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2022/119 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 8.

- **New records**

Tomato yellow leaf curl virus (TYLCV - EPPO A2 List) is reported from Kenya. Surveys were conducted in 2018 in fields in 8 major tomato growing counties in Kenya, and TYLCV was detected in all of these counties. It is noted that leaf curl disease in Kenya is also caused by tomato leaf curl Arusha virus (ToLCArV), tomato leaf curl Uganda virus (ToLCUV) and chickpea chlorotic dwarf virus (CpCDV) (Avedi *et al.*, 2022). **Present, not widely distributed.**

Xanthomonas oryzae pv. *oryzicola* (EPPO A1 List) is causing bacterial leaf streak disease of rice in Côte d'Ivoire. In October 2018, typical symptoms were observed in the area of Korhogo. The identity of the pathogen was confirmed by PCR (Diallo *et al.*, 2021). **Present, not widely distributed.**

- **Detailed records**

In China, *Agrilus mali* (Coleoptera: Buprestidae – EPPO Alert List) is causing extensive mortality in wild apple (*Malus sieversii*) forests in the Tianshan Mountains. It has been hypothesized that it was introduced in the early 1990s into this part of China with infested apple seedlings from Shandong province. However, recent genetic studies comparing *A. mali* populations from five Chinese provinces (Gansu, Inner Mongolia, Liaoning, Qinghai, and Western Tianshan Mountains in Xinjiang province) concluded that *A. mali* in the Western Tianshan Mountains has possibly been present in the area for a long period and may not have been introduced recently. It is supposed that the recent outbreaks in the Tianshan Mountains might be resulting from climatic and environmental factors that are weakening apple trees in forests and from poor management in apple orchards (Sun *et al.*, 2022).

In the United Kingdom, chestnut blight caused by *Cryphonectria parasitica* (EPPO A2 List) was detected for the first time in England in 2011. Surveys conducted in 2017-2018 detected the disease at different sites in Berkshire, Derbyshire, Devon, Dorset and London. Further surveys in 2019-2020 detected *C. parasitica* in additional sites in Berkshire, Buckinghamshire, Cornwall, Derbyshire, Devon, London, and West Sussex, as well as on the island of Jersey. These surveys showed that *C. parasitica* still has a limited distribution in England. Studies on 115 isolates also revealed a high diversity in vegetative compatibility groups (VCGs) supporting the hypothesis of multiple introductions of *C. parasitica* over time (Romon-Ochoa *et al*, (2022).

In Canada, little cherry virus 1 (Velarivirus, LChV-1 – EU Annexes) was first reported in cherry trees (*Prunus avium*) in the eastern part of the country. It was detected in Ontario, based on surveys performed in 2014-2018 and is not considered widespread (Simkovich *et al.*, 2021).

In the USA, *Raffaelea lauricola* (EPPO Alert List) causing laurel wilt has recently been reported from Virginia. In July 2021, a wilted sassafras (*Sassafras albidum*) sapling tested positive for *R. lauricola*. It was located close to a county in Tennessee where the disease occurs. Although exit holes were observed, no *Xyleborus glabratus* (vector of laurel wilt) was found (Gazis *et al.*, 2022).

According to the review of Chinese literature on thrips by Xu & Teulon (2022), *Scirtothrips dorsalis* (Thysanoptera: Thripidae – EPPO A2 List) is present in the following provinces for which the EPPO Secretariat had no previous records: Beijing, Chongqing, Guizhou, Hubei, Shandong.

- **Host plants**

In Florida (US), *Gymnosporangium clavipes* (EPPO A1 List) was found in May 2021 in *Crataegus uniflora* (Rosaceae) trees which displayed fruit galls. This is the first time that *G. clavipes* is reported on this host (Urbina *et al.*, 2022).

Sources:

Avedi EK, Adediji AO, Kilalo DC, Olubayo FM, Macharia I (2022) Incidence, severity and distribution of yellow leaf curl disease of tomato in Kenya. *African Crop Science Journal* **30**(1), 1-11. https://dx.doi.org/10.4314/acsj.v30i1.1

Diallo A, Zougrana S, Sawadogo M, Kone D, Silué D, Szurek B, Wonni I, Hutin M (2021) First report of bacterial leaf streak disease of rice caused by *Xanthomonas oryzae* pv. *oryzicola* in Ivory Coast. *Plant* Disease **105**(12), p 4147.

Gazis R, DeWitt KM, Johnson LK, Chamberlin LA, Kennedy AH, Hansen MA, Bush EA (2022) First report of laurel wilt disease caused by *Raffaelea lauricola* on sassafras in Virginia. *Plant Disease* **106**(6), 1763. https://doi.org/10.1094/PDIS-11-21-2616-PDN

Romon-Ochoa P, Kranjec Orlović J, Gorton C, Lewis A, van der Linde S, Pérez-Sierra A (2022) New detections of chestnut blight in Great Britain during 2019–2020 reveal high *Cryphonectria parasitica* diversity and limited spread of the disease. *Plant Pathology* **71**(4), 793-804.

Simkovich A, Kohalmi SE, Wang A (2021) First report of little cherry virus 1 infecting sweet cherry in Ontario, Canada. *Plant Disease* **105**(12), p 4173.

Sun H, Jia F, Zhao W, Zhou Z, Li C, Wang J, Yao Y (2022) Population genetics reveals that the Western Tianshan Mountains populations of *Agrilus mali* (Coleoptera: Buprestidae) may have not been recently introduced. *Frontiers in Genetics* **13**, 857866. https://10.3389/fgene.2022.857866

Urbina H, Jones C, De la Paz A, McVay J (2022) First report of cedar-quince rust *Gymnosporangium clavipes* on fruit of dwarf hawthorn *Crataegus uniflora* in Florida, USA. *Plant Disease* (early view). https://doi.org/10.1094/PDIS-01-22-0027-PDN

Xu B, Teulon DA (2022) Combined searches of Chinese language and English language databases provide more comprehensive data on the distribution of five pest thrips species in China for use in Pest Risk Assessment. *Sustainability* **14**(5), 2920. https://doi.org/10.3390/su14052920

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

Computer codes: AGRLMA, ENDOPA, LCHV10, RAFFLA, SCITDO, TYLCV0, XANTTO, CA, CI, CN, GB, JS, KE, US

2022/120 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 2022/097), the following new and revised EPPO datasheets have been published in the EPPO Global Database:

- *Aleurocanthus woglumi*. https://gd.eppo.int/taxon/ALECWO/datasheet
- *Arrhenodes minutus*. https://gd.eppo.int/taxon/ARRHMI/datasheet
- *Choristoneura rosaceana*. https://gd.eppo.int/taxon/CHONRO/datasheet
- *Diabrotica virgifera zeae*. https://gd.eppo.int/taxon/DIABVZ/datasheet
- *Margarodes capensis*. https://gd.eppo.int/taxon/MARGCA/datasheet
- *Opogona sacchari*. https://gd.eppo.int/taxon/OPOGSC/datasheet
- *Phytophthora rubi*. https://gd.eppo.int/taxon/PHYTFU/datasheet

Source: EPPO Secretariat (2022-06).

Additional key words: publication **Computer codes:** ALECWO, ARRHMI, CHONRO, DIABVZ, MARGCA, OPOGSC, PHYTFU

2022/121 New BBCH growth stage keys

The BBCH[1] growth stage keys aim to provide a standard and uniform description of the visible growth stages of plants, using a two-digit decimal code. This system has been developed for many important crops, such as cereals, rice, maize, rape, potato, fruit trees, small fruits, vegetables (see EPPO RS 2016/204). In 1997, the BBCH growth stage keys were recommended by the EPPO Working Party on Plant Protection Products and by Council for use in EPPO countries, thus replacing the previously recommended EPPO growth stage keys. New BBCH scales have recently been published to describe the growth stages of the following plants:

- *Corema album* (Jacinto *et al.*, 2022).
- *Cornus sensu stricto* species (Klymenko and Ilyinska, 2021).
- Hazelnut (*Corylus avellana*) *(*Taghavi *et al.*, 2022) and 'Barcelona' hazelnut (*Corylus avellana*) (Paradinas *et al.*, 2022).
- Freesia crop (Freesia x hybrida) (Santili *et al.*, 2021).
- Korean ginseng (*Panax ginseng*) (Kim *et al.*, 2021).
- *Lantana camara* (Kumar *et al.*, 2022).
- Pawpaw (*Asimina triloba*) (Ferrer-Blanco *et al.*, 2022).
- Red-fleshed pitaya (*Hylocereus polyrhizus*) (Chu and Chang, 2002).
- *Phacelia tanacetifolia* (Kubíková *et al.*, 2022).
- Potato (*Solanum tuberosum*) grown from different types of planting material (Kacheyo *et al.*, 2021).
- Shea tree (*Vitellaria paradoxa* subsp. *paradoxa*) (Konan *et al.*, 2022).
- Siberian elm (*Ulmus pumila*) (Amorós *et al.*, 2021).
- Statice (Buffon *et al.*, 2022).
- Tamarind (*Tamarindus indica*) (Kishore *et al.*, 2022).
- *Vaccinium floribundum* (Caranqui-Aldaz *et al.*, 2022).

[1] The abbreviation BBCH derives from the first letters of the German names of Biologische Bundesanstalt (Federal Biological Research Centre), Bundessortenamt (Federal Plant Variety Office) and Chemische Industrie.

Source:

Amorós M de la C, Mauri PV, Curt MD (2021) The influence of tree management practices on phenological growth stages of *Ulmus pumila* L. (Siberian elm). *Annals of Applied Biology* **179**(2), 259-272.

Buffon PA, Streck NA, Schwab NT, Uhlmann LO, Tomiozzo R, Lima EF, Netto JF, Guarienti VF (2022) A phenological scale of statice. *Annals of Applied Biology* (in press). https://doi.org/10.1111/aab.12765

Caranqui-Aldaz JM, Romero-Saltos H, Hernández F, Martínez R (2022) Reproductive phenology of *Vaccinium floribundum* Kunth (Ericaceae) and codification according to the BBCH scale based on evidence from the volcano Chimborazo paramo (Ecuador). *Scientia Horticulturae* **303**, 111207. https://doi.org/10.1016/j.scienta.2022.111207

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Jacinto J, Magalhães T, Oliveira PB, Oliveira C, Luz F, Trindade CS, Valdiviesso T (2022) *Corema album* (L.) D. Don phenological growth stages according to extended BBCH scale. *International Journal of Fruit Science* **22**(1), 317-328. https://doi.org/10.1080/15538362.2022.2041149

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Klymenko S, Ilyinska A (2021) Phenological stages of development of *Cornus* L. s. str. species (Cornaceae) according to BBCH scale. *Agrobiodiversity for Improving Nutrition, Health and Life Quality* **5**(2), 185-196. https://doi.org/10.15414/ainhlq.2021.0017

Konan JA, Kouakou CK, Allouan KP, Coulibaly AS, Djidji H, Fondio L (2022) Phenological growth stages of shea tree (*Vitellaria paradoxa* subsp. *paradoxa*) according to the BBCH scale. *Annals of Applied Biology* (early view). https://doi.org/10.1111/aab.12793

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Santilli M, Bas-Nahas SS, Medrano NN (2021) Freesia crop (Freesia x hybrida) phenological growth stages according to the BBCH scale. *Revista Agronómica del Noroeste Argentino* **41**(1), 15-25. https://ranar.faz.unt.edu.ar/index.php/ranar/article/view/119

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Additional key words: growth stages

2022/122 Call for applications to the EPPO Jens-Georg Unger Plant Health Fellowship for international co-operation in plant health

EPPO is happy to announce the 2022 call for applications to the EPPO Jens Georg Unger Plant Health Fellowship for international co-operation in plant. This fellowship started in 2021 in the context of the International Year of Plant Health (IYPH) and is dedicated to Dr Jens-Georg Unger, a reputed professional in Plant Health who passed away much too early.

The aim of this fellowship is to enable plant health professionals from the EPPO region to gain international working experience in plant health in another country or organization through a secondment. This fellowship is meant for plant health professionals working in plant health in the early or middle stage of their careers.

All necessary information and link to an online form to submit applications can be found on the EPPO website:
https://www.eppo.int/ABOUT_EPPO/special_events/plant_health_fellowship

Deadline: 31st of August 2022.

Source: EPPO Secretariat (2022-06).

2022/123 First International Plant Health Conference (London, 2022-09-21/23)

The First International Plant Health Conference will be held in London (GB) on 21–23 September 2022 and is co-organized by the Department for Environment, Food & Rural Affairs (DEFRA) of the United Kingdom and the IPPC Secretariat.

This Conference aims to address new and emerging plant health challenges, including climate change impacts, the significant increase in international trade, the rapid loss of biological diversity and new pest pathways such as e-commerce, by exploring more efficient national, regional and global policies, structures and mechanisms.

For more information:
https://www.ippc.int/en/
Draft programme:
https://assets.ippc.int/static/media/files/event/2022/06/20/IPHC_Public_Programme_2022-06-20.pdf

Source: IPPC Secretariat (2022-06).

Additional key words: conference, IPPC

2022/124 Update on the situation of *Anoplophora chinensis* in Croatia

In Croatia, *Anoplophora chinensis* (Coleoptera: Cerambycidae – EPPO A2 List) was first found in 2007 in Turanj (EPPO RS 2009/047) and again in 2014 in Sveti Filip i Jakov, Turanj, and Rugvica (RS 2015/066), and in 2019 in Biograd na Moru (RS 2020/219). Eradication measures are being applied. Surveillance activities are conducted in the demarcated areas and new outbreaks were detected in 2021 and 2022:

- In June 2021, 4 adult beetles were found on one tree (*Melia* sp.) in a private garden in Turanj within the demarcated area.
- In Biograd na Moru, a new outbreak was found in June 2021: 4 adult beetles were found on *Acer* sp. trees in a public urban area within the demarcated area, and in June 2022 28 adult beetles were found on *Platanus* sp. trees in Jankolovica, a public forest area, within the demarcated zone (buffer zone).

Eradication measures are being applied in the new outbreak areas and surveillance will continue.

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

Source: NPPO of Croatia (2022-06).

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

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

2022/125 First report of *Aleurocanthus camelliae* in Italy

Aleurocanthus camelliae (Hemiptera: Aleyrodidae) was reported for the first time in Italy, in the Pistoia province (Toscana) in September 2020. Adults and nymphs of this whitefly were observed on the leaves of *Camellia sasanqua* plants grown outdoors in plastic containers in eight plant nurseries.

Literature about *A. camelliae* is scarce. *A. camelliae* is probably native to China and was introduced to Japan and Indonesia. Host plants belong to the genus *Camellia (C. japonica, C. sasanqua, C. sinensis)* and also include *Eurya japonica, Illicium anisatum* and *Zanthoxylum piperitum*. *A. camelliae* has occasionally been found on imported *Camellia* bonsai, pot plants and shrubs in the Netherlands during import inspections. In East Asia, damage is reported on tea plants (*C. sinensis*). No significant damage has been recorded in Italy, but the authors underlined that population levels were low.

Prior to this record within the genus *Aleurocanthus*, only the species *A. spiniferus* (EPPO A2 List) was known to occur in the EPPO region.

Source: EFSA Panel on Plant Health (PLH) (2018) Pest categorisation of *Aleurocanthus* spp. *EFSA journal* **16**(10), e05436.

Rizzo D, Suma P, Rossi E, Farina P, Da Lio D, Bartolini L, Salemi C, Farina A, Rapisarda C (2021) First record of *Aleurocanthus camelliae* Kanmiya & Kasai, 2011 (Hemiptera, Aleyrodidae) from Italy, on ornamental *Camellia* spp. plants. *EPPO Bulletin* **51**(2), 333-339.

Additional key words: new record **Computer codes:** ALECCA, IT

2022/126 New findings of *Sophonia orientalis* in Portugal

The two-spotted leafhopper *Sophonia orientalis* (Hemiptera: Cicadellidae) is a very polyphagous pest, originating in Asia and recorded as invasive in Hawaii (USA). In the EPPO region, this species has been recorded since the 2000s in Madeira (PT) and the Canary Islands (ES) (EPPO RS 2020/073), and subsequently in a few locations in Gibraltar, Spain, mainland Portugal and Morocco (EPPO RS 2020/073, 2021/245). More recently, *S. orientalis* was reported from more locations in mainland Portugal and in the Azores Islands.

- **Mainland Portugal**

A survey was conducted in three vineyards (*Vitis vinifera*) in the northwest region, two peach (*Prunus persica*) orchards in the east-central region, and two sweet orange orchards (*Citrus sinensis*) in the southern region. Forty specimen of *S. orientalis* were collected, in 6 out of the 7 sampling sites. This suggests that *S. orientalis* is established across Portugal although at low levels. There are currently no crop losses associated with the presence of this species.

- **Azores**

Some specimens were collected in 2018 in the botanic garden in Angra do Heroísmo on Terceira Island. More recently, other specimens were captured in May 2020 in banana orchards located in Angra do Heroísmo in Terceira Island and on Pico Island in July 2020 in a mixed forest comprising *Pittosporum undulatum* and *Erica azorica*.

Source: Neto AC, Mateus C, de Andrade E, Barateiro A, Bigolin M, Chaves M, Guerreiro V, Pereira F, Soares C, Tomé D, Coutinho JP (2021) First record of the invasive leafhopper *Sophonia orientalis* in mainland Portugal. *Journal of Pest Science* **94**(2), 241-249.
Tarantino E, Prieto AR, Lopes DJ, Borges PA (2022) First finding of *Sophonia orientalis* (Matsumura) in the Azores. *EPPO Bulletin* **52**(1), 190-191.

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

2022/127 First report of *Ripersiella maasbachi* in Sicilia (Italy)

The NPPO of Italy recently informed the EPPO Secretariat of the first official report of *Ripersiella maasbachi* (Hemiptera: Pseudococcidae) on its territory. During an official survey for *Ripersiella hibisci* (Hemiptera: Pseudococcidae – EPPO A1 List) in a nursery located in Milazzo (Province of Messina, Sicilia) in March 2022, potted plants of *Camellia japonica* infested with *Ripersiella* sp. were detected. The infested plants showed no symptoms but juvenile and female forms of the insect were detected in the root system, which was in good condition. Phytosanitary measures have been applied to eradicate the pest. In May 2022 the identity of the pest was confirmed to be *Ripersiella maasbachi*. This species was first described from bonsai plants (*Sageretia* spp.) from China by Jansen (2003). This is the first report of this unregulated species in Italy.

The pest status of *Ripersiella maasbachi* in Italy is officially declared as: **Transient, actionable, under eradication.**

Source: NPPO of Italy (2022-05).
Jansen MGM (2003) A new species of *Rhizoecus* on bonsai trees. *Tijdschrift voor Entomologie* **146**, 297–300.

Additional key words: new record **Computer codes:** RHIOMA, IT

2022/128 New findings of *Scirtothrips dorsalis* in Turkey

In Turkey, *Scirtothrips dorsalis* (Thysanoptera: Thripidae – EPPO A2 List) was reported for the first time from *Vaccinium myrtillus* in a greenhouse in 2020 in Adana province (EPPO RS 2021/131) and subsequently eradicated (RS 2021/153). In September 2021, damage was recorded on young shoots of orange trees (*Citrus sinensis*) in an orchard in Finike district (Antalya province). The insect was identified as *S. dorsalis* based on its morphology. The authors noted that *S. dorsalis* has also been recorded damaging leaves of strawberry (*Fragaria x ananassa*) in autumn 2021 in Adana province.

The situation of *Scirtothrips dorsalis* in Turkey can be described as: **Present: not widely distributed.**

Source: Atakan E, Pehlivan S (2021) A new harmful thrips species in orange in Antalya province: *Scirtothrips dorsalis* Hood (Thysanoptera: Thripidae). *Mediterranean Agricultural Sciences* **34**(3), 273-277. https://doi.org/10.29136/mediterranean.1013009

Additional key words: detailed record **Computer codes:** SCITDO, TR

2022/129 *Selenothrips rubrocinctus* (Thysanoptera: Thripidae - red-banded thrips): addition to the EPPO Alert List

Why: *Selenothrips rubrocinctus* is a damaging thrips species with a wide host range in tropical and subtropical countries. It was recently recorded as established for the first time in the EPPO region, in Italy (EPPO RS 2022/106). Considering its potential damage and the fact that it had been intercepted in trade, the EPPO Secretariat decided to add it to the Alert List.

Where: S. *rubrocinctus* is widespread in tropical and subtropical countries. Its native range is uncertain and it is considered to originate either from northern South America or Africa.
EPPO Region: Italy.
Africa: Benin, Cameroon, Cape Verde, Congo, Congo (Democratic Republic of), Côte d'Ivoire, Eritrea, Ghana, Kenya, Nigeria, Reunion, Sao Tome & Principe, Sierra Leone, South Africa, Tanzania, Togo, Uganda.
Asia: Bangladesh, China (Fujian, Guangdong, Guangxi, Hainan, Henan, Hubei, Hunan, Jiangxi, Shanghai, Xianggang (Hong Kong), Yunnan, Zhejiang), India (Andaman and Nicobar Islands, Karnataka, Kerala, Odisha, Tamil Nadu, West Bengal), Indonesia (Java, Kalimantan, Sulawesi), Iran, Japan (Honshu, Kyushu), Malaysia (Sarawak), Myanmar, Nepal, Pakistan, Philippines, Singapore, Taiwan, Thailand.
North America: Mexico, USA (Florida, Hawaii).
Central America and Caribbean: Bahamas, Barbados, Costa Rica, Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Honduras, Jamaica, Martinique, Panama, Puerto Rico, Saint Lucia, St Kitts-Nevis, St Vincent and the Grenadines, Trinidad and Tobago.
South America: Brazil (Bahia, Ceara, Espirito Santo, Maranhao, Para, Parana, Pernambuco, Rio de Janeiro, Rio Grande do Sul, Rondonia, Sao Paulo), Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname, Venezuela.
Oceania: Australia (Northern Territory, Queensland), Fiji, French Polynesia, Guam, Kiribati, New Caledonia, Northern Mariana Islands, Papua New Guinea, Samoa, Solomon Islands, Vanuatu, Wallis and Futuna Islands.

On which plants: *S. rubrocinctus* is polyphagous and can be found on a wide range of fruit and ornamental trees and shrubs. It is a pest on avocado (*Persea americana*), cashew (*Anacardium occidentale*), cocoa (*Theobroma cacao*), grapevine (*Vitis vinifera*), mango (*Mangifera indica*).

Damage: Damage is caused by nymphs and adults feeding on leaves and fruit. In the early stages, feeding damage is seen as a silvery sheen on the leaves and skin of fruit or as chlorotic spots. In severe infestations, leaves take on a brown sun-scorched appearance and may drop, while the skin of fruit becomes covered in silvery or brown scars, making it unmarketable. *S. rubrocinctus* is not recorded as a virus vector.
Adult thrips are dark brown to black in colour and about 1.2 mm long. The nymphal stages are light yellow with two characteristic bright red bands around the abdomen (hence its name 'red-banded thrips'. This is the only species in the genus. There are several generations per year (3 in Florida, 8 in Southern China).

Dissemination: Adults have wings and can move between plants. They may be transported by wind. Over long distances, all stages can be transported on infested plant material.

Pathways: Plants for planting, cut flowers, or cut foliage, fruit. *S. rubrocinctus* has been intercepted several times in international trade by European plant health authorities on plants and fruit.

Possible risks: *S. rubrocinctus* is a damaging thrips species which can have negative impacts on yield and quality of fruit and plants. It has a wide host range including species that are important in the EPPO region both for fruit production and as ornamentals. Although of tropical origin, it has adapted to more temperate zones and has established in Italy. It could therefore be a threat for the Southern part of the EPPO region, as well as for glasshouses production.

Sources

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EPPO RS 2022/129

Panel review date – Entry date 2022-06

2022/130 First report of *Erwinia amylovora* in Azerbaijan

The NPPO of Azerbaijan recently informed the EPPO Secretariat of the first record of *Erwinia amylovora* (EPPO A2 List) on its territory. Fireblight was detected in 2021 during an official survey in apple (*Malus domestica*) and pear trees (*Pyrus communis*) growing in gardens in the Balakan and Oghuz districts which are bordering Georgia. The identity of the bacterium was confirmed by molecular tests (real-time PCR). The exact source of this outbreak is unknown, but it is assumed that fireblight naturally spread from infected neighbouring countries.
Phytosanitary measures are being applied to eradicate the disease. Infected plants are being destroyed and it is prohibited to move planting material from infected areas. Prophylactic measures such as disinfection of tools (e.g. pruning tools) and safe disposal of infected plant parts are recommended. Restrictions on the import and movement of host plants of *E. amylovora* are also in place.

The pest status of *Erwinia amylovora* in Azerbaijan is officially declared as: **Present, not widely distributed and under official control.**

Source: NPPO of Azerbaijan (2022-04).

Pictures: *Erwinia amylovora*. https://gd.eppo.int/taxon/ERWIAM/photos

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

2022/131 Update on the situation of *Pantoea stewartii* subsp. *stewartii* in Italy

In Italy, the bacterial wilt of maize caused by *Pantoea stewartii* subsp. *stewartii* (EPPO A2 List) had been found in several regions but was subsequently eradicated (EPPO RS 2020/130, RS 2021/201, RS 2022/065). The pathogen was found again in 2022 during official surveys of maize (*Zea mays*) grown for seed in Emilia-Romagna region. At least 10% of the seed crops (5967 ha) were inspected. In 2022, 16 samples with suspect symptoms were taken and tested according to EPPO diagnostic protocol PM 7/60. Seven samples tested positive, they came from fields located in the municipality of Castel Guelfo di Bologna and Medicina (both Bologna province). The plants within 1.5 m radius around the infected maize plants were uprooted and destroyed. Before harvesting, at 30% seed humidity, maize cobs will be collected in the affected area and tested to verify the absence of the pathogen before marketing the seed.

The pest status of *Pantoea stewartii* subsp. *stewartii* in Italy is officially declared as: **Transient, actionable, under eradication.**

Source: NPPO of Italy (2022-06).

Pictures *Pantoea stewartii* subsp. *stewartii*. https://gd.eppo.int/taxon/ERWIST/photos

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

2022/132 Weed hosts of *Xylella fastidiosa* in Brazilian plum orchards

Studies on the possible role of weeds in the epidemiology of plum leaf scald disease caused by *Xylella fastidiosa* (EPPO A2 List) have been conducted in Brazil. Twelve weed species present in five plum (*Prunus salicina*) orchards heavily affected by plum leaf scald were tested by PCR for the presence of *X. fastidiosa*. These orchards were located in two plum-growing regions, in Jarinu (São Paulo State) and Videira (Santa Catarina State). Out of the 12 weed species tested, 9 were found to be naturally infected by *X. fastidiosa*: *Bidens pilosa, Lepidium ruderale, Lolium multiflorum, Plantago major, Parthenium hysterophorus, Raphanus sativus, Rumex* sp., *Solanum americanum* and *Vernonia* sp. The highest infection rates were found in samples of *Lepidium ruderale* and *Lolium multiflorum*. In greenhouse experiments, mechanical inoculation of 4 selected weed species (*B. pilosa, L. ruderale, R. sativus* and *S. americanum*) with plum-infecting strains (*X. fastidiosa* subsp. *multiplex* ST26, ST67 and *X. fastidiosa* subsp. *pauca* ST71) induced systemic infections. The authors concluded that these naturally infected weed species can serve as alternative hosts of the bacterium and might play a role in the disease spread in plum orchards. They also noted that further transmission studies involving weeds, plum trees, and insect vectors are needed to better understand the role of these weed species in the disease epidemiology.

Source: Müller C, Esteves MB, Kleina HT, de Melo Sales T, Boti Liva K, Balbinote J, Spotti Lopes JR (2022) Weeds as alternative hosts of *Xylella fastidiosa* in Brazilian plum orchards. *Journal of Plant Pathology* **104**, 487–493. https://doi.org/10.1007/s42161-021-00979-y

Pictures: *Xylella fastidiosa*. https://gd.eppo.int/taxon/XYLEFA/photos

Additional key words: host plants **Computer codes:** XYLEFA, BR

2022/133 Preliminary evidence of seed transmission of *Xylella fastidiosa* in pecan (*Carya illinoinensis*)

Pecan bacterial leaf scorch is caused by *Xylella fastidiosa* subsp. *multiplex* (EPPO A2 List) and occurs across the southern part of the pecan-growing region of the USA. It is generally accepted that *X. fastidiosa* is not seed-transmitted. The fact that the bacterium might be transmitted from seed to seedling has been studied for citrus variegated chlorosis, as *X. fastidiosa* subsp. *pauca* had been detected in fruit, seed coats and embryos of three sweet orange cultivars. However, all attempts to detect or isolate the bacterium in the seedling progeny have failed. In pecan (*Carya illinoinensis*), an earlier study had also detected the presence of *X. fastidiosa* in the endosperm of pecan seeds and this triggered further research on the possible seed-transmission of *X. fastidiosa*.
Molecular studies (qPCR and sequencing) confirmed the detection of *X. fastidiosa* in mature pecan seeds collected from 7 infected trees in New Mexico and Texas (US), and also confirmed the transmission of the bacterium from infected seed to seedlings with a transmission rate of 80%. The highest concentrations of *X. fastidiosa* DNA were found in the seed hilum and outer teguments, as well in the seedling petioles. However, further research is needed to understand the movement of *X. fastidiosa* within the seed, and from the seed to the seedling during the germination process. It is also noted that during these seed-transmission studies it has not been possible to determine the subspecies of *X. fastidiosa* present in the seed and seedling progeny. The authors concluded that their study provides preliminary evidence that seed-to-seedling transmission of *X. fastidiosa* can occur in pecan.

Source: Cervantes K, Hilton AE, Stamler RA, Heerema RJ, Bock C, Wang X, Jo YK, Grauke LJ, Randall JJ (2022) Evidence for seed transmission of *Xylella fastidiosa* in pecan (*Carya illinoinensis*). *Frontiers in Plant Science* **13**, 780335. https://doi.org/10.3389/fpls.2022.780335

Pictures: *Xylella fastidiosa*. https://gd.eppo.int/taxon/XYLEFA/photos

Additional key words: epidemiology **Computer codes:** XYLEFA

2022/134 Recent studies on acute oak decline, involving *Brenneria goodwinii* and other bacteria

Brenneria goodwinii was first described in the United Kingdom in association with symptoms of acute oak decline. Symptoms are characterized by bark cracks, bleeding cankers, tree decline and mortality within 4 to 6 years after the onset of the first symptoms. This disease syndrome also involves other bacteria, such as *Gibbsiella quercinecans* and *Rahnella victoriana*, and possibly the co-occurrence of insects (e.g. *Agrilus biguttatus*). Following its initial description in the United Kingdom, *B. goodwinii* has been reported from other countries on several oak species, often with other bacterial species and in association with symptoms of acute oak decline.

In Iran, acute oak decline has been observed in the Hyrcanian forest (Mazandaran and Golestan provinces). Laboratory tests confirmed the presence of *B. goodwinii*, as well as other bacteria (*B. roseae* subsp. *roseae*, *Brenneria* sp., *B. nigrifluens* and *Gibbsiella* sp.) (Bakhshi Ganje *et al.*, 2020).

In Latvia, *B. goodwinii* and *G. quercinecans* were detected for the first time in 2018 in several forest sites on pedunculate oak trees (*Quercus robur*) (EPPO RS 2018/126).

In Poland, 7 samples were collected in 2019 from declining pedunculate oak trees (*Quercus robur*) in the Chojnów Forest District (Southwestern Poland). Molecular tests revealed the presence of *B. goodwinii* and *G. quercinecans* in 2 samples (Tkaczyk *et al.*, 2021)

In Portugal, acute oak decline was observed in March 2018 in a *Quercus suber* forest in Alcácer (Alentejo). Dead trees showed brownish leaves, bleeding on the outer surface of the bark, necrotic lesions in the inner bark and signs of larval activity of the ambrosia beetle *Platypus cylindrus*. Laboratory tests (PCR, sequencing) revealed the presence of *B. goodwinii*. Inoculation tests confirmed the pathogenicity of *B. goodwinii* on *Q. suber* plantlets and Koch postulates were completed (Fernandes *et al.*, 2022).

In Spain, *B. goodwinii* and *G. quercinecans* were observed in June 2017 on pedunculate oak trees (*Quercus robur*) in Asturias. *G. quercinecans* had previously been reported on *Q. ilex* and *Q. pyrenaica*, but not on *Q. robur*. This was also the first record of *B. goodwinii* in Spain (González *et al.*, 2022).

In Switzerland, *B. goodwinii*, *G. quercinecans* and *R. victoriana* were detected for the first time in 2017 in the municipality of Muttenz (Basel-Stadt canton) on sessile oaks (*Quercus petraea*) (EPPO RS 2018/104).

Source: Bakhshi Ganje M, Shams-Bakhsh M, Mackay J, Rahimian H (2020) Identification and characterization of bacterial strains associated with diseased oak trees in Northern Iran. *Forest Pathology* **50**, e12571. https://doi.org/10.1111/efp.12571

Fernandes C, Duarte L, Naves P, Sousa E, Cruz L (2022) First report of *Brenneria goodwinii* causing acute oak decline on *Quercus suber* in Portugal. *Journal of Plant Pathology* **104**, 837–838. https://doi.org/10.1007/s42161-022-01046-w

González AJ, Ciordia M (2020) *Brenneria goodwinii* and *Gibbsiella quercinecans* isolated from weeping cankers on *Quercus r*obur L. in Spain. *European Journal of Plant Pathology* **156**, 965–969. https://doi.org/10.1007/s10658-019-01891-z

Tkaczyk M, Celma L, Ruņģis DE, Bokuma G (2021) First report of *Brenneria goodwinii* and *Gibbsiella quercinecans* bacteria, detected on weaken oak trees in Poland. *Baltic Forestry* **27**(1), 563. https://doi.org/10.46490/BF563

Additional key words: new record

Computer codes: BRNNGO, GIBSQU, RAHNVI, CH, ES, GB, IR, LV, PL, PT

2022/135 Conservation biological control for the management of *Diaphorina citri* in California (USA)

Diaphorina citri (vector of '*Candidatus* Liberibacter asiaticus' - Hemiptera: Liviidae, EPPO A1 List) is a pest of citrus and has been present in California (USA) since 2008. Classical biological control agents (e.g. *Tamarixia radiata* and *Diaphorencyrtus aligarhensis* Hymenoptera: Encyrtidae) have been released against the pest in California with varying levels of success. Conservation biological control aims to improve the habitat for natural enemies through the manipulation of the habitat/ species within it. For example, the planting and maintenance of floral resources which can provide shelter, nectar or alternative hosts and prey. Studies were conducted to evaluate the potential of *Fagopyrum esculentum*, *Lobularia maritima*, *Phacelia tanacetifolia* and *Eschscholzia californica* as insectary plants for hoverflies (Diptera: Syrphidae) for conservation biological control of *D. citri* in California citrus orchards. Field studies were carried out to assess the flowering phenology and attractiveness to hoverflies and hoverfly oviposition on *D. citri* colonies. *F. esculentum* and *L. maritima* attracted more hoverflies due to the short sowing to flowering time and were identified as superior food resources for hoverflies compared to the other plant species. The only hoverfly species that attacked *D. citri* in the field was *Allograpta obliqua*. Laboratory studies showed that *A. obliqua* larvae consume on average 421 *D. citri* nymphs before pupation. Results demonstrate that *A. obliqua* is an important and effective predator of *D. citri* nymphs.

Source: Irvin NA, Pierce C, Hoddle MS (2021) Evaluating the potential of flowering plants for enhancing predatory hoverflies (Syrphidae) for biological control of *Diaphorina citri* (Liviidae) in California. *Biological Control*. https://doi.org/10.1016/j.biocontrol.2021.104574

Pictures: *Diaphorina citri*. https://gd.eppo.int/taxon/DIAACI/photos

Additional key words: biological control **Computer codes:** DIAACI, FAGES, LOUMA, US

2022/136 Classical biological control of *Trioza erytreae* in the EPPO region

Trioza erytreae (Hemiptera: Triozidae – EPPO A2 List, vector of huanglongbing) is a pest of citrus and was first recorded in the EPPO region in 1994. *Tamarixia dryi* (Hymenoptera: Eulophidae) has been utilised as a classical biological control agent against *T. erytreae* in the Reunion Island in the 1970s. As part of the TROPICSAFE EU funded project, research was undertaken on the potential to use *T. dryi* in Europe. The aims were (1) identify the parasitoid complex of *T. erytreae* in South Africa, (2) evaluate the specificity of the biocontrol agent *T. dryi* and (3) determine the establishment, dispersal, and impact of *T. dryi* on *T. erytreae* in Spain. Surveys in South Africa also found *Psyllaephagus pulvinatus* and an unidentified new species of *Tamarixia*. In the Canary Islands, host range testing was conducted using 11 species of alternative psyllids selected according to their phylogenetic relatedness to *T. erytreae*. Results showed that *T. dryi* only attacks *T. erytreae*. The parasitoid was released in spring in Tenerife in 2018 and its spread was measured in 2019 and 2020. It was originally released in the north of the island and 6 months later it had spread throughout the island. It was also found in other Canary Islands. In Tenerife, Gran Canaria, and La Palma, the proportion of orchards with *T. erytreae* had significantly reduced, highlighting an impact of the biocontrol agent. In mainland Spain, the parasitoid was released in Galicia in 2019 and 2020, and within 6 months it has spread more than 20 km from the point of release. 18 months later and with more than 45 releases, it had spread widely. In Pontevedra, A. Coruna and Lugo, significant decreases in the proportion of

orchards infested with *T. erytreae* was shown. *T. dryi* may be considered for inclusion into EPPO Standard PM 6/3 *Biological control agents safely used in the EPPO region*, Appendix II Successful established classical biological control agents, once it fulfils the criteria (i.e. found at least 5 years after release to be successfully established in part of the EPPO region without reports of adverse effects).

Source: TROPICSAFE project website (2022): https://www.tropicsafe.eu/

Pérez-Rodríguez J, Krüger K, Pérez-Hedo M, Ruiz-Rivero O, Urbaneja A, Tena A (2019) Classical biological control of the African citrus psyllid *Trioza erytreae*, a major threat to the European citrus industry. *Scientific Reports* **9**, 9440. https://doi.org/10.1038/s41598-019-45294-w

Urbaneja-Bernat P, Pérez-Rodríguez J, Krüger K, Catalán J, Rizza R, Hernández-Suárez E, Urbaneja A, Tena A (2019) Host range testing of *Tamarixia dryi* (Hymenoptera: Eulophidae) sourced from South Africa for classical biological control of *Trioza erytreae* (Hemiptera: Psyllidae) in Europe. *Biological Control* **135**, 110-116.

Pictures: *Trioza erytreae*. https://gd.eppo.int/taxon/TRIZER/photos

Additional key words: biological control **Computer codes:** TAMRDR, TRIZER, ES

2022/137 'Predator-In-First' approach in biological control

In biological control, the 'Predator-In-First' (PIF) approach combines aspects of inundative and conservation strategies to establish biological agents on the host plants during the seedling stage or shortly after transplanting and before the arrival of any pests. The PIF Approach uses characteristics of a predators' ability to survive on food provisioned by the plant (pollen, nectar) and to take advantage of the morphological characteristics of the host plant that provide refugia for breeding, development, and establishment before the initial infestation of pest populations (prey). The current study used pepper plants (*Capsicum* cultivars 7039 and 7141) and the release of the mite *Amblyseius swirskii* (Acari: Phytoseiidae - Listed in EPPO PM 6/3 Biological control agents safely used in the EPPO region, Appendix I commercially used biological control agent) on uninfested seedlings before being transplanted for commercial production in the greenhouse or the field in Florida (USA). Results showed a consistent performance of the treatment, when 40 mites were released per plant, in regulating *Bemisia tabaci* (Hemiptera: Aleyrodidae, EPPO A2 List) and *Frankliniella occidentalis* (Thysanoptera: Thripidae, EPPO A2 List) populations in greenhouse studies, and *B. tabaci* and *Polyphagotarsonemus latus* (Acari: Tarsonemidae) under field conditions. During two field seasons, yields were 12.8% and 20.1% higher in capsicum cultivar 7039, and 24.3% and 39.5% higher in cultivar 7141 in the treatment with 40 mites per plant compared to the untreated control. This indicates a benefit of the approach on yield. The PIF approach can be a useful tool for organic vegetable growers and a potential alternative to chemical-based conventional pest management strategies.

Source: Kumar V, Mehra L, McKenzie CL, Osborne LS (2020) 'Predator-in-first': a pre-emptive biological control strategy for sustainable management of pepper pests in Florida. *Sustainability* **12**, 7816. https://doi.org/10.3390/su12187816

Additional key words: biological control Computer codes: AMBSSW, BEMITA, FRANOC, HEMTLA, US

2022/138 Biological control of *Cabomba caroliniana* in Australia

Cabomba caroliniana (Cabombaceae: EPPO List of Invasive Alien Plants) is an aquatic submerged ground rooted species native to Argentina and North America. In the EPPO region the species is established in Austria, France, Germany, Hungary, the Netherlands and the United Kingdom (England). The species is invasive in Australia, Canada, the Netherlands, Japan and parts of the USA. In the EU, *C. caroliniana* is listed as a species of Union concern (Regulation (EU) 1143/2014). A biological control programme has been initiated against the species in Australia using the aquatic weevil *Hydrotimetes natans* (Coleoptera: Curculionidae) as field surveys conducted in Argentina had identified it as a potential biological control agent. In Australia, host range testing showed that there were no non-target effects on *Nymphaea, Victoria* and *Trithuria* species. There was an indication of the possibility of lifecycle completion by *H. natans* on *Brasenia schreberi* (Cabombaceae), in choice and no-choice trials but this plant did not support a population in continued no-choice trials. *Brasenia schreberi* is native to Australia and is used as an aquarium plant. *H. natans* larvae inflicted greater damage than adults on *C. caroliniana*. First instar larvae fed on the leaves and the petiole and tunnelled through the main stem as they develop into later instars. The tunnelling causes significant damage to the foliage and stems. Based on the host range results, permission to release *H. natans* into Australian aquatic systems was granted in 2021 by the Australian Department of Agriculture, Water and the Environment.

Source: Kumaran N, Vance TJ, Comben D, Dell Q, Oleiro MI, Ginalons CM, Walsh GC, Raghu S (2022) *Hydrotimetes natans* as a suitable biological control agent for the invasive weed *Cabomba caroliniana*. *Biological Control*. https://doi.org/10.1016/j.biocontrol.2022.104894

Pictures: *Cabomba caroliniana*. https://gd.eppo.int/taxon/CABCA/photos

Additional key words: biological control **Computer codes:** CABCA, AU

2022/139 *Houttuynia cordata* in the EPPO region: addition to the EPPO Alert List

Why
Houttuynia cordata (Saururaceae) is commonly utilised as a garden ornamental in the EPPO region. In some areas where the plant is grown it has shown invasive tendencies. The Panel on Invasive Alien Plants is seeking further information on the occurrence and behaviour of *H. cordata* in the EPPO region, outside of gardens and planted areas.

Geographical distribution
Asia (native): China (Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Jiangxi, Shaanxi, Sichuan), Korean peninsula, Myanmar.
EPPO region: Austria, Belgium, Czech Republic, Hungary, Italy, United Kingdom.
North America: USA (Florida, Louisiana, Pennsylvania).
Oceania: New Zealand.

Morphology
Houttuynia cordata is a perennial creeping stoloniferous, rhizomatous herb 30-60 cm high, with thin, spreading rhizomes. The stems are green or sometimes purplish red, and either smooth or pubescent on the nodes. The lower parts of the leaf stalks form a sheath round the stem. The leaves are usually heart-shaped, 4-10 cm long and 2.5-6.0 cm wide, and purple underneath. The flowers are small, crowded into a short spike around 2 cm long, with four white, petal-like bracts at the base. The stamens usually degenerate, and the fruits are apomictic, i.e. they develop seeds without being fertilized.

Biology and Ecology
The species can reproduce by seed and vegetatively by the division of plant fragments that can take root and form new infestations.

Habitats
Houttuynia cordata can be found growing in moist habitats. In the municipality of Palazzolo dello Stella (Northeast Italy), *H. cordata* occurs along the banks of the river Stella. Here it is also found growing in disturbed riverine woodland. *H. cordata* can be found in urban and semi-urban habitats where it has escaped from gardens.

Pathways for movement
Horticulture is the main pathway for movement in the EPPO region. In the native range (Asia), it is also utilised as a medicinal plant and as a vegetable. These uses could also act as pathways for entry. Natural spread can occur locally. In Italy, a significant expansion of the initial population was observed over a two-year period. In July 2019, the population occupied less than 1 m^2 with less than 10 shoots, while in June 2020, the population was formed by 3–4 stands, occupying at least 50 m^2 with more than 70 shoots.

Impacts
Houttuynia cordata has the potential to displace native plant species in moist forests and wetland habitats where it forms dense mats on the ground. To-date there are no scientific studies to evaluate the impact of the species on native biodiversity and ecosystem services.

Control
There is no specific information on control. Any management should remove all plant parts and exhaust the seedbank.

Sources
Liccari F, Boscutti F, Sigura M, Tordoni E, Carpanelli A, Valecic M, Bacaro G (2021) First report of naturalization of *Houttuynia cordata* Thunb. 1783 (Saururaceae) in Italy. *Rendiconti Lincei. Scienze Fisiche e Naturali*. https://doi.org/10.1007/s12210-021-00986-2

Additional key words: invasive alien plant, alert list **Computer codes:** HOTCO

2022/140 *Amaranthus palmeri* shows adaptation in different cropping systems

Amaranthus palmeri (Amaranthaceae - EPPO A2 pest) is a dioecious summer annual species native to North America. In its native range, it is a weed in agricultural fields and disturbed habitats. It has a high fecundity and a long-lived seed bank, which make management of the species difficult. In the EPPO region, it is established in a few countries and transient in several others. In the USA, *A. palmeri* is one of the most economically detrimental weed species in cropping systems. It has been recorded to reduce yield loss by 91, 68 and 54 % in maize, soybean and cotton respectively. An experiment was conducted in 2018 and 2019 in five locations in the Mid-West, USA. Forty-eight *A. palmeri* seedlings were transplanted between rows of soybean and maize and in bare ground in June and again in July. The plants were monitored until the end of July. Results showed that *A. palmeri* planted in June produced 42% more biomass than plants planted in July. Early planted *A. palmeri* produced 75.5 g per plant in bare ground, 28.3 g per plant in soybean, and 16.3 g per plant in maize, whereas the later planted cohort produced 62.6, 6.3, and 1.4 g per plant in bare ground, soybean, and maize, respectively. *A. palmeri* height was most impacted when growing in maize and averaged 85.2 cm tall in the early planted cohort, and 38.2 cm tall in the second cohort in maize. The timing of flowering differed between crops and planting time. *A. palmeri* plants growing in intense competition, such as under low light in maize, resulted in the longest flowering period. The results show that *A. palmeri* shows a high level of plasticity which can promote its adaption to different habitats and expansion into different cropping systems.

Source: Oliveira MC, Jhala AJ, Bernards ML, Proctor A, Stepaovic S, Werle R (2022) Palmer amaranth (*Amaranthus palmeri*) adaptation to US Midwest agroecosystems. *Frontiers in Agronomy* **4**, 887629. https://doi.org/10.3389/fagro.2022.887629

Pictures: *Amaranthus palmeri*. https://gd.eppo.int/taxon/AMAPA/photos

Additional key words: invasive alien plants **Computer codes:** AMAPA, US

2022/141 First report of *Austrocylindropuntia cylindrica* in Algeria

Austrocylindropuntia cylindrica (Cactaceae) is native to South America (Colombia, Ecuador and Peru) and is reported as an invasive alien plant in Australia, South Africa and the EPPO region (Italy and Spain). It is also recorded in France. In Algeria, *A. cylindrica* was observed for the first time in 2016 in an abandoned garden of a former colonial farm in Larbi Ben M'Hidi (Wilaya of Skikda). In this site, a small population occurs with 30 individuals, growing among other alien succulent species including *Aloe arborescens*, *Opuntia ficus-indica*, *Opuntia robusta* and *Opuntia stricta*. In 2019, another small population was observed not far from the first, confined to the edge of a sandy path under *Eucalyptus camaldulensis*. Both populations are stable and are slowly increasing in size and numbers of individuals.

However, flowers and fruits have not been observed, despite repeated visits in all seasons.

Source: Sakhraoui N, Verloove F, Essl F, Hadef A (2022) First record of *Austrocylindropuntia cylindrica* (Lam.) Backeb. and first data about the naturalization of *Austrocylindropuntia subulata* (Muehlenpf.) Backeb. in Algeria. *BioInvasions Records* **11**(2), 351–359. https://doi.org/10.3391/bir.2022.11.2.07

Additional key words: invasive alien plants, new record **Computer codes**: AUQCY, DZ

2022/142 Impact of *Heracleum* species on bird communities in forested areas

Heracleum mantegazzianum (Apiaceae: EPPO List of Invasive Alien Plants) and *H. sosnowskyi* (EPPO A2 List) (Apiaceae:) are invasive in managed and unmanaged ecosystems in the EPPO region, being a threat to biodiversity, eroding riverbanks, decreasing recreational resources, causing economic losses, and posing a health risk to humans as the sap can cause skin blistering on contact. *H. mantegazzianum* is native to the Western Greater Caucasus (Russia, Georgia) and *H. sosnowskyi* is native to the Eastern and Central Caucasus, Eastern and Southern Western Transcaucasia, and Northeast Anatolia (Turkey). Due to their large size (up to 3 m in height), these plants can threaten bird species living in forest stands by changing the structural diversity of below canopy vegetation. A study was conducted in areas invaded by the two species in forest communities in the south-east of Poland. The study set out to assess if the invasion of the two *Heracleum* species affects bird species composition and diversity. The forest bird community was estimated in 38 sites with varying levels of invasion and compared to similar habitats that were uninvaded. Bird surveys were conducted five times at each site during 2020-2021. All birds that were seen and heard were included in the survey. In total, 69 species of birds including 1 366 individuals were recorded from control sites and 65 species of birds including 1 065 individuals were recorded from *Heracleum* sites. The negative effect of *Heracleum* spp. on the abundance of forest birds was more important in severely invaded areas with anthropogenic habitats. Surveyed bird communities had a lower diversity in invaded sites compared to the control, with 895 forest birds and 471 non-forest birds on control sites, compared to 713 forest birds and 352 non-forest birds on *Heracleum* sites. The study highlights that invasive alien plant species can cause negative impacts at a community level and the impacts can reach higher trophic levels.

Source: Grzedzicka E (2022) Impact of invasive weeds on the diversity and dissimilarity of bird communities in forested areas. *Diversity* **14**, 229. https://doi.org/10.3390/d14030229

Additional key words: invasive alien plants **Computer codes**: HERMZ, HERSO, PL