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2007/001 First report of *Rhynchophorus ferrugineus* in Turkey

In Turkey, *Rhynchophorus ferrugineus* (Coleoptera: Curculionidae - EPPO A2 List) was detected for the first time on palm trees (*Phoenix canariensis*) in the province of Mersin (Mediterranean region) in 2005. This is the first report of *R. ferrugineus* in Turkey.

The situation of *Rhynchophorus ferrugineus* in Turkey can be described as follows: Present, first found in 2005, province of Mersin (Mediterranean region).

Source: Karut K, Kazak C (2005) [A new pest of date palm trees (*Phoenix dactylifera* L.): *Rhynchophorus ferrugineus* (Olivier, 1790) (Coleoptera: Curculionidae) in Mediterranean region of Turkey.] *Turkiye Entomoloji Dergisi* 29(4), 295-300 (in Turkish).

Additional key words: new record

Computer codes: RHYCFE, TR

2007/002 First report of *Rhynchophorus ferrugineus* in Syria

In Syria, the presence of *Rhynchophorus ferrugineus* (Coleoptera: Curculionidae - EPPO A2 List) has now been reported.

The situation of *Rhynchophorus ferrugineus* in Syria can be described as follows: Present, no detail.

Source: Internet (last retrieved on 2007-02-02)
Red palm weevil home. First report of RPW in Syria.
<http://www.redpalmweevil.com/RPWReport/Syria.htm>

Additional key words: new record

Computer codes: RHYCFE, SY

2007/003 Further reports of *Rhynchophorus ferrugineus* in Puglia and Sardegna, Italy

In Italy, the presence of *Rhynchophorus ferrugineus* (Coleoptera: Curculionidae - EPPO A2 List) is reported in several cities of the Salento area (Provinces of Lecce, Brindisi and Tarente), in the Puglia region. The insect has also been found in Sardegna, in the city of Barisardo. The EPPO Secretariat previously had no data on the occurrence of this pest in these Italian regions.

Source: Internet (last retrieved on 2007-02-06)
Regione Campania. Attenzione al punteruolo rosso della palma.
<http://www.sito.regione.campania.it/agricoltura/difesa/files/punteruolo-rosso.pdf>
Regione Sardegna. Corpo Forestale e di Vigilanza Ambientale.
http://www.regione.sardegna.it/corpoforestale/notizie/insetti_defogliatori.htm
Il tacco d'Italia. QuotidianOnline del Salento. Antonio Stea (2006) Ambiente.
Allarme palme in citta.
<http://www.iltaccoditalia.info/sito/index-a.asp?id=1443>

Additional key words: detailed records

Computer codes: RHYCFE, IT

2007/004 Situation of *Diabrotica virgifera* in France in 2006

In 2006, the NPPO of France continued to conduct official surveys and implement eradication measures in areas where *Diabrotica virgifera* (Coleoptera: Chrysomelidae - EPPO A2 List) was found in 2005 (see EPPO RS 2005/084). In 2005, *D. virgifera* was only caught in the region Ile-de-France (3 outbreaks) and the nearby region of Picardie (1 outbreak). Although the pest had been found in 2003 at Blotzheim, near the international airport of Basel-Mulhouse, in 2005 no captures were made in Alsace.

In 2006, more than 2300 trap sites were set up across the whole territory of France with emphasis to those regions where the pest had been found previously and in areas at risk. In both the regions (Ile-de-France and Picardie) in which the pest had been observed in 2005, no captures were made in 2006. However, in Alsace where 76 traps had been placed, one adult was caught on 2006-08-23 at Schwindratzheim, near the toll motorway of Hochfelden. Additional traps were immediately placed but no other insect could be caught. It is supposed that this single beetle had been transported by road. Eradication measures and intensive surveys will continue in 2007.

The situation of *Diabrotica virgifera* in France can be described as follows: **Present, only 1 beetle caught in 2006 in Alsace, under eradication.**

Source: Anonymous (2006) Alsace - Diabrotica, un adulte piégé. *Phytoma - La Défense des Végétaux* no. 597, p 5.

Anonymous (2006) Ile-de-France, Picardie et Alsace. Diabrotica 2006, le point. *Phytoma - La Défense des Végétaux* no. 598, p 2.

NPPO of France, 2007-01.

Additional key words: detailed record

Computer codes: DIABVI, FR

2007/005 Current situation of *Ralstonia solanacearum* in Turkey

In Turkey, potato brown rot caused by *Ralstonia solanacearum* (EPPO A2 List) was first detected in potatoes in the province of Nevsehir (Central Anatolia region) in 1995 (see EPPO RS 96/002). Biochemical tests showed the occurrence of *R. solanacearum* biovar 2. Following this initial detection, surveys were initiated and 5 farms were found infected. Eradication measures were taken. On the infected sites, potato production was prohibited for 5 years and only wheat and barley could be grown in rotation. The disease was then no longer found. However, in 2006 during an official survey programme, *R. solanacearum* was detected again in potato fields near Altinova, in the province of Balikesir (Marmara region). In Altinova, 148 plots (corresponding to approximately 163 ha) were found infected by *R. solanacearum*. Phytosanitary measures transposed from the EU directive 98/57/EEC were applied. These measures include: delimitation surveys, prohibition of growing solanaceous crops (potato, tomato, aubergine) for 5 years in infected fields where only wheat and barley are permitted, herbicide control of weeds (e.g. *Portulaca oleracea* and solanaceous weeds), surveys for the presence of *R. solanacearum* in solanaceous weeds and surface waters used for irrigation of potato fields, surveys for the presence of the bacterium in waters released by potato processing companies. Finally, all exported potato lots are tested for *R. solanacearum* (this has been done since 1996), and all potato crops are now submitted to an official survey programme.

The situation of *Ralstonia solanacearum* in Turkey can be described as follows: **Present**, first reported in 1995 in Central Anatolia but then no longer detected, one outbreak found in 2006 in Marmara region, under official control.

Source: NPPO of Turkey, 2007-02.

Additional key words: detailed record

Computer codes: PSDMSO, TR

2007/006 First report of *Pepino mosaic virus* in Austria

The Austrian Plant Protection Service recently informed the EPPO Secretariat of the first record of *Pepino mosaic virus* (*Potexvirus*, PepMV - EPPO Alert List) on its territory. PepMV was detected on both tomato fruit and plants during the annual official EU monitoring carried out in 2006. PepMV was found only in some enterprises producing fruit in Vienna, Oberösterreich (Upper Austria) and Steiermark (Styria). Eradication measures have been taken.

The situation of *Pepino mosaic virus* in Austria can be described as follows: **Present, only in few enterprises, under eradication.**

Source: NPPO of Austria, 2007-01.

Additional key words: new record

Computer codes: PEPMV0, AT

2007/007 Detection of *Tobacco ringspot virus* on ornamental plants in the Netherlands

The NPPO of the Netherlands recently informed the EPPO Secretariat of the finding of *Tobacco ringspot virus* (*Nepovirus*, TRSV - EPPO A2 List) on ornamental plants. Following an interception of infected *Hemerocallis* plants made by the USA, the Dutch NPPO carried out a survey in the premises of the exporting company concerned. In 2006-10-20, one *Hemerocallis* plant showing symptoms was tested and the presence of TRSV was detected. Further studies were done within the same company and showed that TRSV was present in 4 *Hemerocallis* varieties. All infected plants were showing symptoms and the virus was not detected in symptomless plants. Tests were done on all other plant species grown by the company and TRSV was found also in several *Iris siberica* and *Iris ensata* plants. All infected *Iris siberica* showed symptoms, whereas some cultivars of *Iris ensata* remained symptomless. Soil samples were collected from infected plots but *Xiphinema americanum* was not detected (*X. americanum sensu stricto* is a vector of TRSV which is known not to occur in Europe). Further tracing back studies showed that 3 companies had *Hemerocallis* plants infected by TRSV, of which 1 had also infected *Iris* plants. All infected plants are being destroyed. Earlier infections had been found in the Netherlands on *Bacopa*, *Lobelia* and *Portulacca* but were eradicated successfully (EPPO RS 2001/045).

The pest status of *Tobacco ringspot virus* in the Netherlands is officially declared as follows: **Transient on *Hemerocallis* spp., *Iris siberica* and *Iris ensata*, under eradication.**

Source: NPPO of the Netherlands, 2006-12.

Additional key words: phytosanitary incident

Computer codes: TRSV00, NL

2007/008 Iris yellow spot virus detected on *Eustoma* in the Netherlands

In October 2006, during a survey for *Iris yellow spot virus* (*Tospovirus*, IYSV - EPPO Alert List) the virus was detected in a crop of *Eustoma* (lisianthus) in the Netherlands. These ornamental plants were grown for sale to home consumers. IYSV was detected by DAS-ELISA (with specific antisera) and the virus identity was confirmed by inoculation to *Nicotiana benthamiana* and DAS-ELISA testing of symptomatic plants. Affected *Eustoma* plants (a white and a purple cultivar) showed necrotic spots on the leaves and longitudinal necrotic streaks on the stems. Diseased plants were clustered in small groups and the occurrence of symptoms was associated with a high incidence of *Thrips tabaci*. It is suspected that the virus was introduced into the crop via viruliferous thrips. After controlling the thrips, the number of infected plants no longer increased. No particular phytosanitary measures have been applied to the crop, as IYSV is not regulated. A Pest Risk Analysis (PRA) is under way but because there are still uncertainties about geographical distribution, host range, pathway for spread, and economic impact of the virus, it remains difficult to conclude on the risk and appropriate phytosanitary measures. This is the first report of IYSV on *Eustoma* in the Netherlands, although IYSV has already been reported on this plant in Israel (EPPO RS 2001/052) and Japan (EPPO RS 2004/160). In the Netherlands, isolated findings had earlier been made on *Iris* (1992), *Allium porrum* (1997), *Alstroemeria* (2004, 2005) and *Allium cepa* (2005, 2006).

The pest status of *Iris yellow spot virus* in the Netherlands is officially declared as follows: Present, incidental findings.

Source: NPPPO of the Netherlands, 2007-01.

Additional key words: detailed record

Computer codes: IYSV00, NL

2007/009 Plum pox virus found near Adana and İçel (Mediterranean region), Turkey

During 2005 and 2006, symptoms resembling those of sharka were repeatedly observed in several orchards near Adana and Mersin (Mediterranean region) in Turkey. Leaf samples were collected at random from different trees and tested (DAS-ELISA). *Plum pox virus* (*Potyvirus*, PPV - EPPO A2 List) was detected in samples from 3 trees. Further studies (RT-PCR, RFLP) confirmed the presence of PPV-M. It is noted that this is the first time that PPV is detected in this area.

The situation of *Plum pox virus* in Turkey can be described as follows: Present, limited distribution, found in Marmara region, Mediterranean region and around Ankara (Central Anatolia).

Source: Koç G, Baloglu S (2006) First report of sharka in the Çukurova region of Turkey. *Journal of Plant Pathology* 88(3 suppl.), S68.

Additional key words: detailed record

Computer codes: PPV000, TR

2007/010 New outbreaks of *Ceratocystis fimbriata* f.sp. *platani* in France

In 2005, new outbreaks of *Ceratocystis fimbriata* f.sp. *platani* (EPPO A2 List) were reported in the south of France (region Midi-Pyrénées, see EPPO RS 2005/184). In 2006, the disease was reported on new sites. An outbreak was reported at Caussade, in Tarn-et-Garonne (region Midi-Pyrénées), very close to the 2005 outbreak. Three new outbreaks were reported from two distant regions: one at Villedubert (Aude, region Languedoc-Roussillon) on *Platanus* trees growing along the 'Canal du midi', a second one along a main road near Saint-Pierre-d'Albigny (Savoie, region Rhône-Alpes), and the third one along a road at Saint-Etienne-le-Molard (Loire, region Rhône-Alpes). Eradication measures were taken.

The situation of *Ceratocystis fimbriata* f.sp. *platani* in France can be described as follows: **Present, scattered outbreaks (Languedoc-Roussillon, Midi-Pyrénées, Provence-Alpes-Côte d'Azur, Rhône-Alpes), under official control.**

Source: Decoin M (2006) Midi-Pyrénées, Languedoc et Rhône-Alpes. Nouveaux foyers de chancre coloré. *Phytoma - La Défense des Végétaux* no. 598, p 2.

Demonmerot M (2007) Rhône-Alpes. Un nouveau département contaminé par le chancre coloré du platane. *Phytoma - La Défense des Végétaux* no. 600, p 2.

Additional key words: detailed record

Computer codes: CERAFF, FR

2007/011 Grapevine flavescence dorée found in Bourgogne, France

In France, Grapevine flavescence dorée phytoplasma (EPPO A2 List) was detected for the first time in 2004 in Bourgogne. One plant was found infected at Saint-Gengoux-le-National (Saône-et-Loire). In 2005, another vineyard (Puligny-Montrachet, Côte d'Or) was found infected. Eradication measures were immediately taken (compulsory treatments against the vector, *Scaphoideus titanus*, and destruction of infected plants), and surveys were made to delimit the extent of the disease in this region (Paupelard *et al.*, 2006). On the first site, the phytoplasma was not detected in 2005 and 2006 and the disease is now considered eradicated. At Puligny-Montrachet, eradication continues as one sample was found infected in 2006. A new infected site was found at Meloisey (Côte d'Or) in a vineyard planted in 2005 and the plants were of the same origin as in the two other infected sites. Eradication measures will be taken. So far, Grapevine flavescence dorée has been found in the vineyards of Aquitaine, Charentes, Midi-Pyrénées, Languedoc-Roussillon, Provence-Alpes-Côte d'Azur, Pays de Loire and Corse. In northern vineyards, it has been found very locally in Bourgogne and Champagne (in this last region, *Scaphoideus titanus* has not been observed).

Source: Anonymous (2007) Bourgogne - Flavescence dorée, plus un moins un. *Phytoma - La Défense des Végétaux* no. 600, p 2.

Paupelard L, Magnien L, Moysse S (2006) Les prospections flavescence dorée en Bourgogne - Surveillance draconienne par la FREDON et le SRPV avec le soutien de toute la profession. *Phytoma - La Défense des Végétaux* no. 598, 25-27.

Additional key words: detailed record

Computer codes: PHYP64, FR

2007/012 First record of *Leptocybe invasa* in Portugal

In Portugal, galls resembling those formed by *Leptocybe invasa* (Hymenoptera: Eulophidae – EPPO Alert List) were observed on eucalyptus leaves in the northeast of Alentejo in January 2003. Eucalyptus branches with gall formations were brought to the laboratory and kept in plastic cages until the emergence of the adults. Emerging wasps were identified as *L. invasa*. Considering the potential economic and environmental impact of such a pest, surveys of eucalyptus plantations were initiated in 2003, and intensified in 2004, at first in eastern Alentejo and Algarve, and then extended to other regions. At present, the pest has been found in the southern and central parts of Portugal (approximately up to latitude 40°N). *L. invasa* was mainly found in *Eucalyptus camaldulensis*, although it was also observed in several *E. globulus* trees growing along a road and on *E. tereticornis* seedlings in a nursery. During this survey, *Ophelimus maskelli* was not found. The EPPO Secretariat had previously no data on the occurrence of *L. invasa* in Portugal.

Source: Branco M, Franco JC, Valente C, Mendel Z (2006) Survey of Eucalyptus gall wasps in Portugal. *Boletín de Sanidad Vegetal – Plagas* 32(2), 199-202.

Additional key words: new record

Computer codes: PT

2007/013 Recent studies on the biology and taxonomy of *Ophelimus maskelli*

In recent years, several serious pests have invaded eucalyptus forests in the Mediterranean region and Southern Europe, such as *Phoracantha semipunctata*, *Ctenarytaina eucalypti*, *Gonipterus scutellatus* (EPPO A2 List) and *Phoracantha recurva*. The latest to appear were two species of gall-inducing wasps: *Leptocybe invasa* (EPPO Alert List) and *Ophelimus maskelli* (Hymenoptera: Eulophidae). Currently, both species are causing severe damage to eucalyptus, in particular to *Eucalyptus camaldulensis* which is the most important species planted in the Mediterranean region and the Middle East. Studies were recently done in Israel on the taxonomy and biology of both *L. invasa* and *O. maskelli*. Although the taxonomy of *Ophelimus* is poorly known, it is now considered that the species which has been introduced into the Euro-Mediterranean region is *Ophelimus maskelli* and not *O. eucalypti* (which is also an invasive species in New Zealand after a probable introduction from Australia). Similarly, earlier records of gall-inducing wasps on eucalyptus identified as *Aprostocetus* sp. are now attributed to *Leptocybe invasa*.

Leptocybe invasa

L. invasa was first observed in the Middle East in 2000 and later described as a new genus and species. In Israel, *L. invasa* has 2 to 3 overlapping generations and reproduces by thelytokous parthenogenesis. At Bet Dagan, development time from oviposition to emergence was approximately 4.5 months. They form typical bump-shaped galls on the leaf midribs, petioles and stems of new growth of several eucalyptus species. In Bet Shan Valley where *L. invasa* has reached epidemic levels, juvenile shoots were often killed due to egg overloading. In Jordan valley, galls could be found on almost all leaves within trees. It is also stated that planting of *E. camaldulensis* was stopped because of extensive attacks by this insect.

Ophelimus maskelli

O. maskelli has 3 generations per year. Peaks of flight occur in spring when many young leaves are available. *O. maskelli* prefers to oviposit in developed, immature leaves, on the

leaf blade near the petiole (whereas *L. invasa* prefers the mid-rib, petioles and newly developed twigs). Females lay an average of 109 eggs. The gall diameter ranged from 0.9 to 1.2 mm and gall density from 11.5 to 36 galls per cm². The typical colour of the galls (greenish-yellow or light to dark purple) appeared as soon as the third instar larva develops. In these studies, among the 84 eucalyptus species tested, 14 were found to be suitable hosts (including species which are widely used in the Mediterranean region such as: *Eucalyptus camaldulensis*, *E. globulus*, *E. grandis*, and *E. tereticornis*). Heavy leaf galling by *O. maskelli* results in premature shedding of the leaves soon after adult emergence. In Israel, high populations of *O. maskelli* have been observed in the coastal plain and the Judean foothills, where 80-year-old trees had almost completely lost their foliage. In addition, during peak emergence periods *O. maskelli* can be a nuisance to humans by forming 'clouds' of wasps.

In Israel, both *O. maskelli* and *L. invasa* occur at epidemic levels and galls of the two species are often found on the same leaves. Observations tend to suggest that *O. maskelli* is a better competitor which could displace *L. invasa*. Research continues on the identification and use of parasitoids to control these eucalyptus gall wasps.

Source: Mendel Z, Protasov A, Fisher N, La Salle J (2004) The taxonomy and natural history of *Leptocybe invasa* (Hymenoptera: Eulophidae) gen. & sp.nov., an invasive gall inducer on Eucalyptus. *Australian Journal of Entomology* 43, 101-113.

Protasov A, La Salle J, Blumberg D, Brand D, Saphir N, Assael F, Fisher N, Mendel Z (2007) Biology, revised taxonomy and impact on host plants of *Ophelimus maskelli*, an invasive gall inducer on *Eucalyptus* spp. in the Mediterranean area. *Phytoparasitica* 35(1), 50-76.

Additional key words: biology, taxonomy

2007/014 PCR test to distinguish between *Guignardia citricarpa* and *G. mangiferae*

As reported earlier in EPPO RS 2002/082, strains which were previously considered as 'non-pathogenic strains of *Guignardia citricarpa sensu lato*' belong to another species *Guignardia mangiferae*. A PCR method using specific primers was developed in New Zealand to distinguish between the citrus black spot pathogen *Guignardia citricarpa* (EU Annexes) and the harmless *Guignardia mangiferae*. No cross reaction was obtained with *Colletotrichum gloeosporioides* which is the most common contaminant found in black spot lesions. This PCR method was further improved by a direct DNA extraction from fruit lesions, thus eliminating the need to culture the fungus. With this improvement, results of the PCR test could be obtained within one day to verify the presence or absence of *G. citricarpa* in fruit consignments.

Source: Meyer L, Sanders GM, Jacobs R, Korsten L (2006) A one-day sensitive method to detect and distinguish between the citrus black spot pathogen *Guignardia citricarpa* and the endophyte *Guignardia mangiferae*. *Plant Disease* 90(1), 97-101.

Additional key words: diagnostics

Computer codes: GUICCI

2007/015 EPPO report on notifications of non-compliance

The EPPO Secretariat has gathered the notifications of non-compliance for 2006 received via Europhyt since the previous report (EPPO RS 2006/238) from the following EU countries: Austria, Belgium, Cyprus, the Czech Republic, Denmark, France, Finland, Germany, Greece, Ireland, Lithuania, the Netherlands, Poland, Slovenia, Spain, Sweden, the United Kingdom, and from Bulgaria, Croatia, and Switzerland. When a consignment has been re-exported and the country of origin is unknown, the re-exporting country is indicated in brackets. When the occurrence of a pest in a given country is not known to the EPPO Secretariat, this is indicated by an asterisk (*).

The EPPO Secretariat has selected notifications of non-compliance made because of the detection of pests. Other notifications of non-compliance due to prohibited commodities, missing or invalid certificates are not indicated. It must be pointed out that the report is only partial, as many EPPO countries have not yet sent their notifications.

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
<i>Agromyza</i>	<i>Ocimum basilicum</i>	Vegetables (leaves)	Vietnam	France	1
<i>Agromyzidae</i>	<i>Ocimum basilicum</i>	Vegetables (leaves)	Thailand	France	3
<i>Aleyrodidae</i>	<i>Eryngium foetidum</i>	Vegetables (leaves)	Thailand	France	1
	<i>Eryngium foetidum</i>	Vegetables (leaves)	Vietnam	France	3
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Thailand	France	1
	<i>Solanum melongena</i>	Vegetables	Jordan	France	1
<i>Aonidiella aurantii</i>	<i>Citrus paradisi</i>	Fruit	Turkey	United Kingdom	1
<i>Aspidiotus nerii</i>	<i>Citrus</i>	Fruit	Iran	United Kingdom	1
<i>Bemisia tabaci</i>	<i>Ajuga</i>	Cuttings	Netherlands	United Kingdom	2
	<i>Ajuga reptans</i>	Cuttings	Netherlands	United Kingdom	1
	<i>Aster</i>	Cut flowers	Israel	Netherlands	2
	<i>Brachychiton</i>	Plants for planting	Israel	Netherlands	1
	<i>Citrus</i>	Plants for planting	Portugal	United Kingdom	1
	<i>Citrus sinensis</i>	Fruit	French Guiana	United Kingdom	1
	<i>Corchorus (Molochia)</i>	Vegetables	Cyprus	United Kingdom	1
	<i>Corchorus olitorius</i>	Vegetables	Gambia	United Kingdom	1
	<i>Corchorus olitorius</i>	Vegetables	Sierra Leone	United Kingdom	1
	<i>Eryngium foetidum</i>	Vegetables (leaves)	Thailand	Ireland	1
	<i>Euphorbia pulcherrima</i>	Plants for planting	(Denmark)	Finland	4
	<i>Euphorbia pulcherrima</i>	Plants for planting	(Germany)	Finland	1
	<i>Euphorbia pulcherrima</i>	Plants for planting	(Netherlands)	Finland	7
	<i>Euphorbia pulcherrima</i>	Plants for planting	Belgium	United Kingdom	1
	<i>Euphorbia pulcherrima</i>	Cuttings	Brazil	Sweden	1
	<i>Euphorbia pulcherrima</i>	Plants for planting	Denmark	United Kingdom	1
	<i>Euphorbia pulcherrima</i>	Cuttings	Ethiopia	Sweden	3
	<i>Euphorbia pulcherrima</i>	Cuttings	Italy	Sweden	3
	<i>Euphorbia pulcherrima</i>	Cuttings	Kenya	Finland	9
	<i>Euphorbia pulcherrima</i>	Cuttings	Kenya	Netherlands	1
	<i>Euphorbia pulcherrima</i>	Cuttings	Kenya	Sweden	6
	<i>Euphorbia pulcherrima</i>	Plants for planting	Kenya	United Kingdom	2
	<i>Euphorbia pulcherrima</i>	Plants for planting	Netherlands	United Kingdom	2

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
<i>B. tabaci</i> (cont.)	<i>Euphorbia pulcherrima</i>	Cuttings	Portugal	Sweden	2
	<i>Euphorbia pulcherrima</i>	Cuttings	Uganda	Sweden	3
	<i>Eustoma</i>	Cut flowers	Israel	Belgium	1
	<i>Eustoma</i>	Cut flowers	Israel	Netherlands	3
	<i>Ficus carica</i>	Plants for planting	Israel	Netherlands	1
	<i>Globba</i>	Plants for planting	Israel	Netherlands	1
	<i>Globularia</i>	Plants for planting	Israel	Netherlands	1
	<i>Gypsophila</i>	Cut flowers	Israel	United Kingdom	1
	<i>Hibiscus</i>	Plants for planting	Italy	Netherlands	1
	<i>Hibiscus</i>	Plants for planting	Netherlands	United Kingdom	1
	<i>Hibiscus rosa-sinensis</i>	Plants for planting	Netherlands	United Kingdom	1
	<i>Hibiscus sabdariffa</i>	Cut flowers	Ghana	United Kingdom	1
	<i>Hypericum</i>	Cut flowers	Kenya	Germany	1
	<i>Ipomoea batatas</i>	Vegetables (leaves)	Ghana	United Kingdom	1
	<i>Liatris spicata</i>	Cut flowers	Israel	United Kingdom	1
	<i>Malva</i>	Cuttings	Israel	Netherlands	1
	<i>Manihot esculenta</i>	Vegetables	Sierra Leone	United Kingdom	1
	<i>Mentha spicata</i>	Cuttings	Israel	United Kingdom	1
	<i>Nerium oleander</i>	Plants for planting	Netherlands	United Kingdom	1
	<i>Ocimum</i>	Vegetables (leaves)	Israel	Denmark	1
	<i>Ocimum</i>	Vegetables (leaves)	Thailand	France	1
	<i>Ocimum</i>	Vegetables (leaves)	Thailand	Netherlands	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Israel	Belgium	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Israel	Ireland	2
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Israel	Netherlands	10
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Israel	United Kingdom	8
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Thailand	France	1
	<i>Ocimum sanctum</i>	Vegetables (leaves)	Thailand	United Kingdom	1
	<i>Origanum vulgare</i>	Cuttings	Israel	United Kingdom	2
	<i>Piper sarmentosum</i>	Vegetables	Thailand	Ireland	4
	<i>Psidium guajava</i>	Fruit	India	United Kingdom	1
	<i>Rosa</i>	Cut flowers	Israel	Netherlands	4
	<i>Rosa</i>	Cut flowers	Thailand	Netherlands	1
	<i>Rumex</i>	Cuttings	Singapore*	United Kingdom	1
	<i>Scutellaria</i>	Plants for planting	Netherlands	United Kingdom	1
	<i>Solidago</i>	Cut flowers	Egypt	Netherlands	2
	<i>Solidago</i>	Cut flowers	Israel	France	1
	<i>Solidago</i>	Cut flowers	Israel	Netherlands	13
	<i>Solidago</i>	Cut flowers	Israel	United Kingdom	2
	<i>Solidago</i>	Cut flowers	Zimbabwe	Netherlands	4
	<i>Solidago canadensis</i>	Cut flowers	Israel	Netherlands	1
	<i>Trachelium</i>	Cut flowers	Israel	Belgium	1
	<i>Trachelium</i>	Cut flowers	Israel	France	1
	<i>Trachelium</i>	Cut flowers	Israel	Netherlands	3
	<i>Trachelium caeruleum</i>	Cut flowers	Costa Rica	Netherlands	2
	Unspecified	Vegetables	Nigeria	Ireland	1
	Unspecified	Aquarium plants	Singapore*	Ireland	1
<i>Vernonia amygdalina</i>	Vegetables (leaves)	Nigeria	United Kingdom	1	
<i>Veronica spicata</i>	Plants for planting	Netherlands	United Kingdom	1	
<i>Zaluzianskya ovata</i>	Cuttings	Israel	United Kingdom	2	
<i>Bemisia tabaci</i> , <i>Aleurocanthus woglumi</i> , <i>Aleuroclava psidii</i>	<i>Psidium guajava</i>	Fruit	India	United Kingdom	1

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
<i>Bemisia tabaci</i> , <i>Helcystogramma convolvuli</i> , <i>Lepidoptera</i>	<i>Ipomoea batatas</i>	Vegetables (leaves)	Gambia	United Kingdom	1
<i>Bemisia tabaci</i> , <i>Liriomyza</i>	<i>Ocimum basilicum</i>	Vegetables (leaves)	Israel	United Kingdom	1
<i>Bemisia tabaci</i> , <i>Paraputo</i>	<i>Nephelium lappaceum</i> , <i>Polygonum</i>	Fruit & Vegetables	Thailand	United Kingdom	1
<i>Bemisia tabaci</i> , <i>Spodoptera</i> , <i>Liriomyza</i>	<i>Ocimum basilicum</i>	Vegetables (leaves)	Thailand	United Kingdom	1
<i>Ceroplastes rusci</i>	<i>Strelitzia reginae</i>	Plants for planting	Italy	United Kingdom	1
<i>Clavibacter michiganensis</i> <i>subsp. sepedonicus</i>	<i>Solanum tuberosum</i>	Ware potatoes	China	Belgium	1
<i>Contarinia maculipennis</i>	<i>Dendrobium</i>	Cut flowers	Thailand	Netherlands	1
<i>Cryptophlebia leucotreta</i>	<i>Citrus sinensis</i>	Fruit	South Africa	Spain	1
<i>Diaphania indica</i>	<i>Momordica</i>	Vegetables	Dominican Rep.	Germany	1
	<i>Momordica</i>	Vegetables	India	Germany	1
	<i>Momordica</i>	Vegetables	India	United Kingdom	1
	<i>Momordica charantia</i>	Vegetables	India	United Kingdom	3
<i>Diaphania indica</i> , <i>Ceratothripoides brunneus</i>	<i>Solanum melongena</i>	Vegetables	Kenya	United Kingdom	1
<i>Diaphania indica</i> , <i>Spodoptera exigua</i> , <i>S. litura</i>	<i>Momordica charantia</i>	Vegetables	Pakistan	United Kingdom	1
<i>Diaphania indica</i> , <i>Thripidae</i>	<i>Momordica charantia</i>	Vegetables	India	United Kingdom	1
	<i>Momordica charantia</i>	Vegetables	Kenya	United Kingdom	1
<i>Diaspis boisduvalii</i> , <i>Helicotylenchus dihystra</i> , <i>Scutellonema brachyurus</i>	<i>Paphiopedilum hybrids</i>	Plants for planting	Thailand	United Kingdom	1
<i>Elsinoe</i>	<i>Citrus reticulata</i>	Fruit	Uruguay	Spain	1
	<i>Citrus sinensis</i>	Fruit	Uruguay	Spain	1
<i>Frankliniella schultzei</i> , <i>Coccidae</i>	<i>Solanum melongena</i>	Vegetables	Dominican Rep.	United Kingdom	1
<i>Globodera rostochiensis</i>	<i>Solanum tuberosum</i>	Ware potatoes	Tunisia	France	1
<i>Guignardia citricarpa</i>	<i>Citrus</i>	Fruit	Brazil	Netherlands	3
	<i>Citrus reticulata</i>	Fruit	Brazil	United Kingdom	4
	<i>Citrus sinensis</i>	Fruit	Argentina	Netherlands	1
	<i>Citrus sinensis</i>	Fruit	Argentina	Netherlands	1
	<i>Citrus sinensis</i>	Fruit	Argentina	United Kingdom	3
	<i>Citrus sinensis</i>	Fruit	Brazil	Netherlands	28

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
<i>G. citricarpa</i> (cont.)	<i>Citrus sinensis</i>	Fruit	Brazil	Spain	6
	<i>Citrus sinensis</i>	Fruit	Brazil	United Kingdom	2
	<i>Citrus sinensis</i>	Fruit	Cameroon	United Kingdom	1
	<i>Citrus sinensis</i>	Fruit	South Africa	Netherlands	12
	<i>Citrus sinensis</i>	Fruit	South Africa	United Kingdom	2
<i>Helicotylenchus</i>	<i>Ficus benjamina</i> , <i>Schefflera</i>	Plants for planting	Côte d'Ivoire	France	1
	<i>Ficus benjamina</i> , <i>Schefflera</i> , <i>Pleioblastus</i>	Plants for planting	Côte d'Ivoire	France	1
<i>Helicoverpa armigera</i>	<i>Capsicum</i>	Vegetables	Egypt	United Kingdom	1
	<i>Dianthus chinensis</i>	Cut flowers	Turkey	United Kingdom	1
	<i>Ocimum</i>	Vegetables (leaves)	Thailand	Netherlands	1
	<i>Ocimum americanum</i>	Vegetables (leaves)	Thailand	Netherlands	1
	<i>Phaseolus vulgaris</i>	Vegetables	Senegal	Netherlands	1
	<i>Phaseolus vulgaris</i>	Vegetables	Senegal	Netherlands	1
	<i>Pisum sativum</i>	Vegetables	Kenya	Netherlands	1
	<i>Pisum sativum</i>	Vegetables	Zimbabwe	Netherlands	4
	<i>Pisum sativum</i>	Vegetables	Zimbabwe	United Kingdom	1
	<i>Rosa</i>	Cut flowers	Ethiopia	Netherlands	3
	<i>Rosa</i>	Cut flowers	India	Netherlands	1
	<i>Rosa</i>	Cut flowers	Kenya	Netherlands	6
	<i>Rosa</i>	Cut flowers	Tanzania	Netherlands	1
	<i>Rosa</i>	Cut flowers	Zimbabwe	Netherlands	2
	<i>Solanum melongena</i>	Vegetables	Kenya	United Kingdom	1
	<i>Solidago</i>	Cut flowers	Egypt	Netherlands	2
<i>Solidago</i>	Cut flowers	Israel	Netherlands	1	
<i>Solidago</i>	Cut flowers	Zambia	Netherlands	1	
<i>Hirschmanniella</i>	Unspecified	Aquarium plants	Malaysia	Belgium	3
	Unspecified	Aquarium plants	Singapore	Belgium	2
	Unspecified	Aquarium plants	Singapore	Poland	2
	Unspecified	Aquarium plants	Thailand	Belgium	2
<i>Leucinodes orbonalis</i>	<i>Solanum melongena</i>	Vegetables	Ghana	Germany	4
	<i>Solanum melongena</i>	Vegetables	Ghana	United Kingdom	1
	<i>Solanum melongena</i>	Vegetables	Thailand	Germany	2
<i>Leucinodes orbonalis</i> , <i>Diaphania indica</i>	<i>Solanum melongena</i>	Vegetables	India	United Kingdom	1
<i>Leucinodes orbonalis</i> , <i>Thysanoptera</i> , <i>Maruca</i> <i>vitrata</i> , <i>Thrips</i>	<i>Solanum aculeatissimum</i> , <i>Sesbania grandiflora</i>	Vegetables	Thailand	United Kingdom	1
<i>Liriomyza</i>	<i>Gypsophila</i>	Cut flowers	Israel	France	3
	<i>Gypsophila</i>	Cut flowers	Israel	Germany	2
	<i>Gypsophila</i>	Cut flowers	Israel	Netherlands	3
	<i>Gypsophila</i>	Cut flowers	Netherlands	United Kingdom	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Egypt	Ireland	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Israel	Ireland	4
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Thailand	France	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Thailand	Sweden	1

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
<i>Liriomyza huidobrensis</i>	<i>Eryngium foetidum</i>	Vegetables (leaves)	Zimbabwe*	Netherlands	1
	<i>Gypsophila</i>	Cut flowers	Israel	Netherlands	1
	<i>Gypsophila</i>	Cut flowers	Kenya*	Netherlands	1
	<i>Gypsophila</i>	Cut flowers	Netherlands	United Kingdom	1
	<i>Gypsophila paniculata</i>	Cut flowers	Kenya*	Netherlands	1
	<i>Molucella</i>	Cut flowers	Israel	Ireland	3
	Unspecified	Vegetables (leaves)	Netherlands	United Kingdom	1
<i>Liriomyza sativae</i>	<i>Gypsophila</i>	Cut flowers	Israel	Netherlands	2
	<i>Ocimum</i>	Vegetables (leaves)	(Thailand)	Sweden	1
	<i>Ocimum</i>	Vegetables (leaves)	Thailand	Belgium	1
	<i>Ocimum</i>	Vegetables (leaves)	Thailand	Netherlands	1
	<i>Ocimum americanum</i>	Vegetables (leaves)	Thailand	Netherlands	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Israel	Czechia	2
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Israel	Netherlands	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Thailand	Czechia	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Thailand	France	2
<i>Ocimum basilicum</i>	Vegetables (leaves)	Thailand	Netherlands	1	
<i>Liriomyza trifolii</i>	<i>Chrysanthemum</i>	Cut flowers	South Africa	Netherlands	1
	<i>Eustoma</i>	Cut flowers	Israel	Netherlands	3
	<i>Gypsophila</i>	Cut flowers	Ethiopia	Netherlands	4
	<i>Gypsophila</i>	Cut flowers	Israel	Netherlands	12
	<i>Gypsophila</i>	Cut flowers	Israel	United Kingdom	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Israel	Netherlands	2
	<i>Solidago</i>	Cut flowers	Israel	Netherlands	1
<i>Liriomyza, Bemisia tabaci</i>	<i>Ocimum basilicum</i>	Vegetables (leaves)	Colombia	United Kingdom	1
<i>Meloidogyne</i>	<i>Rosa</i>	Cut flowers	South Africa	Netherlands	1
	<i>Schefflera</i>	Plants for planting	Côte d'Ivoire	France	1
<i>Meloidogyne javanica</i>	<i>Schefflera</i>	Plants for planting	Côte d'Ivoire	France	2
<i>Noctuidae</i>	<i>Ocimum americanum</i>	Vegetables (leaves)	Thailand	Netherlands	1
<i>Opogona sacchari</i>	<i>Ravenea</i>	Plants for planting	Netherlands	Germany	1
<i>Pepino mosaic virus</i>	<i>Lycopersicon esculentum</i>	Seeds	Chile	France	2
	<i>Lycopersicon esculentum</i>	Plants for planting	Netherlands	United Kingdom	1
	<i>Lycopersicon esculentum</i>	Seeds	Netherlands	United Kingdom	2
	<i>Lycopersicon esculentum</i>	Vegetables	Netherlands	United Kingdom	8
	<i>Lycopersicon esculentum</i>	Vegetables	Poland	United Kingdom	1
<i>Lycopersicon esculentum</i>	Vegetables	Spain	United Kingdom	1	
<i>Phytophthora ramorum</i>	<i>Rhododendron</i>	Plants for planting	(Denmark)	Finland	1
	<i>Rhododendron</i>	Plants for planting	Germany	Slovenia	2
	<i>Rhododendron</i>	Plants for planting	Netherlands	United Kingdom	2
	<i>Viburnum tinus</i>	Plants for planting	Netherlands	United Kingdom	1
<i>Plum pox virus</i>	<i>Prunus cerasus</i>	Plants for planting	Serbia	Croatia	5
	<i>Prunus cerasus, P. domestica</i>	Plants for planting	Serbia	Croatia	1
	<i>Prunus domestica</i>	Plants for planting	Serbia	Croatia	2

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
<i>Potato spindle tuber viroid</i>	<i>Solanum jasminoides</i>	Plants for planting	Kenya*	Netherlands	1
<i>Pratylenchus</i>	<i>Ficus</i>	Plants for planting	Côte d'Ivoire	France	1
<i>Puccinia hemerocallidis</i>	<i>Hemerocallis</i>	Plants for planting	USA	United Kingdom	1
<i>Puccinia horiana</i>	<i>Chrysanthemum</i>	Cut flowers	(Netherlands)	Finland	1
<i>Puccinia horiana</i> (& <i>Didymella ligulicola</i> suspected)	<i>Chrysanthemum</i>	Cut flowers	Poland	Lithuania	1
<i>Ralstonia solanacearum</i>	<i>Solanum tuberosum</i>	Ware potatoes	Turkey	Greece	1
<i>Rhynchophorus ferrugineus</i>	<i>Phoenix dactylifera</i>	Plants for planting	Egypt	Cyprus	1
<i>Spodoptera littoralis</i>	<i>Asparagus officinalis</i>	Vegetables	Thailand	Netherlands	1
	<i>Eustoma</i>	Cut flowers	Israel	Netherlands	1
	<i>Rosa</i>	Cut flowers	Israel	Netherlands	4
	<i>Rosa</i>	Cut flowers	Kenya	Netherlands	1
	<i>Rosa</i>	Cut flowers	Malawi	Netherlands	1
	<i>Rosa</i>	Cut flowers	Uganda	Netherlands	2
	<i>Rosa</i>	Cut flowers	Zimbabwe	Netherlands	1
<i>Spodoptera litura</i>	<i>Colocasia esculenta</i>	Vegetables (leaves)	India	United Kingdom	1
	<i>Rosa</i>	Cut flowers	India	Netherlands	1
<i>Thripidae</i>	<i>Gladiolus</i>	Cut flowers	Egypt	Cyprus	1
	<i>Momordica charantia</i>	Vegetables	Dominican Rep.	United Kingdom	3
	<i>Ocimum</i>	Vegetables (leaves)	Thailand	Netherlands	1
	<i>Solanum melongena</i>	Vegetables	Ghana	United Kingdom	7
<i>Thrips</i>	<i>Dianthus</i>	Cut flowers	Netherlands	France	1
<i>Thrips</i> (suspect <i>T. palmi</i>)	<i>Momordica</i>	Vegetables	India	Germany	1
	<i>Momordica charantia</i>	Vegetables	Dominican Rep.	United Kingdom	1
	<i>Momordica charantia</i>	Vegetables	India	United Kingdom	2
	<i>Solanum melongena</i>	Vegetables	Dominican Rep.	United Kingdom	1
<i>Thrips palmi</i>	<i>Aranthera</i>	Cut flowers	Malaysia	Netherlands	1
	<i>Dendrobium</i>	Cut flowers	Malaysia	France	1
	<i>Dendrobium</i>	Cut flowers	Singapore	Netherlands	1
	<i>Dendrobium</i>	Cut flowers	Thailand	Belgium	2
	<i>Dendrobium</i>	Cut flowers	Thailand	France	1
	<i>Dendrobium</i>	Cut flowers	Thailand	Netherlands	3
	<i>Momordica</i>	Vegetables	Dominican Rep.	Germany	2
	<i>Momordica</i>	Vegetables	Dominican Rep.	Netherlands	1
	<i>Momordica</i>	Vegetables	Thailand	Netherlands	1
	<i>Momordica balsamina</i>	Vegetables	Dominican Rep.	Netherlands	1
	<i>Momordica charantia</i>	Vegetables	Côte d'Ivoire	France	1
	<i>Momordica charantia</i>	Vegetables	Dominican Rep.	United Kingdom	1
	<i>Momordica charantia</i>	Vegetables	India	United Kingdom	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Thailand	Belgium	1
	<i>Ocimum basilicum</i>	Vegetables (leaves)	Thailand	France	1
	<i>Orchidaceae</i>	Cut flowers	Malaysia	Austria	1

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
<i>T. palmi</i> (cont.)	<i>Orchidaceae</i>	Cut flowers	Singapore	Austria	1
	<i>Orchidaceae</i>	Cut flowers	Thailand	Austria	12
	<i>Orchidaceae</i>	Cut flowers	Thailand	Germany	1
	<i>Solanum melongena</i>	Vegetables	Ghana*	United Kingdom	4
	<i>Solanum melongena</i>	Vegetables	Surinam	Netherlands	1
	<i>Solanum melongena</i>	Vegetables	Thailand	Netherlands	1
<i>Thrips palmi</i> , <i>Leucinodes orbonalis</i>	<i>Solanum melongena</i>	Vegetables	Ghana	United Kingdom	1
<i>Thrips</i> , <i>Helicoverpa</i> , <i>Diaphania indica</i> , <i>Spodoptera</i> ,	<i>Momordica charantia</i>	Vegetables	India	United Kingdom	1
<i>Thysanoptera</i>	<i>Momordica charantia</i>	Vegetables	Côte d'Ivoire	France	2
	<i>Momordica charantia</i>	Vegetables	Dominican Rep.	France	2
	<i>Momordica charantia</i>	Vegetables	India	United Kingdom	1
	<i>Momordica charantia</i> , <i>Citrus</i> , <i>Solanum melongena</i> , <i>Psidium guajava</i>	Fruit & Vegetables	India	United Kingdom	1
	<i>Solanum melongena</i>	Vegetables	Dominican Rep.	France	16
	<i>Solanum melongena</i>	Vegetables	Ghana	United Kingdom	2
<i>Thysanoptera</i> , <i>Planococcus citri</i>	<i>Solanum melongena</i>	Vegetables	Dominican Rep.	United Kingdom	1
<i>Tilletia indica</i>	<i>Triticum aestivum</i>	Stored products	India	United Kingdom	1
<i>Trialeurodes vaporariorum</i>	<i>Solidago</i>	Cut flowers	Zimbabwe	Netherlands	1
<i>Xanthomonas</i> (suspect <i>X. axonopodis</i> pv. <i>citri</i>)	<i>Citrus</i>	Fruit	Bangladesh	United Kingdom	1
<i>Xanthomonas axonopodis</i> pv. <i>citri</i>	<i>Citrus</i>	Fruit	Bangladesh	United Kingdom	2
	<i>Citrus aurantiifolia</i>	Fruit	Bangladesh	United Kingdom	6
	<i>Citrus limon</i>	Fruit	India	United Kingdom	1
<i>Xanthomonas axonopodis</i> pv. <i>poinsetiicola</i>	<i>Euphorbia pulcherrima</i>	Plants for planting	Brazil	United Kingdom	1
	<i>Euphorbia pulcherrima</i>	Cuttings	Netherlands	United Kingdom	1
	<i>Euphorbia pulcherrima</i>	Cuttings	Netherlands	United Kingdom	1

• Fruit flies

Pest	Consignment	Country of origin	Destination	nb
<i>Anastrepha</i>	<i>Citrus sinensis</i>	Argentina	Netherlands	1
	<i>Citrus sinensis</i>	Argentina	Spain	2
<i>Anastrepha</i> (suspected)	<i>Mangifera indica</i>	Dominican Rep.	United Kingdom	1
<i>Bactrocera</i>	<i>Mangifera indica</i>	Pakistan	United Kingdom	1
	<i>Mangifera indica</i>	Senegal	France	1
	<i>Mangifera indica</i>	Senegal	United Kingdom	1

Pest	Consignment	Country of origin	Destination	nb
<i>Bactrocera</i> (suspect <i>B. dorsalis</i>)	<i>Mangifera indica</i>	Gambia	United Kingdom	1
<i>Bactrocera cucurbitae</i>	<i>Coccinia grandis</i>	India	United Kingdom	1
	<i>Luffa acutangula</i>	Ghana	United Kingdom	1
	<i>Podophyllum</i>	India	United Kingdom	1
<i>Bactrocera cucurbitae</i> , <i>Dacus bivittatus</i>	<i>Citrullus lanatus</i>	Ghana	United Kingdom	1
<i>Bactrocera dorsalis</i>	<i>Psidium guajava</i> , <i>Citrus</i> , <i>Solanum melongena</i>	India	United Kingdom	1
<i>Bactrocera invadens</i>	<i>Mangifera indica</i>	Senegal	United Kingdom	2
<i>Bactrocera zonata</i>	<i>Mangifera indica</i>	Pakistan	United Kingdom	6
	<i>Psidium guajava</i>	Pakistan	United Kingdom	5
<i>Dacus bivittatus</i>	<i>Lagenaria siceraria</i>	Ghana	United Kingdom	1
<i>Dacus ciliatus</i>	<i>Citrullus lanatus</i>	Ghana	United Kingdom	3
	<i>Solanum melongena</i>	Ghana	United Kingdom	1
Non-European Tephritidae	<i>Annona cherimola</i>	Peru	France	2
	<i>Annona muricata</i>	Peru	France	1
	<i>Annona squamosa</i>	Vietnam	France	12
	<i>Capsicum frutescens</i>	Thailand	France	2
	<i>Capsicum frutescens</i>	Vietnam	France	1
	<i>Citrullus lanatus</i>	Ghana	United Kingdom	3
	<i>Citrus sinensis</i>	South Africa	France	1
	<i>Fortunella</i>	South Africa	France	1
	<i>Mangifera indica</i>	Burkina Faso	France	1
	<i>Mangifera indica</i>	Cameroon	France	5
	<i>Mangifera indica</i>	Colombia	France	1
	<i>Mangifera indica</i>	Côte d'Ivoire	France	1
	<i>Mangifera indica</i>	Dominican Rep.	United Kingdom	2
	<i>Mangifera indica</i>	India	France	1
	<i>Mangifera indica</i>	Kenya	France	1
	<i>Mangifera indica</i>	Mali	Belgium	1
	<i>Mangifera indica</i>	Mali	France	20
	<i>Mangifera indica</i>	Mexico	France	3
	<i>Mangifera indica</i>	Pakistan	France	27
	<i>Mangifera indica</i>	Senegal	France	2
	<i>Mangifera indica</i>	Sri Lanka	Germany	1
	<i>Mangifera indica</i>	Vietnam	France	2
	<i>Momordica charantia</i>	Côte d'Ivoire	France	1
	<i>Momordica charantia</i>	Kenya	France	1
	<i>Psidium guajava</i>	Pakistan	United Kingdom	2
	<i>Solanum melongena</i>	Ghana	United Kingdom	1
	<i>Syzygium jambos</i>	Thailand	France	1
<i>Syzygium samarangense</i>	Thailand	France	1	

• Wood

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
<i>Bursaphelenchus xylophilus</i>	Unspecified	Packing wood (crate)	(USA)	Sweden	1
	Unspecified	Packing wood (pallet)	Bulgaria	Germany	1
<i>Carphoborus pini</i>	Unspecified	Packing wood (pallet)	Turkey	Greece	1
Grub holes > 3mm	<i>Larix</i>	Wood and bark	Russia	Finland	8
<i>Monochamus</i>	<i>Larix sibirica</i>	Packing wood	Russia	Czechia	3
<i>Scolytidae</i>	<i>Populus</i>	Packing wood	Bulgaria	Cyprus	2
<i>Sinoxylon</i>	Unspecified	Packing wood	India	Belgium	1
<i>Sinoxylon anale</i>	Unspecified	Packing wood	India	Germany	1

• Bonsais

Pest	Consignment	Country of origin	Destination	nb
<i>Helicotylenchus dihystra</i>	<i>Serissa</i>	China	United Kingdom	1
<i>Hirschmanniella</i>	<i>Ficus microcarpa</i>	China	Netherlands	1
<i>Meloidogyne javanica</i>	<i>Ficus</i>	China	France	1
<i>Rhizoecus hibisci</i>	<i>Serissa</i>	China	Netherlands	1

Source: EPPO Secretariat, 2007-01.

2007/016 Pathway analysis: aquatic plants imported in France

In order to better understand the importance of traded aquatic plants as a pathway for introducing invasive alien plants, import data provided by the French NPPO has been analyzed. During phytosanitary inspections carried out at the Charles de Gaulle international airport (Paris, France), all information provided on phytosanitary certificates is stored in a database. Useful information about imported aquatic plants can be extracted from this source. In 2006, a total of 369 consignments of aquatic plants were introduced from Singapore (283), Indonesia (45), Thailand (8), Morocco (30) and Guinea (3). These consignments arrive regularly and all year-round, with an average of 31 consignments per month. The table below displays the aquatic plant species which have been imported over one month (April 2006). In April 2006, there were 5 consignments from Indonesia (ID), 5 from Morocco (MA), 26 from Singapore (SG), 2 from Thailand (TH) and none from Guinea. Each of these consignments was composed of several plant species. For each species, their family, whether they are native or exotic in the EPPO region, their presence in the wild in the EPPO region and imported quantities in terms of numbers of plants are given. The status of each species in the Global Compendium of Weeds (GCW) is given, to indicate their invasive behaviour elsewhere in the world.

Species	Family	Situation in Europe	Occurs in EPPO region	GCW status*	Country of origin				Total
					ID	MA	SG	TH	
<i>Acorus calamus</i>	Acoraceae	Native	yes	EW	10				10
<i>Acorus gramineus</i> cv. "Variegatus", cv. "Pusillus"	Acoraceae	Exotic	no	/	35	950	20		1005
<i>Alternanthera reineckii</i> cv "Cardinalis", cv. "Lilacina", cv. "Roseafolia"	Amaranthaceae	Exotic	no	/	15		230	65	310
<i>Alternanthera ficoidea</i> cv. "Betzickiana", cv. "Ocipus"	Amaranthaceae	Exotic	no	GE	26		50	60	136
<i>Alternanthera reineckii</i> (also given as <i>Ludwigia rosefolia</i> ?)	Amaranthaceae	Exotic	no	/			190		190
<i>Alternanthera sessilis</i>	Amaranthaceae	Exotic	no	QW, NW	14			50	64
<i>Ammania gracilis</i>	Lythraceae	Exotic	no	/				60	60
<i>Ammania senegalensis</i>	Lythraceae	Exotic	no	W			10	10	20
<i>Anubias</i> sp.	Araceae	Exotic	no	/	26			10	36
<i>Anubias hastifolia</i>	Araceae	Exotic	no	/	5				5
<i>Anubias barteri</i> var. <i>nana</i>	Araceae	Exotic	no	/	5		55	10	70
<i>Aponogeton crispus</i>	Aponogetonaceae	Exotic	no	/	8				8
<i>Aponogeton henkelianus</i>	Aponogetonaceae	Exotic	no	/			10		10
<i>Aponogeton natans</i>	Aponogetonaceae	Exotic	no	W, QW			300		300
<i>Aponogeton ulvaceus</i>	Aponogetonaceae	Exotic	no	/			550		550
<i>Aponogeton undulatus</i>	Aponogetonaceae	Exotic	no	/	39				39
<i>Aponogeton rigidifolius</i>	Aponogetonaceae	Exotic	no	W, QW	5				5
<i>Bacopa amplexicaulis</i>	Plantaginaceae	Exotic	no	W	20				20
<i>Bacopa caroliniana</i>	Plantaginaceae	Exotic	no	W, QW	155		470		625
<i>Bacopa crenata</i>	Plantaginaceae	Exotic	no	W, QW				60	60
<i>Bacopa monnieri</i>	Plantaginaceae	Exotic	no	W	13		90	60	163
<i>Bacopa myriophylloides</i>	Plantaginaceae	Exotic	no	/			100		100
<i>Bacopa rotundifolia</i>	Plantaginaceae	Exotic	no	W	15		15		30
<i>Baldellia ranunculooides</i> (given as <i>E. baldolia</i>)	Alismataceae	Native	yes	/		425			425

Species	Family	Situation in Europe	Occurs in EPPO region	GCW status*	Country of origin				Total
					ID	MA	SG	TH	
<i>Blyxa aubertii</i>	Hydrocharitaceae	Exotic	no	W	11				11
<i>Blyxa japonica</i>	Hydrocharitaceae	Exotic	yes	W, QW	2	50	5		57
<i>Cabomba aquatica</i>	Cabombaceae	Exotic	yes	QW	120		11335	4000	15455
<i>Cabomba asiatica</i> (= <i>C. caroliniana</i> ?)	Cabombaceae	Exotic	yes	/	5		10		15
<i>Cabomba caroliniana</i> (= <i>C. pulcherrima</i>)	Cabombaceae	Exotic	yes	W, QW, NW, EW	6320		2410	10	8740
<i>C. furcata</i> (= <i>Cabomba piauhyensis</i>)	Cabombaceae	Exotic	no	QW	690		180		870
<i>Caladium</i> sp.	Araceae	Exotic	no		5				5
<i>Cardamine lyrata</i>	Brassicaceae	Exotic	no	W	60		20		80
<i>Ceratophyllum demersum</i>	Ceratophyllaceae	Native	yes	S, SW, QW, NW, NaW, EW	106	200	700	10	1016
<i>Ceratopteris thalictroides</i>	Parkeriaceae	Exotic	no	W, NW	25				25
<i>Ceratopteris silliquosa</i>	Parkeriaceae	Exotic	no	/			25		25
<i>Cladophora aegagrophila</i>	Cladophoraceae	Exotic	no	/			100		100
<i>Chlorophytum bichettii</i>	Asparagaceae	Exotic	no	/	1007			25	1032
<i>Codiaeum</i> sp. (= <i>Croton</i> sp.)	Euphorbiaceae	Exotic	no	/	16				16
<i>Codiaeum variegatum</i> cv. "Exotica" (= <i>Croton exotica</i>)	Euphorbiaceae	Exotic	no	/	10				10
<i>Cordylone fruticosa</i> cv. "Red Edge", cv. "Compacta"	Asparagaceae	Exotic	no	W, CE	17		5		22
<i>Crassula helmsii</i>	Crassulaceae	Exotic	yes Inv.	W, NW, EW	17				17
<i>Crinum thaianum</i>	Amaryllidaceae	Exotic	no	/			115		115
<i>Cryptocoryne ciliata</i>	Araceae	Exotic	no	W	4		10		14
<i>Cryptocoryne crispatula</i> var. <i>balansae</i>	Araceae	Exotic	no	/	10				10
<i>Cryptocoryne beckettii</i> , <i>C. beckettii</i> cv. "Petchii"	Araceae	Exotic	no	EW	44		100		144
<i>Cryptocoryne lucens</i> (= <i>C. x-willisiai</i>)	Araceae	Exotic	no	/	30		10		40
<i>Cryptocoryne pontederiifolia</i> (also given as <i>Echinodorus pontederiifolia</i>)	Araceae	Exotic	no	/	39		480		519
<i>Cryptocoryne walkeri</i>	Araceae	Exotic	no	/			30		30
<i>Cryptocoryne wendtii</i>	Araceae	Exotic	no	-	80		45		125
<i>Cryptocoryne x-willisiai</i> (= <i>C. lucens</i>)	Araceae	Exotic	no	/	4		30		34
<i>Cyperus helferi</i>	Cyperaceae	Exotic	no	/			10		10
<i>Cyperus papyrus</i>	Cyperaceae	Native	yes	W, NW		70			70
<i>Didiplis diandra</i> (= <i>Peplis diandra</i>)	Lythraceae	Exotic	no	/			15	60	75
<i>Dieffenbachia picta</i>	Araceae	Exotic	no	/	6				6
<i>Dracaena fragrans</i> (= <i>D. deremensis</i>)	Dracaenaceae	Exotic	no	/	29		15		44

Species	Family	Situation in Europe	Occurs in EPPO region	GCW status*	Country of origin				Total
					ID	MA	SG	TH	
<i>Dracaena sanderiana</i> , <i>D. sanderiana</i> cv. "Variegatus"	Dracaenaceae	Exotic	no	/	65		870	50	985
<i>Echinodorus bleheri</i> (= <i>E. amazonicus</i>)	Alismataceae	Exotic	no	/	230		595		825
<i>Echinodorus argentinensis</i>	Alismataceae	Exotic	no	/	22		20	10	52
<i>Echinodorus x-barthii</i>	Alismataceae	Exotic	no	/	2				2
<i>Echinodorus horizontalis</i> (= <i>E. muricatus</i> = <i>E. radicans horizontalis</i>)	Alismataceae	Exotic	no	/	56		5		61
<i>Echinodorus grisebachii</i>	Alismataceae	Exotic	no	/	2				2
<i>Echinodorus bleheri</i> (= <i>E. paniculatus</i> auct. = <i>E. parviflorus</i> = <i>E. paniculatus bleheri</i> = <i>E. puriensis</i> , also given as <i>E. mitchellii</i>)	Alismataceae	Exotic	no	/	48		1670	60	1778
<i>Echinodorus longiscapus</i> (given as <i>E. grandifolius</i>)	Alismataceae	Exotic	no	/			20	50	70
<i>Echinodorus martii</i> (= <i>E. major</i>)	Alismataceae	Exotic	no	/	12		60	50	122
<i>Echinodorus palaefolius</i> var. <i>latifolius</i>	Alismataceae	Exotic	no	/	22		10		32
<i>Echinodorus radicans</i> (= <i>E. cordifolius</i>)	Alismataceae	Exotic	no	W, SW, QW, GE, EW	31				31
<i>Echinodorus tenellus</i> (= <i>Sagittaria microfolia</i>)	Alismataceae	Exotic	no	/	45		30		75
<i>Eichhornia crassipes</i> (also given as <i>Eleocharis crassipes</i>)	Pontederiaceae	Exotic	yes Inv.	W, QW, NW, GE, EW, CE	1	650	875		1526
<i>Egeria densa</i> (= <i>Elodea densa</i>)	Hydrocharitaceae	Exotic	yes Inv.	W, QW, NW, GE, EW	2548		20610	210	23368
<i>Egeria najas</i> (= <i>Elodea najas</i>)	Hydrocharitaceae	Exotic	no	/			55	50	105
<i>Eleocharis parvula</i>	Cyperaceae	Native	yes	W			5		5
<i>Eleocharis vivipara</i>	Cyperaceae	Exotic	no	/	2				2
<i>Fittonia verschaeffeltii</i> var. <i>argyroneura</i>	Acanthaceae	Exotic	no	/	5				5
<i>Glossostigma elatinoides</i>	Phrymaceae	Exotic	no	/			35		35
<i>Gymnocoronis spilanthoides</i>	Asteraceae	Exotic	no	W, QW, NW, GE, EW	11		125		136
<i>Hemigraphis alternata</i> , <i>H. alternata</i> cv. "Exotica" (= <i>H. colorata</i> = <i>H. exotica</i>)	Acanthaceae	Exotic	no	/	2				2
<i>Hemigraphis repanda</i>	Acanthaceae	Exotic	no	W				50	50
<i>Heteranthera zosterifolia</i>	Pontederiaceae	Exotic	no	/				50	50
<i>Hottonia</i> sp.	Primulaceae	Exotic	no	/	11				11
<i>Hydrocleys nymphaeoides</i>	Limnocharitaceae	Exotic	no	W, QW, EW		80	70		150
<i>Hydrocotyle leucocephala</i>	Apiaceae	Exotic	no	W	70		200	50	320

Species	Family	Situation in Europe	Occurs in EPPO region	GCW status*	Country of origin				Total
					ID	MA	SG	TH	
<i>Hydrocotyle sibthorpioides</i>	Apiaceae	Exotic	yes	W				50	50
<i>Hydrotriche hottoniiflora</i>	Scrophulariaceae	Exotic	no	/			10		10
<i>Hygrophila</i> sp.	Acanthaceae	Exotic	no	/	307				307
<i>Hygrophila corymbosa</i> cv. "Siamensis"	Acanthaceae	Exotic	no	W	150		665	60	875
<i>Hygrophila costata</i> (= <i>H. lacustris</i>)	Acanthaceae	Exotic	no	NW	9		250		259
<i>Hygrophila difformis</i> (= <i>Synnema triflorum</i>)	Acanthaceae	Exotic	no	W, SW, EW	1488		1330	110	2928
<i>Hygrophila polysperma</i> , <i>H. polysperma</i> cv. "Rosanervis"	Acanthaceae	Exotic	no	W, NW, QW, EW	884		1120	120	2124
<i>Hygrophila pusilla</i> (given as <i>Nomaphila pusillus</i>)	Acanthaceae	Exotic	no	/			5	50	55
<i>Hygrophila salicifolia</i> , <i>H. salicifolia</i> var. <i>angustifolia</i> (= <i>Nomaphila angustifolia</i>)	Acanthaceae	Exotic	no	W	39		500	60	
<i>Hygrophila siamensis</i> (= <i>Nomaphila siamensis</i>)	Acanthaceae	Exotic	no	/	662		5		667
<i>Hygrophila stricta</i> (= <i>Nomaphila stricta</i>)	Acanthaceae	Exotic	no	-	39		25	100	164
<i>Iris japonica</i>	Iridaceae	Exotic	no	/		60			60
<i>Iris pseudacorus</i>	Iridaceae	Native	yes	W, QW, NW, GE, EW			10		10
<i>Lagarosiphon major</i> (= <i>Elodea crispata</i>)	Hydrocharitaceae	Exotic	yes Inv.	W, QW, NW, GE, EW	28	450	10		488
<i>Limnophila</i> sp.	Plantaginaceae	Exotic	no	/		200			200
<i>Limnophila aquatica</i>	Plantaginaceae	Exotic	no	/	28		55		83
<i>Limnophila aromatica</i> (= <i>L. hippuroides</i>)	Plantaginaceae	Exotic	no	W	105		90	10	205
<i>Limnophila heterophylla</i>	Plantaginaceae	Exotic	no	W, QW				60	60
<i>Limnophila sessiliflora</i>	Plantaginaceae	Exotic	no	W, QW, NW	203		685		888
<i>Lindernia rotundifolia</i>	Linderniaceae	Exotic	no	-	29		15		44
<i>Lobelia cardinalis</i>	Campanulaceae	Exotic	no	W, QW	35		130		165
<i>Ludwigia arcuata</i>	Oenotheraceae	Exotic	no	/	21			70	91
<i>Ludwigia inclinata</i>	Oenotheraceae	Exotic	no	/			20	60	80
<i>Ludwigia natans</i> x <i>palustris</i>	Oenotheraceae	Exotic	no	/			420		420
<i>Ludwigia natans</i> (= <i>L. repens</i>)	Oenotheraceae	Exotic	yes	QW	100		375	50	525
<i>Ludwigia palustris</i>	Oenotheraceae	Native	no	W, GE, EW	20		155		175
<i>Ludwigia peruensis</i> (= <i>L. peruviana</i> = <i>L. grandiflora</i>)	Oenotheraceae	Exotic	yes Inv.	W, QW, NW, GE, EW	100		170		270
<i>Lysimachia nummularia</i>	Primulaceae	Native	yes	W, EW, CE	7		65	10	82
<i>Marsilea crenata</i>	Marsileaceae	Exotic	no	W	1				1
<i>Mayaca fluviatilis</i>	Mayacaceae	Exotic	no	QW	131		525		656

Species	Family	Situation in Europe	Occurs in EPPO region	GCW status*	Country of origin				Total
					ID	MA	SG	TH	
<i>Mayaca sellowiana</i> (= <i>Rotala najean</i>)	Mayacaceae	Exotic	no	/	115		60		175
<i>Micranthemum orbiculatum</i>	Plantaginaceae	Exotic	no	/	1				1
<i>Micranthemum umbrosum</i>	Plantaginaceae	Exotic	no	QW				10	10
<i>Microcarpaea minima</i>	Plantaginaceae	Exotic	no	W			10		10
<i>Microsorium pteropus</i>	Polypodiaceae	Exotic	no	/	26		1658	70	1754
<i>Myriophyllum aquaticum</i> (= <i>M. proserpinacoides</i>)	Haloragaceae	Exotic	yes Inv.	W, QW, NW, EW, GE, CE	28				28
<i>Myriophyllum matogrossense</i>	Haloragaceae	Exotic	no	/	313		415		728
<i>Myriophyllum pinnatum</i> (= <i>M. scabratum</i>)	Haloragaceae	Exotic	no	/	13		560		573
<i>Myriophyllum propinquum</i>	Haloragaceae	Exotic	no	/			20		20
<i>Nelumbo nucifera</i> cv. "Baiwanlian" (given as <i>N. Lu Shan Bai Lian</i>)	Nelumbonaceae	Exotic	no	W			4		4
<i>Nesaea</i> sp.	Lythraceae	Exotic	no	/	5		30		35
<i>Nuphar sagittifolia</i>	Nymphaeaceae	Exotic	no	/	5				5
<i>Nuphar japonica</i>	Nymphaeaceae	Exotic	no	W			200		200
<i>Nymphaea</i> sp.	Nymphaeaceae	Exotic	no	W, CE		1210		35	1245
<i>Nymphaea alba</i> (= <i>N. venusta</i>)	Nymphaeaceae	Exotic	no	/			17		17
<i>Nymphaea lotus</i>	Nymphaeaceae	Exotic	no	W, NW	15		1100		1115
<i>Nymphaea nouchali</i> (= <i>N. stellata</i>)	Nymphaeaceae	Exotic	no	W, QW			300		300
<i>Nymphaea pubescens</i> (= <i>N. rubra</i>)	Nymphaeaceae	Exotic	no	W	53				53
<i>Ophiopogon</i> sp.	Asparagaceae	Exotic	no	/		100	120		220
<i>Ophiopogon jaburan</i> cv. "Variegatus"	Asparagaceae	Exotic	no	-	75				75
<i>Ophiopogon japonicus</i>	Asparagaceae	Exotic	yes	W	56		605	100	761
<i>Pistia stratiotes</i>	Araceae	Exotic	yes	W, QW, NW, Nat W, GE, EW, CE	2	2600	5		2607
<i>Polygonum pedunculare</i>	Polygonaceae	Exotic	no	/	50				50
<i>Pontederia cordata</i>	Pontederiaceae	Exotic	yes	W, QW, NW, EW, GE		80	20		100
<i>Pontederia lanceolata</i>	Pontederiaceae	Exotic	no	W			10		10
<i>Potamogeton gayii</i>	Potamogetonaceae	Exotic	no	W, QW	20				20
<i>Potamogeton octandrus</i> (= <i>P. javanicus</i>)	Potamogetonaceae	Exotic	no	/	5				5
<i>Potamogeton perfoliatus</i>	Potamogetonaceae	Native	yes	W, QW, EW			10		10
<i>Pogostemon stellatus</i> (= <i>Eusteralis stellata</i>)	Lamiaceae	Exotic	no	W	17				17
<i>Rhizophora apiculata</i> (given as <i>R. raviculata</i>)	Rhizophoraceae	Exotic	no	/	6				6
<i>Riccia flutans</i>	Ricciaceae	Exotic	no	/	1				1

Species	Family	Situation in Europe	Occurs in EPPO region	GCW status*	Country of origin				Total
					ID	MA	SG	TH	
<i>Rotala indica</i>	Lythraceae	Exotic	yes	W, QW	162		180	10	352
<i>Rotala macrandra</i>	Lythraceae	Exotic	no	/	159		165		324
<i>Rotala rotundifolia</i>	Lythraceae	Exotic	no	W, SW, QW, EW			20+60		0
<i>Rotala wallichii</i>	Lythraceae	Exotic	no	/	10		85	35	130
<i>Sagittaria lancifolia</i> (= <i>S. platyphylla</i> hort.)	Alismataceae	Exotic	yes?	W, NW, QW, EW	114		840	10	964
<i>Sagittaria subulata</i> (= <i>S. natans</i>)	Alismataceae	Exotic	no	W, QW, EW	117		290	10	417
<i>Salvinia natans</i> (other species such as <i>S. molesta</i> could be traded under this name)	Salviniaceae	Native	yes	W, QW, NW			70		70
<i>Samolus valerandii</i> (given as <i>S. elantoides</i>)	Theophrastaceae	Exotic	no	W, GE, EW	1				1
<i>Saururus cernuus</i>	Saururaceae	Exotic	yes	W, QW	6				6
<i>Selaginella willdenowii</i>	Selaginellaceae	Exotic	no	W, GE	55		1185		1240
<i>Spathiphyllum</i> sp.	Araceae	Exotic	no	W			50		50
<i>Spathiphyllum wallisii</i>	Araceae	Exotic	no	/	21		20		41
<i>Syngonium podophyllum</i> cv. "Albolineatum"	Araceae	Exotic	no	/	1				1
<i>Syngonium podophyllum</i>	Araceae	Exotic	no	W, GE, EW, Cult E	51		160		211
<i>Trapa natans</i>	Trapaceae	Native	yes	W, QW, NW, EW			1060		1060
<i>Vallisneria americana</i> , <i>V. americana</i> cv. "Rubra" (= <i>V. asiatica</i> = <i>V. gigantea</i> hort. = <i>V. rubra</i>)	Hydrocharitaceae	Exotic	no	W, QW, Nat W, EW	526	50	4120	10	4706
<i>Vallisneria spiralis</i> cv. "Torta"	Hydrocharitaceae	Native	yes	W, EW	156	750	2940	10	3856
<i>Vesicularia dubyana</i>	Hypnaceae	Exotic	no	W, QW	46		2	20	68
Total					18850	7925	65941	6250	98966

* Abbreviations for the Global Compendium of Weeds column:

W: weed ; NW: noxious weed; NatW: native weed; QW: quarantine weed; GE: garden escape; Cult E: Cultivation Escape; /: not quoted in the GCW; "-": no sign of invasiveness

Taxonomy

On phytosanitary certificates, botanical names were often misspelt or erroneous (e.g. species mentioned did not exist or did not correspond to the true imported species). For instance, *Cabomba asiatica* is quoted but does not exist in any flora. The genus *Cabomba* is endemic from the New World, only *C. caroliniana* is recorded as present in Asia. It is therefore hypothesised that *C. asiatica* is a wrong appellation for *C. caroliniana* (JM Tison, pers. comm.). *Salvinia molesta* and some other *Salvinia* spp. were not recorded in the list of imported plants but it is likely that they have been introduced under the name *Salvinia natans*. *Ludwigia rosefolia* is mentioned as imported from Singapore, but this may have been a confusion with *Alternanthera reineckii* cv "Rosefolia". It is also hypothesised that the plant given as *Nelumbo Lu Shan Bai Lian* may be *Nelumbo nucifera* cv. "Baiwanlian".

Species already present in the wild in the EPPO region

Among the imported species which are present in the wild in the EPPO region, some are already invasive: *Cabomba carolinian* (EPPO list of Invasive Alien Plants), *Crassula helmsii* (EPPO list of IAP), *Egeria densa* (EPPO list of IAP), *Eichhornia crassipes*, *Lagarosiphon major* (EPPO list of IAP), *Myriophyllum aquaticum* (EPPO list of IAP). Others might become invasive in the future and these species deserve further investigation: *Pistia stratiotes*, *Pontederia cordata*, *Saururus cernuus*, *Salvinia molesta*.

Species not present in the wild in the EPPO region

Among imported species which are not recorded in the wild in the EPPO region, the following ones would deserve investigation as they are recorded as invasive elsewhere in the world according to the Global Compendium of Weeds: *Echinodorus cordifolius*, *Gymnocoronis spilanthoides*, *Hygrophila difformis*, *Hygrophila polysperma*, *Limnophila sessiliflora*, *Rotala rotundifolia*, *Sagittaria lancifolia*, *Syngonium podophyllum*, *Vallisneria americana*.

Further questions

Eleocharis parvula, indigenous in Europe and in North America, is recorded as imported from Singapore. This plant is rare and is becoming extinct in Europe. In France, it was declared extinct during the last 20 years but has recently been rediscovered in the wild. This raises the question of the origin of this species found in the wild, and there might be a genetic pollution of the species with the traded taxon (JM Tison, pers. comm.). The species not being indigenous in Asia, it would be interesting to know the origin of the plant which was used to initiate the production (coming from Europe or from North America) and how it was multiplied.

Any additional information about imports of aquatic plants collected by inspection services or any other body is welcome and can be sent to the EPPO Secretariat.

Source: List of species gathered thanks to Franck Gueudre from the Charles De Gaulle airport inspection services and compiled by the EPPO Secretariat and Jean-Marc Tison.

A Global Compendium of Weeds
http://www.hear.org/gcw/alpha_select_gcw.htm

Additional key words: aquatic plant pathway,
 invasive alien plants

Computer codes: CABCA, CSBHE, ECOCO, EICCR, ELDDE, GYNP,
 HYGPO, LGAMA, LIOSE, MYPBR, PIIST, POFCO, ROTRO, RUEDI,
 SAGFA, SAVMO, SUACE, SYNPO, VAIAM, FR, ID, MA, SG, TH

2007/017 Invasion risks posed by the aquarium trade on the Great Lakes and consequences for the EPPO region

In North America, a study was undertaken on the introduction of non-indigenous species into the Great Lakes by the aquaculture industry. This pathway has been implicated in 6% of all documented invasions in the Great Lakes (10 animal and plant species). The aquarium hobby is indeed extremely popular in North America, with over 10% of households possessing ornamental fish.

A set of animal and plant species provided by the aquarium trade and fish markets was collected through surveys in 20 aquarium and pet stores located in close proximity to Lake Erie and Lake Ontario. It was assumed that these species, normally only intended for

aquarium use, may be transferred to unintended habitats such as the freshwaters of the Great Lakes by human release.

Survivorship of these species has been assessed according to the following criteria:

- overwintering ability from vegetative reproductive parts (turions, overwintering buds),
- temperature tolerance of the vegetative parts of the plant to determine whether they could survive harsh winter climates,
- history of invasion elsewhere in the world,
- “propagule pressure”, measured by the number of individuals released, which is considered to be correlated with establishment success. Based on the assumption that popular species have more opportunities to be released, species present in less than 20% of the shops surveyed were arbitrarily considered as having a low chance of establishing populations, while those species present in 20% or more of the stores were classified as high risk invaders.

The species are listed with information on the percentage occurrence in shops, the area of origin of the species, their known behaviour of invasiveness elsewhere in the world, their probability of establishment in the Great Lakes (according to the criteria previously described). Species listed below are considered as having the potential to overwinter in the Great Lakes region. Whether they are traded or present in the wild in the EPPO region is indicated in the last column.

(%) store	Species	Area of origin	Invasion elsewhere	Prob. of establish. in Great Lakes	Trade and presence in the EPPO region
20	<i>Cabomba caroliniana</i> (Cabombaceae) (EPPO List of IAS)	S-Am.	Aquarium escape in N-Am., established in Connecticut, New York, Maryland, Oregon, Australia	Has already invaded	Traded and established in GB, HU, NL
35	<i>Egeria densa</i> (Hydrocharitaceae) (EPPO List of IAS)	Cosm.	N-Am.	High	Traded and established in AT, BE, CH, DE, ES, FR, GB, IT, NL
30	<i>Ceratophyllum demersum</i> (Ceratophyllaceae)	Cosm., unclear	Hawaii, Australia, New Zealand	Native	Traded and native in the EPPO region
25	<i>Hygrophila polysperma</i> (Lentibulariaceae)	India, Malaysia	Established in Florida, Texas, Virginia	High	Traded, not established in the wild in the EPPO region
25	<i>Myriophyllum aquaticum</i> (Haloragaceae) (EPPO List of IAS)	S-Am.	Introduced in N-Am. through aquarium trade, established in Northern California	High	Traded and established in BE, DE, FR, GB, NL, PL,
10	<i>Myriophyllum heterophyllum</i> (Haloragaceae)	East coast of N-Am.	Spreading through New-England state	Low	Traded and established in AT, ES, GB

The following species are not considered as having the potential to overwinter in the Great Lakes region:

(%) store	Species	Area of origin	Invasion elsewhere	Trade and presence in the EPPO region
20	<i>Anubias</i> sp. (Araceae)	W-Af.	/	Traded but not mentioned in the wild
20	<i>Chamaedorea elegans</i> (Arecaceae)	C-Am.	/	Not mentioned
30	<i>Crinum thalianum</i> (Amaryllidaceae)	Thailand	/	Traded but not mentioned in the wild
40	<i>Echinodorus amazonicus</i> (Alismataceae)	Trop. S-Am.	/	Traded but not mentioned in the wild
20	<i>Echinodorus osiris</i> (Alismataceae)	Brazil	/	Not mentioned
30	<i>Eichhornia crassipes</i> (Pontederiaceae)	S-Am.	Tropical and subtropical regions	Traded and naturalized in ES, IL, PT, RU
20	<i>Hygrophila difformis</i> (Acanthaceae)	India, Malaysia	Australia	Traded, but not mentioned in the wild
25	<i>Ludwigia</i> sp. (Onagraceae) (EPPO List of IAS)	S-Am.	Temperate Europe	Traded and naturalized in BE, CH, ES, FR, IT, NL, PT
25	<i>Microsorium pteropus</i> (Polypodiaceae)	SE-As, tropics	/	Traded, not mentioned in the wild
25	<i>Nymphoides aquatica</i> (Menyanthaceae)	N-Am.	/	Not mentioned
20	<i>Pilea cadierei</i> (Urticaceae)	Indochina, Viet-Nam	/	Not mentioned
20	<i>Pistia stratiotes</i> (Araceae)	Trop. and subtrop. areas	Cambodia, China, Philippines, Hawaii, etc.	Traded and naturalized in ES
20	<i>Rotala indica</i> (Lythraceae)	Asia	Serious weed of rice in Afghanistan, Japan, Korea, Philippines, Taiwan. Troublesome in the USA	Traded, present in IT but has not spread since 1986
30	<i>Vallisneria americana</i> (Hydrocharitaceae)	N-Am.	/	Traded, not mentioned in the wild

In order to use this information for the EPPO region, the EPPO Secretariat has done a CLIMEX study comparing Toronto and the EPPO region. The following countries situated in Northern-Central Europe presented 70% of climate similarity with Toronto: Austria, Finland, north-eastern France, Germany, the Netherlands, Norway, Poland, Sweden, Switzerland, Russia and Ukraine. Species considered to have the potential to overwinter in the Great Lakes region may have the same ability in those European countries. *Cabomba caroliniana* (EPPO List of IAS), *Myriophyllum heterophyllum*, *Eichhornia crassipes* and *Pistia stratiotes* are already present in the wild in the EPPO region and could therefore present a risk and require further investigation. *Hygrophila polysperma* and *Hygrophila difformis* are not known to occur in the EPPO region but are frequently imported as aquatic plants (see EPPO RS 2007/016). *Rotala indica* is present in rice cultivation in Piemonte region in Italy, but it has not spread since 1986 and is therefore not considered as a priority (Desfayes, 2005).

Source: Desfayes M (2005) Données floristiques pour le Piémont et ses rizières, et pour la Lombardie voisine: plantes aquatiques et palustres. *Rivista Piemontese di Storia Naturale* 26, 73-100.

Rixon CAM, Duggan IC, Bergeron NMN, Ricciardi A, Macisaac HJ (2005) Invasion risks posed by the aquarium trade and live fish markets on the Laurentian Great Lakes. *Biodiversity and Conservation* 14, 1365-1381.

Additional key words: aquatic plant pathway, invasive alien plants

Computer codes: CABCA, CEYDE, CMDEL, ECOAM, ECOOS, EICCR, ELDD, HYGPO, MHPHE, MSOPT, MYPBR, NYPAQ, PICCA, PIIST, ROTIN, RUEDI, VAIAM, 1LUDG, CA

2007/018 Movement of invasive aquatic plants through the horticultural trade: the example of Minnesota (US)

Invasive aquatic plants may be voluntarily introduced as a commodity itself (for aquaculture, aquaria, etc.) or involuntarily introduced as a contaminant with other aquatic plants. Studies were done in Minnesota (US) to evaluate the risks of introducing invasive aquatic plants both accidentally (as import contaminants) or deliberately (sales of aquatic plants, including prohibited species). Aquatic plants were ordered from vendors across the USA from May and September 2001 to determine the prevalence of movement of invasive plants into Minnesota via horticultural trade. 34 orders were made, which included orders for prohibited species in order to verify that regulations are being implemented. Ordered plants were placed in appropriate containers in a greenhouse and were then identified to verify whether the plant received was the plant listed on the invoice. Contaminants, such as plants (seeds), animals, algae, moss, or fungi, which were found associated with the ordered plants or their packaging, were also recorded and identified. A total of 681 individual plants (corresponding to 123 species) were received, and were composed of the following types: 66 emergent plants, 16 submersed plants, 34 floating leaved plants and 6 free-floating plants. The ordered plants had additional plants associated with them upon arrival in the following proportions:

Plant types	Number of ordered species	% of species with contaminants
Emergent	66	62
Submersed	16	100
Floating	6	100
Floating leaved	34	66

The following aquatic plants species were identified as contaminants of the 123 species originally ordered:

Contaminant species	Family	Origin	% of orders contaminated
<i>Lemna minor</i>	Lemnaceae	Cosm.	50
<i>Azolla caroliniana</i>	Azollaceae	N-Am.	30
Unknown	/	/	24
<i>Spirodela punctata</i>	Lemnaceae	N-Am.	20
<i>Utricularia</i> sp.	Lentibulariaceae	/	10
<i>Spirodela polyrrhiza</i>	Lemnaceae	Africa, Eur., Asia	10
<i>Lemna trisulca</i>	Lemnaceae	Eurasia	5
<i>Wolffia</i> sp.	Lemnaceae	/	2
<i>Sphagnum</i> sp.	Sphagnaceae	/	2
<i>Myriophyllum</i> sp.	Haloragaceae	/	2
<i>Cabomba caroliniana</i> (EPPO list of IAS)	Cabombaceae	S-Am.	2
<i>Salvinia molesta</i>	Salviniaceae	S-Am.	1
<i>Egeria densa</i> (EPPO list of IAS)	Hydrocharitaceae	N-Am.	1
<i>Potamogeton</i> sp.	Potamogetonaceae	/	1
<i>Potamogeton crispus</i>	Potamogetonaceae	Cosm.	1
<i>Hydrilla verticillata</i>	Hydrocharitaceae	Af.	1
<i>Ceratophyllum demersum</i>	Ceratophyllaceae	Cosm.	1
<i>Marsilea</i> sp.	Marsileaceae	/	1
<i>Ricciocarpus natans</i>	Ricciaceae	Trop.	1
<i>Leersia oryzoides</i>	Poaceae	N-hemisphere	1

Misidentified plants were found in 18% of the orders. The introduction of invasive plants as contaminating seeds was a minor pathway compared to the sale of prohibited plants and the unintentional inclusion of invasive plants (the whole plant being the contaminant). The inadvertent sending of extra species occurs more frequently than sending misidentified species. During this study, prohibited aquatic plants were easily purchased (*Hygrophilla polysperma*, Acanthaceae; *Althernanthera sessilis*, Amaranthaceae), indicating that present federal and state regulations are not adequate to stop the movement of plants into Minnesota. The following precautionary measures could be usefully applied by vendors to reduce the risk of introducing invasive species: fewer plant species in growing tanks, high pressure rinsing before packaging, and removal of soil.

Source: Maki C, Galatowitsch (2004) Movement of invasive aquatic plants into Minnesota (USA) through horticultural trade. *Biological conservation* 118, 389-396

Additional key words: aquatic plant pathway, invasive alien plants **Computer codes:** AZOCA, CABCA, LEMMI, LEMTR, LEROR, PIMCR, RCINA, SAVMO, SPIOL, US

2007/019 A new decree related to non-domesticated animal species and non-cultivated plant species in France

A decree relative to non-domesticated animal species and non-cultivated plant species modifying the French environment code was published on the 5 January 2007.

This decree has two objectives:

- To implement the regulation of protected animal and plant species. Conditions for obtaining derogations for the entry of these protected species are provided.
- To regulate conditions of introduction in the natural environment of exotic species. Conditions for obtaining derogations for agricultural, piscicultural and forest purposes are also given.

Penalties have been set for intentional perturbation of non-domesticated animal species listed as protected, and for voluntary or involuntary introduction into the natural environment of animal or plant species listed as prohibited.

Species lists are being created. Following this, the decree will be put into practice.

Source: Décret n° 2007-15 du 4 janvier 2007 relatif aux espèces animales non domestiques ainsi qu'aux espèces végétales non cultivées et modifiant le code de l'environnement.
<http://www.legifrance.gouv.fr/WAspad/UnTexteDeJorf?numjo=DEVX0600158D>

Additional key words: legislation, invasive alien plants.

Computer codes: FR

2007/020 Workshop: Feasibility of Biological Control of *Ambrosia artemisiifolia* in Europe

On 2007-04-22/27 in Montpellier (FR) (see EPPO RS 2006/08), an International Workshop on the Feasibility of Biological Control of common ragweed (*Ambrosia artemisiifolia*) in Europe will be organized. The programme is the following:

1. Presentation of results of the international meeting of experts, Vienna (AGES), September 27th, 2006 (see EPPO RS 2006/09)
2. Success of biological control of a closely related species in Australia
3. Results in Russia and Croatia
4. List of known biological control agents
5. Species under consideration in Italy and Hungary
6. Feasibility of biological control programmes in Europe.

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Source: 12th International Symposium on the Biological Control of Weeds 22-27 April 2007 - Montpellier (FR)
www.cilba.agropolis.fr/weeds2007.html - weeds2007@ars-ebcl.org