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2015/202 First report of *Tecia solanivora* in mainland Spain

In November 2015, the presence of *Tecia solanivora* (Lepidoptera, Gelechiidae – EPPO A2 List) was reported for the first time in mainland Spain. It can be recalled that this pest had initially been detected in Islas Canarias in 1999 (EPPO RS 2001/129) where it is established but under official control. *T. solanivora* occurs in Central and South America where it is a serious pest of potato. Its larvae feed exclusively on potato tubers both in the field and in storage. In mainland Spain, *T. solanivora* has recently been detected in Galicia, in the municipalities of Ferrol, Narón and Neda (province of La Coruña). Phytosanitary measures are being implemented to eradicate the pest, and include: establishment of demarcated zones, destruction of infested tubers, mass trapping with pheromone traps, use of healthy seed potatoes, insecticide treatments, hygiene measures in the field and in stores, restrictions on the movements of potato tubers.
The situation of *Tecia solanivora* in Spain can be described as follows: **Present, only in some areas; first found in Islas Canarias in 1999 (under official control) and in Galicia in 2015 (under eradication).**

Source: Diario Oficial de Galicia (2015-11-03) no. 209, p 42042.
http://www.xunta.es/dog/Publicados/2015/20151103/AnuncioG0426-231015-0002_es.html

Additional key words: detailed record **Computer codes:** TECASO, ES

2015/203 *Epitrix papa*: a newly described species previously misidentified as *E. similaris* in the EPPO region

In 2004, unusual damage (superficial galleries and shallow holes) was detected on potato tubers in Northern Portugal (EPPO RS 2009/022). This damage was caused by larvae of flea beetles belonging to the genera *Epitrix*. The pest found in Portugal was identified as *Epitrix similaris,* a North American species which was previously unknown in Europe. In 2008, *E. similaris* was also detected in nearby Spain (EPPO RS 2011/078, 2014/068). At the same time, another North American pest, *E. cucumeris* was found in Northern Portugal but experiments and observations showed that *E. similaris* was the main cause of damage to potato crops. However, the identity of *E. similaris* was queried by several experts for the following reasons: 1) *E. similaris* is not regarded as a pest in North America; 2) *E. similaris* is a rare species, therefore its probability of spreading to another continent was considered to be low; 3) *E. similaris* has a very restricted distribution being recorded only in California and it is believed that the introduction of *Epitrix* spp. into Portugal was linked to imports of seed potatoes from the Canadian provinces of Prince Edward Island and New Brunswick (where *E. similaris* is not known to occur). A comparison of 20 specimens of '*E. similaris*' from Portugal has revealed that the species present there is not *E. similaris* (and not any other known species of *Epitrix*) but a new species which has been called *Epitrix papa.* In conclusion, the pest which has been recorded in Portugal and Spain on potato tubers is not *E. similaris* but *E. papa*.

Based on observations previously made in Portugal, the host range of *E. papa* is given as follows: *Solanum tuberosum, S. melongena, S. nigrum, S. lycopersicum* and *Datura stramonium*. Its geographical distribution covers Portugal and Spain, but its native range is unknown for the moment. It is quite probable that *E. papa* occurs in North America but this remains to be verified. It is stressed that a revision of the genus *Epitrix* is now needed to identify the native range of *E. papa*. Finally, these changes in taxonomy should also be

reflected in the EPPO A1/A2 Lists and other national quarantine lists, as *E. papa* (and not *E. similaris*) is indeed the species which has been introduced into the EPPO region.

Source: Orlova-Bienkowskaja MJ (2015) *Epitrix papa* sp. n. (Coleoptera: Chrysomelidae: Galerucinae: Alticini), previously misidentified as *Epitrix similaris*, is a threat to potato production in Europe. *European Journal of Entomology* **112**(4) DOI: 10.14411/eje.2015.096. http://www.eje.cz/pdfs/eje/2015/04/28.pdf

Additional key words: new pest, taxonomy, new record, absence **Computer codes:** EPIXPP, EPIXSI

2015/204 *Trioza erytreae* occurs in mainland Portugal

The NPPO of Portugal recently informed the EPPO Secretariat of the occurrence of *Trioza erytreae* (Hemiptera: Triozidae – EPPO A2 List, vector of huanglongbing) on the mainland. It can be recalled that until this new record, *T. erytreae* was found only on the island of Madeira (RS 1995/007, RS 2011/139). On mainland Portugal, *T. erytreae* was first found in the region of Porto in January 2015. Later surveys detected the pest in other areas along the northern coast (counties of Caminha, Esposende, Gondomar, Matosinhos, Maia, Porto, Vianno do Castelo, Vila Nova de Gaia). *T. erytreae* has been detected in urban areas on citrus trees (*Citrus limon, C. sinensis,* and *C. reticulata*). The pest has also been found on a *Choisya ternata* (Rutaceae) shrub growing in a private garden (county of Porto) and showing typical symptoms on young shoots with a low incidence.
Phytosanitary measures are being taken to eradicate the pest. In private gardens, isolated trees and orchards located in the infested areas, measures include: compulsory insecticide treatments, severe pruning of symptomatic shoots and destruction of pruned material, random sampling for the possible presence of '*Candidatus* Liberibacter spp.', prohibition to move citrus plants and plant parts (except fruits). In private gardens, isolated trees and orchards located in buffer zones, active surveillance (use of yellow sticky traps) is being carried out, and movements of citrus plants and plant parts are also prohibited. In nurseries, garden centres, markets or any commercial establishments located within the demarcated areas, measures include the destruction of citrus plants and the prohibition to produce and commercialize citrus plants.
The pest status of *Trioza erytreae* in Portugal is officially declared as: **Present, under eradication.**

Source: NPPO of Portugal (2015-11).

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Governo de Portugal. Ficha Técnica. Psila Africana dos citrinos. *Trioza erytreae* (Del Guercio). http://www.drapc.min-agricultura.pt/base/documentos/ficha_tecnica_trioza.pdf

Additional key words: detailed record **Computer codes:** TRIZER, PT

2015/205 Updated situation of *Trioza erytreae* in Spain

In Spain, the first signs of the presence of *Trioza erytreae* (Hemiptera: Triozidae – EPPO A2 List, vector of huanglongbing) were seen in August 2014 on lemon trees (*Citrus limon*) in Vilanova de Arousa (province of Pontevedra, Galicia) and the identity of the pest was later confirmed (EPPO RS 2015/022). Further surveys detected *T. erytreae* in the municipalities

of Cambados, Cangas, Illa de Arousa, O Grove, Poio, Pontevedra, Sanxenxo, Vilagarcía de Arousa, (province of Pontevedra), as well as in Boiro, Padrón and Rianxo (province of La Coruña, also in Galicia). A large majority of positive samples have been collected from lemon trees (*C. limon*), but a small number have been collected from orange trees (*C. sinensis*). On all sites where *T. erytreae* specimens were found, additional plant samples were collected and tested for the presence of '*Candidatus* Liberibacter spp.' that are associated with huanglongbing. All results were negative. It is recalled that measures are being taken to prevent the spread of *T. erytreae* in Spain.

Source: Pérez-Otero R, Mansilla JP, del Estal P (2015) [Detection of the African citrus psyllid, *Trioza erytreae* (Del Guercio, 1918) (Hemiptera: Psylloidea: Triozidae), in the Iberian Peninsula]. *Arquivos Entomoloxicos* **13**, 119-122 (in Spanish). http://www.aegaweb.com/arquivos_entomoloxicos/ae13_2015_perez_otero_et_al_psila_citricos_trioza_erytreae_hemiptera_triozidae_pen_iberica.pdf

Additional key words: detailed record **Computer codes:** TRIZER, ES

2015/206 *Rhynchophorus ferrugineus* found in Basra governorate, Iraq

In a recent issue of the Arab and Near East Plant Protection Newsletter, it is noted that although Gentry in 1965 mentioned that *Rhynchophorus ferrugineus* (Coleoptera: Curculionidae) occurred in Iraq, this record was never confirmed by further research or field observations. In October 2015, *R. ferrugineus* was detected in a date palm (*Phoenix dactylifera*) orchard located in the area of Safwan (Basra governorate), near the border with Kuwait. Phytosanitary measures were rapidly implemented by the official authorities to contain the infestation, including destruction (burning) of infested trees, implementation of monitoring surveys with traps (food attractants), and application of insecticide treatments. It is therefore considered that this finding is the first confirmed record of *R. ferrugineus* in Iraq.
The situation of *Rhynchophorus ferrugineus* in Iraq can be described as follows: **Present, confirmed for the first time in 2015 in the governorate of Basra.**

Source: Anonymous (2015) New record of red palm weevil, *Rhynchophorus ferrugineus* in Basra province, Iraq. *Arab and Near East Plant Protection Newsletter* **66**, p 26.

Gentry JW (1965) Crop Insects of Northeast Africa-Southwest Asia. United States Department of Agriculture. Agriculture Research Service. Agriculture Handbook no. 273, 214 pp.

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

2015/207 First report of *Drosophila suzukii* in Ireland

In June 2015 a survey, specific to *Drosophila suzukii* (Diptera: Drosophilidae – EPPO A2 List), was initiated at four nurseries located in Ireland. The counties selected were Dublin, Meath and Wexford. Between six to ten pheromone traps were set at each location, depending on overall farm size. Traps were monitored weekly from the second week of June. In the third week of August a single female was located from a trap located by the packing house on the Dublin farm with further male and female flies being located in traps at multiple locations on the farm the following week. Samples were identified using the EPPO Standard PM 7/115 (1) *Drosophila suzukii* and then passed to external experts for

confirmation. In the following weeks a number of individuals were trapped from the hedgerows surrounding a soft fruit and stone fruit growing area (Dublin county). To date (2015-10-24) the peak number of adults found in week has averaged 8.1 per trap, with an approximate 3:1 male to female ratio.
The situation of *Drosophila suzukii* in Ireland can be described as follows: **Present, first caught in 2015 in Dublin county.**

Source: NPPO of Ireland (2015-11).

Additional key words: new record **Computer codes:** DROSSU, IE

2015/208 *Aleurotrachelus trachoides* (Hemiptera: Aleyrodidae): addition to the EPPO Alert List

Why: *Aleurotrachelus trachoides* (Hemiptera: Aleyrodidae) was identified in the EPPO study on pest risks associated with the import of tomato fruit as possibly presenting a risk for the EPPO region. This whitefly species was later selected as a priority for PRA by the EPPO Panel on Phytosanitary measures. An EPPO Expert Working Group will meet in December 2015 to conduct PRAs on several tomato pests, including *A. trachoides*.

Where: *A. trachoides* is native from the Neotropical region; it has spread to the Pacific, and there are recent findings in Africa.
EPPO region: absent
Africa: Gambia (unconfirmed), Mozambique, Nigeria, Reunion.
North America: Mexico, USA (California, Florida, Hawaii, Louisiana, Texas).
Central America and Caribbean: Antigua and Barbuda, Bahamas, Barbados, Belize, Cayman Islands, Costa Rica, Cuba, Dominica, Dominican Republic, El Salvador, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Jamaica, Martinique, Netherlands Antilles (Curaçao), Nicaragua, Panama, Puerto Rico, Trinidad and Tobago, Virgin Islands (US).
South America: Brazil (Bahia, Rio do Janeiro), Colombia, Ecuador (Galapagos), French Guiana, Guyana, Peru, Suriname, Venezuela.
Oceania: Fiji, French Polynesia (Rangiroa, Tahiti), Guam, Micronesia (Kosrae island). There are also unconfirmed reports from Nauru and Tonga.

On which plants: *A. trachoides* is a polyphagous species with a preference for Solanaceae and Convolvulaceae. Solanaceous hosts include major cultivated species such as *Capsicum* spp*., Solanum lycopersicum* (tomato)*, S. melongena* (aubergine), *Nicotiana tabacum* (tobacco), ornamentals (*Cestrum, S. pseudocapsicum, S. seaforthianum*) and wild plants/weeds (*Datura stramonium, S. nigrum*). The pest seems to be attacking mainly *Capsicum* spp., and to a lesser extent *S. melongena* and *S. lycopersicum*. The importance of host plants belonging to other families is not clear, but *A. trachoides* has been reported on cultivated plants such as, *Annona* spp., *Citrus limon* (lemon), *Colocasia esculenta* (taro), *Ipomoea batatas* (sweet potato), *Persea americana* (avocado), *Psidium guajava* (guava), *Theobroma cacao* (cocoa), and *Rosa*.

Damage: *A. trachoides* mostly feed on leaves and young shoots, but fruit can also be attacked. Direct damage is caused by larvae and adults feeding on large quantities of sap. Symptoms may include plant stunting, and for fruiting species, a lower fruit production (i.e. smaller number of fruits with incomplete development). Indirect damage is caused by sooty moulds developing on honeydew secreted by the insect. This may reduce

photosynthesis, as well as the aesthetic and economic value of the plants. A. *trachoides* is not known to be a virus vector.
Adults are 1-2 mm long and a large part of their body is covered with white waxy secretions. Nymphs are black and partly covered by thick cottony white filaments. Females lay eggs on the lower surface of young leaves. Eggs are initially white or yellowish, becoming grey to brown. They are oblong and glued to the leaf by a short peduncle. First stage larvae are flat and round, and usually stay on the leaf on which they were laid. The second to fourth larval stages, as well as puparia also develop on the leaves. Adults can fly over short distances (especially when they are disturbed) but they are also readily transported by the wind or on clothes. No details could be found on the duration of life cycle, temperature and humidity requirements of *A. trachoides*.

Dissemination: over short distances, actively flying or wind-carried adults can disseminate the species. Over longer distances, trade of infested plants can spread all stages of the pest. *A. trachoides* has been intercepted by several countries (e.g. United Kingdom, USA) on different types of leafy vegetables and ornamentals.

Pathway: plants for planting, fruits and vegetables (including leaves), cut flowers of host plants from countries where *A. trachoides* occurs.

Possible risks: solanaceous crops such as capsicum, aubergines and tomatoes are widely grown in the EPPO region. The climatic similarity according to the 'EPPO study on pest risks associated with the import of tomato fruit' between the area where *A. trachoides* occurs and the EPPO region is low to medium (*A. trachoides* is a Nearctic species), but the pest might find suitable conditions under glasshouse conditions. Control of whiteflies can be difficult in both outdoor and protected crops. In the literature, several *Encarsia* species (e.g. *Encarsia cubensis, E. formosa, E. hispida, E. nigricephala, E. pergandiella, E. tabacivora*) are reported to parasitize *A. trachoides*, but there is no data about their potential use as biocontrol agents in practice. Although data is generally lacking about the economic impact of *A. trachoides*, it seems desirable to avoid the introduction of another whitefly species in the EPPO region which might disrupt the existing IPM strategies that are already in place.

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EPPO RS 2015/208

Panel review date - Entry date 2015-11

Additional key words: EPPO Alert List **Computer codes:** ALTRTR

2015/209 *Prodiplosis longifila* (Diptera: Cecidomyiidae): addition to the EPPO Alert List

Why: *Prodiplosis longifila* (Diptera: Cecidomyiidae) was identified in the EPPO study on pest risks associated with the import of tomato fruit as possibly presenting a risk for the EPPO region. *P. longifila* is a serious pest of tomatoes (*Solanum lycopersicum*) and other crops such as asparagus (*Asparagus officinalis*) in South America. *P. longifila* was later selected as a priority for PRA by the EPPO Panel on Phytosanitary measures. An EPPO Expert Working Group will meet in December 2015 to conduct PRAs on several tomato pests, including *P. longifila.*

Where: *P. longifila* has been recorded in several South American countries and in Florida (US). As the identification of this tiny bud midge is complex, its geographical distribution might be incomplete. Some publications mention its presence in the 'West Indies' but detailed records for individual countries in the Caribbean could not be found and a previous record for Jamaica is now considered to be a misidentification.
EPPO region: absent
North America: USA (Florida). It was first reported in the 1930s on wild cotton (*Gossypium hirsutum*), but damage was reported for the first time on lime (*Citrus aurantifolia*) in the 1980s.
South America: Colombia, Ecuador, Peru.

On which plants: *P. longifila* is polyphagous and has been recorded on many plant species. However, economic damage is mainly reported on tomato (*S. lycopersicum*), *Capsicum* spp., asparagus (*Asparagus officinale*) and to a lesser extent on Tahiti lime (*C. aurantifolia, C. latifolia*), and potato (*S. tuberosum*). Lists of host plants include important crops such as: *Allium cepa* (onion), *Citrullus lanatus* (watermelon), *Cucumis melo* (melon), *Cucumis sativum* (cucumber), *Cynara scolymus* (artichoke), *Glycine max*

(soybean), *Medicago sativa* (alfalfa), *Phaseolus vulgaris* (beans), *Ricinus communis* (castor bean), *Vitis vinifera* (grapevine).

Damage: damage is caused by larvae feeding on different plant parts (e.g. buds, flowers and small fruit) and may vary according to the type of crop attacked. Larvae of *P. longifila* scrape the epidermal tissues of plant parts using piercing-sucking mouthparts.
On tomato, eggs are laid in leaf buds, flowers and under the fruit calyx. Larvae feed on epidermal tissues of leaf buds, flowers (ovaries and stamens) and small fruits. Attacked plant tissues become brown and necrosis develops around the fruit petiole thus altering the commercial value of tomato fruits.
On sweet pepper (*Capsicum annuum*), larvae feed on young fruits (i.e. when 2 cm long). Attacked fruit change from green to a purplish colour and stop growing.
On asparagus, eggs are laid on new spears when they emerge from the ground and larval feeding can cause severe distortions that render the plant unmarketable (more particularly on green asparagus).
On potato and alfalfa, larvae feed on buds causing leaf distortion and plant stunting.
On Tahiti lime, larvae feed on epidermal tissues of the ovaries, pistils and stamens of flower buds and flowers. Feeding damage causes the abortion of flower buds, as well as abscission of flowers and small fruits.
Pictures of damage can be viewed on the Internet:
http://ffernandodiazs.galeon.com/album1589213.html
http://elproductor.com/2012/04/19/tomate-manejo-sostenible-de-la-negrita-prodiplosis-longifila-en-el-ecuador/
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Adults are small flies, approximately 1.5 mm long, and short-lived (1 or 2 days). Eggs are small (0.27 mm long), transparent and hatch within 1 or 2 days. Three larval stages have been observed. Fully grown larvae are about 1.9 mm long, and larval development requires 8 to 12 days. Pupation takes place in the soil (1.5 cm deep) and lasts 4 to 5 days.

Dissemination: adults can fly and are also dispersed by wind. Eggs and larvae are present in different plant parts and can easily be moved, unnoticed, with plant material. Soil attached to plants might also contain pupae. It is considered in Ecuador, that the movement of planting material of tomatoes has most probably contributed to the spread of the pest.

Pathways: fruits, vegetables, plants for planting, cut flowers of host plants, potato tubers with associated soil?, soil, from countries where *P. longifila* occurs.

Possible risks: tomato, capsicum, potato, alfalfa (and some plant species listed above) are major crops in the EPPO region, whereas some other hosts such as lime, asparagus or melons are cultivated mainly in the Southern part of the region. According to the EPPO Study, the climatic similarity between the area where it occurs and the EPPO region is medium. The pest is favoured by warm climates with high relative humidity, and is negatively affected by temperatures below 11 C° or above 28 C°. However, *P. longifila* might be able to establish in glasshouses. Due to its small size and hidden mode of life, *P. longifila* is difficult to detect on plant material. In its area of origin, *P. longifila* is causing economic damage on major crops, such as tomato and asparagus. For example, up to 100% and 60% crops losses have been reported in tomato production in Colombia and Ecuador, respectively. Attacks are observed both in field and protected tomatoes, and in some cases tomato cropping has been abandoned. As many different types of damage and host plants are recorded, it has been hypothetized that populations collected from different hosts might correspond to a complex of cryptic species rather than a single polyphagous species,

but this remains to be confirmed. In South America, control strategies are being developed and include monitoring of adult populations (light traps with sticky panels), chemical control, elimination of plant debris, weed control, and good irrigation practices. Research is also being carried out on the possible use of parasitoids (*Synopeas* sp. Hymenoptera; Platygasteridae) or entomopathogenic fungi (*Beauveria bassiana*). As *P. longifila* may present a risk to tomato crops and other host plants, it is desirable to avoid its introduction into the EPPO region.

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EPPO RS 2015/209

Panel review date - Entry date 2015-11

Additional key words: EPPO Alert List **Computer codes:** PRDILO

2015/210 First report of *Eutypella parasitica* in the Czech Republic

The NPPO of the Czech Republic recently informed the EPPO Secretariat of the first detection of *Eutypella parasitica* (formerly EPPO Alert List) on its territory. The fungus was initially detected in 1 tree of *Acer pseudoplatanus* displaying an old canker (135 cm long) high on the trunk (5 m high) in September 2015. The identity of the fungus was confirmed

in October 2015 by morphological and molecular (PCR, sequencing) methods. An official delimiting survey was implemented. For the moment, the fungus has been found on 4 trees of *A. pseudoplatanus* scattered over an area of about 2 km² and located in a forest in the Moravian-Silesian region. The origin of this outbreak is unknown. Phytosanitary measures have been adopted to eradicate *E. parasitica* as the outbreak appears to be very limited. These measures include tree destruction by burning, as well as hygiene measures during and after the destruction. A specific survey will continue in 2016.
The pest status of *Eutypella parasitica* in the Czech Republic is officially declared as: **Present, only in one locality, under eradication.**

Source: NPPO of the Czech Republic (2015-11).

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

2015/211 First report of Grapevine Pinot gris virus in the USA

The presence of Grapevine Pinot gris virus (*Trichovirus*, GPGV) has recently been detected in grapevine samples collected from California, USA. While testing 96 randomly selected samples, GPGV was detected in 7 samples (*Vitis vinifera* cvs. 'Cabernet Sauvignon', 'Cabernet Franc', 'Chardonnay') which had been collected from 3 different Californian vineyards. This is the first time that GPGV is reported from the USA.

Source: ProMed posting (no. 20151124.3814257) of 2015-11-13. Grapevine Pinot gris virus – USA: first report (California). http://www.promedmail.org/post/3814257

Additional key words: new record **Computer codes: GPGV00, US**

2015/212 First report of Grapevine Pinot gris virus in Turkey

Since 2014, symptoms of leaf deformation and mottling with reduced fruit yield and quality have been observed on grapevine (*Vitis vinifera* cvs. 'Chardonnay', 'Emir', 'Kadın parmağı', 'Muscat of Hamburg', 'Pinot noir') in the Tekirdağ province of Turkey (Marmara region). Laboratory analysis confirmed the presence of Grapevine Pinot gris virus (*Trichovirus*, GPGV) and several other viruses (i.e. Grapevine leaf roll associated virus 1 and 3, Grapevine fanleaf and Grapevine fleck virus) in all tested samples except those collected from cv. 'Muscat of Hamburg'. This is the first time that GPGV is reported from Turkey.

Source: Gazel M, Çağlayan K, Elçi E, Ozturk L (2015) First report of Grapevine Pinot gris virus in grapevine in Turkey. *Plant Disease* (in press)
http://apsjournals.apsnet.org/doi/abs/10.1094/PDIS-05-15-0596-PDN

Additional key words: new record **Computer codes: GPGV00, TR**

2015/213 '*Candidatus* Phytoplasma phoenicium' added again to the EPPO Alert List

Why: almond witches' broom was brought to the attention of the EPPO Secretariat in 2001 by scientists who observed a new phytoplasma disease causing extensive mortality on almond trees in Lebanon. This new almond disease was added to the EPPO Alert List in 2001. In 2006, the disease was removed from the EPPO Alert List as no particular international action was requested by EPPO member countries. However, since then a rapid spread of almond witches' broom has taken place in Lebanon, a new phytoplasma species '*Candidatus* Phytoplasma phoenicium' has been found to be associated with the disease in Lebanon and Iran, the host range has extended to peach and nectarine, and epidemiological studies have identified potential insect vectors and wild host plants. During discussions with EFSA, concerns about the risks that '*Ca.* P. phoenicium' may present to almond, peach and nectarine crops were raised again. Considering the severity of this disease on several major stone fruit trees, the EPPO Secretariat decided that '*Ca*. P. phoenicium' should be added again to the EPPO Alert List.

Where: symptoms of almond witches' broom were first reported in the 1990s in Southern Lebanon. Later studies showed that the disease had spread to many other *Prunus*-growing regions of Lebanon (detected in 16 out of the 26 Lebanese districts during 2009/2010 surveys). In Iran, symptoms of almond witches' broom disease have been observed in the central and southern parts of the country. Although some genetic variability is observed among phytoplasmas found on stone fruit trees in Iran and Lebanon, '*Ca*. P. phoenicium' has been detected in both countries. This genetic variability might be explained by different epidemiological and environmental situations (e.g. host plants, insect vectors, climate).
EPPO region: Iran, Lebanon.

On which plants: the disease was initially found on almond (*Prunus dulcis*), but later also observed on peach (*P. persica*) and nectarine (*P. persica* var. *nucipersica*). Grafting experiments and molecular analysis have revealed that '*Ca*. P. phoenicium' does not affect apricot (*P. armeniaca),* cherry (*P. avium*), and plum (*Prunus domestica*). During recent studies, '*Ca*. P. phoenicium has been detected in asymptomatic *Smilax aspera* (Smilacaceae), indicating that wild plants probably play a role in the disease epidemiology by acting as reservoirs for the phytoplasma.

Damage: on almond trees, the disease is characterized by shoot proliferation and appearance of witches' broom on the stems, small yellowish leaves, bushy growth, and general dieback. Infected trees either do not produce any fruit, or produce a limited number of deformed fruits, resulting in a practically 100% unmarketable fruit production. Total loss of production usually happens 1-2 years after the onset of the first symptoms. In the case of peach and nectarine, the first symptoms which can be observed are early flowering (15 to 20 days before normal), followed by the early development of all buds on infected branches. In addition, phyllody (during the flowering period), development of serrate, slim, light green leaves, as well as witches' brooms developing from the trunk and the crown of the trees are then observed. Tree mortality has commonly taken place, and it is estimated that over a period of 20 years more than 150 000 trees have been killed in Lebanon. In this country, it is noted that the disease can be found from coastal areas to mountainous areas (>1200 m), in properly managed orchards, abandoned orchards and isolated wild trees.

Transmission: experiments have shown that the leafhopper, *Asymmetrasca decedens* (Hemiptera: Cicadellidae) is a vector of the disease. During these studies, it has also been found that the incubation period of the disease in plants could exceed one year. It is noted

that further research is needed on the mode of transmission of '*Ca*. P. phoenicium' by *A. decedens*. In another survey about potential vectors of '*Ca*. P. phoenicium' conducted in Lebanon from 2011 to 2013, preliminary transmission experiments have shown that two *Tachycixius* species, *T. viperinus* and *T. cf. cypricus* (Hemiptera: Cixiidae), could transmit the phytoplasma to healthy peach plants. However, further studies are needed to clarify the taxonomic status and biology of these insects, as well as their potential role in disease transmission in orchards.

Pathway: plants for planting of almond (*P. dulcis*), peach and nectarine (*P. persica, P. persica* var. *nucipersica*) from Iran and Lebanon, infectious insect vectors?

Possible risks: almond, peach and nectarine are economically important stone fruit crops around the Mediterranean Basin. Extensive tree mortality has been observed, in particular on almond trees in Lebanon. In January 2011, Lebanon decided to list almond witches' broom as a regulated pest and announced that a National plan would be implemented to manage the disease (destruction of infected trees and use of healthy planting material). Control of phytoplasma diseases is difficult in the field, and usually relies on the control of insect vectors and the use of phytoplasma-free planting material. Preliminary experiments have showed that several tissue culture techniques coupled with thermotherapy could produce phytoplasma-free almond plantlets, and thus might be used as a sanitation technique for the production of healthy planting material (e.g. in the framework certification schemes). Because '*Ca*. P. phoenicium' is associated with a lethal and emerging disease of several economically important stone fruit crops, it is desirable to avoid its spread within the EPPO region and warn NPPOs about its severe impacts on almond, peach and nectarine fruit production.

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EPPO RS 2001/094, 2002/083, 2011/042, 2013/035, 2015/035, 2015/097, 2015/213

Panel review date - (Re)Entry date 2015-11

Additional key words: EPPO Alert List **Computer codes:** PHYPPH

2015/214 The EU Minor Uses Coordination Facility has started

Since 2011-09-01, EPPO is hosting the EU Minor Uses Coordination Facility and Mr Jeroen Meeussen has taken up his duty to coordinate this new network. Minor uses of pesticides are uses on niche crops with a high economic value for farmers, but usually of low economic interest for the agro-pesticide industry, and also uses on pest problems which are not routinely encountered. The mission of the Coordination Facility is 'to enable farmers in the EU to produce high quality crops by filling minor uses gaps through efficient collaboration to improve availability of chemical and non-chemical tools within an integrated pest management (IPM) framework'. This new Coordination Facility is jointly funded by the EU and the governments of France, Germany and the Netherlands.
More information about the EU Minor Uses Coordination Facility can be found on its new website which was launched in early November 2015.

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Source: EPPO Secretariat (2015-11).

2015/215 Economic analysis of invasive alien species costs to the French economy

There are an estimated 12 000 alien species present within Europe of which 10-15 % are considered invasive and these invasive species cost the EU around 12 billion euros per year. In France, the Ministry of Ecology, Sustainable Development and Energy has commissioned a project to evaluate the financial costs at a national scale where information was gathered through questionnaires and literature reviews. The survey showed that between 2009 and 2013, 19 million euros were spent annually (including both staff time and management costs) controlling invasive alien species. Of this figure, 68 % was spent in the overseas territories and 32 % was spent in the French mainland. The damage incurred by invasive alien species was estimated to be approximately 19 million euros per year giving a total cost of 38 million euros per year. The study showed that between 2009 and 2013, the costs associated with invasive alien species increased each year and those species that have the highest associated costs relate to negative impacts on infrastructure and losses within agriculture and forestry. The two invasive *Ludwigia* species (*L. peploides* and *L. grandiflora*) and the *Elodea* species (*E. callitrichoides*, *E. canadensis* and *E. nuttallii*) incur an average annual control cost of over 1.5 million euros in the French mainland (Table 1). Costs incurred include disruptions to waterways (e.g. decreased leisure boating activities and recreational fishing) coupled with reduced levels of biological diversity in areas they invaded. Management costs for aquatic plant species are often high due to the need for specialist equipment and repeated site visits to control populations. The present study adds to the growing number of national studies that have evaluated the costs of invasive species to their economies.

Table 1. The invasive alien plant species associated with the highest control costs in France

Species	Region	Costs 2009-2013	Average annual cost
Ludwigia spp. & *Elodea* spp. (EPPO A2 List* & List of Invasive Alien Plants*)	Mainland	7 748 k€	1 550 k€
Reynoutria spp. (EPPO List of Invasive Alien Plants*)	Mainland	1 010 k€	202 k€
Ambrosia artemisiifolia (EPPO List of Invasive Alien Plants)	Mainland	855 k€	171 k€
Rubus alceifolius	La Réunion	357 k€	71 k€
Baccharis halimifolia (EPPO A2 List)	Mainland	307 k€	61 k€
Myriophyllum aquaticum (EPPO List of Invasive Alien Plants)	Mainland	288 k€	58 k€
Heracleum mantegazzianum (EPPO List of Invasive Alien Plants)	Mainland	257 k€	51 k€
Eichhornia crassipes (EPPO A2 List)	Martinique	200 k€	40 k€
Carpobrotus spp. (EPPO List of Invasive Alien Plants*)	Mainland	167 k€	33 k€
Miconia calvescens	New Caledonia	149 k€	30 k€
Egeria densa (EPPO List of Invasive Alien Plants)	Mainland	130 k€	26 k€
Pinus caribaea	New Caledonia	124 k€	25 k€
Potamogeton spp.	Mainland	120 k€	24 k€

* *Ludwigia* species on the EPPO A2 List are *L. peploides* and *L. grandiflora*; *Elodea* species on the EPPO List of Invasive Alien Plants is *Elodea nuttallii*; *Reynoutria* (*Fallopia*) species on the EPPO List

of Invasive Alien Plants include *F. japonica*, *F. sachalinensis* and *F.* x *bohemica*; *Carpobrotus* species on the EPPO List of Invasive Alien Plants are *C. acinaciformis* and *C. edulis*.

Source: Wittmann A & Flores-Ferrer A (2015) Analyse économique des espèces exotiques envahissantes en France. Ministry of Ecology, Sustainable Development and Energy. Avalaible online http://www.developpement-durable.gouv.fr/Analyse-economique-des-especes.html

Additional key words: invasive alien plants, management

Computer codes: AMBEL, BACHA, CBSAC, CBSED, EICCR, ELDCA, ELDDE, ELDCL, ELDNU, HERMZ, LUDPE, LUDUR, MICCA, MYPBR, PLUCB, PTMG, REYBO, REYSA, RUBAC, FR

2015/216 The suitability of *Neochetina bruchi* and *Neochetina eichhorniae* as biocontrol agents for *Eichhornia crassipes* in Ethiopia

Eichhornia crassipes (Pontederiaceae: EPPO A2 List) was reported around 60 years ago in Koka Lake and Awash River in Ethiopia (ET), and has since spread to many waterbodies within the country. The two weevils *Neochetina bruchi* and *Neochetina eichhorniae* have been utilised as biocontrol agents against *E. crassipes* throughout its invasive range. The weevils are host specific and cause considerable damage to the invasive population with cases of spectacular success. For example, in Uganda the two weevils reduced the biomass of *E. crassipes* on Lake Victoria by nearly 80 %. The efficacy of the two weevils in controlling *E. crassipes* has shown differences from country to country. Often the difference in efficacy is due to varying climatic conditions. In Benin, *N. eichhorniae* has been shown to be more effective whereas in Uganda *N. bruchi* became the dominant species. To evaluate the suitability of both weevil species in the Rift Valley, Ethiopia, populations were imported from Uganda and mass reared for the subsequent experiments. The egg hatching period of *N. bruchi* (4–10 days) was shorter compared to that of *N. eichhorniae* (8-12 days) as too was larval development (*N. bruchi* 32-38 days: *N. eichhorniae* 52-60 days). Both species significantly reduced the vigour and development of *E. crassipes* where *N. bruchi* showed a 72 % reduction in plant fresh weight compared to a 66 % reduction by *N. eichhorniae*. The study concludes that *N. bruchi* could be considered a promising candidate for the biological control of *E. crassipes* in Ethiopia.

Source: Fireman Y, Struik PC, Lantinga EA & Taye T (2015) Adaptability of two weevils (*Neochetina bruchi* and *Neochetina eichhorniae*) with potential to control water hyacinth in the Rift Valley of Ethiopia. *Crop Protection*. **76**, 75-82.

Additional key words: biological control, invasive alien plants

Computer codes: EICCR, NEONBR, NEONEI, ET

2015/217 Nectar of the invasive *Rhododendron ponticum* can have negative impacts on native bee health

Invasive alien plants can provide an abundant nectar source to native pollinators however, this can lead to changes in the pollinator community structure. The nectar of some plant species contains secondary compounds that are usually associated with defence against herbivores. Within native plant communities, the response of pollinators to these often low levels of secondary compounds ranges from positive to negative depending on the species. *Rhododendron ponticum* subsp. *baeticum* was introduced from the Iberian Peninsula into Britain and Ireland in the 18th century and mature plants produce hundreds of flowers with sugar rich nectar. This nectar contains high concentrations of diterpenes known as

grayanotoxins (*R. ponticum* nectar contains grayanotoxins I and III) which are known to be toxic to mammals. However, little is known about their potential toxicity to pollinators. In the present study three bee species (honeybee - *Apis mellifera*, bumblebee - *Bombus terrestris* and solitary mining bee - *Andrena carantonica*), which are native to areas invaded by *R. ponticum* subsp. *baeticum*, were fed with nectar solutions each containing grayanotoxins I and III at varying concentrations, plus a solution free from grayanotoxins. The survival rate of solitary bees and bumblebees were not affected by the grayanotoxins but individual honeybees were 20 times more likely to die when fed with solutions containing grayanotoxin I. The current experiments suggest that although *R. ponticum* subsp. *baeticum* contains high levels of nectar which can be utilised by some pollinator species, others may experience negative impacts as a result of *R. ponticum* subsp. *baeticum* invasion.

Source: Tiedeken EJ, Egan PA, Stevenson PC, Wright GA, Brown MJF, Power EF, Farrell I, Matthews SM & Stout JC (2015) Nectar chemistry modulates the impact of an invasive plant on native pollinators. *Functional Ecology*. DOI: 10.1111/1365-2435.12588.

Additional key words: invasive alien plants **Computer codes:** RHOPB, IE

2015/218 Defra report: assessing the achievements of local action groups in tackling invasive non-native species

Since 2011, the Department for Environment, Food and Rural Affairs (Defra) has funded a network of local action groups in England (GB) to manage aquatic and riparian invasive non-native species. The local action groups, comprised of volunteers, charities and other partners, have worked throughout the country to prevent, detect and mitigate impacts of invasive alien species coupled with building awareness and understanding throughout the community. The report, which was recently published, highlights successes and blockages to progress and makes recommendations to how these groups can achieve long term sustainability. The report can be downloaded via the link below.

Source: GB Non-native species Secretariat.
Website: http://www.nonnativespecies.org/news/index.cfm?id=208

Additional key words: invasive alien plants **Computer codes:** GB

2015/219 Hotspots for invasive alien plants in India

Identifying hotspots for invasive alien plant invasions can help concentrate management and mitigation practices in vulnerable habitats. Using Ecological Niche Modeling (ENM) with species occurrence data from the Global Biodiversity Information Facility (GBIF), the predicted area of invasion for selected species in India was classified into four categories (high, medium, low and very low). In total, 155 invasive alien plant species currently occurring in India were selected, and their global occurrence data was used to build the models. The geographical regions of Africa, Australia, Europe, North America, and South America were used for the niche models. The climatic suitability maps showed that the continents of Africa and Australia had a high climatic comparability to the northeastern region and eastern coasts of India whereas North and South America matched with the peninsular and northeastern region. Europe had high climatic comparability with the

western Himalayas. Approximately 49 % of the total geographical area of India was predicted to be prone to invasion at medium to high levels based on climatic suitability. The study shows that invasion hotspots overlap with biodiversity hotspots which are of concern especially when considering that biodiversity hotspots are subject to high levels of disturbance in the form of agriculture expansion and urbanization. Secondly the study shows that invasion hotspots coincide with islands and coastal areas and through this study the authors highlighted important measures that should be put in place to mitigate further invasions. Surveillance and quarantine measures should be increased in such areas to prevent the introduction, colonization and establishment of invasive alien plants.

Source: Adhikari D, Tiwary R & Barik SK (2015) Modelling hotspots for invasive alien plants in India. *PLOS One*. DOI: 10.1371/journal.pone.0134665.

Additional key words: invasive alien plants **Computer codes:** IN

2015/220 Freshwater Invasives – Networking for Strategy (FINS-II) conference (Zagreb, HR, 2016-07-11/14)

The University of Zagreb, Faculty of Agriculture (UNIZ-AFZ) and the Aquaculture Advisory Commission (EIFAAC) will host an international conference to address key topics relating to freshwater invasive species. The focus of the conference is to provide a forum where scientists, policymakers and stakeholders will address themes with a view to informing management and policy development. The themes will include:

- Pathways and vectors for the spread of freshwater invasive fish species,
- Impacts of introduced freshwater invasive species,
- Risk management and prevention of secondary spread for freshwater invasive species,
- Freshwater invasions in a time of global social and climate change,
- Best practice for the control of freshwater invasive species,
- Invasion ecology of freshwater invasive species,
- The role of citizen science in invasion biology.

Oral presentations will be presented by invited speakers and participants can submit abstracts for poster presentations which will form an integral part of the conference. Abstracts should be submitted by 2016-03-15. A reduced registration fee is available up until 2016-04-15.

Source: FINS Conference.
Website: http://finsconference.eu

Additional key words: invasive alien plants, conference **Computer codes:** HR