ORGANISATION EUROPEENNE ET MEDITERRANEENNE
POUR LA PROTECTION DES PLANTES

EUROPEAN AND MEDITERRANEAN
PLANT PROTECTION ORGANIZATION

EPPO Reporting Service

NO. 10 PARIS, 2020-10

21 Bld Richard Lenoir
75011 Paris

Tel: 33 1 45 20 77 94
E-mail: hq@eppo.int

Web: www.eppo.int
GD: gd.eppo.int

2020/209 New additions to the EPPO A1 and A2 Lists

In September 2020, the EPPO Council approved the addition of the following pests to the EPPO A1 and A2 Lists of pests recommended for regulation as quarantine pests.

Additions to the EPPO A1 List (pests absent from the EPPO region):
- *Gymnandrosoma aurantianum* (Lepidoptera: Tortricidae)
- *Naupactus xanthographus* (Coleoptera: Curculionidae)
- *Stagonosporopsis crystalliniformis* [following changes in taxonomy, see below]

Additions to the EPPO A2 List (pests locally present in the EPPO region):
- *Amaranthus palmeri* (Amaranthaceae)
- *Amaranthus tuberculatus* (Amaranthaceae)
- tomato brown rugose fruit virus

Due to taxonomic revisions, the following changes have been made to the lists:
- *Aeolesthes sarta* (EPPO A2 List) is now called *Trirachys sartus*.
- *Clavibacter michiganensis* subsp. *sepedonicus* (EPPO A2 List) is now called *Clavibacter sepedonicus* (EPPO RS 2020/028).
- The taxonomy of *Euwallacea fornicatus* has recently been revised (EPPO RS 2020/035), and it is the species complex, *Euwallacea fornicatus sensu lato* (*E. fornicatus sensu stricto, E. fornicatior, E. perbrevis* and *E. kuroshio*) which is now included in the EPPO A2 List.
- *Phoma andigena* (EPPO A1 List) is now called *Stagonosporopsis andigena*. In addition, it included in the past a variant which is now considered to be a separate species called *Stagonosporopsis crystalliniformis* (see EPPO RS 2018/187). As a consequence, *S. crystalliniformis* has been added to the EPPO A1 List.

For each individual pest, PRA documents and datasheets have been prepared (or are under development) and will be available in due course in the EPPO Global Database (https://gd.eppo.int). In addition, posters to raise public awareness have been specifically prepared for most of these pests and can be downloaded from the EPPO website: https://www.eppo.int/RESOURCES/eppo_publications/pest_specific_posters

Source: EPPO Secretariat (2020-10).

Additional key words: EPPO, lists

Computer codes: AELSSA, AMAPA, AMATU, CORBSE, ECDYAU, EUWAFO, EUWAKU, EUWAPE, EUWAWH, NAUPXA, PHOMAN, STGSCR, TOBRFV, XYLBFO

2020/210 New data on quarantine pests and pests of the EPPO Alert List

By searching through the literature, the EPPO Secretariat has extracted the following new data concerning quarantine pests and pests included (or formerly included) on the EPPO Alert List, and indicated in bold the situation of the pest concerned using the terms of ISPM no. 8.

- **New records**

Cowpea mild mottle virus (*Carlavirus* – EU Annexes) is reported for the first time from China. In September 2019, symptoms of leaf mosaic and crinkling were observed on soybean (*Glycine max*) in 3 locations in Anhui province. It was estimated that the disease incidence reached 20 to 40% in affected fields. The identity of the virus was confirmed by high-throughput sequencing (HTS) and inoculation tests (Wei *et al*., 2020). **Present, only in some areas (Anhui province).**

Grapevine Pinot gris virus (*Trichovirus*, GPGV) is reported for the first time from Algeria. It was detected by RT-PCR from 8 grapevine plants (*Vitis vinifera*) collected in 3 regions (Medéa, Alger, Boumerdes). The affected grapevine plants showed leaf deformation but not the typical leaf mottling and deformation symptoms. High-throughput sequencing (HTS) analysis also detected the presence of grapevine fleck virus (EU Annexes), grapevine rupestris stem pitting-associated virus, grapevine virus B, grapevine rupestris vein feathering virus, hop stunt viroid (EU Annexes) and grapevine yellow speckle viroid 1 for the first time in Algeria (Eichmeier *et al*., 2020). **Present, only in some areas**.

Impatiens necrotic spot virus (*Tospovirus* – EPPO A2 List) is reported for the first time from Greece. Virus-like symptoms were observed during autumn 2018 and winter 2019 in 4 fields of lettuce (*Lactuca sativa*) in Kalamos, Marathonas and Leonidio (central and south-eastern Greece). In all cases, the disease affected 30 to 40% of the plants. The identity of the virus has been confirmed by ELISA and molecular tests (Beris *et al*., 2020). **Present, only in some areas.**

- **Detailed records**

In China, the pine wood nematode *Bursaphelenchus xylophilus* (EPPO A2 List) is causing severe damage to *Pinus tabuliformis* in Liaoning province. The vector was shown to be *Monochamus saltuarius* (Pan *et al*., 2020).

The vector of rose rosette virus (*Emaravirus*, RRV), *Phyllocoptes fructiphilus* (Acari: Eriophyidae – both EPPO A1 List) has been detected for the first time in Florida (US). During a specific survey, *P. fructiphilus* was found in February 2019 in rose samples collected from Tallahassee (Leon county). The mite was then found in other locations near the initial finding site. Although the presence of RRV has previously been reported from Florida, none of the mite-infested roses showed symptoms of rose rosette disease and none tested positive for rose rosette virus (Fife *et al*., 2020).

- **Host plants**

Acidovorax citrulli (EPPO A1 List) is an important pathogen of cucurbits causing bacterial fruit blotch disease. In Israel, the bacterium was isolated in 2012 and 2014 from diseased eggplant (*Solanum melongena*) and tomato (*Solanum lycopersicum*) plants. Infected plants presented necrotic spots on leaves. Tests showed that the 2 isolates belong to Group II (Chalupowicz *et al.,* 2020).

Tomato leaf curl New Delhi virus (*Begomovirus*, ToLCNDV – EPPO Alert List), has been detected in *Chrysanthemum indicum* in Karnakata (India). Affected plants were showing mosaic, mottling and leaf curling symptoms and were infested by *Bemisia tabaci* (Ashwathappa *et al.*, 2020).

In California (US), *Phytophthora ramorum* (EPPO A2 List) has been detected in two symptomatic plants of *Arctostaphylos viridissima* and *A. glauca* (Ericaceae – both endemic to California), collected from a botanical garden and a nursery, respectively. On both affected plants, leaves exhibited necrotic spots, some of which extended into the stems as cankers. The identity of the pathogen was confirmed by morphological and molecular methods, as well as by pathogenicity tests (Rooney-Latham *et al.*, 2020).

Sources:

Ashwathappa KV, Venkataravanappa V, Lakshminarayana Reddy CN, Krishna Reddy M (2020) Association of tomato leaf curl New Delhi virus with mosaic and leaf curl disease of chrysanthemum and its whitefly cryptic species. *Indian Phytopathology* **73**, 533–542. https://doi.org/10.1007/s42360-020-00214-1

Beris D, Malandraki I, Kektsidou O, Vassilakos N, Varveri C (2020) First report of impatiens necrotic spot virus infecting lettuce in Greece. *Plant Disease* **104**(10), p 2742.

Chalupowicz L, Reuven M, Dror O, Sela N, Burdman S, Manulis-Sasson S (2020) Characterization of *Acidovorax citrulli* strains isolated from solanaceous plants. *Plant Pathol*ogy (in press) https://doi.org/10.1111/ppa.13239

Eichmeier A, Peňázová E, Čechová J, Berraf-Tebbal A (2020) Survey and diversity of Grapevine Pinot gris virus in Algeria and comprehensive High-Throughput Small RNA Sequencing analysis of two Isolates from *Vitis vinifera* cv. Sabel revealing high viral diversity. *Genes* **11**, 1110. https://doi.org/10.3390/genes11091110

Fife A, Bolton S, Griesheimer JL, Paret M, Martini X (2020) First report of *Phyllocoptes fructiphilus* Keifer (Eriophyidae), the vector of the rose rosette virus, in Florida, USA. *Florida Entomologist* **103**(3), 411-414.

Pan L, Li Y, Cui R, Liu Z, Zhang X (2020) *Monochamus saltuarius* endangers *Pinus tabuliformis* Carr. and carries *Bursaphelenchus xylophilus* (Steiner and Buhrer) in China. *Forests* **11**(10), 1051. https://doi.org/10.3390/f11101051

Rooney-Latham S, Blomquist CL, Soriano MC, Uhler M (2020) First report of *Phytophthora ramorum* causing foliar and stem blight of two California native *Arctostaphylos* species, *A. viridissima* and *A. glauca. Plant Disease* **104**(10), p 2741. https://doi.org/10.1094/PDIS-07-19-1359-PDN

Wei ZY, Wu GW, Ye ZX, Jiang C, Mao CY, Zhang HH, Miao RP, Yan F, Li JM, Chen JP, Sun ZT (2020) First report of cowpea mild mottle virus infecting soybean in China. *Plant Disease* **104**(9), p 2534. https://doi.org/10.1094/PDIS-01-20-0063-PDN

Additional key words: detailed record, new host plant, new record

Computer codes: BURSXY, CPMMV0, GPGV00, INSV00, MONCSL, PHYCFR, PHYTRA, PSDMAC, TOLCND, CN, DZ, GR, IL, IN, US

2020/211 New and revised dynamic EPPO datasheets are available in the EPPO Global Database

The EPPO Secretariat is in the process of revising the EPPO datasheets on pests recommended for regulation and creating new datasheets. This project is also supported by an EU grant agreement. This revision provides the opportunity to create dynamic datasheets in the EPPO Global Database in which the sections on pest identity, host range and geographical distribution are automatically generated by the database. It is planned that these dynamic datasheets will progressively replace the PDF documents that are currently

stored in the database. Since the previous report (EPPO RS 2020/186), the following new and revised EPPO datasheets have been published in the EPPO Global Database:

- *Acidovorax citrulli*. https://gd.eppo.int/taxon/PSDMAC/datasheet
- *Bactericera cockerelli*. https://gd.eppo.int/taxon/PARZCO/datasheet
- *Bactrocera carambolae*. https://gd.eppo.int/taxon/BCTRCB/datasheet
- *Bactrocera caryeae*. https://gd.eppo.int/taxon/BCTRCR/datasheet
- *Bactrocera kandiensis*. https://gd.eppo.int/taxon/BCTRKA/datasheet
- *Bactrocera minax*. https://gd.eppo.int/taxon/DACUCT/datasheet
- *Bactrocera occipitalis.* https://gd.eppo.int/taxon/BCTROC/datasheet
- *Bactrocera pyrifoliae*. https://gd.eppo.int/taxon/BCTRPY/datasheet
- *Bactrocera tsuneonis*. https://gd.eppo.int/taxon/DACUTS/datasheet
- *Ceratocystis platani*. https://gd.eppo.int/taxon/CERAFP/datasheet
- *Epitrix cucumeris*. https://gd.eppo.int/taxon/EPIXCU/datasheet
- *Meloidogyne fallax*. https://gd.eppo.int/taxon/MELGFA/datasheet
- Tomato leaf curl New Delhi virus. https://gd.eppo.int/taxon/TOLCND/datasheet

Source: EPPO Secretariat (2020-10).

Additional key words: publication

Computer codes: BCTRCB, BCTRCR, BCTRKA, BCTROC, BCTRPY, CERAFP, DACUCT, DACUTS, EPIXCU, MELGFA, PARZCO, PSDMAC, TOLCND

2020/212 Recommendations from Euphresco projects

The following research project has recently been carried out in the framework of Euphresco (network for phytosanitary research coordination and funding - hosted by EPPO). A report presenting the main objectives and results of this project, as well as recommendations made can be viewed on the Internet.

Xylella fastidiosa and its insect vectors

Xylella fastidiosa is a bacterial pathogen transmitted by insect vectors. While the vectors of the disease are relatively well known in South and North America, knowledge about its potential vectors in the EPPO region has to be improved. The project covered several activities, including the survey of potential vectors of *X. fastidiosa* within different habitats, the evaluation of sampling/trapping methods for vectors, the development/improvement of diagnostic tests (i.e. real-time PCR, LAMP) for the identification of the vectors and of the bacterium within vectors.

Based on the evaluation of trapping methods, the consortium recommended the use of sweep netting as the best method for catching significant numbers of vectors. Other trapping methods, such as sticky traps, appeared to be more suitable for monitoring the presence of vectors within agricultural and horticultural environments, rather than collecting vectors to screen for *X. fastidiosa*.

A species-specific real-time PCR test was developed for the identification of *Philaenus spumarius*. The test has been included in the EPPO Diagnostic Protocol PM 7/141 *Philaenus spumarius*, *Philaenus italosignus* and *Neophilaenus campestris*. Work is ongoing for the development and validation of a diagnostic test for *Neophilaenus campestris*. International collaboration on this topic would facilitate sharing of reference material to ensure that the test has optimal inclusivity.

Based on the results obtained, the CTAB DNA extraction protocol was found to be the most suitable for the obtention of high concentration of *X. fastidiosa* genomic DNA from vectors.

Overall, the real-time PCR and LAMP tests have proved to be more efficient than conventional PCR at detecting *X. fastidiosa* in insect vectors, independently from the extraction method used, and are thus recommended.

Duration of the project: 2017-12-31 to 2019-12-31.

Authors: Lester, Katherine; Highet, Fiona; Gottsberger, Richard; Strauss, Gudrun; Reisenzein, Helga; Maixner, Michael; Elbeaino, Toufic; Valentini, Franco. D'Onghia, Anna Maria; Loomans, Antoon, Bergsma-Vlami, Maria; Sa Pereira, Paula; Mateus, Celia; Malumphy, Chris; Landa, Blanca; Miranda, Miguel; Paredes, Claudia.

Link: https://zenodo.org/record/4046684#.X38aX2gzaUm

Source: Euphresco (2020-10). https://www.euphresco.net/projects/

Additional key words: research **Computer codes:** NEOPCA, PHILIT, PHILSU, XYLEFA

2020/213 First report of *Spodoptera frugiperda* in Jordan

The NPPO of Jordan recently informed the EPPO Secretariat of the first record of *Spodoptera frugiperda* (Lepidoptera: Noctuidae – EPPO A1 List) on its territory. Moths collected by sex pheromone traps which were placed near commercial maize fields (*Zea mays*) in the northern Jordan Valley, as well as larvae feeding on maize, were sent to the University of Jordan Insect Museum, School of Agriculture, on the 9th of September 2020. Based on morphological characteristics of adult males including genitalia, chaetotaxy of larvae, and external morphology of pupa, the samples were identified as *Spodoptera frugiperda*.
For the moment, no significant damage has been observed on infested plants. Intensive surveys and monitoring using pheromone traps will be continued in the infested area and in other agricultural areas. In addition, public awareness campaigns will be conducted. Control campaigns will be conducted if needed, especially in maize fields.
The pest status of *Spodoptera frugiperda* is officially declared as: **Present in a limited area (North Shunah).**

Source: NPPO of Jordan (2020-09).

Pictures: *Spodoptera frugiperda*. https://gd.eppo.int/taxon/LAPHFR/photos

Additional key words: new record **Computer codes:** LAPHFR, JO

2020/214 *Trogoderma granarium* does not occur in Spain

Trogoderma granarium (Coleoptera: Dermestidae – EPPO A2 List) was recorded as present in the south of Spain (Seville province) in 1952. Another publication also mentioned its presence in southern Spain in the 1960s, but since then the establishment of the pest has remained doubtful. A survey was carried out in 2016/2017 by Castañé *et al*. in 15 mills and storage facilities across the Iberian Peninsula and did not detect the pest. Different types of grain storage facilities (animal feed warehouses, rice and wheat mills, wheat warehouses) were surveyed with traps baited with *Trogoderma* spp. pheromone: 13 in the eastern and southern parts of Spain (Barcelona, Cadiz, Cordoba, Huelva, Navarra, Sevilla, Tarragona, Valencia), 1 in La Rioja province, and 1 in Portugal, near Lisbon. In total, 4418 *Trogoderma* adult specimens were trapped in 12 out of the 15 facilities surveyed, and these specimens were identified morphologically and molecularly. No *T. granarium* was found. *T. inclusum* was found in most sampled premises, and *T. variabile* in one of them. The authors considered that the latest published report of *T. granarium* in Spain (Belda and Riudavets, 2013) was a misidentification, as coleopteran specimens caught during this study that was focusing on natural enemies of lepidopteran pests of stored products were not rigorously identified. In addition to the results of this survey, the absence of *T. granarium* has been officially confirmed by the NPPO of Spain.
The pest status of *Trogoderma granarium* in Spain is officially declared as: **Absent, confirmed by survey.**

Source: NPPO of Spain (2020-09).

Belda C, Riudavets J (2013) Natural enemies associated with lepidopteran pests in food and feed processing companies. *Journal of Stored Products Research* **53**, 54e60. https://doi.org/10.1016/j.jspr.2013.02.006
Castañé C, Agustí N, del Estal P, Riudavets J (2020) Survey of T*rogoderma* spp. in Spanish mills and warehouses. *Journal of Stored Products Research* **88**, 101661. https://doi.org/10.1016/j.jspr.2020.101661

Pictures: *Trogoderma granarium.* https://gd.eppo.int/taxon/TROGGA/photos

Additional key words: absence **Computer codes:** TROGGA, ES

2020/215 First report of *Scirtothrips dorsalis* in Mexico

In Mexico, *Scirtothrips dorsalis* (Thysanoptera: Thripidae – EPPO A2 List) was found for the first time in 2019 during studies carried in commercial blueberry (*Vaccinium* spp.) fields in Michoacan state. In Mexico, the cultivation of blueberries has increased during the last decade, growing from 402 ha in 2010 to 3 780 ha in 2018, the states of Jalisco, Michoacan and Sinaloa being the main producers. In June 2019, a study on thrips possibly occurring in blueberry fields was conducted in Michoacan. Thrips were collected in 10 commercial blueberry fields in 3 municipalities (Jacona, Tangancicuaro, and Zamora) by shaking plants over a tray (random sampling for 30 min per plot, covering approximately 0.5 ha). As a results 2 400 thrips specimens (1 028 adults and 1 372 larvae) were collected and the most abundant species identified was *S. dorsalis* (975 specimens), followed by *Frankliniella occidentalis* (49) and *F. cephalica* (1). This is the first time that *S. dorsalis* is reported from Mexico. It was observed that infested blueberry plants showed severe leaf damage, and that nearby raspberry (*Rubus idaeus*) and blackberry (*Rubus* sp.) plants were also infested by *S. dorsalis*. It is not known how *S. dorsalis* has been introduced into Mexico.
The situation of *Scirtothrips dorsalis* in Mexico can be described as follows: **Present, only in some areas (Michoacan).**

Source: Ortiz JA, Infante F, Rodriguez D, Toledo-Hernandez RA (2020) Discovery of *Scirtothrips dorsalis* (Thysanoptera: Thripidae) in blueberry fields of Michoacan, Mexico. *Florida Entomologist* **103**(3), 408-410. https://doi.org/10.1653/024.103.0316

Pictures: *Scirtothrips dorsalis.* https://gd.eppo.int/taxon/SCITDO/photos

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

2020/216 First report of *Scirtothrips dorsalis* in Brazil

In Brazil, the presence of *Scirtothrips dorsalis* (Thysanoptera: Thripidae – EPPO A2 List) was first reported in 2018. Adults and immatures of *S. dorsalis* were found on leaves of non-grafted seedlings of *Anacardium occidentale* maintained in a greenhouse in the state of Ceará.
The situation of *Scirtothrips dorsalis* in Brazil can be described as follows: **Present, few occurrences (detected in a glasshouse in Ceará state).**

Source: Dias-Pini NS, Lima MGA, Lima EFB, Maciel GPS, Duarte PM (2018) *Scirtothrips dorsalis* (Thysanoptera: Thripidae): a newly introduced polyphagous pest in northeastern Brazil. *Neotropical Entomology* **47**, 725–728.

Pictures: *Scirtothrips dorsalis.* https://gd.eppo.int/taxon/SCITDO/photos

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

2020/217 *Scirtothrips dorsalis* occurs in Colombia

In Colombia, the presence of *Scirtothrips dorsalis* (Thysanoptera: Thripidae – EPPO A2 List) was first recorded in 2012 in the departments of Huila, Tolima and Vichada*. A study was carried out from 2013 to 2016 to better understand its distribution in Colombia. Samples were collected in different agro-ecosystems and different altitudes (up to 3 000 m asl). *S. dorsalis* was found in the Andean, Caribbean and Orinoquia regions of Colombia, at altitudes ranging from 0 to 1 200 m asl in the warm climate zone. The authors concluded that according to their results, *S. dorsalis* was not widely distributed in Colombia, possibly due to unfavourable climatic conditions (e.g. low temperatures, high rainfall) and the presence of different geographic barriers. Concerning host plants, larvae and adults of *S. dorsalis* were found in cultivated plants: *Capsicum annuum* (sweet pepper), *Capsicum frutescens* (chili pepper), *Citrus sinensis* (orange), *Gossypium hirsutum* (cotton), *Mangifera indica* (mango), *Murraya paniculata* (jasmine orange), *Rosa* sp., as well on weeds and wild plants: *Amaranthus spinosus, Echinochloa colona, Euphorbia hypericifolia, Ludwigia hyssopifolia, Phyllanthus niruri, Sesbania herbacea (=S. exaltata).*
The situation of *Scirtothrips dorsalis* in Colombia can be described as follows: **Present, only in some areas (Andean, Caribbean and Orinoquia regions).**

* The EPPO Secretariat had previously no information on the presence of *S. dorsalis* in Colombia.

Source: Ravelo EE, Vaca JU, Arévalo EP, Delgado L, Díaz MF, Piñeros L, Castro AP, Brochero H, Goldarazena A (2018) Presence and distribution of *Scirtothrips dorsalis* Hood (Thysanoptera: Thripidae) in Colombia. *Journal of Insect Science* **18,** 7. https://doi.org/10.1093/jisesa/iey092

Pictures: *Scirtothrips dorsalis.* https://gd.eppo.int/taxon/SCITDO/photos

Additional key words: new record **Computer codes:** SCITDO, CO

2020/218 Update on the situation of *Megaplatypus mutatus* in Italy

In Italy, *Megaplatypus mutatus** (Coleoptera: Curculionidae: Platypodinae – EPPO A2 List) was first found in 2000 near Caserta (Campania region) infesting a stand of *Populus canadensis*. In the following years, further infestations were noticed in the province of Caserta mainly on *Corylus avellana* (hazelnut), but also on *Prunus cerasus* (cherry), *Pyrus communis* (pear) and *Malus domestica* (apple). It is suspected that this pest has been introduced via imports of wood material (EPPO RS 2004/061, 2004/166).
The NPPO of Italy recently informed the EPPO Secretariat that in Campania region, the pest now occurs sporadically in all provinces, and that *C. avellana* (hazelnut) and *Diospyros kaki* (kaki) are the main fruit crops where significant attacks have been recorded. It has been observed that *M. mutatus* infests trees with a trunk diameter greater than 15 cm, i.e. plants that are in full production. In addition to Campania, *M. mutatus* has also been found in Molise (in 2013) and in Lazio (in 2016) regions, in areas that are bordering Campania.
The situation of *Megaplatypus mutatus* in Italy can be described as follows: **Present, only in some areas (Campania and neighbouring areas in Molise and Lazio).**

* *Megaplatypus mutatus* originates from South America, its main host is poplar (*Populus* spp.), but it can also complete its life cycle on *Aesculus hippocastanum* (horse chestnut), *Corylus avellana* (hazelnut), *Diospyros kaki* (kaki), *Juglans regia* (walnut), *Malus domestica* (apple) and *Pyrus*

communis (pear) trees. Unlike many ambrosia beetles. *M. mutatus* is able to attack standing and vigorous trees.

Source: NPPO of Italy (2020-10).

INTERNET
- Anonymous (2014) Servizio Fitosanitario Regionale. Toscana regione. Relazione tecnica e analisi di previsione sulla diffusione di malattie da quarantena in ambito regionale e locale, 48 pp.
http://cespevi.it/pdf/Rischio_diffusione_organismi_quarantena.pdf
- Servizio Fitosanitario Regionale. Platipo – *Megaplatypus mutatus*.
http://www.agricoltura.regione.lazio.it/sfr/57/Organismi%20nocivi%20NON%20DA%20QUARANTENA/111/PlatipoMegaplatypus-mutatus.html

Pictures: *Megaplatypus mutatus.* https://gd.eppo.int/taxon/PLTPMU/photos

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

2020/219 Update on the situation of *Anoplophora chinensis* in Croatia

In Croatia, *Anoplophora chinensis* (Coleoptera: Cerambycidae – EPPO A2 List) was first found in a nursery in Turanj, near Zadar, in 2007 (see EPPO RS 2009/047). In 2014, it was also found in the coastal and urban areas of Sveti Filip i Jakov and Turanj (both in Zadar county), and in one nursery in Northern Croatia, in Rugvica (Zagreb county) (RS 2015/066). Eradication measures have been implemented according to the Decision 2012/138/EC.
In June 2019, a new outbreak was detected in the municipality of Biograd na Moru, also in the Zadar county, in a blueberry (*Vaccinium corymbosum*) orchard where 24 adult specimens were found. In this production site, all blueberry plants (7000) have been destroyed. A demarcated area has been established and monitoring will continue in the coming years.
The pest status of *Anoplophora chinensis* in Croatia is officially declared as: **Present, under eradication.**

Source: NPPO of Croatia (2019-06, 2020-02).

A map of the demarcated areas is available in the national decree: Odluka o određivanju demarkiranih područja u kojima se provode mjere sprječavanja širenja i suzbijanja azijske strizibube *Anoplophora chinensis* (Forster) https://narodne-novine.nn.hr/clanci/sluzbeni/2020_01_13_222.html

Pictures: *Anoplophora chinensis.* https://gd.eppo.int/taxon/ANOLCN/photos

Additional key words: detailed record **Computer codes:** ANOLCN, HR

2020/220 Update on the situation of *Anoplophora chinensis* in Italy

In Italy, *Anoplophora chinensis* (Coleoptera: Cerambycidae – EPPO A2 List) was first found in 2000 in Lombardia and later in other regions. All outbreaks have been subject to official measures. The pest is now only present in the regions of Lombardia and Toscana. The situation since the last update (EPPO RS 2019/235) is as follows:

- **Lombardia**

In Lombardia, official measures aim to contain the pest. In the demarcated area, intensive monitoring is carried out by annual inspections on host plants specified in EU Decision 2012/138/EC and other potentially susceptible species.

- In the neighbouring provinces of Milano and Varese, several outbreaks took place and have been merged over the years. In areas close to being declared eradicated, surveys have been carried out twice a year. All infested plants are cut down before the next adult emergence period. With this approach, it has been possible to eradicate the pest in 4 municipalities in Milano province and 4 municipalities in Varese province. The number of infested plants is very low in many municipalities. During the 2019 survey, 803 plants were found to be infested within the infested area, and 4649 plants have been cut down. 52 adult specimens were caught in 24 traps (out of 66). Official inspections in 35 nurseries within the demarcated area did not detect the pest.
- In the province of Brescia, 3 outbreaks have been detected (respectively in the municipality of Montichiari in 2007, Gussago in 2008, Sirmione in 2016). In 2019, no infested plants were found in Sirmione, and no adults were caught in traps. In Gussago, 38 infested plants were found within the infested area (5 *Acer,* 1 *Alnus,* 4 *Carpinus,* 9 *Corylus,* 16 *Ostrya,* 2 *Platanus,* 1 *Prunus laurocerasus*) and 3 adults were trapped. In Montichiari, 2 infested plants were found within the infested area (1 *Acer*, 1 *Aesculus*) and 2 adults were trapped. Official inspections in 8 nurseries within the demarcated area did not detect the presence of the pest.

- **Toscana**

- In Pistoia, intensive monitoring carried out in the demarcated area (concerning more than 11 000 plants in gardens and 250 000 plants in nurseries, and placing 87 pheromone traps) did not detect any new infestations or symptoms in 2019, as in 2018.
- In Prato, a new outbreak was found in July 2019. Intensive monitoring was carried out in the demarcated area through visual inspections and the use of specialized detection dogs (over 1200 trees and shrubs checked) did not detect the presence of the pest.

The pest status of *Anoplophora chinensis* in Italy is officially declared as: **Present only in some parts of the Member State concerned, under containment, in case eradication is impossible.**

Source: NPPO of Italy (2020-02, 2020-04).

INTERNET
Regione Lombardia. *Anoplophora chinensis*: normativa e cartografia 2020. Regional decree for Lombardia n.1508 of 10 February 2020 (including a map of the different regulated areas). www.regione.lombardia

Pictures: *Anoplophora chinensis.* https://gd.eppo.int/taxon/ANOLCN/photos

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

2020/221 Update on the situation of *Anoplophora glabripennis* in Italy

In Italy *Anoplophora glabripennis* (Coleoptera: Cerambycidae – EPPO A1 List) was first found in 2007 in Lombardia region. It was later found in Veneto region in 2009, in Marche region in 2013 and in Piemonte in 2018 (EPPO RS 2007/166, RS 2019/234). In all regions, it is subject to eradication measures following EU Decision 2015/893. The NPPO of Italy recently provided an update of the situation of this pest in Lombardia, in Marche, and in Veneto, based on the monitoring done in 2019. Veneto is now free from the pest.

- **Lombardia**

In Lombardia, *A. glabripennis* was first found in the municipality of Corbetta (Milano province) in June 2007, and in 2010 and 2013 respectively in the neighbouring municipalities of Vittuone and Sedriana (EPPO RS 2007/166, RS 2014/023). The 3 outbreaks are now managed within one demarcated area including the infested area and a buffer zone. Intensive monitoring (annual inspections, traps) is carried out across the demarcated area. During the 2019 survey, 6 *Acer* plants were found to be infested within the infested zone. No adult specimens were caught in the 15 traps placed. In total, 45 plants have been cut down including host plants present within a 100 m radius from those infested as specified in EU Decision 2015/893. It is noted that there are no nurseries within the demarcated area.
In 2017, another outbreak was detected in the municipality of Trescore Balneario (Bergamo province), about 75 km away from Corbetta. A demarcated area with a 2 km buffer zone has been established. In 2019, the demarcated area was covering 3 municipalities (Trescore Balneario, Cenate Sotto and Zandobbio). During the 2019 survey, 97 plants (of the following genera: *Acer, Aesculus, Betula, Populus, Salix*) were found to be infested within the infested zone. No adult specimens were caught in the 26 traps placed in this zone. In total, 376 plants have been cut down, including host plants present within a radius of 100 m around infested plants. No infested plants have been found in the 9 nurseries located within the demarcated area.
A communication campaign is performed in the Milan airports and trains every year to raise public awareness on *Anoplophora* species.

- **Marche**

In Marche, *A. glabripennis* was first found in the municipality of Grottazzolina (Fermo province) in August 2013 (EPPO RS 2013/189, 2014/064, 2019/234), in the municipality of Ostra (Ancona province) in 2016, and in July 2019 in the municipalities of Fermo and Civitanova (Macerata province) (RS 2019/234). In March 2020, a new outbreak was found in Sant'Elpidio a Mare (Fermo province).
Following official monitoring in Grottazzolina, and findings of infested plants outside the infested area, the demarcated area has been extended over the years. In 2019, the demarcated area associated with this outbreak was covering 10 municipalities (Fermo, Belmonte Piceno, Grottazzolina, Magliano di Tenna, Monte Giberto, Monte Giberto, Montottone, Ponzano di Fermo, Rapagnano, Torre San Patrizio). Eighteen nurseries are located within the demarcated area. In 2019, 22 plants were found to be infested within the demarcated area. In total, 270 plants have been cut down, including host plants within a radius of 100 m around infested plants as specified in EU Decision 2015/893. No infested plants have been found in the nurseries. Since 2013, 4381 plants have been found to be infested and cut down.
The other outbreak discovered in 2019 in the municipality of Fermo is about 8 km away from this area. To date, 6 infested plants have been found (5 *Ulmus* and 1 *Acer*). In total, 89 plants have been cut down. No infested plants have been found in the nurseries inside the demarcated area.

In March 2020, a new outbreak was found in the municipality of Sant'Elpidio a Mare, also in Fermo province. To date, 11 *Ulmus* plants located near a small commercial area have been found infested. Eradication measures are applied and biomolecular analysis are underway to identify the origin of the outbreak.
In the municipality of Civitanova (30 km from Grottazzolina), during 2019 survey, 13 plants were found to be infested within the infested zone (6 *Acer*, 4 *Aesculus*, 1 *Populus*, 1 *Salix*, 1 *Ulmus*). In total, 53 plants have been cut down, including host plants within a radius of 100 m around infested plants. No infested plants have been found in the nurseries.
Near Ostra, the infested area associated with the initial outbreak discovered in 2016 now covers 4 municipalities (Ostra, Senigallia, Ostra Vetere, Trecastelli). During the 2019 survey, 844 plants were found to be infested. In total, 1304 plants have been cut down, including host plants within a radius of 100 m around infested. The infested area slightly increased between 2018 and 2019.

- **Veneto**

In Veneto, *A. glabripennis* was first found in the municipality of Cornuda and the neighbouring municipality of Maser in 2009 and 2010 respectively, (EPPO RS 2009/157, 2010/201, 2014/010, 2019/234). Official measures have been applied since then, and the demarcated areas have been merged. No infested plants have been found since 2017. The outbreak in Cornuda (and Maser) was therefore officially declared eradicated in August 2020.

The pest status of *Anoplophora glabripennis* in Italy is officially declared as: **Present, under eradication.**

Source: NPPO of Italy (2020-05, 2020-06, 2020-08).

EU (2015) Commission Implementing Decision (EU) 2015/893 of 9 June 2015 as regards measures to prevent the introduction into and the spread within the Union of *Anoplophora glabripennis* (Motschulsky). *OJL* **146**, 16–28. http://data.europa.eu/eli/dec_impl/2015/893/oj

Pictures: *Anoplophora glabripennis*. https://gd.eppo.int/taxon/ANOLGL/photos

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

2020/222 Eradication of thousand canker disease in disease in Toscana (Italy)

In Italy, both the fungus *Geosmithia morbida* and its vector *Pityophthorus juglandis* (Coleoptera: Curculionidae: Scolytinae - walnut twig beetle) the causal agents of thousand cankers disease (EPPO A2 List), were recorded for the first time in the Veneto region in 2013. They were subsequently found in Piemonte in 2015 (EPPO RS 2016/153), in Lombardia in 2016, in Toscana in 2018 and in Emilia-Romagna in 2019 (RS 2019/102). The NPPO of Italy recently informed the EPPO Secretariat that the outbreak in Rosano (province of Firenze, Toscana) is considered eradicated. In January 2019, the whole infested walnut plantation (mainly *Juglans nigra* with a few scattered *J. regia*) was destroyed. In 2019 and 2020, monitoring was carried out in 28 sites in the provinces of Firenze and Arezzo, through the use of traps and visual inspections. The pests were not detected.
The pest status of *Geosmithia morbida* in Italy is officially declared as: **Present, only in some parts of the Member State concerned.**
The situation of *Pityophthorus juglandis* can be described as: **Present, only in some parts of the Member State concerned.**

Source: NPPO of Italy (2020-10).

Pictures: *Geosmithia morbida.* https://gd.eppo.int/taxon/GEOHMO/photos
Pityophthorus juglandis https://gd.eppo.int/taxon/PITOJU/photos

Additional key words: absence, eradication **Computer codes:** GEOHMO, PITOJU, IT

2020/223 First report of tomato brown rugose fruit virus in the Czech Republic

The NPPO of the Czech Republic recently informed the EPPO Secretariat of the first detection of tomato brown rugose fruit virus (*Tobamovirus*, ToBRFV – EPPO A2 List) on its territory. The virus was detected in a greenhouse of a breeding station of a seed company as part of a pre-export examination in a seed crop of *Capsicum annuum* in August 2020. Three lots representing individual cultivars/breeding lines were visually inspected and sampled; no disease symptoms were observed. Two of the three samples tested positive for ToBRFV. Confirmation of the positive results has been obtained using two different real-time PCR methods with sequence analysis. The source of the infection is not yet known. The seeds used to grow the seed crop were breeding material originating in the Czech Republic. Preliminary official measures have been taken to prohibit the movement of plant material from the infected greenhouse. A delimitation survey will be conducted in the other greenhouses and open fields in the premise in order to define the infected area. Eradication measures will be applied.
The pest status of *Tomato brown rugose fruit virus* in the Czech Republic is officially declared as: **Present, under eradication**.

Source: NPPO of Czech Republic (2020-09).

Pictures: *Tomato brown rugose fruit virus.* https://gd.eppo.int/taxon/TOBRFV/photos

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

2020/224 Update on the situation of tomato brown rugose fruit virus in Greece

Tomato brown rugose fruit virus (*Tobamovirus*, ToBRFV – EPPO A2 List) was first detected in Greece in August 2019 in greenhouses growing tomatoes (*Solanum lycopersicum*) on the island of Crete and later in the Peloponnese, in the municipalities of Kiparissia and Gargaliani (Messinia province) (EPPO RS 2019/210, RS 2020/079). The phytosanitary authorities of the province of Lakonia (Peloponnese) recently reported the presence of ToBRFV in tomato crops grown both under greenhouse and in the field on their territory. It is noted that the virus has been detected in several regions on the mainland: in Peloponnese (prefectures of Argolis, Messinia, Corinth), in Central Greece (Boeotia, Evia), in East Macedonia and Thrace (Drama), in Attica, as well as in Crete (Heraklion, Lassithi).

Source: INTERNET
Directorate of Agricultural Economy & Veterinary of Lakonia (2020-09-18) [Information from the Directorate of Agricultural Economy & Veterinary of Laconia for the first appearance of the virus of brown wrinkling of tomato fruits (tomato brown rugose fruit virus - ToBRFV)]. https://www.ppel.gov.gr/enimerosi-apo-tin-d-nsi-agrotikis-ikonomias-ktiniatrikis-lakonias-gia-tin-proti-emfanisi-tou-iou-tis-tis-kastanis-ritidosis-ton-karpon-tomatas-tomato-brown-rugose-fruit-virus-tobrfv/ (in Greek).

Pictures: *Tomato brown rugose fruit virus.* https://gd.eppo.int/taxon/TOBRFV/photos

Additional key words: detailed record **Computer codes:** TOBRFV, GR

2020/225 Update on the situation of tomato brown rugose fruit virus in the Netherlands

Tomato brown rugose fruit virus (*Tobamovirus*, ToBRFV – EPPO A2 List) was first detected in the Netherlands in October 2019 in one greenhouse on tomato (*Solanum lycopersicum*) in the municipality of Westland (RS 2019/209) and later in 16 sites growing tomatoes in 6 municipalities (RS 2020/038). Official measures have been implemented in all outbreaks. At the end of August 2020, measures were lifted at 4 tomato growers after tests had shown that the virus was no longer present, but 3 new findings were made. As a result, 20 growers are now considered to be infected: 8 in the municipality of Westland, 5 in Hollands Kroon, 2 in Lansingerland, 1 in Reimerswaal, 1 in Haarlemmermeer, 1 in Horst aan de Maas, 1 in Goeree-Overflakkee and 1 in Brielle.

Source: INTERNET
NVWA (2020-08-27) Vondsten ToBRFV. https://www.nvwa.nl/onderwerpen/tomato-brown-rugose-fruit-virus-tobrfv/vondsten-tobrfv

Pictures: *Tomato brown rugose fruit virus.* https://gd.eppo.int/taxon/TOBRFV/photos

Additional key words: detailed record **Computer codes:** TOBRFV, NL

2020/226 New finding of '*Candidatus* Liberibacter solanacearum' in Estonia

In Estonia '*Candidatus* Liberibacter solanacearum' (potato haplotypes are listed in the EPPO A1 List) was first reported in November 2017. It was detected in 4 samples of one of its psyllid vectors, *Trioza apicalis* (Hemiptera: Triozidae), trapped in carrot fields (EPPO RS 2018/035). During official surveys for '*Ca* Liberibacter solanacearum' carried out in potato (*Solanum tuberosum*) production sites in Estonia in 2019 and 2020, insects were caught with sticky traps and tested for the presence of the pathogen. In 2019, specimens of *Trioza urticae* tested positive in the municipality of Võru, Kose, and in 2020 in the municipality of Põhja-Sakala vald. In the latter case, the haplotype was determined to be haplotype C. No official phytosanitary measures were taken as haplotype C is not known to infect solanaceous crops.
The pest status of '*Candidatus* Liberibacter solanacearum' in Estonia is officially declared as: **Present, only in some parts of the Member State concerned**.

Source: NPPO of Estonia (2020-09, 2019-10).

Pictures: '*Candidatus* Liberibacter solanacearum'. https://gd.eppo.int/taxon/LIBEPS/photos

Additional key words: detailed record **Computer codes:** LIBEPS, TRIZUR, EE

2020/227 Haplotypes and vectors of '*Candidatus* Liberibacter solanacearum' in Scotland (United Kingdom)

'*Candidatus* Liberibacter solanacearum' is a bacterium known to cause diseases in Apiaceae crops in Europe and in potato and other Solanaceae crops in North and Central America and in New-Zealand. Potato haplotypes are listed in EPPO A1 List. In the United Kingdom, '*Ca*. L. solanacearum' haplotype C was first detected in *Trioza anthrisci* (Hemiptera: Triozidae) collected by suction traps (RS 2018/009) but not in crops. Further research was conducted on potential vectors of '*Ca*. L. solanacearum' (Lso) and on the haplotypes present in carrot (*Daucus carota*) crops in Scotland. Four Lso haplotypes were found: C, U, and two novel haplotypes in plants or psyllids. Lso haplotype C was found in a small percentage of asymptomatic carrot plants from a field where known vectors of this haplotype were not found. This is the first report of Lso in cultivated carrot growing in the United Kingdom.
Surveys for psyllids collected 535 specimens comprising 19 psyllid species in carrot fields and the surrounding vegetation. *Trioza anthrisci* was found to be present only in one municipality (Elgin, Moray council area) with 100% of individuals harbouring Lso haplotype C. Lso haplotype U was found at all sites in *Trioza urticae* and at some sites infecting the weed *Urtica dioica*. The two novel haplotypes were found in *Craspedolepta nebulosa* and *C. subpunctata* (both Hemiptera: Aphalaridae) and named Cras1 and Cras2. This is the first report of Lso in psyllids from the Aphalaridae family. These new haplotypes were most closely related to Lso haplotype H recently found in carrot and parsnip. Lso was also detected in several weed plants surrounding carrot and parsnip fields. These included two Apiaceous species *Aegopodium podagraria* and *Anthriscus sylvestris,* one *Galium* sp. (Rubiaceae) and *Chenopodium album* (Amaranthaceae).

Source: Sumner-Kalkun JC, Highet F, Arnsdorf YM, Back E, Carnegie M, Madden S, Carboni S, Billaud W, Lawrence Z, Kenyon D (2020) '*Candidatus* Liberibacter solanacearum' distribution and diversity in Scotland and the characterisation of novel haplotypes from *Craspedolepta* spp. (Psyllidae: Aphalaridae). *Scientific Reports* **10,**16567. https://doi.org/10.1038/s41598-020-73382-9

Pictures: '*Candidatus* Liberibacter solanacearum'. https://gd.eppo.int/taxon/LIBEPS/photos

Additional key words: detailed record **Computer codes:** LIBEPS, TRIZAH, 1APHAF, GB

2020/228 First report of wheat blast in Zambia and in Africa

Wheat blast caused by *Magnaporthe oryzae* pathotype *triticum* (MoT) is a severe disease which has emerged in 1980s in South America. In 1985, it was first reported from Parana in Brazil, and then spread to neighbouring countries including Bolivia, Paraguay and Argentina. In 2016, the disease was recorded for the first time outside the American continent in Bangladesh, where it affected around 15% of the wheat production area of the country. *M. oryzae* is a seed-borne disease, and once present in an area, fungal spores can also be easily spread further by wind.
In Zambia, wheat blast symptoms were observed for the first time on wheat (*Triticum aestivum*) grown in experimental plots and in 5 farmers' fields in Mpika district of Muchinga Province during the 2017–2018 rainy season. Disease incidence ranged from 50 to 100% and averaged 84.8%. The identity of the fungus was confirmed by morphological, pathogenicity and molecular tests. This first record in Zambia is also the first one for Africa. FAO reports that research and control measures are being taken to prevent any further spread of wheat blast to new territories.

Source:

CGIAR (2020) Researchers in Zambia confirm: Wheat blast has made the intercontinental jump to Africa https://wheat.org/researchers-in-zambia-confirm-wheat-blast-has-made-the-intercontinental-jump-to-africa/

IPPC (2020) Prompt pest reports from Zambia and Jordan: enhanced global cooperation on pest prevention and control. https://www.ippc.int/en/news/prompt-pest-reports-from-zambia-and-jordan-enhanced-global-cooperation-on-pest-prevention-and-control/

Tembo B, Mulenga RM, Sichilima S, M'siska KK, Mwale M, Chikoti PC, Singh PK, He X, Pedley KF, Peterson GL, Singh RP, Braun HJ (2020) Detection and characterization of fungus (*Magnaporthe oryzae* pathotype Triticum) causing wheat blast disease on rain-fed grown wheat (*Triticum aestivum* L.) in Zambia. *PLoS ONE* **15**(9), e0238724. https://doi.org/10.1371/journal.pone.0238724

Additional key words: new record **Computer codes:** PYRIOR, ZM

2020/229 *Amaranthus tuberculatus* can adapt to agricultural systems in North America

Amaranthus tuberculatus (Amaranthaceae - EPPO A2 List) is an annual dioecious non-native species to the EPPO region with transient and established occurrences known from a number of EPPO countries. The species grows mainly in ruderal sites and along riverbanks, and to a lesser extent in crop fields (EPPO RS 2020/107). The species is native to the Midwestern US where it began infesting agricultural fields in the 20th century within the central portion of its range. In the USA, two common garden experiments were set-up to test if vegetative growth and reproductive traits of *A. tuberculatus* from the region with the highest level of agricultural infestation provide differential fitness benefits in agricultural environments. Seed was collected from across the species native range, representing regions with varying degrees of infestation. Seeds from different populations were planted together in soybean plots. A 2010 common garden experiment was conducted within its agriculturally weedy range (in Missouri), and a 2011 common garden experiment was conducted outside of this range (in Ohio). Days to flowering and flowering plant height, mature plant size data (height, number of branches, and length of the longest branch), and above-ground biomass were measured to estimate relative fitness. In both common garden locations, plants from regions where *A. tuberculatus* occurs as an agricultural weed—including those from the heavily infested Mississippi Valley region (Iowa, Illinois, and Missouri) and the less severely infested Plains region (Nebraska, Kansas, and Oklahoma)—had higher relative performance in almost all fitness-related measures than plants from the Northeast region (Ohio, Michigan, and Ontario), which had little to no agriculturally weedy *A. tuberculatus*.

Source: Waselkov KE, Regenold ND, Lum RC, Olsen KM (2020) Agricultural adaptation in the native North American weed waterhemp, *Amaranthus tuberculatus* (*Amaranthaceae*). *PLoS ONE* **19**(9) e0238861. https://doi.org/10.1371/journal.pone.0238861

Additional key words: invasive alien plant **Computer codes:** AMATU, US

2020/230 Global guidelines for the sustainable use of non-native tree species

A list of eight global guidelines are suggested as a first step towards building global consensus on the precautions that should be taken when introducing and planting non-native trees. These guidelines are voluntary and are intended to complement statutory requirements under international and national legislation. The application of the global guidelines and the achievement of their goals will help to conserve forest biodiversity, ensure sustainable forestry, and contribute to the achievement of several Sustainable Development Goals of the United Nations linked to forest biodiversity (https://sdgs.un.org/goals). The eight guidelines are:

1. Use native trees, or non-invasive non-native trees, in preference to invasive non-native trees,
2. Be aware of and comply with international, national, and regional regulations concerning non-native trees,
3. Be aware of the risk of invasion and consider global change trends,
4. Design and adopt tailored practices for plantation site selection and silvicultural management,
5. Promote and implement early detection and rapid response programmes,
6. Design and adopt tailored practices for invasive non-native tree control, habitat restoration, and for dealing with highly modified ecosystems,

7. Engage with stakeholders on the risks posed by invasive non-native trees, the impacts caused, and the options for management,
8. Develop and support global networks, collaborative research, and information sharing on native and non-native trees.

Source: Brundu G, Pauchard A, Pyšek P, Pergl J, Bindewald AM, Brunori A, Canavan S, Campagnaro T, Celesti-Grapow L, Dechoum M de S, Dufour-Dror J-M, Essl F, Flory SL, Genovesi P, Guarino F, Guangzhe L, Hulme PE, Jager H, Kettle CJ, Krumm F, Langdon B, Lapin K, Lozano V, Le Roux JJ, Novoa A, Nunez MA, Porte AJ, Silva JS, Schaffner U, Sitzia T, Tanner R, Tshidada N, Vitkova M, Westergren M, Wilson JRU, Richardson DM (2020) Global guidelines for the sustainable use of non-native trees to prevent tree invasions and mitigate their negative impacts. *NeoBiota* **61,** 65–116.

Additional key words: invasive alien plant

2020/231 Escaped ornamental plants on Lucavsala Island, Latvia

Eight ornamental perennial garden plant species are recorded as garden escapees on Lucavsala Island (Latvia) following a botanical survey carried out in 2016. Lucavsala Island is located on the Daugava river in Riga.

Achillea ptarmica (Asteraceae) is native to Europe – the northern part of Spain and Italy, southwestern Romania and southern Russia, where it grows mainly in damp meadows. On Lucavsala Island, a patch of plants (1 m^2 in size) was found in an abandoned family garden.

Artemisia ludoviciana (Asteraceae) is a perennial rhizomatous species up to 1 m tall and native to North America. In Belgium and the United Kingdom, the species is recorded as a garden escapee. In Latvia, the use of the species as an ornamental species is not common though it would be well adapted to the sandy soils of the coastal areas of Latvia. *A. ludoviciana* is recorded on Lucavsala Island growing on non- cultivated land

Asclepias syriaca **(**Asclepiadaceae) is a fast-growing perennial species native to North America. The species has invaded extensive areas within the EPPO region resulting in dense stands that can outcompete native plant species. It is regulated in the EU and is included in (EU) Regulation 1143/2014 as a species of Union concern. In Lucavsala, a thicket of flourishing plants occupying a 30 m^2 area was found in an abandoned family garden. A large quantity of new shoots was observed but no new seedlings could be found in neighbouring areas. This species has the potential to become locally established and, thus, should be included in the group of new casual alien species in Latvia.

Campanula lactiflora (Campanulaceae) can grow up to 150 cm tall. The species is native to Europe, the Caucasus and Turkey. In Latvia, the species has been available in the horticultural trade since 2011. Three small populations of the species were recorded growing on Lucavsala island in an abandoned garden invaded by vegetation.

Heliopsis helianthoides (Asteraceae) is native to North America and has been cultivated for ornamental purposes within the EPPO region. During the botanical survey, the species was commonly observed to have spread from initally planted areas and to be producing seed in these new locations.

Lathyrus latifolius (Fabaceae) is native to Central and Southern Europe and North Africa. Two populations were recorded on Lucavsala island (0.5 km apart) where the populations

consisted of flowering individuals. The authors recommend this species is considered a casual alien in Latvia.

Phlox paniculata (Polemoniaceae) is native to North America and can grow up to 2 m tall. On Lucavsala Island, *P. paniculata* was found in an abandoned garden. Five *P. paniculata* plants of different ages, all with flowers, were scattered amongst vegetation dominated by *Solidago canadensis* and *Aegopodium podagraria,* and occupied in total an area of about 1 m^2.

Rudbeckia hirta (Asteraceae) is native to North America and can grow up to 1 m tall. It is cultivated for ornamental purposes in the EPPO region and is naturalised in ruderal habitats in Central Europe. On Lucavsala island, approximately 30 flowering individuals were found, and the authors recommend this species is considered a casual alien in Latvia.

Source: Naburga I, Evarts-Bunders P (2019) status of some escaped ornament perennials in the flora of Latvia. *Botanica* **25**, 131-144.

Additional key words: invasive alien plant

Computer codes: ACHPT, ARTLU, ASCSY, CMPLA, HEFHE, LTHLA, POXPA, RUDHI, LV

2020/232 *Ligustrum sinense* negatively impacts ecosystem processes in the USA

Ligustrum sinense (Oleaceae – Chinese privet) is a shrub species native to Asia and has been introduced throughout the world as a garden ornamental species. It is reported as invasive in Argentina and a number of states in the USA. In the USA, *L. sinense* was introduced as a garden species as early as the mid-1850s, often as an ornamental hedge species. Since its introduction, the species has spread out of confined areas where it can invade riparian systems. *L. sinense* currently occupies more than 1 million ha of riparian forest habitat. In Georgia (US), a study was conducted to evaluate phenological patterns of *L. sinense* litterfall, litter chemistry, and changes in availability of mobile soil nutrients within riparian zones invaded by Chinese privet. Comparisons of native and invaded sites showed that *L. sinense* invasion alters the timing but not quantity of litter deposition. In contrast to native species, total litterfall displayed little seasonal variation however invaded sites had similar total litter mass compared to native sites. Within invaded sites, *L. sinense* litter was 26% of total litterfall in spring. *L. sinense* leaf litter was seasonally enriched in nitrogen during winter as compared to fall and spring. Compared to native sites, invaded sites had significantly increased soil nitrate availability and decreased soil carbon:nitrogen ratios. In contrast, dissolved organic matter and dissolved nitrogen in soil solution was lower in invaded sites compared to native sites. The results suggest that *L. sinense* enhances litter and inorganic nitrogen availability in ways that have potential to impact decomposer and detritovore communities in the invaded riparian zones and adjacent aquatic systems.

Source: Weand M (2020) Chinese privet (*Ligustrum sinense* Lour.) alters the timing of litterfall and nutrient quality of leaf litter inputs in invaded riparian forests. *Biological Invasions.* https://doi.org/10.1007/s10530-020-02335-0

Photos *Asclepias syriaca*. https://gd.eppo.int/taxon/ASCSY/photos

Additional key words: invasive alien plant

Computer codes: LIGSI, US

2020/233 Control of *Asclepias syriaca*

Asclepias syriaca (Apocynaceae) is a perennial herb native to North America. The species was introduced into the EPPO region as a garden ornamental and has since become a problematic species negatively impacting biodiversity and ecosystem services. Despite of being an invader in disturbed semi-natural vegetation, *A. syriaca* prefers agricultural fields or plantations. It is one of the most widespread invasive species in Pannonic sand grasslands in Hungary. The invasion of *A. syriaca* has been monitored from 2011 to 2017 in a protected UNESCO biosphere reserve (Fülöpháza Sand Dunes in the Kiskunság) in Hungary. A single herbicide treatment (glyphosate) was applied against populations of the species in May 2014. This single treatment was successful as a short-term control measure as the number of shoots decreased following herbicide treatment. The herbicide translocation by rhizomatic roots induced damage of dormant bud banks. However, the surviving buds developed shoots and a slow regeneration was seen over a longer-time period. The authors conclude that the successful control of *A. syriaca* after herbicide treatment depends on repeated management of treated areas to suppress further spreading during subsequent seasons.

Source: Bakacsy L, Bagi I (2020) Survival and regeneration ability of clonal common milkweed (*Asclepias syriaca* L.) after a single herbicide treatment in natural open sand grasslands. *Scientific Reports Nature.* DOI: https://doi.org/10.1038/s41598-020-71202-8

Additional key words: invasive alien plant **Computer codes:** ASCSY, HU

2020/234 Mapping the potential distribution of *Ailanthus altissima* in urban areas

Ailanthus altissima (Simaroubaceae - EPPO List of Invasive Alien Plants) commonly known as the tree of heaven is an invasive alien plant species in the EPPO region and native to Asia. Throughout the EPPO region, *A. altissima* can invade a variety of habitats including managed and unmanaged grasslands, forests, riverbanks/canal-sides, rail/roadsides, wastelands and urban areas. The management of this species can be problematic due to the type of areas where the plant grows and the need to identify and manage all individuals in an area. There currently remains a lack of tools to predict tree spread across urban landscapes and to predict invasion hotspots. A study was conducted in Poznań (Poland) and used floristic surveys, land-use maps, and field observations of the occurrence of *A. altissima* individuals. A simulation model was run and showed that the probability of *A. altissima* natural regeneration was positively associated with dense urban areas (10–50%), recreational areas, and water. Natural regeneration was negatively correlated with a high cover of forests, dense urban areas (50–100 %) and agricultural areas. It was also found that most of the naturally regenerated individuals occurred up to 20 m from parental trees, and densities of natural regeneration were five times higher in paved surfaces and ruderal vegetation compared to lawns and bare ground. Despite the limitations of the model, the patterns produced were consistent with other studies, revealing a set of rules that can facilitate prediction of *A. altissima* natural regeneration occurrence. Therefore, this approach can facilitate narrowing the area of fieldwork required for mapping invasive tree species in urban ecosystems, help to design effective policy and management of invasive species in urban areas, and reduce costs of monitoring.

Source: Paź-Dyderska S, Ladach-Zajdler A, Jagodzinski AM, Gyderski MK (2020) Landscape and parental tree availability drive spread of *Ailanthus altissima* in the urban ecosystem of Poznań, Poland. *Urban Forestry and Urban Greening*. https://doi.org/10.1016/j.ufug.2020.126868

Pictures *Ailanthus altissima*. https://gd.eppo.int/taxon/AILAL/photos

Additional key words: invasive alien plant **Computer codes:** AILAL, PL