i>L. invasa</i> , although research is being carried out to identify potential natural enemies. Chemical control may be available in nurseries but will be more difficult in natural environments. Much data is lacking on the taxonomy, current geographical distribution, biology, and economic impact. It is felt that many species attacking eucalyptus foliage are being moved with trade, therefore more precautions would be needed when exchanging eucalyptus plants for planting.
Source(s)	Almatni W, Mayhoob M (2005) Eucalyptus gall-wasp <i>Leptocybe invasa</i> Fisher & La Salle (Eulophidae, Hymenoptera), a new insect in the Mediterranean region and Syria. <i>Arab and Near East Plant Protection Newsletter</i> , FAO, no. 40, p 38. Hesami S, Alemansoor H, Seyedebrahimi S (2005) Report of <i>Leptocybe invasa</i> (Hym.: Eulophidae), gall wasp of <i>Eucalyptus camaldulensis</i> with notes on biology in Shiraz vicinity. <i>Journal of Entomological Society of Iran</i> 24 (2), 99-108 (abst.). Mendel Z, Protasov A, Fisher N, La Salle J (2004) Taxonomy and biology of <i>Leptocybe invasa</i> gen. & sp. n. (Hymenoptera: Eulophidae), and invasive gall inducer on <i>Eucalyptus</i> . <i>Australian Journal of Entomology</i> 43 (2), 101 (abst.).



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INTERNET

- Doganlar O (2005) Occurrence of *Leptocybe invasa* Fisher & La Salle, 2004 (Hymenoptera: Chalcidoidea) on *Eucalyptus camaldulensis* in Turkey, with a description of the male sex. *Zoology in the Middle East* **35**, 112-114 (abst.) <http://trophort.com/004/254/004254335.html>
- Forest Invasive Species Network for Africa – FAO. New outbreaks. <http://www.fao.org/forestry/site/26951/en>
- FREDON Corse – *Leptocybe invasa*. <http://www.fredon-corse.com/ravageurs/leptocybe-invasa.htm>
- Hesami S, Alemansoor H, Seyedebrahimi S (2005) Report of *Leptocybe invasa* (Hym.: Eulophidae), gall wasp of *Eucalyptus camaldulensis* with notes on biology in Shiraz vicinity. *Journal of Entomological Society of Iran* **24**(2), 99-108 (abst.) <http://trophort.com/004/300/004300193.html>
- Pest Alert. Blue gum chalcid. Tree Protection News, vol 10, November 2005. http://fabinet.up.ac.za/tpcp/newsletters/TPCP_Newsletter_Nov_2005.pdf
- UNDP China. Environmental and social impact analysis. Stora Enso plantation project in Guangxi, China. <http://www.undp.org.cn/downloads/otherlocal/FinalESIA.pdf>
- Vietnam information for science and technology advance. A strange insect damaging eucalypts has occurred in our country. http://english.vista.gov.vn/english/st_documents_abstract/200502185483126039/200503107119066299/200503151971253629/

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Panel review date

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Entry date 2006-09

2006/191 'European meeting on Plum pox virus 2007' (Pula, HR, 2007-09-24/28)

A conference on sharka 'European meeting on *Plum pox virus 2007*' will be organized by the Institute for Plant Protection in Agriculture and Forestry of the Republic of Croatia and the Department of Biology, Faculty of Science, University of Zagreb. The Conference will be held at Pula, Croatia on the 2007-09-24/28. It will include scientific sessions with oral presentations, poster discussions, round table panel discussions and a technical excursion. The main topics will be: diagnostics, epidemiology, eradication programmes, tolerance to PPV and breeding for resistance.

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Source: Personal communication with Ms Ivana Krizanac, HR, 2007-11.

Additional key words: conference

Computer codes: PPV000



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2006/192 *Ambrosia artemisiifolia* in European countries: impacts and management options

The results of an international meeting of experts which took place at the Austrian Agency for Health and Food Safety (AGES) in Vienna (AT) on the 2006-09-27 are presented below.

Introduction

Experts from the fields of agronomy, botany, ecology, plant protection, and road maintenance from seven European countries gathered for a one-day workshop on *Ambrosia artemisiifolia* (Asteraceae, common ragweed, EPPO list of invasive alien plants) to discuss the problems caused by this plant and the availability and effectiveness of control measures. In particular, the experts:

- reported impacts of *A. artemisiifolia* in several European countries on human health¹, plant health and nature conservation,
- expressed their concern about the ongoing spread of the species in Europe,
- urged authorities in countries concerned to prevent further import and spread or to control existing populations,
- gave a set of recommendations for all private or public bodies concerned.

Background

A. artemisiifolia is already common and widespread in several European countries including parts of Hungary, France and Italy. It is still absent from or rare in other parts of Europe but is beginning to spread and become more frequent and abundant, e.g., in parts of Austria, Germany, Slovenia and Switzerland. The working group unanimously agreed that rapid action to prevent introduction and further spread is necessary.

In designing a strategy against *A. artemisiifolia* the following problems arise:

- Impacts on human health and plant protection require a multidisciplinary approach,
- A lack of quality standards for traded seeds (e.g. bird seeds, grain) concerning *A. artemisiifolia* contamination.
- Control measures are difficult to identify and implement.

Recommendations for the management and control of A. artemisiifolia

Recommended measures against *A. artemisiifolia* consist of raising awareness, prevention of introduction and further spread, surveillance and control measures (mechanical, chemical and biological control, as well as legal aspects). Application and choice of these measures depend on the level and location of the infestation.

¹ *Ambrosia trifida* and *A. psilostachya* also produce allergenic pollen and may cause problems, but are rare in Europe at the moment. They are not the subject of this paper.



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Source: German Federal Biological Research Centre - Biologische Bundesanstalt für Land- und Forstwirtschaft
http://www.bba.bund.de/cln_045/nn_813794/DE/Aktuelles/aktschadorg/ambrosia/ergebnisseWien2006.html
Austrian Agency for Health and Food Safety - Österreichische Agentur für Gesundheit und Ernährungssicherheit
Neobiota website: <http://www.umweltbundesamt.at/neobiota>

Additional key words: invasive alien plant, workshop

Computer codes: AMBEL

2006/193 Seed demography of *Ambrosia artemisiifolia*

Ambrosia artemisiifolia (Asteraceae, EPPO list of invasive alien plants) is an annual that originates from North America. It is a weed that colonizes both spring crops and disturbed habitats. Its pollen is an important allergen, threatening human health. The demography of *A. artemisiifolia* is studied here, in order to better understand its invasive processes. The plant produces large numbers of dormant seeds in autumn able to survive for up to 40 years in soil. A portion of the seeds germinate in spring, while the rest of the seeds enter secondary dormancy. In 2005-2006 eight French populations were studied from a range of locations and habitats. For each population, the size of the soil seed bank, plant densities, seed rain (seeds falling from plants), and the effects of soil disturbance on seed germination were analyzed.

The total soil seed bank (recorded to a depth of 20 cm) ranged from 250 to 5000 seeds/m². The top 5 cm of soil held more seeds (200 to 2800 seeds/m²) than deeper layers. Large differences in seed density between sites were mostly explained by the type of habitat (differences in soil perturbation, competition, etc). There was large variation by site in the proportion of the seed bank that germinated in spring. The seed rain at the end of the plant growing season ranged from 500 to 7300 seeds/m², correlating significantly to both plant volume and density per m². Disturbance of the top layer of soil greatly increased germination rates in closed habitats such as fallow land but decreased rates in open wasteland habitats characterized by low densities of other plant species. These results suggest that the invasion potential of *A. artemisiifolia* is closely related to its persistent soil seed bank and how this is affected by processes in different habitats.

Source: Fumanal B, Gaudot I, Meiss H, Bretagnolle F (2006) Seed demography of the invasive weed: *Ambrosia artemisiifolia* L. In: *Neobiota. From Ecology to Conservation*. 4th European Conference on Biological Invasions. Vienna (Austria), 2006-09-27/29, BfN-Skripten 184: page 127 (abst.).

Neobiota website: <http://www.umweltbundesamt.at/neobiota>

Additional key words: invasive alien plant, research, biology

Computer codes: AMBEL



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2006/194 Invasive alien plants in Croatia

In 2006, a national project on Croatia's invasive flora (inventory, monitoring and control) created a list of invasive alien plants in the country and a database which gathers and disseminates information about alien taxa. The preliminary list of invasive alien plants in Croatia (58 species) is the following:

	Species	Family	Origin		Species	Family	Origin
1	<i>Abutilon theophrasti</i>	Malvaceae	W-As	30	<i>Euphorbia maculata</i>	Euphorbiaceae	N-Am
2	<i>Acer negundo</i>	Aceraceae	N-Am	31	<i>Euphorbia prostrata</i>	Euphorbiaceae	N-Am
3	<i>Ailanthus altissima</i>	Simaroubaceae	E-As	32	<i>Galinsoga ciliata</i>	Asteraceae	Cent-Am
4	<i>Amaranthus retroflexus</i>	Amaranthaceae	N-Am	33	<i>Galinsoga parviflora</i>	Asteraceae	S-Am
5	<i>Ambrosia artemisiifolia</i>	Asteraceae	N-Am	34	<i>Helianthus tuberosus</i>	Asteraceae	N-Am
6	<i>Amorpha fruticosa</i>	Fabaceae	N-Am	35	<i>Impatiens balfourii</i>	Balsaminaceae	Himalaya
7	<i>Angelica archangelica</i>	Apiaceae	N&E Eur	36	<i>Impatiens glandulifera</i>	Balsaminaceae	S-As
8	<i>Artemisia annua</i>	Asteraceae	Eur.	37	<i>Impatiens parviflora</i>	Balsaminaceae	EC-As
9	<i>Artemisia verlotiorum</i>	Asteraceae	SW-As	38	<i>Juncus tenuis</i>	Juncaceae	N-Am
10	<i>Asclepias syriaca</i>	Asclepiadaceae	N-Am	39	<i>Lepidium virginicum</i>	Brassicaceae	N-Am
11	<i>Aster squamatus</i>	Asteraceae	Am.	40	<i>Oenothera biennis</i>	Oenagraceae	N-Am
12	<i>Bidens frondosa</i>	Asteraceae	N-Am	41	<i>Oxalis pes-caprae</i>	Oxalidaceae	S-Af
13	<i>Bidens subalternans</i>	Asteraceae	N-Am	42	<i>Panicum capillare</i>	Poaceae	N-Am
14	<i>Broussonetia papyrifera</i>	Moraceae	E-As	43	<i>Panicum dichotomiflorum</i>	Poaceae	N-Am
15	<i>Carpobrotus edulis</i>	Aizoaceae	S-Af	44	<i>Paspalum dilatatum</i>	Poaceae	S-Am
16	<i>Chamomilla suaveolens</i>	Asteraceae	NE-As, W N-Am	45	<i>Paspalum paspalodes</i>	Poaceae	Tropics
17	<i>Chenopodium ambrosioides</i>	Chenopodiaceae	Neotrp	46	<i>Phytolacca americana</i>	Phytolaccaceae	N-Am
18	<i>Conyza bonariensis</i>	Asteraceae	N-Am	47	<i>Reynoutria japonica</i>	Polygonaceae	E-As
19	<i>Conyza canadensis</i>	Asteraceae	N-Am	48	<i>Reynoutria sachalinensis</i>	Polygonaceae	E-As
20	<i>Conyza sumatrensis</i>	Asteraceae	S-Am	49	<i>Robinia pseudoacacia</i>	Fabaceae	N-Am
21	<i>Cuscuta campestris</i>	Convolvulaceae	N-Am	50	<i>Rudbeckia laciniata</i>	Asteraceae	N-Am
22	<i>Datura innoxia</i>	Solanaceae	Pantrop	51	<i>Solanum elaeagnifolium</i>	Solanaceae	S-Am
23	<i>Datura stramonium</i>	Solanaceae	Am.	52	<i>Solidago canadensis</i>	Asteraceae	N-Am
24	<i>Diplotaxis eruroides</i>	Brassicaceae	SW Eur	53	<i>Solidago gigantea</i>	Asteraceae	N-Am
25	<i>Echinocystis lobata</i>	Cucurbitaceae	N-Am	54	<i>Sorghum halepense</i>	Poaceae	Subcosm
26	<i>Eleusine indica</i>	Poaceae	Pantrop	55	<i>Tagetes minuta</i>	Asteraceae	S-Am
27	<i>Elodea canadensis</i>	Hydrocharitaceae	N-Am	56	<i>Veronica persica</i>	Scrophulariaceae	W-As
28	<i>Epilobium ciliatum</i>	Onagraceae	N-Am	57	<i>Xanthium spinosum</i>	Asteraceae	S-Am
29	<i>Erigeron annuus</i>	Asteraceae	N-Am	58	<i>Xanthium strumarium</i> subsp. <i>italicum</i>	Asteraceae	Am.

Note: species indicated in bold are included in the EPPO List of invasive alien plants.



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An analysis of this list of species shows that:

- 20% of the species are Asteraceae, 6% are Poaceae,
- 57% are therophytes, 17% are hemicryptophytes, 12% are geophytes and 10% are phanerophytes,
- 64% originate from the Americas, 19% from Asia and 10% from Africa.

Moreover, the 'Flora Croatica Database' provides statuses and distribution maps for more than 500 alien plants in Croatia.

Source: Mitić B, Dobrović I, Boršić I, Milović M, Bogdanović S, Cigić P, Rešetnik I, Nikolić T (2006) Croatian botanical standards for IAS prevention and monitoring. In: *Neobiota. From Ecology to Conservation*. 4th European Conference on Biological Invasions. Vienna (Austria), 2006-09-27/29, BfN-Skripten 184: page 194 (abst.).

Flora Croatica Database: <http://hirc.botanic.hr/fcd/search.aspx>

Additional key words: invasive alien plants,
national records

Computer codes: ABUTH, ACRNE, AILAL, AMARE, AMBEL, AMHFR, ANKAR, ARTAN, ARTVE, ASCCU, BIDFR, BIDSU, BRNPA, CBSER, MATMT, CHEAM, ERIBO, ERICA, ERIFL, CVCCA, DATIN, DATST, DIPER, ECNLO, ELEIN, ELDCA, EPIAC, ERIAN, EPHMA, EPHPT, GASCI, GASPA, HELTU, IPABF, IPAGL, IPAPA, IUNTE, LEPVI, OEobi, OXAPC, PANCA, PANDI, PASDI, PASDS, PHTAM, POLCU, REYSA, ROBPS, RUDLA, SOLEL, SOOCA, SOOGS, SORHA, TAGMI, VERPE, XANSP, XANST, HR

2006/195 *Vincetoxicum rossicum*, an invasive alien species in expansion near Oslo, Norway

Vincetoxicum rossicum (= *Cynanchum rossicum* – Asclepiadaceae) is a perennial vine originating from Ukraine and Southern European Russia around the Black Sea. It was introduced into Norway many years ago and is now considered invasive as it reduces biodiversity in nationally important habitats (fields, shores, forests) and threatens indigenous vegetation in calcareous areas around Oslo (e.g. islands of the inner Oslo fjord). The plant is also considered a threat in Canada and is prohibited in Connecticut, Massachusetts and New Hampshire (USA).

Source: Bjereke K (2006) *Vincetoxicum rossicum*, an invasive species in expansion in Oslo, Norway. In: *Neobiota. From Ecology to Conservation*. 4th European Conference on Biological Invasions. Vienna (Austria), 2006-09-27/29, BfN-Skripten 184: page 80 (abst.).

Wisconsin Department of Natural Resources

http://www.dnr.state.wi.us/invasives/fact/swallowwort_pale.htm



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United State Department of Agriculture

<http://plants.usda.gov/java/profile?symbol=CYRO8>

Additional key words: invasive alien plant, new record

Computer codes: NO

2006/196 How many neophytes hybridize with native plant species in Germany?

Interspecific hybridization between invasive neophytes and native plant species is widely recognized as an important evolutionary process associated with biological invasions. However, the quantitative dimension of this phenomenon is still largely unknown. A list of interspecific hybrids between neophytes and native species has been drawn up for Germany. A total of 668 neophytes are included in the German databases FloraWeb and/or BioFlor. Of these neophytes, 150 (22%) are known to form hybrids with native species or with other neophytes. In total, there are 141 hybrids between neophytes and native species, of which 92 have already been found in Germany. The abundance and fertility of these hybrids vary. Some of them have only been found a few times, others are common. Most of the time, the distribution of these hybrids is unknown because it is difficult to recognize them in the field.

Hybridization between invasive neophytes and native plant species has important consequences for native biodiversity. Firstly, hybridization leads to the evolution of new hybrid species which may be better adapted to the local conditions than their parental species. Secondly, introgressive hybridization with invasive neophytes results in an irreversible change of the gene pool of certain native plant species (horizontal gene flow).

Source: Bleeker W, Schmitz U, Ristow M, Mühlausen A (2006) How many neophytes hybridize with native plant species? In: *Neobiota. From Ecology to Conservation*. 4th European Conference on Biological Invasions. Vienna (Austria), 2006-09-27/29, BfN-Skripten 184: page 81

Flora Web: <http://www.floraweb.de/>

Additional key words: invasive alien plants, research, genetics

Computer codes: DE



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2006/197 Differences in invasiveness and competitiveness of hybrids of different ploidy levels

The evolution of invasive species in their new ranges and the formation of new hybrids following invasion are of high interest in current research of invasion biology. The hybrid *Rorippa x armoracioides* derives from the native *Rorippa sylvestris* and the invasive *Rorippa austriaca*. It is very invasive in the Elbe valley (Germany) and may have displaced *R. austriaca*, the latter having declined in the last decade in this region. This tetraploid hybrid now forms autonomous stands. A pentaploid form has been found on the river Ruhr near Mülheim (Germany), and a triploid form along the river Main near Würzburg (Germany). These two forms are not considered invasive in the region.

Experiments have been conducted to compare soil parameters, vegetation cover and plant diversity in these different situations. The results showed that the soil near the river Elbe, especially in flood plain meadows where the hybrid has its highest cover, is more acid than the soil in the regions Ruhr and Main. There was a trend towards reduced plant species diversity when the hybrid from the river Elbe (tetraploid) occurred. In experiments, the Elbe hybrid (tetraploid) was more competitive than *R. sylvestris* while its competition intensity was similar to that of *R. austriaca*. In contrast, the hybrid from the river Ruhr (pentaploid) was a weak competitor. The Elbe hybrid (tetraploid) allocated more resources into its belowground biomass than the other *Rorippa* taxa and had the longest roots. While *R. austriaca* grew only vegetatively in the first year, this hybrid was able to produce fruits shortly after establishment.

The results may indicate that the Elbe hybrid (tetraploid) profits from a higher availability of soil nutrients due to a lower soil pH by investing more resources in the root system than its parent species. Moreover, this hybrid may have an even higher plasticity in resource allocation than *R. austriaca*, which may promote its invasiveness. Although these results suggest that the hybrid has replaced *R. austriaca* in flood plain meadows of the river Elbe, other unknown factors could also be responsible of the decline of the latter. Due to its invasiveness and deep reaching root system, an ongoing invasion of drier habitats of the middle Elbe valley by the Elbe hybrid (tetraploid) is expected.

Source: Buschmann H, Melz K (2006) Differences in invasiveness and competitiveness of hybrids of different ploidy levels. In: *Neobiota. From Ecology to Conservation*. 4th European Conference on Biological Invasions. Vienna (Austria), 2006-09-27/29, BfN-Skripten 184: page 90 (abst.).

Additional key words: invasive alien plants, genetics

Computer codes: RORSY, RORAU, DE



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2006/198 Genetic relationships between *Heracleum* species in its invaded and native ranges

Heracleum mantegazzianum (Apiaceae, EPPO list of invasive alien plants) was introduced into Europe in the XIXth century from the Caucasus and is now widespread and considered invasive in many countries. *H. sosnowskyi* (EPPO list of invasive alien plants) and *H. persicum* are also considered invasive. To elucidate genetic relationships between these species and their populations, samples from 72 populations collected from 15 European and Asian countries were analysed. Analysis revealed that plants of each of the three taxa collected in the invaded range were genetically close to those from their native ranges. It also showed close genetic relationships between the three invasive *Heracleum* species in Europe, particularly between *H. mantegazzianum* and *H. sosnowskyi*. High overall genetic diversity was detected in the invaded range. This suggests that rapid evolution, drift and hybridization may have played a role in genetic structuring of invading populations since the introduction of these species into Europe. On the other hand, individual populations in the invaded range had lower within-population variation than populations in the native areas. These results suggest that multiple introductions of all three species into Europe are most likely.

Source: Jahodová Š, Trybush S, Pyšek P, Karp A (2006) *Heracleum* in Europe and Asia: genetic relationship between species in invaded and native distribution ranges In: *Neobiota. From Ecology to Conservation*. 4th European Conference on Biological Invasions. Vienna (Austria), 2006-09-27/29, BfN-Skripten 184: page 158 (abst.).

Additional key words: invasive alien plants, research, genetics

Computer codes: HERMZ, HERSO, HERPE



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2006/199 *Erechtites hieracifolia* reproduction biology

Erechtites hieracifolia (Asteraceae) is an annual herb originating from temperate North America which is naturalized in central Europe (known to occur in Austria, Czech Republic, Hungary, Romania and Serbia). It is considered an invasive neophyte in Hungary as it is found to be abundant in forest cuttings three or four years after the trees have been harvested. It can reach up to 2 m high and is thought to compete with other species for light, water and nutrients. Studies on the biology of the plant have shown that each individual produces on average 253 inflorescences, each with 130 achenes, meaning that a single plant could produce over 30,000 seeds. Achenes germinate all year long except in September and October. Its seed bank does not persist for a long time, although viability of seeds for longer than eight years has been observed in North America.

Source: Csiszár Á (2006) Study of the generative reproduction of the fireweed (*Erechtites hieracifolia* RAF. Ex DC.) In: *Neobiota. From Ecology to Conservation*. 4th European Conference on Biological Invasions. Vienna (Austria), 2006-09-27/29, BfN-Skripten 184: page 101 (abst.).

Additional key words: invasive alien plants, biology

Computer codes: EREHI, HU