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2008/022 First report of *Rhynchophorus ferrugineus* in Portugal

The NPPO of Portugal has recently informed the EPPO Secretariat of the first detection of *Rhynchophorus ferrugineus* (Coleoptera: Curculionidae – EPPO A2 List) in the country. The pest was found in August 2007 in the Algarve region (Southern Portugal) infesting *Phoenix canariensis*. Surveys then showed that the pest occurred at 3 other locations in the Algarve and 1 location in the central region. Phytosanitary measures are currently being taken to eradicate the pest.
The situation of *Rhynchophorus ferrugineus* in Portugal can be described as follows: **Present, first found in 2007 (4 locations in Algarve and 1 in central region), under eradication.**

Source: NPPO of Portugal, 2008-02.

Additional key words: new record **Computer codes:** RHYCFE, PT

2008/023 *Rhynchophorus ferrugineus* detected on new palm species in Italy

In Southern Italy, *Rhynchophorus ferrugineus* (Coleoptera: Curculionidae – EPPO A2 List) has been found infesting palm trees in private and public gardens since 2004 (EPPO RS 2006/001). In November 2007, during surveys carried out by the Regional Plant Protection Service of Campania, 4 *Brahea armata* trees (over twenty years old) were found infested by *R. ferrugineus* in a garden in Salerno. In addition, 1 infested *Butia capitata* was found in a garden in Castellamare di Stabia (Napoli). Owners of the infested palm trees have been requested by the Regional Plant Protection Service to immediately cut down and destroy the infested palm trees. Both species, *Brahea armata* and *Butia capitata* originate from America and are not included in the list of susceptible plants of the EU Commission Decision (2007/365/EC). These observations confirm the high polyphagy of *R. ferrugineus.*

Commission Decision 2007/365/EC of 25 May 2007 on emergency measures to prevent the introduction into and the spread within the Community of *Rhynchophorus ferrugineus* (Olivier).
http://www.eppo.org/ABOUT_EPPO/EPPO_MEMBERS/phytoreg/eu_texts/2007-365-EC-e.pdf

Source: Regional NPPO of Italy, Regione Campania, 2008-02.
Griffo R, Martino V, Pesapane G (2008) [*Rhynchophorus ferrugineus* detected on others species of palms] *Il floricoltore* no. 1-2, 37-39 (in Italian).

Additional key words: host plant **Computer codes:** RHYCFE, IT

2008/024 Absence of *Dryocosmus kuriphilus* in Germany

In Germany, a monitoring survey for *Dryocosmus kuriphilus (*Hymenoptera: Cynipidae – EPPO A2 List) was carried out in accordance with Article 5 of the EU Decision 2006/464/EC. In forests, the area covered by *Castanea sativa* corresponds to approximately 5250 ha. In addition, isolated trees are grown in public green and private areas all over the country. *C. sativa* is mainly grown in Southern Germany, such as Baden-Württemberg (around 3000 ha) and in Rheinland-Pfalz (around 2000 ha). Nurseries were also included in the monitoring survey. This survey was carried out by the plant protection services in cooperation with the forest management in the framework of the regular inspections for

relevant forest pests. Characteristic symptoms of *D. kuriphilus*, i.e. galls, were not observed. Therefore, there was no need to take samples for further laboratory testing.
The pest status of *Dryocosmus kuriphilus* in Germany is officially declared as: **Absent**

Source: NPPO of Germany, 2008-01.

Commission Decision 2006/464/EC of 27 June 2006 on provisional emergency measures to prevent the introduction into and the spread within the Community of *Dryocosmus kuriphilus* Yasumatsu. Official Journal of the European Union L 183/29.
http://www.eppo.org/ABOUT_EPPO/EPPO_MEMBERS/phytoreg/eu_texts/2006-464-EC-e.pdf

Additional key words: absence **Computer codes:** DRYCKU, DE

2008/025 Update on the situation of *Agrilus planipennis* in Canada

In Canada, *Agrilus planipennis* (Coleoptera: Buprestidae – EPPO A1 List) has only been found in Ontario (counties of Essex, Lambton, Elgin, Middlesex, municipality of Chatham-Kent). More recently, new findings were reported in Ontario. In October 2007, *A. planipennis* was detected in Norfolk County which is adjacent to the County of Elgin. In November 2007, it was detected for the first time in Toronto.
The pest status of *Agrilus planipennis* in Canada is officially declared as follows: **Present (only in some areas of Ontario), subject to official control**.

Source: NAPPO Phytosanitary Alert System – Official Pest Reports (2007-11-26) Update on the emerald ash borer in Canada – Detection in Toronto, Ontario.
http://www.pestalert.org/oprDetail.cfm?oprID=299

NAPPO Phytosanitary Alert System – Official Pest Reports (2007-11-07)
Update on the Emerald Ash Borer (*Agrilus planipennis* Fairmaire) in Ontario - Canada.
http://www.pestalert.org/oprDetail.cfm?oprID=293

Additional key words: detailed record **Computer codes:** AGRLPL, CA

2008/026 First report of *Tomato chlorotic dwarf viroid* on *Petunia* in the Czech Republic

Following the recent findings of *Potato spindle tuber viroid* (*Pospiviroid*, PSTVd- EPPO A2 List) in ornamental Solanaceae in Europe, official surveys on viroids were carried out in the Czech Republic. During these surveys, *Tomato chlorotic dwarf viroid* (*Pospiviroid*, TCDVd) was detected (PCR, sequencing) on *Petunia* grown in protected conditions without causing any symptoms. During autumn 2007, samples were taken in different firms in the Opava district (Moravian-Silesian region). TCDVd was first detected in a sample taken on the 2007-10-08 from a lot of 80 plants of *Petunia x hybrida* 'Surfinia' which had been propagated by the grower. A second finding occurred on *Petunia* of various origins therefore the source of infection could not be retraced. A third finding was made on *Petunia x hybrida* 'Surfinia' imported from Portugal. In all 3 cases, phytosanitary measures were applied to eradicate TCDVd and all plants of the affected lots were destroyed. It can be recalled that TCDVd has also been found recently on *Petunia* (asymptomatic) in the

United Kingdom as well as on tomatoes in North America which caused severe symptoms (see EPPO RS 2008/006).
The pest status of *Tomato chlorotic dwarf viroid* in the Czech Republic is officially declared as follows: **Present, under eradication**.

Source: NPPO of the Czech Republic, 2008-02.

Additional key words: new record **Computer codes:** TCDVD0, CZ

2008/027 First report of *Synchytrium endobioticum* in Bulgaria

Potato wart disease caused by *Synchytrium endobioticum* (EPPO A2 List) was found for the first time in Bulgaria in 2004 in the mountainous region of Samokov (Sofia province) at an altitude of 700 m. Symptoms were detected in local gardens growing many different potato cultivars without any crop rotation. *S. endobioticum* was detected in ware potatoes on the following cultivars: Agria, Raia, Milva, and Santé. The pathogen was not found on seed potatoes. Soil sampling and analysis, as well as the identification of *S. endobioticum* were done according to the EPPO phytosanitary procedure PM 3/59(2) and the EPPO diagnostic protocol PM 4/28(1) with small modifications. Studies are being carried out to identify the pathotypes present and so far, only pathotype 8 (F1) has been detected. Laboratory tests and field trials are also being performed to assess the resistance of potato cultivars against the fungus, and the following ones are now recommended for cultivation in the buffer zone surrounding the infested area: Panda, Désirée and Amorosa.
The pest status of *Synchytrium endobioticum* in Bulgaria is officially declared as follows: **Present, only in one mountainous region in the country where potatoes are cultivated.**

Source: NPPO of Bulgaria, 2008-02.

Additional key words: new record **Computer codes:** SYNCEN, BG

2008/028 First report of *Eutypella parasitica* in Croatia

In Croatia, a survey for *Eutypella parasitica* (EPPO Alert List) was performed in September 2007 along the border with Slovenia, as a Pest Risk Assessment had showed than more than half of Croatia was at high risk for *E. parasitica* establishment (Ogris *et al.*, 2006). In Prišlin (less than 1 km from the border with Slovenia), 13 *Acer campestre* trees showing typical symptoms of *Eutypella* canker were observed. 2 trees had young cankers, 9 presented old cankers and 2 trees had already collapsed due to the progress of the disease. Surprisingly, *E. parasitica* was not observed on *A. pseudoplatanus* trees which were abundant near the infected area. *E. parasitica* was identified on the basis of morphological characteristics and by PCR with specific primers. This is the first report of *E. parasitica* in Croatia.
The situation of *Eutypella parasitica* in Croatia can be described as follows: **Present, first detected in 2007 on** *Acer campestre* **at Prišlin, close to the Slovenian border.**

Source: Ogris N, Diminic D, Piškur B, Kraigher H (2008) First report of *Eutypella parasitica* causing cankers on field maple *(Acer campestre*) in Croatia. *New Disease Report* volume 16 (August 2007-January 2008). http://www.bspp.org.uk/ndr/jan2008/2008-01.asp

Ogris N, Jurc D, Jurc M (2006) Spread risk of *Eutypella* canker of maple in Europe. *Bulletin OEPP/EPPO Bulletin* **36**(3), 475–485.

Additional key words: new record **Computer codes:** ETPLPA, HR

2008/029 *Ceratocystis fimbriata* f.sp. *platani* found in Aquitaine, France

In 2005, several new outbreaks of *Ceratocystis fimbriata* f.sp. *platani* (EPPO A2 List) had been reported in the south of France (EPPO RS 2007/010). In December 2006, a new outbreak was detected at Saint-Jean-de-Thurac (Lot-et-Garonne) in the Aquitaine region. Eradication measures were applied immediately. The disease is now recorded in five regions in France.
The situation of *Ceratocystis fimbriata* f.sp. *platani* in France can be described as follows: **Present, scattered outbreaks (Aquitaine, Languedoc-Roussillon, Midi-Pyrénées, Provence-Alpes-Côte d'Azur, Rhône-Alpes), under official control.**

Source: Anonymous (2007) Phyto-régions. Aquitaine. Chancre coloré en Lot-et-Garonne. *Phytoma – La Défense des Végétaux* no. 3, p 3.

Additional key words: detailed record **Computer codes:** ENDOPA, FR

2008/030 Incursion of *Phytophthora hibernalis* in Germany

The German NPPO recently informed the EPPO Secretariat of the first incursion of *Phytophthora hibernalis* into Germany. In April 2007, disease symptoms were observed in Hessen on roses (*Rosa x hybrida* cvs. 'Broceliande' and 'Chevy Chase') and in October 2007 the causal agent was identified as *Phytophthora hibernalis* (morphology, molecular tests). There is evidence that the disease was introduced from another EU Member State in autumn 2006. All infected plants were destroyed. Although it may be assumed that the infection has been eradicated, the company concerned remains under observation.
The pest status of *Phytophthora hibernalis* in Germany is officially declared as follows: **Absent, under observation.**

EPPO note: *P. hibernalis* has primarily been described as causing brown rot of citrus fruits, but it has also been found on other plants (e.g. *Rhododendron*) causing leaf and twig blight. Its currently known geographical distribution is as follows:
EPPO region: France, Greece, Israel, Italy, Portugal, Spain, Turkey.
Africa: South Africa.
North America: USA (California, Oregon).
South America: Argentina, Brazil, Venezuela.
Oceania: Australia, Fiji, New Zealand.

Source: NPPO of Germany, 2008-02.

CABI (1976) Distribution Maps of Plant Diseases no. 47 (edition 3) *Phytophthora hibernalis*. CABI, Wallingford, GB.

INTERNET (last retrieved 2008-02)
Farr DF, Rossman AY, Palm ME, McCray EB. Fungal Databases, Systematic Mycology and Microbiology Laboratory, ARS, USDA. http://nt.ars-grin.gov/fungaldatabases/

Additional key words: phytosanitary incident **Computer codes:** PHYTHI, DE

2008/031 Status of *Phytophthora ramorum* in the Czech Republic

As reported earlier in the EPPO RS 2005/159, *Phytophthora ramorum* (EPPO Alert List) was detected in 2003 on an imported lot of 15 *Viburnum bodnantense* plants which were subsequently destroyed. Further surveys were carried out in 2004 and 2005 and the pathogen was no longer found.
The pest status of *Phytophthora ramorum* in Czech Republic is officially declared as follows: **Absent, one isolated outbreak linked to an imported consignment was eradicated.**

Source: Běhalová M (2006) Surveys for *Phytophthora ramorum* in Czech Republic. *Bulletin OEPP/EPPO Bulletin*, **36**(2), 393-395.

Additional key words: absence, eradication **Computer codes:** PHYTRA, CZ

2008/032 First report of *Iris yellow spot virus* on *Eustoma grandiflorum* in the United Kingdom

In June 2007, a sample of lisianthus (*Eustoma grandiflorum*) showing unusual leaf symptoms was sent to the Central Science Laboratory (CSL, York) in the United Kingdom for testing. The affected leaves showed pale necrotic lesions and had been collected from a glasshouse in Suffolk, England (GB). It was reported that in the worst affected block within the glasshouse, up to 20% of the plants were showing similar symptoms. Laboratory tests (DAS-ELISA, real-time PCR, sequencing) revealed the presence of *Iris yellow spot virus* (*Tospovirus*, IYSV – EPPO Alert List). This is the first finding of IYSV in the United Kingdom. The infected crop has now been removed and measures taken to eradicate the infection.
The situation of *Iris yellow spot virus* in the United Kingdom can be described as follows: **Transient, single outbreak detected in 2007 on glasshouse *Eustoma grandiflorum* in Suffolk; under eradication.**

Source: Mumford RA, Glover R, Daly M, Nixon T, Harju V, Skelton A (2008) *Iris yellow spot virus* (IYSV) infecting *Lisanthus (Eutoma grandiflorum*) in the UK: first finding and detection by real-time PCR. *New Disease Report* volume 16 (August 2007-January 2008). http://www.bspp.org.uk/ndr/jan2008/2007-105.asp

Additional key words: phytosanitary incident **Computer codes:** IYSV00, GB

2008/033 First report of *Iris yellow spot virus* on onion in Germany

The NPPO of Germany recently informed the EPPO secretariat of the first detection of *Iris yellow spot virus* (*Tospovirus*, IYSV – EPPO Alert List) in Rheinland-Pfalz on onions (*Allium cepa* and *Allium fistulosum).* In Rheinland-Pfalz, symptoms resembling those of IYSV had already been observed in 2003 on onion crops. In summer 2007, as typical symptoms of IYSV were observed again in the same onion-growing area, a survey was initiated and 25 sites were visually inspected. As a result, 9 symptomatic lots were tested in the laboratory (using DAS-ELISA) and found to be infected by ISYV. In the field, infected onion plants often showed white to straw-coloured oval, necrotic lesions on the leaves. At a later stage of the disease, the number of lesions increased and led to decay of the leaves. These symptoms could be confused with those caused by *Thrips* infestations, hailstorms, herbicide phytotoxicity, or early infections by various fungal diseases. While at the beginning of the vegetation period, only isolated plants or small groups of plants appeared to be infected, onion plots were evenly infected at a later stage. So far, yield reduction could not be quantified but was considered moderate. Because *Thrips tabaci* is thought to be the main vector of the disease, insecticide treatments were applied to control thrips populations.
The pest status of *Iris yellow spot virus* in Germany is officially declared as follows: **Transient, in one area; under eradication**

Source: NPPO of Germany, 2008-02.

Additional key words: phytosanitary incident **Computer codes:** IYSV00, DE

2008/034 First report of *Iris yellow spot virus* on onion in Canada

In North America, *Iris yellow spot virus* (*Tospovirus*, IYSV – EPPO Alert List) which is transmitted by *Thrips tabaci*, has spread rapidly in Western USA and Georgia. In Canada, onion plants showing symptoms resembling those of IYSV were observed in June and July 2007 in Ontario. Symptomatic onions plants which had been grown from sets were observed in a household garden in Grey County and on a small commercial farm in Ottawa-Carleton County. In the household garden, bleached, elongated lesions were observed on middle-aged leaves on about 30% of the plants. By the beginning of August 2007, approximately 90% of the plants were showing symptoms. In the commercial farm, lesions were seen on a single plant (in a field of 1,120 plants). Laboratory tests (DAS-ELISA) confirmed the presence of IYSV. These isolated finds prompted a survey in early August 2007 in the largest onion-producing region of Ontario (Holland Marsh). Nine onion fields were inspected and the presence of IYSV was confirmed by DAS-ELISA and RT-PCR in 7 fields. This is the first report of IYSV in Canada. The authors considered that the finding of IYSV in remote and isolated locations where onions were grown from sets implies that the possible spread of IYSV via infected bulbs deserves further investigations.
The situation of *Iris yellow spot virus* in Canada can be described as follows: **Present, first found in 2007 in seven onion fields in Ontario.**

Source: Hoepting CA, Allen JK, Vanderkooi DK, Hovius MY, Fuchs MF, Pappu HR, McDonald MR (2008) First report of *Iris yellow spot virus* on onion in Canada. *Plant Disease* **92**(2), p 318.

Additional key words: new record **Computer codes:** IYSV00, CA

2008/035 Outbreak of *Clavibacter michiganensis* subsp*. michiganensis* in Austria

The Austrian Plant Protection Service recently informed the EPPO Secretariat of an outbreak of *Clavibacter michiganensis* subsp*. michiganensis* (EPPO A2 List) in Austria. In 2007, the pathogen was found in companies producing tomato fruits for final consumers, all located in Styria. Investigations showed that all affected plants had been grown from the same seed lot originating from Bolivia. All plants concerned have been destroyed and hygiene measures imposed to prevent any further spread.
The pest status of *Clavibacter michiganensis* subsp*. michiganensis* in Austria is officially declared as follows: **local outbreak, eradicated.**

Source: NPPO of Austria, 2008-02.

Additional key words: phytosanitary incident **Computer codes:** CORBMI, AT

2008/036 Results after ten years of phytosanitary measures applied in Italy against *Aphelenchoides besseyi*

In Italy, the production of rice (*Oryza sativa*) covers approximately 230 000 ha, including 12 000 ha of seed crops. Every year, approximately 1000 lots of certified seeds are produced. In 1996, the presence of *Aphelenchoides besseyi* (EPPO A2 List) was recorded in Italy (see EPPO RS 96/076) and phytosanitary measures were implemented by the regional plant protection services to contain and eradicate the nematode. Visual inspections of rice crops were carried out initially but they were not found to be efficient because of the low infestation levels. Subsequent measures were based on the laboratory testing of all lots of rice seeds and on the elimination of infested lots. After 10 years, the number of infested seed lots has been reduced from 17% in 1996 to 2 % in 2006 and the nematode has been eliminated from many rice varieties undergoing the certification procedure. It is concluded that the infestation level is now below the economic damage threshold, and that efforts should continue to eradicate *A. besseyi*.

Source: Bergamo P, Buccoli S, Cotroneo A, Curto G, Moretti F, Santi R, Visigalli T (2007) [*Aphelenchoides besseyi* in rice seeds in Italy: course of the infestation in the decade 1997-2006.] *Informatore Fitopatologico* no. 12, 57-60 (in Italian).

Additional key words: detailed record **Computer codes:** APLOBE, IT

2008/037 EPPO report on notifications of non-compliance

The EPPO Secretariat has gathered the notifications of non-compliance for 2007 received via Europhyt since the previous report (EPPO RS 2007/201) from the following EU countries: Austria, Belgium, Cyprus, the Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Latvia, Lithuania, the Netherlands, Sweden, the United Kingdom, and from Bulgaria 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
Agromyzidae	*Gypsophila*	Cut flowers	Israel	Czechia	1
	Ocimum basilicum	Vegetables (leaves)	Thailand	France	1
Bemisia	*Solidago*	Cut flowers	Israel	Belgium	1
	Trachelium	Cut flowers	Israel	Belgium	1
Bemisia tabaci	*Aster*	Cut flowers	Israel	Netherlands	2
	Eryngium foetidum	Vegetables (leaves)	Thailand	Ireland	2
	Euphorbia pulcherrima	Cuttings	Kenya	Finland	7
	Euphorbia pulcherrima	Plants for planting	United Kingdom	Ireland	1
	Eustoma	Cut flowers	Israel	Netherlands	3
	Eustoma, Trachelium	Cut flowers	Israel	Netherlands	1
	Ficus carica	Plants for planting	Israel	Netherlands	1
	Gypsophila	Cut flowers	Israel	Netherlands	4
	Helianthus	Cut flowers	Israel	United Kingdom	1
	Hygrophila	Aquarium plants	Singapore	United Kingdom	1
	Hypericum	Cut flowers	Israel	Ireland	1
	Hypericum	Cut flowers	Zimbabwe	United Kingdom	1
	Murraya, Solanum melongena, Mangifera indica, Momordica charantia	Vegetables	India	Ireland	1
	Ocimum	Vegetables (leaves)	Israel	Netherlands	1
	Ocimum	Vegetables (leaves)	Thailand	United Kingdom	1
	Ocimum basilicum	Vegetables (leaves)	Israel	Ireland	1
	Ocimum basilicum	Vegetables (leaves)	Israel	Netherlands	4
	Ocimum sanctum	Vegetables (leaves)	Thailand	Sweden	1
	Solidago	Cut flowers	Israel	Belgium	2
	Solidago	Cut flowers	Israel	Netherlands	3
	Solidago, Trachelium	Cut flowers	Israel	Netherlands	1
	Syngonium, Sagittaria subulata	Aquarium plants	Singapore	United Kingdom	1
	Trachelium	Cut flowers	Israel	Netherlands	3
	Zaluzianskya ovata	Cuttings	Israel	United Kingdom	1
Bemisia tabaci, Thripidae	*Ocimum*	Vegetables (leaves)	Thailand	United Kingdom	1
Diaphania indica	*Citrus, Momordica*	Fruits	Bangladesh	United Kingdom	1
	Cucurbita	Vegetables	Bangladesh	United Kingdom	1
	Momordica	Vegetables	India	Germany	2
	Momordica charantia	Vegetables	India	United Kingdom	1
Diaphania indica, Xantho-monas axonopodis pv. *citri*	*Momordica charantia, Citrus aurantiifolia*	Fruits	Bangladesh	United Kingdom	1
Guignardia	*Citrus maxima*	Fruits	China	Netherlands	36
	Citrus sinensis	Fruits	South Africa	Belgium	1
Guignardia citricarpa	*Citrus*	Fruits	Argentina	United Kingdom	1
	Citrus limon	Fruits	South Africa	Netherlands	2
	Citrus maxima	Fruits	China	Netherlands	2
	Citrus sinensis	Fruits	Brazil	Netherlands	1
	Citrus sinensis	Fruits	South Africa	Belgium	1
	Citrus sinensis	Fruits	South Africa	Netherlands	8

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
	Fortunella	Fruits	Argentina	Netherlands	1
Guignardia citricarpa, Xanthomonas axonopodis pv. *citri*	*Citrus macroptera*	Fruits	Bangladesh	United Kingdom	1
Helicotylenchus, Pratylenchus thornei, Helicotylenchus digonicus	Unspecified	Soil and growing media	Tunisia	United Kingdom	1
Helicoverpa	*Pisum sativum*	Vegetables	Egypt	United Kingdom	1
Helicoverpa armigera	*Aster*	Cut flowers	Israel	Netherlands	1
	Dianthus	Cut flowers	Egypt	Netherlands	1
	Dianthus	Cut flowers	Israel	Netherlands	1
	Dianthus	Cut flowers	Israel	Netherlands	1
	Eryngium	Vegetables (leaves)	Ethiopia	Netherlands	1
	Eryngium	Vegetables (leaves)	Kenya	Netherlands	3
	Eryngium	Vegetables (leaves)	Zimbabwe	Netherlands	5
	Eustoma	Cut flowers	Israel	Netherlands	1
	Gypsophila, Rosa	Cut flowers	Kenya	Netherlands	1
	Ocimum	Vegetables (leaves)	Thailand	Netherlands	1
	Phaseolus vulgaris	Vegetables	Kenya	Netherlands	1
	Rosa	Cut flowers	Ethiopia	Netherlands	2
	Rosa	Cut flowers	Kenya	Netherlands	11
	Rosa	Cut flowers	Tanzania	Netherlands	1
	Rosa	Cut flowers	Uganda	Netherlands	2
	Rosa	Cut flowers	Zambia	Netherlands	3
	Rosa	Cut flowers	Zimbabwe	Netherlands	8
	Solidago	Cut flowers	Israel	Netherlands	1
Heliothis	*Dianthus caryophyllus*	Cut flowers	Spain	Germany	1
	Dianthus caryophyllus	Cut flowers	Turkey	Austria	1
Insecta (larva)	*Solanum melongena*	Vegetables	Thailand	Switzerland	1
Lepidoptera	*Rhododendron, Rhodocoma gigantea, Cannomois virgata, Berzelia lanuginosa, Leucadendron platyspermum, Elegia thyrsoidea*	Cut flowers	South Africa	Cyprus	1
Leucinodes orbonalis	*Solanum torvum*	Vegetables	Thailand	Germany	2
Liriomyza	*Chrysanthemum*	Plants for planting	Kenya	United Kingdom	1
	Gypsophila	Cut flowers	Israel	Belgium	2
	Ocimum basilicum	Vegetables (leaves)	Ethiopia	Belgium	1
	Ocimum basilicum	Vegetables (leaves)	Israel	United Kingdom	1
	Ocimum basilicum	Vegetables (leaves)	Thailand	Denmark	1
Liriomyza huidobrensis	*Eryngium*	Vegetables (leaves)	Kenya*	Netherlands	6
	Eryngium	Vegetables (leaves)	Zimbabwe*	Netherlands	1
	Eustoma	Cut flowers	Kenya	Netherlands	1
	Gypsophila	Cut flowers	Ecuador	Netherlands	6

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
Liriomyza sativae	*Chrysanthemum*	Cut flowers	Thailand	Sweden	1
	Ocimum	Vegetables (leaves)	Thailand	Sweden	1
	Ocimum canum	Vegetables (leaves)	Thailand	Sweden	1
Liriomyza trifolii	*Eustoma*	Cut flowers	Israel	Netherlands	2
	Gypsophila	Cut flowers	Israel	Netherlands	7
Meloidogyne	*Anubias*	Aquarium plants	Singapore	Germany	2
Milviscutulus mangiferae, Bemisia tabaci	*Cordyline terminalis, Echinodorus, Syngonium*	Cuttings	Singapore	United Kingdom	1
Noctuidae	*Ocimum basilicum*	Vegetables (leaves)	Thailand	Netherlands	1
Opogona sacchari	*Dracaena marginata*	Plants for planting	Netherlands	Bulgaria	1
Pear decline phytoplasma	*Pyrus communis*	Plants for planting	Serbia	Bulgaria	1
Pepino mosaic virus	*Lycopersicon esculentum*	Seeds	China*	Sweden	1
	Lycopersicon esculentum	Vegetables	Spain	United Kingdom	2
Phytophthora ramorum	*Magnolia*	Plants for planting	Italy	Ireland	1
	Pieris japonica	Plants for planting	Netherlands	United Kingdom	1
	Rhododendron	Plants for planting	Netherlands	Latvia	1
	Rhododendron	Plants for planting	Poland	Latvia	2
	Rhododendron catawbiense	Plants for planting	Poland	Lithuania	1
Plum pox virus	*Prunus domestica*	Plants for planting	Serbia	Bulgaria	1
Potato spindle tuber viroid	*Solanum jasminoides*	Plants for planting	Italy	United Kingdom	1
Puccinia heucherae	*Heuchera*	Plants for planting	USA	United Kingdom	1
Pyralidae	*Citrus aurantiifolia*	Fruits	India	United Kingdom	1
	Solanum melongena	Vegetables	Thailand	United Kingdom	1
Spodoptera	*Chrysanthemum*	Cut flowers	Ethiopia	Netherlands	1
	Rosa	Cut flowers	India	Netherlands	1
	Rosa	Cut flowers	Uganda	Netherlands	1
	Solidago	Cut flowers	Zimbabwe	Netherlands	1
Spodoptera littoralis	*Chrysanthemum*	Cuttings	Uganda	Netherlands	1
	Dianthus	Cut flowers	Israel	Netherlands	1
	Dipladenia	Cuttings	Spain (Canary Isl.)	Netherlands	1
	Eustoma	Cut flowers	Israel	Netherlands	2
	Ocimum basilicum	Vegetables (leaves)	Israel	Netherlands	1
	Rosa	Cut flowers	Israel	Netherlands	2
	Rosa	Cut flowers	Zimbabwe	Netherlands	3
	Solidago	Cut flowers	Israel	Netherlands	1
Spodoptera litura	*Brassica oleracea*	Vegetables	Thailand	Sweden	1
	Ocimum basilicum	Vegetables (leaves)	Thailand	Netherlands	1
	Ocimum basilicum	Vegetables (leaves)	Thailand	United Kingdom	1
	Ocimum canum, Psidium guajava	Vegetables (leaves)	Thailand	Netherlands	1

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
Thripidae	*Gypsophila*	Cut flowers	Egypt	Cyprus	1
	Momordica	Vegetables	Dominican Rep.	United Kingdom	2
	Momordica charantia	Vegetables	India	United Kingdom	1
	Solanum melongena	Vegetables	Dominican Rep.	United Kingdom	1
Thrips palmi	*Aranda*	Cut flowers	Thailand	Austria	1
	Dendrobium	Cut flowers	Malaysia	Netherlands	1
	Dendrobium	Cut flowers	Thailand	Netherlands	2
	Dendrobium	Cut flowers	Thailand	Sweden	1
	Dendrobium	Plants for planting	Thailand	United Kingdom	1
	Momordica charantia, Solanum melongena	Vegetables	Surinam	Netherlands	1
	Orchidaceae	Cut flowers	Thailand	Netherlands	1
	Orchidaceae	Cut flowers	Thailand	United Kingdom	1
	Solanum	Vegetables	Surinam	Netherlands	1
	Solanum melongena	Vegetables	Dominican Rep.	Netherlands	2
	Solanum melongena	Vegetables	Surinam	Netherlands	1
	Solanum melongena	Vegetables	Thailand	Sweden	1
Thrips palmi, Diaphania indica	*Momordica, Solanum melongena*	Vegetables	India	United Kingdom	1
Thysanoptera	*Eustoma*	Cut flowers	Israel	Belgium	1
Viteus vitifoliae	*Vitis vinifera*	Plants for planting	Italy	Netherlands	2
Xanthomonas	*Euphorbia pulcherrima*	Plants for planting	Netherlands	United Kingdom	1
Xanthomonas axonopodis pv. *citri*	*Citrus*	Fruits	Bangladesh	United Kingdom	2
	Citrus limon	Fruits	Uruguay	Greece	1
Xanthomonas axonopodis pv. *citri, Aonidiella comperei*	*Citrus, Apium graveolens*	Vegetables	Thailand	United Kingdom	1
Xanthomonas axonopodis pv. *citri, Guignardia citricarpa*	*Citrus*	Fruits	Bangladesh	United Kingdom	1

- **Fruit flies**

Pest	Consignment	Country of origin	Destination	nb
Bactrocera correcta	*Syzygium samarangense*	Thailand	France	1
Bactrocera cucurbitae	*Momordica charantia*	Thailand	United Kingdom	1
Bactrocera dorsalis	*Mangifera indica*	Vietnam	France	1
Bactrocera zonata	*Psidium guajava*	Pakistan	United Kingdom	1

- **Wood**

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
Anobiidae	Unspecified	Packing wood	Thailand	Germany	1
Anoplophora (suspect *glabripennis*)	Unspecified	Packing wood	China	Germany	2
Bostrichidae	Unspecified	Packing wood	Indonesia	Germany	7
Bursaphelenchus xylophilus	Unspecified	Packing wood	USA	Finland	1
Cerambycidae	Unspecified	Packing wood	China	Germany	1
Grub holes > 3 mm	Coniferales	Wood and bark	Russia	Romania	1
	Larix	Wood and bark	Russia	Finland	6
	Unspecified	Packing wood	Mexico	Germany	1
Nematoda	Unspecified	Packing wood	USA	Finland	1
Scolytidae	*Populus*	Wood and bark	Russia	Cyprus	1
	Unspecified	Packing wood	Pakistan	Sweden	1
Sinoxylon	Unspecified	Packing wood	India	Germany	5
	Unspecified	Packing wood	Taiwan	Netherlands	1

Source: EPPO Secretariat, 2008-02.

2008/038 A new BBCH growth stage key for trees and woody plants

The BBCH* growth stage keys provide a standard and uniform description of the visible growth stages of plants, using a two-digit decimal code. This system has been developed for many important crops, such as cereals, rice, maize, rape, potato, fruit trees, small fruits, vegetables, etc. In 1997, the BBCH growth stage keys were recommended by the EPPO Working Party on Plant Protection Products and by Council for use in EPPO countries, thus replacing the previously recommended EPPO growth stage keys. A new BBCH scale has recently been published to describe the growth stages of trees and woody plants.

BBCH growth stage keys are available in English, French, German and Spanish on the Internet: Growth stages of mono-and dicotyledonous plants - BBCH Monograph
http://www.jki.bund.de/cln_045/nn_804436/EN/veroeff/bbch/bbch__inhalt__en.html__nnn=true

* The abbreviation BBCH derives from the first letters of the German names of *B*iologische Bundesanstalt (Federal Biological Research Centre), *B*undessortenamt (Federal Plant Variety Office) and *Ch*emical industry.

Source: Finn GA, Straszewski AE, Peterson V (2007) A general growth stage key for describing trees and woody plants. *Annals of Applied Biology* **151**(1), 127-131.

Additional key words: publication

2008/039 Workshop on citrus huanglongbing (*Candidatus* Liberibacter asiaticum) and the Asian citrus psyllid (*Diaphorina citri*)

NAPPO in cooperation with SENASICA (Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria of the Government of Mexico) will organize the first International Workshop on 'Citrus Huanglongbing (*Candidatus* Liberibacter asiaticum) and the Asian citrus psyllid (*Diaphorina citri*)' on 2008-05-07/09, Hermosillo, Sonora, Mexico. The main objectives of this Workshop are to raise awareness of citrus growing countries on the risks of entry and establishment of huanglongbing (*Candidatus* Liberibacter spp. – EPPO A1 List) and to discuss possible phytosanitary measures against the disease and its vector (*Diaphorina citri*). A field visit to commercial citrus production sites is also planned. The following topics will be addressed:

- Biology;
- Status of the disease worldwide;
- Diagnostics;
- Control measures against the disease and its vector (chemical, biological);
- Surveillance and phytosanitary measures;
- Economic impact.

Registration fee is 2 000 pesos (around 190 USD).
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Source: NAPPO, 2008-02.

Additional key words: conference **Computer codes:** LIBESP, DIAACI

2008/040 Report on the Mapping and Analysis of National Phytosanitary Research Programmes is available on the EUPHRESCO ERA-Net website

EUPHRESCO is an EU funded project which aims at increasing cooperation and coordination of national research programmes at the EU level through networking of research activities and mutual opening of national programmes. It runs from 2006 to 2010. During the first phase of this project, information on existing phytosanitary research programmes has been gathered and analysed. The report on the Mapping and Analysis of National Phytosanitary Research Programmes is now available on the EUPHRESCO ERA-Net website:
http://www.euphresco.org/public/publications/index.cfm?id=28

In addition, detailed information on how to register to the 6-monthly EUPHRESCO electronic newsletters, and on the project timetable (including the one for joint calls for pilot research projects) can be found on this website.

Source: EPPO Secretariat, 2008-02.

2008/041 Introduced Flora of Australia and its weed status

'The introduced flora of Australia and its weed status' is a publication directed to everyone who wants to ensure that plants chosen for revegetation projects, landscaping and gardens are not likely to become weeds and a threat to (Australian) ecosystems. Every introduced plant species in Australia, past and present, is listed with information on its weed status in Australia and other parts of the world. The information about the weed status of the plants comes from published lists of weeds throughout the world, and in particular the Global Compendium of Weeds (Randall, 2002) is used as a reference.
More than 30 000 plant species present in Australia are listed in this book with indication whether the species is:

- naturalized somewhere in Australia,
- native from Australia but naturalized beyond its native range within Australia,
- a weed, according to published references and indicating the following categories:
    - weed of the natural environment,
    - escaped from cultivation,
    - weed of agriculture,
    - regulated noxious weed
    - invasive species, which is the most threatening category since it implies serious impacts on environment and/or agriculture.

When a plant species has been listed as a serious weed in several publications and even if it is not yet a problem in Australia, there is a very significant risk that this plant may become a weed if planted widely or close to natural areas. Used wisely and in conjunction with further data, this publication could help to avoid the introduction or spread of weed species which may have economic or environmental impact.

Source: Randall R (2007) The introduced Flora of Australia and its weed status. CRC for Australian Weed Management. 524 p.
http://www.weeds.crc.org.au/weed_management/intro_flora.html

Randall RP (2002) A global compendium of weeds. Shanon Books, Melbourne, Victoria, Australia. 905 p. http://www.hear.org/gcw/

Additional key words: invasive alien plants, publication **Computer codes:** AU

2008/042 Climate change and invasive alien species

Likely effects of invasive species are evaluated by assessing the vulnerability of regions and ecosystems to invasive species under climate change, taking into account any management actions that may be available. Outcomes of invasions depend not only on the attributes of the invasive species but also on the vulnerability of the invaded habitat. There is therefore a need to give at least as much attention to understanding the recipient ecosystem as to the alien species for the prediction of the outcome of an invasion. The impact of climate change on each of the three elements of invasion – the source location, the pathway and the destination – needs to be assessed as part of the process of estimating vulnerability to a given invasive species.

Tools for analysis of risk from invasive species under climate change
Climate determines the suitability of temperature and moisture for population growth in favourable seasons. Both types of effects have been described in CLIMEX, a climatic matching model, which can be used as a very efficient tool to analyse such a risk.

Impacts of climate change on invasive processes

Sources, pathways and destinations of invasive alien plants can be affected by global change.

Sources: area freedom (to which a commodity may only be exported if it can be demonstrated that the invasive species is absent from the growing area), is at serious risk from climate change. Similarly, the spread of many species with climate change will challenge the surveillance systems as invasive species continue to encroach on areas that were previously designated as outside its endemic range.

Management responses to climate change will result in changes in the pattern of production and trade in commodities.

Pathways: the risk of contamination of pathways is increasing with increased trade and tourism and the development of a global economy. Climate change per se is likely to have limited direct effects on the movement of invasive species along trade routes. While the main source of transfer of pests appears to be trade, another accelerating source is the massive displacement of people from countries affected by political unrest. Refugees may bring their livestock with them, forming a mechanism by which parasites could be moved around. The associated food and other materials such as seed provided in these cases could also act as vectors for invasive alien species. These risks are greater in Africa, Asia, and South America, were political boundaries are poorly supervised.

Climate and wind systems affect the long-distance migration routes of some pests. Changed conditions that affect the spread of migratory pests, waterborne weeds and pathogens are likely to provide more natural pathways.

Destinations: the impact of invasive species at destination depends on (1) their initial success in establishment, (2) their direction and rate of spread, and (3) their population dynamics and geographical distribution.

- Initial establishment: given the extent of human disturbance, the likelihood of establishment of weeds under climate change will be increased.
- Spread: Interactions between climate change and other factors such as accelerating transport may increase the spread capacity of a pest. Climate change may also alter the frequency and intensity of extreme events, which are important in many dispersal processes. Wind and water transport is affected by climate, with storms, prolonged rainy seasons, and flooding aiding the dispersal of many invaders. Isolated events such as major floods can allow invasive species to escape from areas that were secure for decades, as shown by the example of *Mimosa pigra* in Australia.
- Population dynamics and geographical distributions: the potential for population growth each year depends on the duration and suitability of the season. Longer growth season will allow species with few generations to undergo an extra generation or part of one, causing larger population increases. Perennial species such as woody weeds could also increase their biomass rapidly and pass through the vulnerable seedling stage more rapidly. As climate change and enhanced CO_2 will affect soil moisture availability, they will also affect plant population dynamics. The outcome of the competition between C3 and C4 species is likely to change. Moreover the projected increase in the amount of foliage produced by plants under elevated CO_2 is likely to alter the microclimate by retaining more moisture in the canopy. This is likely to favour the propagation of invasive fungal diseases.

Climatic effects on species interactions

Climate has effects on interactions between invasive species and their host plants, predators and competitors in addition to direct effects on species. These interactions have

pervasive effects on ecosystems and need to be taken into account when making a risk assessment for global change impact.
Climatically induced stress on plants can reduce their ability to resist invaders. Vegetation, made vulnerable by the stress of a changing climatic environment often falls prey to insects or pathogens, or succumbs to competition. For example, drought kills native plants, leaving gaps in vegetation that are quickly occupied by invasive species such as *Lantana camara* in rain forests. Drought and freezing reduce the resistance of trees to insect attack and each phenomenon is likely to change in both frequency and intensity under climate change.
Different species at the destination may limit the population growth rates of an invasive species through a variety of mechanisms. Conversely, an invasive species may out-compete an established species and displace it from a large region. Similarly, the balance between predators and their prey may vary with the season. Climate change will therefore alter the effectiveness of biological control of some species in some regions. However, the greatest impact of climate change is likely to be through the impact of extreme climatic events on establishment rates of small populations of introduced biocontrol agents rather than through the effect of changed average conditions on the size of equilibrium populations of the agents.

Interaction between climate change and other global change factors
Climate change is only one of several global change factors, land use, fire, cultivation, or deforestation, that disturbs natural vegetation. The resulting fragmentation of the landscape reduces the ability of resident species to resist invasion by opportunistic invasive species. Corridors for movement of beneficial species can also provide access for noxious organisms. Disturbance from multipurpose use of protected areas carries high risks of providing opportunities for invasion by pests.

A few examples
Many native plants and forests are susceptible to the root pathogen *Phytophthora cinnamomi*. A 3°C rise in temperature, an intensification of the hydrological cycle, and the increased occurrence of extremely dry or wet weather events could lead to more outbreaks of the disease.
A warming of temperate areas will enable entire colonies of European wasps (*Vespula germanica*) to overwinter, as they have done in Australia. On the other hand, the wasps do not appear to thrive in hot and humid environments, and their range could retract somewhat in the subtropics.

Adaptive management
There is limited potential in the natural systems to adjust to impacts of climate change. In agriculture, changes in regional climates will affect current, ecologically based management practices to contain outbreaks of pests. Monitoring of climatic trends and their biological consequences will need to be coupled with modelling to tune adaptive management measures progressively.

Source: Sutherst R (2000) Climate change and invasive species: a conceptual framework. *In* Invasive species in a changing world (Mooney HA, Hobbs RJ, Ed.) 211-240.

Additional key words: Invasive alien plants, climate change

2008/043 Impacts of global climate change on vegetation

Because climate change alters the spatial and temporal patterns of temperature and precipitation, climate change will cause geographical shifts in the ranges of individual species and vegetation zones, especially in regions closest to the poles and with high elevations. Climate change in combination with other factors has already shifted vegetation zones in West Africa, the South-western United States, and Spain.
Gonzales *et al*. (2005) have studied and mapped the ecosystems which are likely to be modified because of climate change. Results showed that the following five ecoregions are expected to experience the highest change: Flint Hills tall grasslands (North America), Western Siberian hemiboreal forests (Asia), Yukon Interior dry forests (North America), Carnavon xeric shrublands (Australia), Altai alpine meadow and tundra (Asia). In the EPPO region, Central and North-Eastern areas appear to be the most subjected to vegetation shifts due to climate change: tundra shall be replaced by temperate evergreen forest, which shall itself be replaced in Northern Central Europe by temperate mix forest. As plant communities migrate across protected area boundaries, endangered plants and animals could find themselves on unprotected lands, or in the worst case, without any remaining viable habitat, such as in polar or mountainous regions.

Source: Gonzales P, Neilson RP, Drapek RJ (2005) Climate change vegetation shifts across global ecoregions. Ecological Society of America Annual meeting Abstracts 90:228. http://conserveonline.org/workspaces/climate.change/climate.change.vegetation.shifts/Gonzalez%20et%20al.%202005.pdf

The Nature Conservancy, Impacts of global climate change on vegetation. http://conserveonline.org/workspaces/climate.change/climate.change.vegetation.shifts/Nature%20Cons.%20vegetation%20shifts.pdf

Additional key words: Climate change, vegetation

2008/044 Dispersal characteristics of the invasive plant *Mimulus guttatus*

Concern as how environmental change may impact on non-native plant invasions has largely focused on the direct effect of climate. By contrast, the potential effects of changes in the seasonality and volume of precipitation on non-native plant spread has received far less attention. Unpredictable flood pulses may increase the likelihood of plant invasion by altering the competitive balance between native and non-native species, redistributing nutrients, facilitating the colonization of non-native species through increased disturbance and/or enhancing the dispersal of propagules by water.
The riparian invasive species *Mimulus guttatus* (Scrophulariaceae), originating from North America has been used as a model to address the likelihood that flood pulses might facilitate the spread of non-native plants. This perennial riparian herb was introduced in the United Kingdom around 1812 and established in the wild by 1824. The plant is found in wet places, it is competitive, has a high seed production, a short germination period, an effective long-and short-distance dispersal mechanisms and a rapid growth. *M. guttatus* reproduces both vegetatively by fragments, and by seeds.
The study focussed on the dispersal characteristics of *M. guttatus*, and especially the roles of vegetative fragmentation with increasing water velocities, subsequent fragment survival, regeneration and colonization, as well as the buoyancy, survival and germination success of seeds.
The vegetative regeneration of *M. guttatus* fragments was high: after only 1 week, 60% of the fragments produced new shoots, and at 6 weeks, 96% of fragments had new shoots.

Moreover, fragments of 1 and 2 nodes produced significantly more shoots per node than fragments of 4 or 5 nodes, or whole plants. After 1 week, 36% of fragments formed roots at the nodes, and 99% after 6 weeks. The proportional fragmentation was significantly greater at higher water velocity: 74% of stems were broken at 1.48 m s^{-1} compared with 17% at 0.88 m s^{-1}. Fragments length, stem diameter and the number of nodes per fragment all increased significantly with increased velocity. At the lower velocities, it was principally the most recent plant growth that fragmented, whereas at higher velocities, stem breakage also occurred further down the plant.
M. guttatus seeds are small (0.02 mg, 0.5 mm wide x 1 mm long). Individual plants release on average 7000 seeds, however, seeds have a short buoyancy period so the timing and magnitude of high-flow events is crucial in determining potential dispersal distances. Seeds germinated readily both in water and on sand with an average 33% germination rate within 9 days.
M. guttatus exhibited similar, if not higher (95% versus 75%), regeneration growth and survival rates compared with the very invasive *Fallopia japonica*. The mean fragmentation was significantly greater at higher velocities. Nevertheless, *M. guttatus* possesses a shallow root system (1-2 cm depth), and where it colonizes fine sediments such as silt, plants can be easily uprooted under high flow conditions. In real situations, high-flow events will affect different stages of *M. guttatus* colonization, establishment and spread. If high-flow events occur at too high a frequency, populations may not re-establish before the next high-flow events, preventing growth and long-term survival.

Source: Truscott AM, Soulsby C, Palmer SCF, Newell L, Hulme PE (2006) The dispersal characteristics of the invasive plant *Mimulus guttatus* and the ecological significance of increased occurrence of high-flow events. *Journal of Ecology,* **94** 1080-1091.

Additional key words: Invasive alien plant, climate change **Computer codes:** MIUGU, GB

2008/045 *Microstegium vimineum* in the EPPO region: addition to the EPPO Alert List

Considering the potential of invasiveness and the limited presence of *Microstegium vimineum* in the EPPO region, the Secretariat considered that this species could usefully be added to the EPPO Alert List.

Why: *Microstegium vimineum* (Poaceae) is an annual grass native to Asia. The plant can be introduced involuntarily as a contaminant of bird seeds, soil and hay. Within the EPPO region, its distribution is still limited. Because this plant has shown invasive behaviour where it has been introduced elsewhere in the world and is still limited in the EPPO region, it can be considered an emerging invader in Europe.

Geographical distribution
EPPO region: Turkey, Russia (region of Primorsk, native).

Asia (native): China, India, Japan (Hokkaido, Honshu, Kyushu, Ryukyu, Shikoku), Republic of Korea, Malaysia, Nepal, Philippines, Taiwan, Thailand.

Central America: Puerto Rico (invasive)

North America (invasive): USA (Alabama, Arkansas, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maryland, Massachusetts, Mississippi, Missouri, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Virginia, West Virginia).

Note: in Turkey, it is not recorded whether the species is casual or naturalized. The plant is present in North-East Anatolia, immediately near the town of Espiye, on a wet and seasonally-flooded river margin on gravels and sands of the river Espiye (Scholt and Byfield, 2000).

Morphology

M. vimineum is an annual grass which resembles a small bamboo. The plant produces a sparse, very short root system. It is usually 0.6-1 m in height, and the reclining stems can grow up to 1 m long. In unfavourable conditions, the plant can be as little as 10-20 cm tall, and is capable of flowering. The lanceolate leaf blades are 5-8 cm long, 2-15 mm wide, sparsely pubescent on both sides. The ligules are membranous, usually ciliate, and are 0.5-2 mm long. The fruit or caryopsis (grain) is yellowish to reddish, and ellipsoid in shape, 2.8-3.0 mm long.

Biology and ecology

In the northern hemisphere, seeds germinate in late spring and flower in mid-autumn. The plant reproduces vegetatively by rooting at nodes. It reproduces sexually as well and can produce 100 to 1000 seeds per plant. Seeds are dispersed by water, animals, and through human activities on clothing and vehicles. Seeds stored in the soil may remain viable for 5 years. Seeds may need stratification before germination, they can survive floods of 10 weeks. The plant appears to be associated with moist, acidic to neutral soils that are rich in nitrogen. It occurs opportunistically in areas of open soil that are generally not already occupied by other species. Although a C4 grass, the plant is adapted to low light conditions. The coldest winter temperature at which invasive populations of *M. vimineum* occur is approximatively -21°C to -23°C.

Habitats (adapted from Corine Land Cover nomenclature)

Arable land: early successional fields.
Mixed forests: forested slopes, particularly under disturbed canopy.
Banks of continental water, riverbanks/canalsides: forested wetlands.
Road and rail networks and associated land: roadside ditches, gas and power line corridors.
Other artificial surfaces (wastelands): it readily invades and is most common in disturbed, shaded areas like floodplains that are prone to natural scouring, and areas subject to mowing, tilling and other soil disturbing activities.
Green urban areas, including parks, gardens, sport and leisure facilities.

Pathways

In the early 1900s, *M. vimineum* was used extensively as a packing material for porcelain, especially fine China porcelain, which may have contributed to its entry into the USA. The plant has been reported as a contaminant of bird seed, soil and hay. It has not been documented as being intentionally planted as an ornamental, for erosion control or for forage.

Impacts

M. vimineum produces nearly monospecific stands that replace natural communities. Once established, it is able to crowd out native herbaceous vegetation in wetlands and forests within three to five years. The amount of available nitrate in the soil has shown to

increase under stands of this grass. Additionally, populations of *M. vimineum* alter quality nesting for wildlife (e.g. quails) and creates excellent habitat for rats (e.g. cotton rats).

Control
Hand pulling is the preferred method of removal when operated at the end of the summer, i.e. before the seed release, and when new seedlings have germinated. Mowing is effective if carried out in late summer as well. Grazing is not a control option since cattle, deer and even goat do not feed on the plant. Spring burns are ineffective since seeds will germinate after the burn, but burns in the late fall may control the species.
Large patches can be sprayed with grass-selective herbicides.

Source: Global Invasive Species Database – *Microstegium vimineum*
http://www.issg.org/database/species/ecology.asp?si=686&fr=1&sts

Scholz H, Byfield A (2000) Three grasses new to Turkey. *Turkish Journal of Botany* 24, 263-267.
http://journals.tubitak.gov.tr/botany/issues/bot-00-24-4/bot-24-4-7-98001.pdf

Weber E (2003) Invasive Plant Species of the World. CABI Publishing Wallingford, (UK) pp. 548, p. 269.

Additional key words: Invasive alien plants, alert list **Computer codes:** MCGVI

2008/046 EPPO/CoE Workshop on *Eichhornia crassipes* and *Eichhornia azurea*, 2008-06-02/04, Mérida (ES)

The workshop "How to manage invasive alien plants? The case studies of *Eichhornia crassipes* and *Eichhornia azurea"* will be organized in Mérida (ES) on 2008-06-04/06 by EPPO and the Council of Europe (Bern Convention), under the auspices of the Spanish Ministry of Agriculture, Fisheries and Alimentation and the Ministry of Environment, as well as the Confederación Hidrográfica del Guadiana.
The workshop will focus on the following topics:

- the biology of *Eichhornia crassipes* and *E. azurea*
- the pathways of entry of the plant: as an ornamental plant, as a contaminant, etc.
- the ability of establishment and spread of *Eichhornia crassipes* and *E. azurea*
- impacts of *Eichhornia crassipes* and *E. azurea* (economic, environmental, social, etc.)
- management measures of *Eichhornia crassipes* and *E. azurea* (mechanical, chemical, biological control, etc.),
- communication action on *Eichhornia crassipes* and *E. azurea*

Registration is still open.

Source: EPPO Website.
http://archives.eppo.org/MEETINGS/2008_conferences/eicchornia.htm

Additional key words: invasive alien plant, conference **Computer codes:** EICCR, EICAZ