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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

2022/161 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**

Eutypella parasitica (formerly EPPO Alert List) is reported for the first time from Switzerland. It was detected from a canker on an *Acer pseudoplatanus* in a private garden in Uster (Canton of Zurich) in February 2021. The tree was removed and incinerated. The forests closest to the site were surveyed but no further *Eutypella* cankers were found. A previous finding was made in 2014 on an *A. pseudoplatanus* in a forest in Walenstadtberg (Canton of St. Gallen) but not reported. In 2021 a survey was conducted and one *A. pseudoplatanus* and one *A. platanoides* in the vicinity were found to be infected. The trees were removed and incinerated (Dubach *et al.*, 2022).

Gnomoniopsis smithogilvyi is first reported from Ireland. It was identified from chestnut trees *(Castanea sativa)* in autumn 2020 in Wicklow (province of Leinster). The fungus caused cankers and branch dieback (O'Loinsigh *et al.*, 2022).

Sirococcus tsugae (formerly EPPO Alert List) is reported for the first time from Switzerland. It was identified in August 2021 from an Atlas cedar (*Cedrus atlantica*) in the canton of Lucerne. The tree presented defoliation in the periphery of the crown, dead twigs of about two-three years of age with brown needles, and partial secondary resprouting spanning across the whole crown (Stroheker *et al.*, 2022).

Scyphophorus acupunctatus (Coleoptera: Dryophthoridae – formerly EPPO Alert List) occurs in Croatia. It was first found in 2021 on the island of Hvar, in the Pelegrin peninsula and the city of Hvar, on *Agave americana* (Pernek & Cvetković, 2022).

- **Detailed records**

In Japan, *Lecanosticta acicola* (EPPO A2 List) was first found in 1996 in *Pinus thunbergii* in Shimane prefecture (Honshu). Since then, it has been found sporadically in Kyushu. Surveys conducted in 2021 in various parts of Kyushu detected *L. acicola* in *P. thunbergii* nurseries in Kurume (Fukuoka prefecture), Takanabe (Miyazaki prefecture), and Aira (Kagoshima prefecture), as well as on samples collected from trees in Kumamoto (Kumamoto prefecture). The fungus was also detected in *P. thunbergii* in private gardens in Osaki (Kagoshima prefecture). Comparison of sequences showed that isolated strains from Kyushu were similar to the strain first found in Shimane, strongly suggesting that *L. acicola* is of rather recent introduction into Japan (Akiba, 2022).

Lycorma delicatula (Hemiptera: Fulgoridae – EPPO A1 List) has been reported for the first time from Michigan (US). In August 2022, the presence of a small population was confirmed in Pontiac, Oakland county (Michigan.gov, 2022).

- **Host plants**

In 2020, *Ditylenchus destructor* (formerly EPPO A2 List) was detected in seven maize (*Zea mays*) fields in Heilongjiang province, China. The nematode was found on maize roots and in the rhizosphere in fields where plants were shorter and thinner than expected (Pan *et al.*, 2021).

In China *Larix olgensis* (syn. *Larix gmelinii* var. *olgensis*), *L. kaempferi* and *L. principis-ruprechtii* (syn. *Larix gmelinii* var. *principis-ruprechtii*) are reported for the first time as natural hosts of the pine wood nematode *Bursaphelenchus xylophilus* (EPPO A2 List). The nematode was extracted from wilted trees in Liaoning province in 2018 (Yu *et al.*, 2019).

Sources:

Akiba M (2022) [Occurrence of black pine brown spot leaf blight in Kyushu, Japan]. Abstract of a paper presented at the 133rd Annual Meeting of the Forest Society of Japan (2022-03-27). https://doi.org/10.11519/jfsc.133.0_653 (in Japanese).

Dubach V, Queloz V, Beenken L (2022) First record of *Eutypella parasitica* on *Acer* in Switzerland. *New Disease Reports* **45**(2), e12074. https://doi.org/10.1002/ndr2.12074

Michigan.gov. Agriculture & Rural Development (2022-08-11) Spotted Lanternfly found in Oakland County. https://www.michigan.gov/mdard/about/media/pressreleases/2022/08/11/slf_pr

O'Loinsigh B, McAuley D, Bréchon AL, Vernaza ML, Ryan C, Destefanis ML, O'Hanlon R (2022) First report of the fungus *Gnomoniopsis smithogilvyi* causing cankers on sweet chestnut (*Castanea sativa*) in Ireland. *New Disease Reports* **45**(2), e12072. https://doi.org/10.1002/ndr2.12072

Pan F, Li F, Mao Y, Liu D, Chen A, Zhao D, Hu Y (2021) First detection of *Ditylenchus destructor* parasitizing maize in Northeast China. *Life* **11**, 1303. https://doi.org/10.3390/life11121303

Pernek M, Cvetković S (2022) [First record of the agave weevil *Scyphophorus acupunctatus* Gyllenhal (Coleoptera, Curculionidae) in Croatia]. *Entomologia Croatica* **21**(4), 25–32 (in Croatian). https://doi.org/10.17971/ec.20.1.4

Stroheker S, Ruffner B, Beenken L (2022) First report of *Sirococcus tsugae* on Atlas cedar in Switzerland. *New Disease Reports* **45**(2), e12073. https://doi.org/10.1002/ndr2.12073

Yu HY, Wu H, Zhang XD, Wang L, Zhang X, Song Y (2019) Preliminary study on *Larix* spp. infected by *Bursaphelenchus xylophilus* in natural environment. *Forest Pest and Disease* **38**, 7-10 (abst.).

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

Computer codes: BURSXY, DIAACI, DITYDE, ETPLPA, GNMPCA, LIBEAS, LYCMDE, SCYPIN, SIROTS, CH, CN, HR, IE, JP, US

2022/162 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 2022/145), the following new and revised EPPO datasheets have been published in the EPPO Global Database:

- *Xanthomonas citri* pv. *citri*. https://gd.eppo.int/taxon/XANTCI/datasheet

As part of EPPO's regular work programme, three datasheets on pests recently added to the EPPO A1 and A2 Lists were published in the August issue of the EPPO Bulletin and also transferred to the EPPO Global Database:

- *Celastrus orbiculatus*. https://gd.eppo.int/taxon/CELOR/datasheet
- *Gymnandrosoma aurantianum*. https://gd.eppo.int/taxon/ECDYAU/datasheet

- *Naupactus xanthographus*. https://gd.eppo.int/taxon/NAUPXA/datasheet

Source: EPPO Secretariat (2022-08).

Additional key words: publication **Computer codes:** CELOR, ECDYAU, NAUPXA, XANTCI

2022/163 EPPO Platform on Communication Material

At the end of August 2022, the EPPO Secretariat launched a new platform dedicated to communication in plant health. The EPPO Platform on Communication Material is addressed to NPPOs of EPPO member countries. Its objective is to provide NPPOs with a simple tool to share material (e.g. posters, videos, flyers, pictures) that has been prepared during communication campaigns on plant health and provide inspiration for future campaigns. The EPPO Secretariat would like to encourage NPPOs of all its member countries to participate in this platform, as communication is playing a key role in plant health.

The EPPO Platform on Communication Material can be accessed here:
https://media.eppo.int/index

More information can be found on the EPPO website:
https://www.eppo.int/RESOURCES/eppo_databases/communication_platform

A user guide has been prepared for contributing NPPOs:
https://media.eppo.int/media/files/EPPO_media_platform_user-guide_2022_08.pdf

Source: EPPO Secretariat (2022-08).

Additional key words: database

2022/164 First report of *Scirtothrips citri* in Israel

The NPPO of Israel recently informed the EPPO Secretariat of the first record of *Scirtothrips citri* (Thysanoptera: Thripidae – EPPO A1 List) on its territory. This finding is also a first record for the EPPO region. During routine pest monitoring carried out in spring 2022, suspicious samples of thrips collected from citrus groves in the Upper Galilee area (Northern Israel) were brought to the PPIS laboratories, and collected specimens were identified as *Scirtothrips citri*. The identification of the pest was confirmed by morphological and molecular analysis. *S. citri* was observed on trees of *Citrus reticulata*, *C. paradisi* and *C. sinensis*, with moderate damage. The entry pathway is unknown, though illicit import of prohibited propagation material is suspected.
A country-wide survey is currently being conducted in order to determine the distribution of the pest in Israel, as well as its host range. Potential hosts are surveyed to detect thrips populations, and detected thrips are sampled and identified at the PPIS laboratories. In parallel, action is taken to register pesticides for use against this pest in commercial host crops to mitigate outbreaks.

The pest status of *Scirtothrips citri* in Israel is officially declared as: **Present: not widely distributed and under official control.**

Source: NPPO of Israel (2022-08).

Pictures: *Scirtothrips citri*. https://gd.eppo.int/taxon/SCITCI/photos

Additional key words: new record **Computer codes:** SCITCI, IL

2022/165 New finding of *Popillia japonica* in Germany

In Germany, a single specimen of *Popillia japonica* (Coleoptera: Rutelidae – EPPO A2 List) had been caught in a trap in November 2021 close to a railway track in Baden-Wuerttemberg (EPPO RS 2022/010). In 2022, six additional pheromone traps were installed in a zone of 1 km around the 2021 finding. On July 20th, a single male was caught close to the RAlpin train terminal in Freiburg im Breisgau. No other specimens have been caught so far. The regional plant protection service considers that the beetle had arrived from an outbreak area in Northern Italy, as a hitchhiker on a train.
On August 16th a single female beetle was caught in Baden-Wuerttemberg, 70 km from the finding in July. The trap was close to a freight depot where the lorry loads arrive by rail or road directly from Northern Italy or Switzerland. The trap was placed near a customs office at a highway where a waiting area for customs clearance is located for the trucks. It is considered that the two findings are not connected, and that this second beetle also arrived as a hitchhiker.
In both cases, no demarcated area has been established. An intensified survey including traps and visual inspections will be carried out in the surroundings of 1.5 km around the findings. Public awareness will be raised by a press release with information about the recent findings.

The pest status of *Popillia japonica* in Germany has not yet been determined.

Source: NPPO of Germany (2022-07, 2022-08).

Pictures: *Popillia japonica* https://gd.eppo.int/taxon/POPIJA/photos

Additional key words: incursion **Computer codes:** POPIJA, DE

2022/166 First report of *Melanaspis corticosa* in Portugal

The NPPO of Portugal recently informed the EPPO Secretariat of the first finding of *Melanaspis corticosa* (Hemiptera: Diaspididae – South African obscure scale) on its territory. In the Algarve region, the presence of an unusual scale in olive (*Olea europaea*) orchards had been reported by various growers, as well as by the Tavira Agrarian Experimentation Centre. Samples were collected in autumn 2021 and throughout 2020 by the regional plant protection authorities, but the identity of the scale could not be determined. Further samples were collected at the end of 2021, and in 2022 the pest was finally identified as *Melanaspis corticosa*.

Information on this scale species is scarce. It is known to occur in Africa (Guinea, Mozambique, South Africa, Zimbabwe), and is considered to be polyphagous. The following trees are reported to be hosts: *Celastrus, Diospyros pallens, Erythrina caffra, Juglans, Olea, Platanus, Populus, Prunus persica, Pyrus, Robinia, Robinia, Schinus mole, Sclerocarya birrea, Virgilia oroboides*.

Further surveys conducted in Portugal have shown that *M. corticosa* occurs in several counties in Algarve, but only on olive trees. Infested trees show drying of branches where the scale species is present. Phytosanitary treatments with insecticides that are approved against scale insects in olive trees have been applied, but with limited effectiveness. The NPPO considers that the knowledge acquired so far is too limited to be able to decide on measures to be taken.

The pest status of *Melanaspis corticosa* in Portugal is officially declared as: **Present, only in some parts of the Member State concerned.**

Source: NPPO of Portugal (2022-08).

García Morales M, Denno BD, Miller DR, Miller GL, Ben-Dov Y, Hardy NB (2016) ScaleNet: A literature-based model of scale insect biology and systematics. Database. https://scalenet.info/catalogue/Melanaspis%20corticosa/

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

2022/167 First report of tomato brown rugose fruit virus in Finland

The NPPO of Finland recently informed the EPPO Secretariat of the first detection of tomato brown rugose fruit virus (*Tobamovirus*, ToBRFV – EPPO A2 List) on its territory. In July 2022, the virus was detected during an official survey in a small greenhouse (600 m^2) producing tomato fruit (*Solanum lycopersicum*) in the municipality of Turku (region of Varsinais-Suomi). Tomato plants were asymptomatic. Eradication measures will be applied. The source of the outbreak is unknown and trace back investigations are ongoing. The plants for planting had been delivered from another production place.

The pest status of tomato brown rugose fruit virus in Finland is officially declared as: **Present, under eradication**.

Source: NPPO of Finland (2022-08).

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

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

2022/168 First report of *tomato mottle mosaic virus* in the Netherlands

Tomato mottle mosaic virus (*Tobamovirus*, ToMMV - EPPO Alert List) was identified for the first time in seeds harvested from tomato plants (*Solanum lycopersi*cum) which were part of a selection programme of candidate varieties grown in the Netherlands. The sample also tested positive for *tomato brown rugose fruit virus* (*Tobamovirus,* ToBRFV - EPPO A2 List) and *Potato spindle tuber viroid* (*Pospiviroid*, PSTVd – EPPO A2 List).

It is also noted that ToMMV had also been detected in 3 tomato seed lots imported from China in April 2020, July 2021 and another seed lot from an unknown origin in 2015.

Source: Fowkes AR, Botermans M, Frew L, de Koning PP, Buxton-Kirk A, Westenberg M, Ward R, Schenk MF, Webster G, Alraiss K, Harju V (2022) First report of Tomato mottle mosaic virus in *Solanum lycopersicum* seeds in The Netherlands and intercepted in seed imported from Asia. *New Disease Reports* **45**(2), e12067. https://doi.org/10.1002/ndr2.12067

Additional key words: new record **Computer codes:** TOMMV0, NL

2022/169 First report of tomato leaf curl New Delhi virus in Slovakia

The NPPO of Slovakia recently informed the EPPO Secretariat of the first detection of tomato leaf curl New Delhi virus (*Begomovirus*, ToLCNDV – EPPO Alert List) on its territory. The virus was detected on plants of watermelon (*Citrullus lanatus*) in a very small farm (0.08 ha) in the municipality of Seňa (Košický kraj, Eastern Slovakia) in July 2022. Plants were symptomatic (reduced growth, deformed fruits). The origin of the seed is not known.
Eradication measures are applied: destruction of the whole crop by burning, followed by ploughing of the infested plot and disinfection of the tools used in the plot.

The pest status of tomato leaf curl New Delhi virus in Slovakia is officially declared as: **Transient, actionable, under eradication**.

Source: NPPO of Slovakia (2022-08).

Pictures: tomato leaf curl New Delhi virus. https://gd.eppo.int/taxon/TOLCND/photos

Additional key words: new record **Computer codes:** TOLCND, SK

2022/170 *Ralstonia pseudosolanacearum* detected in *Rosa* in Poland

In Poland, *Ralstonia solanacearum* species complex (EPPO A2 List) was first detected in 2016 in a glasshouse producing rose cut flowers in the village of Goczałkowice Zdrój (Śląskie voivodeship), Southern Poland (EPPO RS 2017/018). Phytosanitary measures were taken to eradicate the outbreak.
In June 2022, during an official survey in the same village *Ralstonia pseudosolanacearum* (EPPO A2 List) was detected in a sample of shoots taken from roses (*Rosa* sp.) grown in a greenhouse for cut flowers production. The plants did not show any signs of infection.
In July 2022, *R. pseudosolanacearum* was detected again in rose cuttings in the municipality of Mykanów (Śląskie voivodeship).

The pest status of *Ralstonia pseudosolanacearum* in Poland is officially declared as: **Present, at low prevalence**.

Source: NPPO of Poland (2022-07, 2022-08).

Pictures *Ralstonia solanacearum* species complex. https://gd.eppo.int/taxon/RALSSO/photos

Additional key words: new record **Computer codes:** RALSSO, RALSPS, PL

2022/171 First report of '*Candidatus* Liberibacter solanacearum' on carrot and parsley in Turkey

As part of the Euphresco project 'Epidemiology and diagnosis of potato phytoplasmas and '*Candidatus* Liberibacter solanacearum' and their contribution to risk management', symptomatic and asymptomatic carrot (*Daucus carota*) and parsley (*Petroselinum crispum*) plants were collected from eight different fields in Beypazari, near Ankara in Central Anatolia in August 2020. '*Ca.* Liberibacter solanacearum' was detected by quantitative PCR in all symptomatic plants (six carrots, one parsley). Samples were also tested for the presence of phytoplasmas but none were detected. '*Ca.* Liberibacter solanacearum' has been found in a number of European and Mediterranean countries on Apiaceae crops and weeds. Solanaceae haplotypes of '*Ca.* Liberibacter solanacearum' are listed in the EPPO A1 List. This is the first report of '*Ca.* Liberibacter solanacearum' in Turkey.

The situation of **'*Candidatus* Liberibacter solanacearum'** in Turkey can be described as: **Present: not widely distributed and not under official control**.

Source: Karahan A, Altundag S, Saracoglu M, Duman K, Ozdemir I, Ozdem A, Umar S, Ozden ED (2022) First report of '*Candidatus* Liberibacter solanacearum' on carrot and parsley in Turkey. *New Disease Reports* **45**(2), e12095. https://doi.org/10.1002/ndr2.12095

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

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

2022/172 Eradication of Grapevine flavescence dorée phytoplasma in Germany

In Germany, Grapevine flavescence dorée phytoplasma (EPPO A2 List) was found in one plant (*Vitis vinifera*) in a vineyard in Rheinland-Pfalz at the end of 2020 (EPPO RS 2021/040). Official phytosanitary eradication measures have been taken and the complete vineyard (6580 m^2, 3000 plants) has been destroyed. Follow-up surveys in the area did not detect the phytoplasma or the vector *Scaphoideus titanus*. The outbreak is considered eradicated.

The pest status of Grapevine flavescence dorée phytoplasma in Germany is officially declared as: **Absent, pest eradicated**.

Source: NPPO of Germany (2022-07).

Pictures: Grapevine flavescence dorée phytoplasma.
https://gd.eppo.int/taxon/PHYP64/photos

Additional key words: eradication, absence **Computer codes:** PHYP64, DE

2022/173 First report of *Lecanosticta acicola* on Atlas cedar (*Cedrus atlantica*)

Lecanosticta acicola (EPPO A2 List) is the causal agent of brown spot needle blight on *Pinus* trees. In France it was first recorded in 1993 and it is mainly present in South-Western parts of the country. In spring 2020, light to severe defoliation and severe reddening of the attached needles, starting from the lower parts of the tree, were observed on twigs of adult Atlas cedar (*Cedrus atlantica*) planted in 1998 in a forest in the Tarn-et-Garonne department (Occitanie region, South-Western France). About 50% of the cedar trees in the plot showed these symptoms but no mortality was observed. *L. acicola* was identified by morphological and molecular methods (PCR, sequencing).

This is the first record of *L. acicola* on *C. atlantica* worldwide, and the first record on a non-pine host in the European Union. In 2018, *L. acicola* had been detected for the first time on a non-pine host in an arboretum in Turkey on a Lebanon cedar (*Cedrus libani*) (EPPO RS 2021/064).

In autumn 2021, *L. acicola* was detected again on *C. atlantica*, in the Dordogne and Gers departments (Nouvelle-Aquitaine region, South-Western France). *L. acicola* was not detected in *Pinus* spp. despite intensive inspections of pine trees growing close to the affected cedars.

Atlas cedar trees have been being planted in Southern France to adapt forests to climate change. In the European Union, *L. acicola* has been a Regulated Non-Quarantine Pest since 2019 and measures only applies to plants for planting (except seeds) of *Pinus* spp.

Source: Schenck N, Renault C, Saurat C, Daubree JB, Kersaudy E, Husson C, Ioos R (2022) First report of *Lecanosticta acicola* causing brown spot needle blight on Atlas cedar in France. *New Disease Reports* **45**(2), e12082. https://doi.org/10.1002/ndr2.12082

EU (2019) Commission Implementing Regulation (EU) 2019/2072 of 28 November 2019 establishing uniform conditions for the implementation of Regulation (EU) 2016/2031 of the European Parliament and the Council, as regards protective measures against pests of plants, and repealing Commission Regulation (EC) No 690/2008 and amending Commission Implementing Regulation (EU) 2018/2019 (OJ

L 319, 10.12.2019, p. 1). Consolidated version available at http://data.europa.eu/eli/reg_impl/2019/2072/2022-04-11

Pictures: *Lecanosticta acicola*. https://gd.eppo.int/taxon/SCIRAC/photos

Additional key words: new host plant, detailed record **Computer codes:** SCIRAC, FR

2022/174 New biological control agents added to PM 6/3(5) in 2022

In 2022, the following four species were added to the EPPO Standard PM 6/3(5) Biological control agents safely used in the EPPO region, Appendix 1 – commercially or officially used biological control agents.

***Exochomus quadripustulatus* (Coleoptera: Coccinellidae)**
Exochomus quadripustulatus, in both the adult and larval stage, is an important polyphagous predator of aphids and scale insects. The species is indigenous and widespread in the EPPO region and there are no previous reports of adverse effects.

***Micromus angulatus* (Neuroptera: Hemerobiidae)**
Micromus angulatus is utilised as a Biological Control Agent of species of aphids (Aphidoidea) in the main crops of medicinal cannabis, berries (strawberry, raspberry), vegetable crops (such as sweet pepper) and ornamentals such as roses. The species is indigenous and widespread in the EPPO region and there are no previous reports of adverse effects.

***Pronematus ubiquitus* (Acarida: Tydeidae)**
Pronematus ubiquitus is a predator of mite species and the main target pests include *Aculops lycopersici*, *Tetranychus urticae*, *Acalitus essigi* and *Aculops cannibicola*. The species is indigenous and widespread in the EPPO region and there are no previous reports of adverse effects. *P. ubiquitus* has been utilised as a biological control agent in the EPPO region since the 1980s and more recently it has become commercially available in the United Kingdom and Germany.

***Trissolcus basalis* (Hymenoptera: Scelionidae)**
Trissolcus basalis is used to control the southern green stink bug *Nezara viridula*. In Brazil, it has also been mass-produced for inoculation to manage *Piezodorus guildinii* and *Euschistus heros*. Within the EPPO region, its presence is reported in at least the following countries: Cyprus, France, Georgia, Hungary, Israel, Italy, Jordan, Montenegro, Morocco, Portugal, Spain and Turkey. More recently *T. basalis* has been recorded for the first time in Germany and Belgium.

Source EPPO PM 6/3(5) 2022 version. Biological control agents safely used in the EPPO region. Available at: https://gd.eppo.int/standards/PM6/

Additional key words: biological control **Computer codes:** EXOCQU, MICUAN, PROUUB, TRSSBA

2022/175 *Orius laevigatus* and *O. majusculus* as biological control agents for leaf-dwelling thrips pests

The leaf-dwelling thrips *Echinothrips americanus* and *Thrips setosus* (both Thripidae and formerly EPPO Alert List) can be pests of ornamentals and vegetable crops. Some control of these thrips can be achieved by applying insecticides to the leaf surface, but this can also disrupt biological control strategies that have been developed for other thrips species such as the flower thrips, *Frankliniella occidentalis* (EPPO A2 List). Generalist predatory mites that are widely used in horticulture for the control of several pests including *F. occidentalis*, have not proven to be very effective against *E. americanus*. The two predatory mirids (Hemiptera: Anthocoridae), *Orius laevigatus* and *O. majusculus* (both EPPO Augmentative BCA (PM 6/3)) were assessed for their behavioral interactions, predation, reproduction and development on *F. occidentalis*, *E. americanus*, and *T. setosus*. The biocontrol agents were

more successful in consuming sedentary leaf-inhabiting thrips adults compared to the highly mobile *F. occidentalis*. Furthermore, *O. laevigatus* was more successful in subduing prey compared to the bigger predator *O. majusculus*. Female adults of *O. laevigatus* and *O. majusculus* killed 18 and 20 *F. occidentalis* adults, respectively, in 24 h, while the kill rate was two times higher when the biocontrol agents were offered *E. americanus* or *T. setosus*. Developmental and reproductive parameters of both biocontrol agents were more favourable when feeding on the leaf-inhabiting thrips compared to *F. occidentalis*. These results highlight that *O. laevigatus* and *O. majusculus* are both successful in capturing and killing *E. americanus* and *T. setosus* compared to the more agile *F. occidentalis*.

Source: Mouratidis A, de Lima AP, Dicke M, Messelink GJ (2022) Predator-prey interactions and life history of *Orius laevigatus* and *O. majusculus* feeding on flower and leaf-inhabiting thrips. *Biological Control*. https://doi.org/10.1016/j.biocontrol.2022.104954

Additional key words: biological control **Computer codes:** ECHTAM, FRANOC, ORIUILA, THRISE

2022/176 Biological control of *Tradescantia fluminensis* in Australia and New Zealand

Tradescantia fluminensis (Commelinoideae) is a perennial species native to South America. It is widely utilised as a house and garden plant. It is present in several EPPO countries and invasive in Italy and Portugal. Outside of the EPPO region, *T. fluminensis* has become a significant invasive alien plant, especially in forest ecosystems in Australia and New Zealand. As part of a classical biological control programme for New Zealand, three chrysomelid insect species (the leaf beetle *Neolema ogloblini*, the tip beetle *Neolema abbreviata*, and the stem beetle *Lema basicostata*) were evaluated and subsequently released in New Zealand. Additionally, a leaf-smut fungus *Kordyana brasiliensis* was identified from Brazil and following scientific evaluation, it was released in New Zealand. The biological control agents proved effective at supressing *T. fluminensis* to the extent that in areas invaded, native plants regenerated. Additional research was required to further investigate the host range of *K. brasiliensis* for Australia, as several species in the family Commelinaceae are native in Australia. In total 28 non-target plant taxa were tested and only the target species developed abundant large lesions. Five taxa developed some small flecks following inoculation with *K. brasiliensis* though they were resistant to *K. brasiliensis*. In 2019, initial releases were performed in two regions, the Shoalhaven in New South Wales and Dandenong Ranges in Victoria. *Kordyana brasiliensis* lesions were detected on *T. fluminensis* at the 4 plots in the Shoalhaven within a couple of months of the release. In contrast, a few lesions were detected only 5 months after the release at a few of the 9 plots in the Dandenong Ranges. Cooler temperatures in the Dandenong Ranges may have hampered development of the fungus. After 26–32 months, the foliage cover of *T. fluminensis* had declined substantially in 3 of the 4 plots in the Shoalhaven but had remained stable in the Dandenong Ranges.

Source: Morin L, Incoll B, Lester J, Zeil-Rolfe I, Gooden B (2022) Biological control of the invasive plant *Tradescantia fluminensis* with the fungus *Kordyana brasiliensis* in Australia: Host range and initial releases. *Biological Control*. https://doi.org/10.1016/j.biocontrol.2022.104978

Additional key words: biological control **Computer codes:** TRAFL, AU, NZ

2022/177 *Sporobolus neglectus* and *S. vaginiflorus* in the EPPO region: addition to the EPPO Alert List

Why
Sporobolus neglectus and *S. vaginiflorus* (Poaceae) are North American grass species which occur locally in the EPPO region. In some areas where the plants spread along transportation routes, they have shown invasive tendencies. The EPPO Panel on Invasive Alien Plants are seeking further information on the occurrence and behaviour of *S. neglectus* and *S. vaginiflorus* in the EPPO region.

Geographical distribution

S. neglectus
EPPO region: Austria, Croatia, France, Hungary, Italy, Slovenia, Switzerland.
North America: Canada (Alberta, Manitoba, New Brunswick, Ontario, Québec, Saskatchewan,), USA (Alabama, Arizona, Arkansas, California, Colorado, Connecticut, District of Columbia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming).

S. vaginiflorus
EPPO region: Austria, France, Germany, Hungary, Italy, Serbia, Slovenia, Switzerland.
North America: Canada (British Columbia, New Brunswick, Nova Scotia, Ontario, Prince Edward Island, Québec), USA (Alabama, Arizona, Arkansas, California, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, West Virginia, Wisconsin).

Morphology

S. neglectus
Annual plant tufted, delicate, slender. Culms 10-45 cm, wiry, erect to decumbent. Sheaths inflated, mostly glabrous but the apices with small tufts of hairs. Blades 1-12 cm long, 0.6-2 mm wide, flat to loosely involute. Panicles terminal and axillary. Glumes subequal, shorter than the florets, lanceolate to ovate, membranous to chartaceous, glabrous. Fruits 1.2-1.8 mm, obovoid, laterally flattened, light brownish or orangish-brown, translucent, finely striate.

S. vaginiflorus
Annual plant tufted, delicate. Culms 15-60(70) cm, erect to decumbent, wiry. Sheaths often inflated, sometimes with sparse hairs basally. Blades 2-12(25) cm long, 0.6-2 mm wide, flat to loosely involute. Panicles terminal and axillary, 1-5 cm long, 0.2-0.5 cm wide, contracted, cylindrical. Glumes subequal, linear-lanceolate to lanceolate-triangular or ovate, membranous to chartaceous, glabrous. Fruits (1.1)1.8-2.7 mm, obovoid, laterally flattened, light brownish, translucent.

Biology and Ecology
Sporobolus neglectus and *S. vaginiflorus* are perennial species that reproduce by seed and vegetatively from fragments of rhizome which can take root and form new infestations.

Habitats
Sporobolus neglectus and *S. vaginiflorus* prefer open, often disturbed habitats with sandy to gravelly soils and thrive in various plant communities. In the EPPO region, both species have been observed to spread along transportation routes.

Pathways for movement
Sporobolus neglectus and *S. vaginiflorus* probably originally entered the EPPO region as contaminants of machinery and equipment by American military forces in the 1940s. Entry via contamination of seed mixtures from the USA has also been suggested.

Impacts
Sporobolus neglectus and *S. vaginiflorus* can have a negative impact on the species richness and abundance of native vegetation. Both species can form dense monospecific stands in the late summer and autumn along roadsides and these populations may spread into natural grasslands. Both species can produce an abundance of small seeds which can form a persistent seed bank. This facilitates establishment of the species in new areas and complicates the control of the species as the seed bank will need to be exhausted to achieve successful control.

Control
There is no specific information on control. Any management method should exhaust the persistent seedbank.

Sources
Englmaier P, Wilhalm T (2018) Alien grasses (Poaceae) in the flora of the Eastern Alps: Contribution to an excursion flora of Austria and the Eastern Alps. *Neilreichia* **9**, 177–245.
Jogan N (2017) Spread of *Sporobolus neglectus* and *S. vaginiflorus* (Poaceae) in Slovenia and neighbouring countries. *Botanical Serbica* **41**, 249-256.
Király G, Hohla M (2015) New stage of the invasion: *Sporobolus vaginiflorus* (Poaceae) reached Hungary. *Studia botanica hungarica* **46**, 149–155.

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

2022/178 Update of the list of invasive alien species of Union concern (European Union)

The Regulation (EU) 1143/2014 on Invasive Alien Species entered into force on the 1st of January 2015. At the core of the Regulation is a list of invasive alien species of Union concern. On the 14th of July 2016, the European Commission published the Commission Implementing Regulation 2016/1141 which adopted a list of 37 invasive alien species of Union concern of which 14 species were invasive alien plants. In July 2017, a further 12 invasive alien species were added to the list, of which 9 were invasive plant species. In July 2019, an additional 17 invasive alien species were added to the list, of which 13 are invasive alien plants, and in 2022 an additional 22 species were added to the list of which 4 were invasive alien plants. For each species on the list, EU Member States will need to implement the following measures: (1) prevention, (2) early detection and rapid eradication of new invasions, (3) management of populations that are already widely spread.

Table 1. Forty invasive alien plants included in the List of Union (EU) concern. Species with an EPPO PRA are highlighted in bold. Distribution information for each species is included in the EPPO Global Database.

Species	Form	Year of addition	EPPO List
Acacia saligna (Fabaceae)	Tree	2019	Invasive Alien Plants
Ailanthus altissima (Simaroubaceae)	Tree	2019	Invasive Alien Plants
Alternanthera philoxeroides (Amaranthaceae)	Aquatic perennial herb	2017	A2
Andropogon virginicus (Poaceae)	Perennial grass	2019	A2
Asclepias syriaca (Apocynaceae)	Perennial herb	2017	Invasive Alien Plants
Baccharis halimifolia (Asteraceae)	Deciduous shrub	2016	A2
Cabomba caroliniana (Cabombaceae)	Aquatic perennial herb	2016	Invasive Alien Plants
Cardiospermum grandiflorum (Sapindaceae)	Annual/perennial climber	2019	A2
Celastrus orbiculatus (Celastraceae)	Deciduous woody vine	2022	A2
Cenchrus setaceus (Poaceae)	Perennial grass	2017	Invasive Alien Plants
Cortaderia jubata (Poaceae)	Perennial grass	2019	A1
Ehrharta calycina (Poaceae)	Perennial grass	2019	A2
Elodea nuttallii (Hydrocharitaceae)	Aquatic perennial herb	2017	Invasive Alien Plants
Gunnera tinctoria (Gunneraceae)	Perennial	2017	Invasive Alien Plants
Gymnocoronis spilanthoides (Asteraceae)	Aquatic perennial herb	2019	A2
Hakea sericea (Proteaceae)	Evergreen shrub or small tree	2022	A2
Heracleum mantegazzianum (Apiaceae)	Monocarpic perennial	2017	Invasive Alien Plants
Heracleum persicum (Apiaceae)	Perennial herb	2016	A2
Heracleum sosnowskyi (Apiaceae)	Biennial/perennial herb	2016	A2
Humulus scandens (Cannabaceae)	Annual vine	2019	A2
Hydrocotyle ranunculoides (Apiaceae)	Perennial aquatic herb	2016	A2
Impatiens glandulifera (Balsaminaceae)	Annual herb	2017	Invasive Alien Plants
Koenigia polystachya (Polygonaceae)	Perennial herb	2022	Invasive Alien Plants
Lagarosiphon major (Hydrocharitaceae)	Submerged aquatic	2016	Invasive Alien Plants
***Lespedeza cuneata* (Fabaceae)**	Perennial herbaceous legume	2019	A1
***Ludwigia grandiflora* (Onagraceae)**	Emergent perennial aquatic	2016	A2
***Ludwigia peploides* (Onagraceae)**	Emergent perennial aquatic	2016	A2
***Lygodium japonicum* (Lygodiaceae)**	Perennial climbing fern	2019	A1
***Lysichiton americanus* (Araceae)**	Perennial	2016	Invasive Alien Plants
***Microstegium vimineum* (Andropogonaeae)**	Annual grass	2017	A2
Myriophyllum aquaticum (Haloragaceae)	Aquatic herb	2016	Invasive Alien Plants
Myriophyllum heterophyllum (Haloragaceae)	Aquatic herb	2017	A2
Parthenium hysterophorus (Asteraceae)	Annual herb	2016	A2
***Polygonum perfoliatum* (Polygonaceae)**	Annual herbaceous vine	2016	A2
***Pistia stratiotes* (Araceae)**	Perennial aquatic macrophyte	2022	A2
Pontederia (Eichhornia) crassipes (Pontederiaceae)	Aquatic floating perennial herb	2016	A2
***Prosopis juliflora* (Fabaceae)**	Perennial woody shrub/tree	2019	A2
Pueraria montana var. *lobata* (Fabaceae)	Deciduous vine	2016	A2
***Salvinia molesta* (Salviniaceae)**	Perennial floating aquatic	2019	A2
***Triadica sebifera* (Euphorbiaceae)**	Deciduous tree	2019	A1

Source: EU (2022) Commission implementing regulation (EU) 2022/1023 of 12 July 2022 amending Implementing Regulation (EU) 2016/1141 to update the list of invasive alien species of Union concern. Official Journal of the European Union, 13.7.2022.

Additional key words: invasive alien plants

Computer codes: ACASA, AILAL, ALRPH, ANOVI, ASCSY, BACHA, CABAQ, CRIGR, CELOR, CDTJU, EHRCA, EICCR, ELDNU, GUATI, GYNSP, HKASE, HERMZ, HERPE, HERSO, HUMJA, HYDRA, IPAGL, POLPS, LGAMA, LESCU, LUDUR, LUDPE, LYFJA, LSYAM, MCGVI, MYPBR, MYPHE, PTNHY, PESSA, POLPF, PIIST, PRCJU, PUELO, SAVMO, SAQSE

2022/179 Impact of *Ambrosia trifida* on the soil seed bank

Ambrosia trifida (Asteraceae – EPPO A2) is native to North America, where it is recorded as weedy in many States or Provinces. It was introduced into the EPPO region at the end of the 19th century, and it has expanded its range since the mid-1900s. In the Yili Valley, Xinjiang, China, *A. trifida* was first reported in the Nalati grassland in 2010. By 2020, the area the species occupies had expanded 3113-fold, reaching 37 900 ha. After 4–5 years of unimpeded invasion, a single dense stand had formed over the area with nearly 100 % population coverage. The soil seed bank in the grassland was studied over eight years following *A. trifida* invasion and again after its removal. The results showed that four years after the invasion, the seed bank density of the native plant community decreased by 30 %, while the percentage cover of *A. trifida* aboveground reached 83%. The species richness in the seed bank also decreased and was the lowest when the percentage cover of *A. trifida* was 100 %, six years after the invasion. Eight years after the invasion, the seed bank density and species richness of the native community decreased by 83 % and 39 %, respectively. Following the removal of *A. trifida*, natural restoration was limited, due to the low density of the native seed bank. Above-ground new growth was dominated by weedy species, rather than by grassland species.

Source: Wang H, Liu T, Dong H, Zhao W, Liu X, Wang R, Xu W (2022) Changes in the composition of the soil seed bank of grassland after giant ragweed (*Ambrosia trifida* L.) invasion. *Journal of Environmental Management* 317. https://doi.org/10.1016/j.jenvman.2022.115468

Pictures: *Ambrosia trifida*. https://gd.eppo.int/taxon/AMBTR/photos

Additional key words: invasive alien plants

Computer codes: ANBTR, CN

2022/180 *Myriophyllum rubricaule* a parrot's feather look-alike only known in cultivation

Incorrect labelling and misidentification of plants in trade are widespread and may be caused by negligence or wilful disrespect of regulations. Plants labelled as *Myriophyllum* 'brasiliensis' or *M.* 'brasiliense' have been in the horticultural trade in North-Western Europe for several decades, though their taxonomy has caused confusion among botanists, plant growers and regulators. The name *Myriophyllum brasiliense* is a synonym of *M. aquaticum* commonly known as parrot's feather. However, *M. brasiliense* in trade and *M. aquaticum* can be clearly distinguished by both morphological and molecular features. Since 2016, *M. aquaticum* has been included on the List of invasive alien species of Union concern (EU regulation no. 1143/2014). Following its regulation, *M. aquaticum* has been fully replaced

by *Myriophyllum* sp. trade name 'brasiliensis' in the horticultural trade in Europe. This has resulted in an increase in the number of records of *Myriophyllum* sp. trade name 'brasiliensis' in urban waters as well as in more natural habitats. This is likely a result of inappropriate disposal of garden waste or the deliberate planting of this species in urban waterways and residential areas. To-date, there are records of establishment for the Netherlands, Belgium and Hungary. The ongoing confusion with respect to the epithet 'brasiliensis' has prompted researchers at NIVIP (Netherlands Institute for Vectors, Invasive plants and Plant health) a part of NPPO-NL in Wageningen to formally describe this taxon known only in cultivation as a new species: *Myriophyllum rubricaule*.

Source: Van Valkenburg JLCH, Duistermaat L(H.), Boer E, Raaymakers TM (2022) *Myriophyllum rubricaule* sp. nov., a *M. aquaticum* look-alike only known in cultivation. *European Journal of Taxonomy* **828**, 1–15. https://doi.org/10.5852/ejt.2022.828.1847

Additional key words: invasive alien plants **Computer codes:** MYPBR, MUPRU, NL