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CONTENTS ***Pests & Diseases***

Invasive Plants

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2013/001 *Erwinia amylovora* present in Russia

Until recently, fireblight (*Erwinia amylovora* – EPPO A2 List) was not known to occur in Russia. According to Aleksandrov (2009), *E. amylovora* was confirmed for the first time in Russia in 2003 on a symptomatic sample of hawthorn (*Crataegus* sp.) from Kaliningrad (Central Russia). In 2008, *E. amylovora* was recorded on apple and pear orchards, as well as on wild pear in the Voronezh region. In the following years, more outbreaks of fireblight were detected in other parts of Central Russia (Lipetsk, Tambov) and Southern Russia (Belgorod, Karachaevo-Cherkessia, Samara, Saratov, Stavropol, Volgograd). Official control measures are taken against the disease.
The situation of *Erwinia amylovora* in Russia can be described as follows: **Present, first detected in 2003, outbreaks found in Central Russia (Kaliningrad, Lipetsk, Tambov) and Southern Russia (Belgorod, Karachaevo-Cherkessia, Samara, Saratov, Stavropol, Volgograd, Voronezh), under official control.**

Source: Aleksandrov IN (2009) [Fire blight of fruit crops in the Russian Federation. A historical note]. *Zashchita i Karantin Rastenii* **12**, 26-29 (in Russian).
Kharchenko AA (2009) [Fire blight in the Voronezh region]. *Zashchita i Karantin Rastenii* **5**, 34-35 (in Russian).
INTERNET
- Federal Service for Veterinary and Phytosanitary Surveillance of the Republic of Tatarstan. http://shn.tatarstan.ru/rus/rospredupr/bakogog.html
- All-Union Plant Quarantine Institute (VNIIKR)
http://www.vniikr.ru/Reports.html and http://www.vniikr.ru/Reports_contr.html

Additional key words: new record **Computer codes:** ERWIAM, RU

2013/002 First report of '*Candidatus* Liberibacter solanacearum' and *Bactericera cockerelli* on potatoes in Nicaragua

In September 2011, symptoms resembling those of zebra chip (associated with 'Ca. Liberibacter solanacearum' – Solanaceae haplotypes, EPPO A1 List) were observed in 8 potato (*Solanum tuberosum*) fields in the departments of Estelí and Jinotega, in Nicaragua. Affected potato plants displayed leaf chlorosis, scorching, wilting, vascular discoloration, swollen nodes, aerial tubers, twisted stems, and tubers showed internal discoloration. In these 8 potato fields (of 5 to 12 ha), the disease incidence ranged from 50 to 95%. Leaf samples and psyllids were collected from 2 fields. Total DNA was purified from the leaves of 17 symptomatic and 10 asymptomatic plants, as well as from 20 psyllid specimens. Molecular analysis confirmed the presence of '*Ca*. L. solanacearum' in all symptomatic potato leaf samples and in 7 psyllids. The collected psyllids were identified (morphology, PCR) as *Bactericera cockerelli* (Hemiptera: Psyllidae – EPPO A1 List). This is the first time that zebra chip and its vector, *Bactericera cockerelli*, are reported from Nicaragua. The authors concluded that because '*Ca*. L. solanacearum' has caused significant economic damage to potatoes in the USA, Mexico, Guatemala and Honduras, this finding has significance for potato production in Central America.
The situation of '*Candidatus* Liberibacter solanacearum' and *Bactericera cockerelli* in Nicaragua can be described as follows: **Present, first found in 2011, detected in a few potato fields (departments of Estelí and Jinotega).**

Source: Bextine BR, Arp A, Flores E, Aguilar EY, Schindler, Soza Gomez F, Rueda AA (2013) First report of zebra chip and '*Candidatus* Liberibacter solanacearum' on potatoes in Nicaragua. *Plant Disease* **97** (in press), 1 p.

Additional key words: new record **Computer codes:** LIBEPS, PARZCO, NI

2013/003 *'Candidatus* Liberibacter asiaticus' detected in *Cacopsylla citrisuga*

Studies have been conducted in the province of Yunnan (China) to determine whether the pomelo psyllid, *Cacopsylla citrisuga* (Hemiptera: Psyllidae), might be a potential vector of *'Candidatus* Liberibacter asiaticus' (associated with citrus huanglongbing – EPPO A1 List). *C. citrisuga* feeds on *Citrus* spp. (e.g. *Citrus grandis, C. reticulata, C. medica*) and is only known to occur in China. Nymphs of *C. citrisuga* (all stages) and young citrus leaves were collected from a 6-year old lemon orchard (*C. limon* cv. 'Eureka') severely affected by huanglongbing. Samples were tested in the laboratory for the presence of *'Ca.* Liberibacter asiaticus' by PCR assays. Results confirmed the presence of '*Ca*. L. asiaticus' in diseased lemon trees, as well as in 12 (out of 29) nymphs of *C. citrisuga*. These results demonstrate that *C. citrisuga* can carry the pathogen, but further studies are under way to determine whether infected psyllids can transmit '*Ca*. L. asiaticus' to healthy citrus trees.

Source: Cen Y, Zhang L, Xia Y, Guo J, Deng X, Zhou W, Sequeira R, Gao J, Wang Z, Yue JQ, Gao Y (2012) Detection of *'Candidatus* Liberibacter asiaticus' in *Cacopsylla* (*Psylla*) *citrisuga* (Hemiptera: Psyllidae). *Florida Entomologist* **95**(2), 304-311.

Additional key words: epidemiology **Computer codes:** LIBEAS, PSYLCS, CN

2013/004 First report of *Chalara fraxinea* in Ireland

In October 2012, the presence of *Chalara fraxinea* (teleomorph *Hymenoscyphus pseudoalbidus* – EPPO Alert List) was reported for the first time in Ireland. Ash dieback was found at one site in county Leitrim on young ash trees (*Fraxinus* spp.). Phytosanitary measures were taken to eradicate the disease and included: destruction of infected trees, specific surveys, tracing-back studies, and restrictions on the movements of ash plants. As a result of specific surveys, the presence of *C. fraxinea* was detected in 15 young forest plantations, 6 horticultural nurseries and 1 garden. As of 2012-12-13, *C. fraxinea* was found in forest plantations in counties Leitrim, Meath, Tipperary, Kilkenny, Waterford, Carlow, Kildare, Laois, Longford and Galway.
The situation of *Chalara fraxinea* in Ireland can be described as follows: **Present, first found in 2012 in several counties (Leitrim, Meath, Tipperary, Kilkenny, Waterford, Carlow, Kildare, Laois, Longford and Galway), under eradication.**

Source: INTERNET
Department of Agriculture, Food and the Marine of Ireland.
Chalara disease found in young ash trees. Press release of 2012-10-12.
http://www.agriculture.gov.ie/media/migration/forestry/ashdiebackchalara/PR12Oct12.pdf
Government steps up ash dieback (Chalara) eradication measures. Press release of 2012-12-13.
http://www.agriculture.gov.ie/media/migration/forestry/ashdiebackchalara/PR13Dec12.pdf

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

2013/005 First report of *Gibberella circinata* in Uruguay

The presence of *Gibberella circinata* (anamorph *Fusarium circinatum* - EPPO A2 List) was reported for the first time in 2009 on *Pinus taeda* seedlings in nurseries. Needles of affected seedlings showed different stages of chlorosis ranging from pale green to reddish-brown discolouration. Stem and collar rot with bark cracks were detected and in some of

them fungal sporodochia were observed. The identity of the fungus was confirmed by morphological and molecular methods. It is suspected that the fungus was introduced with seeds as no symptoms were observed in field plantations. Incidence of the disease in nurseries was low and destruction of all infected seedlings was recommended.
The situation of *Gibberella circinata* in Uruguay can be described as follows: **Present, first reported in 2009 on *Pinus taeda* seedlings.**

Source: Alonso R, Bettucci L (2009) First report of the pitch canker fungus *Fusarium circinatum* affecting *Pinus taeda* seedlings in Uruguay. *Australasian Plant Disease Notes* **4**, 91–92.

Additional key words: new record **Computer codes:** GIBBCI, UY

2013/006 First report of *Meloidogyne ethiopica* in Greece

In summer 2009, the presence of *Meloidogyne ethiopica* (EPPO Alert List) was detected in 2 soil samples which had been collected from maize (*Zea mays*) and kiwifruit (*Actinidia deliciosa*) crops near Kavalla, Northern Greece. It is stressed that *M. ethiopica* might pose a significant threat to farmers in Greece and that its establishment and spread should be prevented. This is the first record of *M. ethiopica* in Greece and the second for Europe (this nematode was first found in Slovenia - see EPPO RS 2011/094).
The situation of *Meloidogyne ethiopica* in Greece can be described as follows: **Present, first found in 2009 near Kavalla on outdoor crops (maize and kiwifruit).**

Source: Conceição IL, Tzortzakakis EA, Gomes P, Abrantes I, da Cunha MJ (2012) Detection of the root-knot nematode *Meloidogyne ethiopica* in Greece. *European Journal of Plant Pathology* **134**(3), 451-457.

Additional key words: new record **Computer codes:** MELGET, GR

2013/007 First report of *Tecia solanivora* in Mexico

In November 2010, the presence of *Tecia solanivora* (Lepidoptera: Gelechiidae – EPPO A2 list) was observed for the first time in Mexico on potato crops. The pest was found during a field survey conducted in El Porvenir (state of Chiapas), a municipality located at an altitude of 2088 m and close to the border with Guatemala (17 km). Out of 232 potato tubers examined, 32 were found to be infested with larvae and pupae of *T. solanivora*. In 2011, pheromone traps were placed in potato fields in the same locality for 1 month and caught on average 189.7 males/trap/night. It is suspected that *T. solanivora* was introduced into Mexico on seed potatoes from Guatemala.
The situation of *Tecia solanivora* in Mexico can be described as follows: **Present, first found in 2010 in 1 municipality (El Porvenir, state of Chiapas).**

Source: Cruz Roblero NE, Castillo Vera A, Malo EA (2011) First report of *Tecia solanivora* (Lepidoptera: Gelechiidae) attacking the potato *Solanum tuberosum* in Mexico. *Florida Entomologist* **94**(4), 1055-1056.

Additional key words: new record **Computer codes:** TECASO, MX

2013/008 First report of *Thrips palmi* in Iraq

During 2009 and 2010, samples of thrips were collected from Baghdad and Karkalla Governorates in Iraq from leaves and flowers of many crops such as potato, tomato, eggplant, cucumber and melon grown in the field and greenhouses. During this study, the presence of *Thrips palmi* (Thysanoptera: Thripidae – EPPO A1 List) was detected. The insect was identified on the basis of its morphological characteristics. This is the first time that *T. palmi* is reported from Iraq.
The situation of *Thrips palmi* in Iraq can be described as follows: **Present, first found in 2010.**

Source: Hamodi AA, Abdul-Rssoul MS (2012) New record of *Thrips palmi* Karny 1925 (Thysanoptera: Thripidae) in Iraq. *Arab Journal of Plant Protection* **30**(1), 142-144 (in Arabic).

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

2013/009 First report of *Maconellicoccus hirsutus* in Brazil

In Brazil, the presence of *Maconellicoccus hirsutus* (Hemiptera: Pseudococcidae – EPPO A2 List) was observed for the first time in October 2010 in the state of Roraima. The mealybug was found in the municipalities of Bonfim, Pacaraima and Boa Vista, attacking *Hibiscus rosa-sinensis*. From January 2011 to April 2012, surveys were conducted in the municipalities of Boa Vista and Normandia. In Boa Vista, *M. hirsutus* was found on leaves and fruits of *Inga edulis* (Fabaceae), seedlings of *Centrolobium paraensis* (Fabaceae), leaves and pods of soybean (*Glycine max* - Fabaceae), young tomato plants (*Solanum lycopersicum* - Solanaceae). In Normandia, *M. hirsutus* was found on leaves and fruits of carambola (*Averrhoa carambola* - Oxalidaceae), leaves of guava (*Psidium guajava* - Myrtaceae), branches and fruit of soursop (*Annona muricata* - Annonaceae), and leaves of orange trees (*Citrus sinensis* - Rutaceae). The emergence of a parasitoid*, Anagyrus kamali* (Hymenoptera: Encyrtidae) was observed in samples of *H. hirsutus* collected from hibiscus plants.
The situation of *Maconellicoccus hirsutus* in Brazil can be described as follows: **Present, first found in 2010, several localities in the state of Roraima (Boa Vista, Bonfim, Normandia, Pacaraima).**

Source: Morais EGF, Peronti, ALBG, Marsaro AL Jr, da Silva RJ Jr (2012) [New records and hosts of the pink mealybug *Maconellicoccus hirsutus* in Roraima]. Abstract of a paper presented at the XXIV Congresso Brasileiro de Entomologia (Curitiba, BR, 2012-09-16/20) (in Portuguese).
http://www.cbe2012.com.br/_apps/trabalhos/986/986_2.pdf

Additional key words: new record **Computer codes:** PHENHI, BR

2013/010 First report of *Ophiomyia kwansonis* in Slovenia: addition to the EPPO Alert List

In Slovenia, larvae of an unusual leafminer belonging to the genus *Ophiomyia* (Diptera: Agromyzidae) were found in *Hemerocallis* spp. (daylilies) at 4 localities (2 private gardens, 1 public park, 1 botanical garden) in Ljubljana in autumn 2011. Silvery tunnels were

observed on leaves of *H. fulva, H. lilioasphodelus* and some other *Hemerocallis* species. Six *Ophiomyia* species are known to occur in Slovenia but the larvae did not belong to any of these species. *Ophiomyia* specimens were reared in the laboratory and identified as *Ophiomyia kwansonis* by the official laboratory of the Slovenian Forestry Institute. As this represented a new agromyzid species for Slovenia, the identity of the pest was confirmed by an expert taxonomist (Mr Miloš Černý, Halenovice, Czech Republic) in 2012. No phytosanitary measures were taken in Slovenia.
The pest status of *Ophiomyia kwansonis* in Slovenia is officially declared as: **Transient: non-actionable.**

Note: In 2012, the pest was found at 6 new locations in Ljubljana and its surroundings within a radius of approximately 50 km, showing that the pest has been able to overwinter in Slovenia (Jurc *et al.*, 2012).

Ophiomyia kwansonis (Diptera: Agromyzidae) – daylily leafminer

Why	*Ophiomyia kwansonis* is a leafminer of *Hemerocallis* species (daylilies) which until recently was only known to occur in Japan and Taiwan. In 2011, it was introduced into the USA where it spread rapidly. The same year, it was detected for the first time in Europe, in Slovenia. Considering the invasive behaviour of this new daylily leafminer, the EPPO Secretariat decided to add *O. kwansonis* to the EPPO Alert List.
Where	*O. kwansonis* originates from Asia. In the USA, the first indication of its presence is an image taken in July 2006 in Kennebunk, Maine. In 2008, damage was noticed by daylily amateurs at a national meeting in Texas, and by 2012 it was recorded in at least 15 US states. In Slovenia, it was first found in 2011 in the city of Ljubljana, and again in 2012 in Ljubljana and its surroundings, suggesting that the pest has been able to overwinter and spread. **EPPO region**: Slovenia. **Asia**: Japan, Taiwan. **North America**: USA (Alabama, Florida, Georgia, Louisiana, Maine, Maryland, Mississippi, North Carolina, New York, South Carolina, Pennsylvania, Tennessee, Texas, Virginia and West Virginia).
On which plants	*Hemerocallis* spp. (including *Hemerocallis fulva, H. lilioasphodelus*).
Damage	Larvae feed on *Hemerocallis* leaves, mining up and down between the leaf surfaces, leaving obvious silver tunnels. Larvae are yellowish, up to 5 mm long, with protruding black anterior and posterior spiracles. Pupation occurs inside the mines, usually near the leaf base. Pupae are 3-3.5 mm long, orange-brown except for black anterior and posterior spiracles that protrude prominently as in larvae. Adults are small black flies (2 mm length) with red eyes and clear wings which can be seen resting on daylily blooms. Female oviposit in the leaf blade, often at or near its tip. No plant mortality has been reported but severe mining strongly disfigures daylilies which are grown for ornamental purposes. In Japan, there are three generations per year (2 in May-July and 1 in September-October). In Florida (US), it seems that the insect can breed continuously at least from March to September, probably representing several generations (number which remains to be determined). Pictures have kindly been provided by Dr D Jurc (SFI) and can be viewed on the EPPO gallery: http://photos.eppo.org/index.php/album/629-ophiomyia-kwansonis-ophokw-
Dissemination	Adults can fly but no details are available on their flying capacities. Over long distances, movement of infested plants is probably an important pathway. In addition, *Hemerocallis* spp. with their numerous cultivars are quite popular in gardening and it is likely that amateurs are actively exchanging or trading planting material. Plants are often multiplied vegetatively and sold bare-rooted with 1 or 2 crowns including short green leafy parts which could carry eggs, larvae or pupae. Seeds are not likely to be a pathway.

Pathway	Plants for planting of *Hemerocallis* spp. from countries where *O. kwansonis* occurs.
Possible risks	*Hemerocallis* spp. are widely planted in the EPPO region for ornamental purposes in parks and gardens. However, more data would be needed on the economic importance of its production and trade in the EPPO region. Although it seems that *O. kwansonis* does not kill *Hemerocallis* spp., attacked plants can be severely disfigured which reduces their economic value. Young larvae and eggs are virtually invisible in plant tissue and may easily escape detection in nurseries and consignments. For the moment, no chemical methods have been tested against this insect and no biological control agents have been identified, which renders its eradication/containment very difficult once it has been introduced. A rapid PRA has been conducted in the United Kingdom which pointed out that *O. kwansonis* has the potential to seriously decrease the quality of marketed crops, and that import of *Hemerocallis* from the USA and Asia was not regulated, thus leaving a possibility for entry. Therefore, phytosanitary measures (e.g. requirements that *Hemerocallis* plants should come from an area free from the pest) would be most effective to prevent its entry into countries which are still free from it. Considering the invasive behaviour of this leafminer, it seems desirable to prevent its further spread within the EPPO region.
Sources	Anonymous (2012) Daylily leafminer recently detected in US. *American Nurseryman* (January), p 20. Jurc M, Černý M, Jurc D (2012) [First record of alien pest *Ophiomyia kwansonis* (Diptera: Agromyzidae) in Europe and its phytosanitary significance]. *Šumarski List* 9–10(136), 501–507 (in Croatian). http://www.sumari.hr/sumlist/pdf/201205010.pdf INTERNET Bugguide - Identification, Images, & Information for Insects, Spiders & Their Kin - For the United States & Canada. www.bugguide.net/node/view/84826 Fera (2012) Rapid Pest Risk Analysis for *Ophiomyia kwansonis* (daylily leafminer). http://www.fera.defra.gov.uk/plants/plantHealth/pestsDiseases/documents/ophiomyia.pdf Florida Department of Agriculture and Consumer Services. Pest Alert: Daylily leafminer *Ophiomyia kwansonis* Sasakawa (Diptera: Agromyzidae), new to North America, including Florida by Steck GJ & Williams GL (dated 2012-05-22). http://www.freshfromflorida.com/pi/pest-alerts/pdf/ophiomyia-kwansonis.pdf NPPO of Slovenia (2012-07). Sasakawa M (1961) A study of the Japanese Agromyzidae (Diptera). Part 2. Pacific Insects 3, 307-472. Sasakawa M (2008) A list of the dipterous specimens (Insecta) deposited in the Osaka Museum of Natural History. *Occasional papers from the Osaka Museum of Natural History* **3**(8), 127-136. Shiao SF, Wu WJ (1999) Supplements for the species of Agromyzinae (Diptera: Agromyzidae) from Taiwan, with notes on three new records. Chinese *Journal of Entomology* **19**, 343-364.

EPPO RS 2013/010
Panel review date - Entry date 2013-01

2013/011 New insects recorded in Slovenia in 2011

In Slovenia, the following 6 insect species have been recorded for the first time in 2011:

***Aleuroclava aucubae* (Hemiptera: Aleyrodidae) – Aucuba whitefly**

In November 2011, the presence of *Aleuroclava aucubae* was detected in a sample of lemon leaves that had been brought to the laboratory by a grower. The infestation of lemon plants was moderate (mostly 1-3 puparia per leaf). Further searching for puparia on potential host plants led to their discovery on leaves of *Pittosporum tobira, Ligustrum lucidum, Photinia fraseri* and *Prunus lusitanica* in a park in the city centre of Nova Gorica. It is supposed that *A. aucubae* could overwinter outdoors in Southwestern Slovenia, but this remains to be verified. For the moment, no damage has been reported. *A. aucubae* is a whitefly species originally described from Japan, which is most likely of Oriental origin. In Europe, it was recently recorded from the Veneto region in Italy (although originally misidentified as *A. guyavae*). In Veneto, it was found on greenhouse plants (*Citrus limon*, *Ficus sycomorus*) and outdoor plants (*Pittosporum tobira, Prunus armeniaca, Photinia*). It has also been recently introduced into California (US).

Tentative distribution list:
EPPO region: Italy (Veneto), Slovenia.
North America: USA (California).
Asia: China, Japan, Korea Republic, Taiwan.

***Aproceros leucopoda* (Hymenoptera: Argidae) – Elm sawfly**
As reported in EPPO RS 2012/031, *Aproceros leucopoda* (EPPO Alert List) was first found in September 2011 at Rožna Dolina near Nova Gorica. Symptoms (zigzag feeding traces on elm leaves) were discovered at 2 other sites in and around Nova Gorica, as well as in the Botanical Garden of Ljubljana and the Arboretum Volčji Potok (near Ljubljana).

***Ceroplastes ceriferus* (Hemiptera: Coccidae) – Indian wax scale**
In November 2011, *Ceroplastes ceriferus* (formerly EPPO Alert List) was observed on *Acer palmatum* plants in Ljubljana (Črnuče). According to the grower, the plants had been purchased in Italy. For the moment, *C. ceriferus* is not considered to be established in Slovenia but intercepted only. Although it probably survives in the sub-Mediterranean conditions of Southwestern Slovenia, it is not known if it could survive the winter conditions in Central Slovenia. *C. ceriferus* is thought to originate from Asia. In Europe, it has been intercepted on ornamentals and it is now established in some areas of Northern Italy (Emilia-Romagna, Lombardia, Veneto – see EPPO RS 2002/135, 2005/017). *C. ceriferus* is a highly polyphagous scale (more than 50 plant families including many ornamental woody plants), but in most cases it is considered as an occasional pest of woody ornamentals.

***Cydalima perspectalis* (Lepidoptera: Crambidae) – Box-tree pyralid**
The presence of *Cydalima perspectalis* (formerly EPPO Alert List) has been confirmed. The pest was found on *Buxus sempervirens* in August 2011 at Ključarovci. The source of its introduction into Slovenia remains unknown.

***Dichromothrips corbetti* (Thysanoptera: Thripidae) – Vanda thrips**
During a regular phytosanitary inspection of plant material in a market in Nova Gorica, several specimens of *D. corbetti* were collected from potted orchids (*Phalaenopsis* spp. imported from the Netherlands but their exact origin remains unknown). *D. corbetti* originates from Southeastern Asia but has been introduced by the trade of orchids into other parts of the world. In Europe, it has been repeatedly intercepted on orchids. However, in temperate climate conditions, this tropical thrips species can only survive indoors. *D. corbetti* is a specialist orchid feeder (e.g. *Ascocenda, Phalaenopsis, Vanda*). Damage to flowers consists of numerous punctures (minute discoloured areas). It is noted that the present phytosanitary status of *D. corbetti* in Slovenia should be considered as an interception.
Tentative distribution list:
EPPO region: Belgium, Hungary, Netherlands, Slovenia (intercepted only).
America: Puerto Rico, USA (Florida, Hawaii).
Asia: India, Indonesia, Malaysia (West), Philippines, Singapore, Taiwan, Thailand.
Oceania: Australia (Northern Territory, Queensland), Fiji, French Polynesia, Samoa.

***Pealius azalea* (Hemiptera – Aleyrodidae) – Azalea whitefly**
In May 2011, a heavy infestation of *Pealius azalea* was observed on azalea (*Rhododendron indicum*) leaves in a private garden in Šempeter pri Gorici (near Nova Gorica). As the infested azalea plants had been grown for several years, the origin of this infestation remains unknown. *P. azalea* is considered to be a minor pest of azaleas (*R. ponticum, R. indicum, R. mucronatum. R. schippenbachii*), in particular on those cultivated in glasshouses.

Source: Seljak G (2012) Six new alien phytophagous insect species recorded in Slovenia in 2011. *Acta Entomologica Slovenica* **20**(1), 31-44.
http://www.kmetijskizavod-ng.si/priponke/OVR/seljak_1_2012_alien-2011.pdf

Additional key words: new records, detailed records

Computer codes: ANAPCO, APRCLE, CERPCE, DPHNPE, PEALAZ, TETLAU, SI

2013/012 First report of *Antispila oinophylla* in Italy

The NPPO of Italy recently informed the EPPO Secretariat of the first record of a new grapevine leafminer, *Antispila oinophylla* sp. nov. (Lepidoptera: Heliozelidae), on its territory. In summer 2007, unusual leaf mines were observed in a vineyard in Borgo Valsugana (Autonomous province of Trento). In Northern Italy, the only known grapevine leafminers were *Holocacista rivillei* (*Antispila rivillei*) a minor pest of grapevine occurring in Southern Europe and Western Asia, and *Phyllocnistis vitegenella* (Lepidoptera: Gracillariidae) a North American species recently introduced into Italy, Slovenia and Switzerland (see EPPO RS 2006/160 and RS 2012/032). Both *H. rivillei* and *P. vitegenella* are considered to be minor pests in vineyards. Because the leaf mines observed in Borgo Valsugana presented some differences compared with those caused by *H. rivillei* or *P. vitegenella*, the presence of a new species was suspected. Investigations (van Nieukerken *et al*., 2012) revealed that the grapevine leafminer found in Trentino was a distinct and new species, called *Antispila oinophylla*. These studies also demonstrated that *A. oinophylla* originates from North America. In its area of origin, this leafminer feeds on grapevine and various wild *Vitis* species. Surveys were carried out in Italy and showed that *A. oinophylla* only occurs in the vineyards of the following regions: Automonous province of Trento (Valsugana), Friuli-Venezia Giulia (province of Pordenone), Veneto (provinces of Belluno, Padova, Treviso, Verona, Vicenza). During these surveys, no significant damage to vineyards or impact on grape production was observed. Some grapevine varieties (e.g. Cabernet Sauvignon, Chardonnay, Muscat) were found to be more attractive to the insect and thus moderately susceptible. Further studies are underway to evaluate the role of native parasitoids and of insecticide treatments that are already applied in vineyards to control other pests.
The situation of *Antispila oinophylla* in Italy can be described as follows: **Present, detected in Autonomous province of Trento (Valsugana), Friuli-Venezia Giulia (province of Pordenone), Veneto (provinces of Belluno, Padova, Treviso, Verona, Vicenza).**

According to van Nieukerken *et al.* (2012), the currently known host plants and geographical distribution of *A. oinophylla* are as follows:

- **Host plants**: the main host of economic importance is grapevine (*Vitis vinifera*) but the insect can also feed on other wild *Vitis* species (*V. aestivalis, V. labrusca, V. riparia, V. vulpina*), as well as on *Parthenocissus quinquefolia*.
- **Geographical distribution**
  EPPO region: Italy (Trentino, Friuli-Venezia Giulia, Veneto).
  North America: Canada (Ontario, Québec), USA (Connecticut, Georgia, Kentucky, Maine, Massachusetts, Missouri, New York, Ohio, Tennessee, Vermont). In the literature, there are previous records of another morphologically similar species, *A. ampelopsifoliella,* from Maine, Missouri and Ohio which may partly refer to *A. oinophylla*, but this remains to be verified.

Source: NPPO of Italy (2012-07).
Van Nieukerken EJ, Wagner DL, Baldessari M, Mazzon L, Angeli G, Girolami V, Duso

C, Doorenweerd C (2012) *Antispila oinophylla* (Lepidoptera, Heliozelidae), a new North American grapevine leafminer invading Italian vineyards: taxonomy, DNA barcodes and life cycle. *ZooKeys* **170**, 29-77.

Additional key words: new record **Computer codes:** ANTSOI, CA, IT, US

2013/013 *Xylosandrus crassiusculus*: new detections in Liguria (Northern Italy)

In Italy, *Xylosandrus crassiusculus* (Coleoptera: Scolytidae – EPPO Alert List) was first trapped in Toscana (near Pisa) in a mixed forest dominated by *Pinus pinaster* and *Quercus cerris* (Pennacchio *et al*., 2003). In 2007 and 2008, damage caused by *X. crassiusculus* was observed on *Ceratonia siliqua* (carob tree) in private and public gardens in Alassio municipality, Liguria region (see also EPPO RS 2009/054, 2010/031). Other observations were reported by local technical advisors in 2009, but concerned the same area. In June 2012, *X. crassiusculus* was still found in same province, but it was also detected in the Pietra Ligure municipality, 20 km away from the first observation site. The pest was again observed on *C. siliqua* in private gardens where it bores into branches and twigs causing foliage wilt and a general decline of plants. Frass, pushed out of galleries by the insect and forming compact cylinders, was observed on all infested trees. Some infested branches were collected and studied at the laboratory of CeRSAA. The adult insects found were then sent for determination to the University of Torino (DiVaPRA – Entomology) which confirmed the presence of *X. crassiusculus*. Since the initial report in Alassio in 2007, this is the first time that *X. crassiusculus* is reported from other areas in Liguria. The pest was only found on *C. siliqua* despite the presence of several other potential hosts growing in the same area, such as *Diospyros kaki, Ficus carica, Malus domestica* (apple), *Prunus avium* (cherry), *P. domestica* (plum), *P. persica* (peach). Nevertheless this report appears to confirm the establishment of *X. crassiusculus*, at least along the Ligurian coastal area.

Source: Personal communication with Federico Tinivella, Andrea Minuto, CeRSAA, Italy, 2012.
Pennacchio F, Roversi PF, Francardi V, Gatti E (2003) *Xylosandrus crassiusculus* (Motschulsky) a bark beetle new to Europe (Coleoptera Scolytidae) *Redia* **86**, 77-80 (abst.).

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

2013/014 Survey results for several regulated pests in Finland

National surveys were carried out in Finland for the presence of several regulated pests. The results for 2012 are presented below.

***Bursaphelenchus xylophilus* (EPPO A2 List)**
In total, 493 wood samples were analysed for the presence of *Bursaphelenchus xylophilus*. 49% (230) of the inspections were made in areas at risk and 51 % (237) in forest areas. *B. xylophilus* was not found in any of the samples.

***Gibberella circinata* (EPPO A2 List)**
Visual inspections of host plants were carried out in forest pine nurseries and ornamental plant nurseries. In total, 21 nurseries producing forest propagation material and 60

nurseries producing ornamental plants were inspected. The fungus was not found in any of the inspected sites.

***Pepino mosaic virus* (*Potexvirus*, PepMV - EPPO A2 List)**
Inspections were carried out in 21 premises producing tomato plants for planting and 51 premises producing tomato fruit. In total, 83 asymptomatic samples were collected from plants for planting and 2 symptomatic samples were collected from plants grown for fruit production. These samples were tested by ELISA and all gave negative results.

***Phytophthora ramorum* (EPPO Alert List)**
Inspections were carried out in garden centres, nurseries and parks. Sites producing *Rhododendron* spp. or *Viburnum* spp. were inspected twice during the growing season. Forestry sites were not monitored because rhododendrons are not present in Finnish forests. *Phytophthora ramorum* was detected in 1 nursery. In this nursery, *P. ramorum* had already been detected in 2007, 2008, 2009 and 2010. Eradication measures were taken in accordance with the EU Commission Decision 2007/201/EC.

Source: NPPO of Finland (2012-11, 2012-12).

Additional key words: absence, detailed record **Computer codes:** BURSXY, GIBBCI, PEPMV0, PHYTRA, FI

2013/015 PQR - the EPPO database on quarantine pests: new update

PQR - the EPPO database on quarantine pests (geographical distributions, host plants, regulatory status, pathways, pictures) was updated on 2013-01-21.

The following new items have been added since the previous update (2012-08-28)

- New world distributions: e.g. *Anastrepha* spp. *(A. coronilli, A. fuscicauda, A. mucronota, A. sororcula, A. turpiniae, A. zenildae), Apricot pseudo-chlorotic leaf spot virus, Arsenophonus phytopathogenicus, Brontispa longissima* (update), *Carpomya incompleta, Ceroplastes floridensis, Dichromothrips corbetti, Gymnosporangium monticola, Gymnosporangium unicorne, Pentastiridius leporinus, Seiridium cardinale, Teratosphaeria destructans, Trioza apicalis, Zucchini yellow mosaic virus.*
- Quarantine List of Norway.
- New pest pictures (e.g. *Aromia bungii, Baccharis halimifolia, Carpomya incompleta, Keiferia lycopersicella, Oemona hirta, Xylosandrus crassiusculus*).
- All recent data from the EPPO Reporting Service (August to December 2012)

If you have not already installed PQR on your computer, you can download it (free) from the EPPO website: http://www.eppo.int/DATABASES/pqr/pqr.htm

Source: EPPO Secretariat (2013-01).

2013/016 World distribution of *Baccharis halimifolia*

Baccharis halimifolia (Asteraceae, EPPO List of IAP) originates from North America where it is known to occur in Bahamas, Cuba, Canada (Nova Scotia), and the USA (Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Louisiana, Maryland, Massachusetts, Mississippi, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Texas, Virginia, West Virginia). In Canada, *B. halimifolia* reaches its northern limit range and it is considered as an extremely rare Atlantic coastal plain species, occurring only in Tusket River estuary and its vicinity. Official conservation programmes are being implemented in this area.
The species has been introduced into Australia, and New Zealand, where it is considered invasive. Within the EPPO region, the species is also present and invasive in Belgium, France, Italy, Georgia, Spain and the United Kingdom. A few individuals were collected in the Netherlands in 2003 in the nature reserve 'Kwade Hoek'. Mr van Valkenburg visited this nature reserve in September 2012 and could not detect *B. halimifolia*, as the vegetation had progressed towards shrubland dominated by *Hippophae rhamnoides* (Elaeagnaceae, native in the Netherlands).
An EPPO Pest Risk Analysis is currently in progress for *Baccharis halimifolia*.

Source: Personal communication with Johan van Valkenburg, National Plant Protection Service of the Netherlands.

Correll DS & Correll HB (1982) Flora of the Bahama Archipelago. Cramer J, FL-9490 Vaduz, Germany. 1692 pp.

Nova Scotia Website, Species at Risk Conservation Fund 2009 Approved Projects. http://novascotia.ca/natr/wildlife/conservationfund/2009projects.asp

USDA-ARS Website, *Baccharis halimifolia.* http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?6232

Additional key words: invasive alien plants, new records **Computer codes:** BACHA, AU, BS, CA, CU, BE, ES, FR, GB, GE, IT, NL, NZ, US

2013/017 New ban on invasive alien plants in the United Kingdom (England only)

A new law in the United Kingdom (England only) is expected to come into force in April 2014, targeting six invasive non-native aquatic plants under Section 14Z(a) of the Wildlife and Countryside Act, because of their negative impacts on biodiversity and the economy.
The invasive alien plants to be regulated are: *Crassula helmsii* (Apiaceae, EPPO A2 List), *Hydrocotyle ranunculoides* (Apiaceae, EPPO A2 List), *Ludwigia grandiflora* and *Ludwigia peploides* (Onagraceae, EPPO A2 List), *Myriophyllum aquaticum* (Haloragaceae, EPPO List of IAP) and *Azolla filiculoides* (Salviniaceae, EPPO Observation list).

The ban means that all retailers will not be able to sell these plants or face a fine of up to 5 000 GBP, and possibly up to six months in prison. Retailers have a year to adjust to the ban. The UK Department of Food, Environment and Rural Affairs (Defra), trade representatives and conservation bodies, have also been working to raise awareness of garden owners and horticulturists to the dangers of spreading alien species through the 'Be Plant Wise' campaign and have given widespread support to the ban.

Source: Department of Food, Environment and Rural Affairs (2013) Sale of invasive water plants banned to protect wildlife. http://www.defra.gov.uk/news/2013/01/29/invasive-plants-banned/

Department of Food, Environment and Rural Affairs Website, Be Plant Wise
https://secure.fera.defra.gov.uk/nonnativespecies/beplantwise/

Additional key words: invasive alien plants, legislation

Computer codes: AZOFI, CSBHE, HYDRA, LUDPE, LUDUR, MYPBR, GB

2013/018 Current and potential distribution of *Parthenium hysterophorus*

Parthenium hysterophorus (Asteraceae, EPPO Alert List), originating from Central and South America, is considered one of the world most serious invasive alien plants, and is already highly invasive in Australia, Asia and Africa. A climatic projection was performed for this species with the software CLIMEX to consider which areas are at risk. The species grows on a wide range of soils ranging from sandy to heavy clays, and occurs in areas with summer rainfall greater than 500 mm per year. Germination can occur at temperatures between 10°C and 25°C.

The species may enter new territories through its seeds contaminating earth moving and harvesting machinery, animal stock, fodder and grain. *P. hysterophorus* can establish in disturbed habitats such as railways and roadsides, wastelands, fallow lands as well as grasslands, river banks and floodplains. Its numerous seeds are then spread very rapidly via vehicles, water, animals, farm machinery and wind. The species has heavy deleterious impacts on agriculture by decreasing yields. For instance, in Ethiopia, sorghum grain yield was reduced in between 40% and 97% when *P. hysterophorus* was left uncontrolled throughout the season. It reduces pasture carrying capacity by up to 90%. Due to its invasive capacity and allelopathic effects, it also has detrimental environmental effects by displacing native plant species and transforming the invaded habitats into monocultural shrublands. In addition, the species causes human health problems such as asthma, bronchitis, dermatitis and hay fever. *P. hysterophorus* in animal feed can also cause dermatitis with pronounced skin lesions, and taints the milk and meat of animals, thereby reducing the value of animal products.

A climatic projection has been undertaken with CLIMEX, using both the native and alien distributions of the species. Roadside surveys were undertaken in Botswana, Ethiopia, South Africa, Swaziland and Uganda to get further data on the distribution of the species to feed into the model.

The CLIMEX projection indicated that additional areas could be colonized by the species in Australia and the Asian-Pacific, as well as in Africa. Furthermore, significant areas of the EPPO region are climatically suitable for *P. hysterophorus,* the countries suitable for its establishment being: Algeria, Croatia, France, Greece, Israel, Italy, Morocco, Portugal, Spain, Tunisia and Turkey.

Source: McConnachie AJ, Strathie LW, Mersie W, Gebrehiwot L, Zewdie K, Abdureheim A, Abrha B, Araya T, Asaregew F, Assefa F, Gebre-Tsadik R, Nigatu L, Tadesse B & Tana T (2010) Current and potential geographical distribution of the invasive plant *Parthenium hysterophorus* (Asteraceae) in eastern and southern Africa. *Weed Research*. DOI: 10.1111/j.1365-3180.2010.00820.x

Additional key words: invasive alien plants, climatic projection **Computer codes:** PTNHY

2013/019 Dispersal of seeds by vehicles

Human-mediated dispersal is known as an important driver of long-distance dispersal for plants, but underlying mechanisms have rarely been assessed. Road corridors function as routes of secondary dispersal for many plant species, but the extent to which vehicles support this process remains unclear. The dispersal distances and seed deposition of plant species moved over the ground by the slipstream of passing cars have been quantified. Marked seeds of four species were exposed on a section of road and a car was driven along the road at a speed of 48 km/h. The four species used were *Ailanthus altissima* (Simaroubaceae, EPPO List of IAP), *Ambrosia artemisiifolia* (Asteraceae, EPPO List of IAP), *Brassica nappus* (Brassicaceae) and *Clematis vitalba* (Ranunculaceae) as they have different seed morphology, are common along roads and are spread via vehicle movements. The effect of repeated vehicle passes was quantified by tracking parallel and lateral movement of seeds to the road.
Median distances travelled by seeds along the road were about 8 m for species with wind dispersal morphologies and 1 m for species without such adaptations. Airflow created by the car lifted seeds and resulted in longitudinal dispersal. Single seeds reached a maximum distance of 45 m. The incremental effect of passing vehicles on longitudinal dispersal decreased with increasing number of passes as seeds accumulated at road verges. It can therefore be concluded that dispersal by vehicle airflow facilitates seed movement along roads and the accumulation of seeds in roadside habitats. Dispersal by vehicle airflow can aid the spread of plant species and thus has wide implications for roadside ecology, invasion biology and nature conservation.

Source: von der Lippe M, Bullock JM, Kowarik I, Knopp T & Wichmann M (2013) Human-Mediated Dispersal of Seeds by the Airflow of Vehicles. *PLoS ONE* **8**(1): e52733. doi:10.1371/journal.pone.0052733
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0052733

Additional key words: invasive alien plants, pathway **Computer codes:** AILAL, AMBEL, BRSNN, CLVVT

2013/020 The European Environment Agency new publication on the impacts of invasive alien species in Europe

The European Environment Agency released a report describing the harmful effects of invasive alien species (IAS) on the environment and natural resources. The purpose of this report is to raise awareness among key stakeholders, decision-makers, policymakers and the general public about the environmental and socioeconomic impacts of IAS.
Twenty-eight dedicated species are taken as case studies to illustrate the various types of impacts (20 animals and 8 plants).
These case studies are based on thorough, up-to-date scientific information from recent research and reports, and highlight the multifaceted impacts of IAS at both the global and regional levels. For each species, a description is provided, with the impacts it causes, its distribution in Europe displayed as a map, its pathways of entry and spread, as well as management options. The invasive alien plants presented in the document, with the main impact they illustrate are the following:

- Impacts of IAS on biodiversity — affecting habitats — ecosystem engineering or modifying or changing habitats: *Caulerpa taxifolia* (Caulerpaceae);
- Impacts of IAS on ecosystem services — interfering with supporting services: *Fallopia japonica* (Polygonaceae, EPPO List of IAP) and *Carpobrotus edulis* (Aizoaceae, EPPO List of IAP);

- Impacts of IAS on ecosystem services — interfering with provisioning services: *Rhododendron ponticum* (Ericaceae, EPPO Observation List of IAP);
- Impacts of IAS on ecosystem services — interfering with regulating services: *Eichhornia crassipes* (Pontederiaceae, EPPO A2 List);
- Impacts of IAS on ecosystem services — interfering with cultural services: *Ailanthus altissima* (Simaroubaceae, EPPO List of IAP);
- Impacts of IAS on human health — health impacts: *Ambrosia artemisiifolia* (Asteraceae, EPPO List of IAP) and *Heracleum mantegazzianum* (Apiaceae, EPPO List of IAP).

Source: Scalera R, Genovesi P, Essl F & Rabitsch W (2012) The impacts of invasive alien species in Europe. European Environment Agency. EEA Technical report No 16/2012. 118 p. http://www.eea.europa.eu/publications/impacts-of-invasive-alien-species

Additional key words: invasive alien plants, communication **Computer codes:** AILAL, AMBEL, CBSED, EICCR, HERMZ, KAATA, POLCU, RHOPO

2013/021 The European Environment Agency new publication on invasive alien species indicators in Europe

New introductions of alien species into Europe across all taxonomic groups and environments are known to be increasing. However, due to constraints and methodological difficulties (e.g. limited data availability, ambiguity in the definition of terms), robust and sound 'alien indicators' have only recently been made available. The European Environment Agency commissioned a project to critically review and improve alien indicators.

Indicators had been identified in the SEBI 2010 pan-European initiative. These indicators are still considered as relevant, but may be improved:

- Cumulative numbers of alien species in Europe since 1900: the temporal coverage could be expanded to 1500 or 1800, and pathways of entry could be included.
- Costs of IAS in Europe: the numbers could be updated.

Furthermore, new indicators need to be developed to answer the policy questions and needs:

- The IUCN Red List Index of impacts of IAS: this index measures the changes observed in the overall extinction risk of species that are included in the IUCN Red List;
- The combined index of invasion trends: this index is based on the number and distribution of 542 alien species and 2871 species-country records (in European countries with different climates, country size and development status).

Source: Rabitsch W, Essl F, Genovesi P & Scalera R (2012) Invasive alien species indicators in Europe - A review of streamlining European biodiversity (SEBI) Indicator 10. European Environment Agency. EEA Technical report No 15/2012. 44 p http://www.eea.europa.eu/publications/streamlining-european-biodiversity-indicators-sebi

Additional key words: invasive alien plants

2013/022 IUCN Guidelines for reintroductions and other conservation translocations

Conservation translocation is the deliberate movement of organisms that are released from one site to another. It is intended to yield a measurable conservation benefit at the levels of a population, species or ecosystem, and does not only provide a benefit to the translocated individuals. Conservation translocations consist of:

(i) reinforcement and reintroduction of a species within its indigenous range;
(ii) conservation introductions, comprising assisted colonization and ecological replacement, outside the species' indigenous range.

Risks in a translocation are multiple, and any proposed translocation must be subjected to a comprehensive risk assessment. Translocations of organisms outside their indigenous range are considered to present a particularly high risk. It is acknowledged that there are many examples of species released outside their indigenous ranges that have become invasive, often with massive adverse impacts.

The IUCN Guidelines for reintroductions and other conservation translocations therefore provide principles for such actions, including on the risk assessment to be undertaken.

Source: IUCN Species Survival Commission (2012) IUCN Guidelines for reintroductions and other conservation translocations. Reintroduction Specialist Group, Invasive Species Specialist Group. 16 p.
http://www.issg.org/pdf/publications/Translocation-Guidelines-2012.pdf

Additional key words: invasive alien plants

2013/023 Convention on Biological Diversity booklets on invasive alien species

In 2009, the Convention on Biological Diversity released a booklet entitled 'Invasive Alien Species - A Threat to Biodiversity'. This document explained to the general public what invasive alien species are, what their impacts and pathways of entry are, and what can be done to prevent their introduction and spread. Specific examples are provided, such as the massive agricultural and health impacts of *Parthenium hysterophorus* (Asteraceae, EPPO Alert List). The document is available in English, French and Spanish.

A version of the booklet has also been adapted for children in English and includes some games. It is entitled 'Living in an Ecosystem near You: Invasive Alien Species'.

Source: Convention on Biological Diversity (2009) Invasive Alien Species - A Threat to Biodiversity. Secretariat of the Convent ion on Biological Diversity. 44 p.

Convention on Biological Diversity (2009) Living in an Ecosystem near You: Invasive Alien Species. Secretariat of the Convent ion on Biological Diversity. 30 p.
http://www.cbd.int/idb/2009/resources/booklet/

Additional key words: invasive alien species, communication **Computer codes:** PTNHY

2013/024 2nd International Congress on biological invasions, Qingdao (CN), 2013-09-23/26

Following the successful 1st International Congress on biological invasions organized in 2009 in Fuhzou (CN), the 2nd International Congress on biological invasions will be organized in Qingdao (CN), on 2013-09-23/26. The theme of this congress is 'Biological Invasions, Ecological Safety and Food Security'. The sessions that will be held focus on the following issues:

- Biological invasions under global change;
- Biological invasions and food biosecurity;
- Increasing the profile of invasive species science-based approaches in the International policy arena;
- Pathways: management, detection, and simulation;
- Risk assessment techniques;
- Invasiveness and characteristics (genetic, phenotypic plasticity, ecological adaptation);
- Influences of biotic interactions in biological invasions;
- Impacts on functions of ecosystem services;
- Biocontrol, genetic management and ecological manipulation of IAS;
- Area-wide management of invasive alien species in agriculture;
- Sustainable management of invasive alien species in forests;
- Invasions in mega-diverse developing countries: scientific and policy problems;
- *Harmonia axyridis*: time for a global collaboration;
- Ragweed: management strategy and global collaboration;
- Freshwater/marine invasions, ecological threats and management strategy;
- Novel interactions in emerging vector borne diseases;
- Invasiveness of bio-fuel plants.

The deadline for submissions is the 20th of July 2013.

Source: Website of the 2nd International Congress on biological invasions. http://test.icbi2013.org/web/index.aspx

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

2013/025 EPPO/CoE/EEA/IUCN ISSG Workshop 'How to communicate on pests and invasive alien plants', Oeiras (PT), 2013-10-08/10

Communicating on the topic of pests and invasive alien plants is difficult as it involves explaining what an alien species is, as well as describing their impacts. Scientists and civil servants working on these species are usually not trained in the use of communication tools and methods.

To respond to this need, EPPO, in partnership with the Bern Convention, the European Environment Agency and the IUCN Invasive Species Specialist Group will organize a Workshop on 'How to communicate on pests and invasive alien plants' on 2013-10-08/10 in Oeiras in Portugal at the kind invitation of the Portuguese Plant Protection Organization, the University of Coimbra, the Agrarian School of Coimbra and the Centre of Functional Ecology.

Four sessions will be held, each followed by discussions in smaller groups:

- Difficulties in communicating on pests and invasive alien plants, underlying concepts

- Experiences that worked, experiences that did not work
- Adapting the message to the different stakeholders
- Involving the public in surveillance: citizen sciences

A field trip will consist in the organization of the Portuguese 'Invasive Plants Clean Up Day'.

Pre-registration and call for abstracts are open respectively until the 2013-06-01 and 2013-05-01. http://archives.eppo.int/MEETINGS/2013_conferences/communication_pt.htm

Source: EPPO Secretariat (2013-01).

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