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2023/055 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**

Ralstonia pseudosolanacearum (EPPO A2 List) is reported for the first time from Mexico. In February 2022, a wilt disease was observed on tomato (*Solanum lycopersicum*) plants grown in a greenhouse in Culiacan, Sinaloa state. Laboratory tests (colony morphology, PCR, sequencing, pathogenicity) confirmed the presence the bacterium in diseased plants (Garcia-Estrada *et al.*, 2023). **Present, not widely distributed**.

Tomato chlorosis virus (*Crinivirus*, ToCV - EPPO A2 List) is reported for the first time from India. It was detected once in a mixed infection on tomato (*Solanum lycopersicum*) in Una district of Himachal Pradesh during surveys conducted in 2015 and 2017. Tomato leaf curl New Delhi virus (Begomovirus, ToLCNDV – EPPO A2 List) is also reported from Himachal Pradesh and Tomato yellow leaf curl virus (TYLCV - EPPO A2 List) from Punjab and Himachal Pradesh (Chaudhary *et al.*, 2022). **Present, not widely distributed**.

- **Detailed records**

In China, *Aphelenchoides besseyi* (EPPO A2 List) is reported for the first time causing white tip disease of rice in Heilongjiang province. During summer 2021, *A. besseyi* was found in a rice field in Acheng district. Its identity was confirmed by morphological, molecular and pathogenicity tests (Hu *et al.*, 2023).

In Portugal, *Halyomorpha halys* (Hemiptera: Pentatomidae – formerly EPPO Alert List) is reported for the first time from Madeira Island. The insect was observed in December 2022 in Funchal. In addition, records provided via social media (or citizen science platforms) and verified by entomologists showed a rapid spread of the insect across mainland Portugal and a sharp increase in numbers. Specimens of *H. halys* have been found in the districts of Aveiro, Beja, Braga, Bragança, Coimbra, Leiria, Lisboa, Porto, Viana do Castelo, and Madeira (Gaspar *et al.*, 2023).

In Spain, *Halyomorpha halys* (Hemiptera: Pentatomidae – formerly EPPO Alert List) is reported for the first time from the Canary Islands. The first specimens were found in December 2021 in an urban environment in Costa Adeja, on the island of Tenerife. In March 2023, further specimens were found in the vicinity of the first finding site, suggesting an established population (van der Heyden & Petrovan, 2023).

In India, the root knot nematode *Meloidogyne enterolobii* (EPPO A2 List) is reported for the first time from guava (*Psidium guajava*) orchards of Uttarakhand, Uttar Pradesh and Haryana states in Northern India (Naveenkumar *et al.*, 2023)

In the USA, *Meloidogyne enterolobii* (EPPO A2 List) is reported for the first time in Georgia. The nematode was detected in 2 symptomatic sweet potato (*Ipomoea batatas*) samples which had been collected in October 2021 from a field located in Reidville (Tattnall county) (Hajihassani *et al.*, 2023).

In Brazil, *Scirtothrips dorsalis* (Thysanoptera: Thripidae – EPPO A2 List) was first recorded in a greenhouse in the state of Ceará in 2018 (EPPO RS 2020/216). In 2019 it was also recorded outdoors causing damage in cocoa (*Theobroma cacao*) production in the state of Bahia (Nakayama & Lindner, 2022).

- **Host plants**

In China, *Meloidogyne enterolobii* (EPPO A2 List) has been found infecting wild plants of *Acalypha australis* (Euphorbiaceae) in Guangxi province. It is noted that *A. australis* is also widely cultivated in China and used for traditional medicine (*Jia et al.*, 2023).

Tobacco ringspot virus (*Nepovirus*, TRSV – EPPO A2 List) is reported for the first time naturally infecting cotton (*Gossypium hirsutum)*. Symptomatic plants were observed in Oklahoma, USA: cotton plants showed typical virus-like symptoms including mosaic, yellow ring spots, discoloration, and short internodes (Ferguson et Ali, 2022)

- **Taxonomy**

The taxonomic placement of the genus *Diaphorina*, which includes one of the vectors of huanglongbing (*Diaphorina citri* – EPPO A1 List), has been subject to several changes. It was moved from the family Psyllidae to the family Liviidae (Burckhardt & Ouvrard, 2012), but it has recently been proposed to place it back again under Psyllidae (Burckhardt *et al.*, 2021).

Sources:

Burckhardt D & Ouvrard D (2012) A revised classification of the jumping plant-lice (Hemiptera: Psylloidea). *Zootaxa* **3509**, 1-34.

Burckhardt D, Ouvrard D & Percy DM (2021) An updated classification of the jumping plant-lice (Hemiptera: Psylloidea) integrating molecular and morphological evidence. *European Journal of Taxonomy* **736**, 137–182. https://doi.org/10.5852/ejt.2021.736.1257

Chaudhary P, Kaur A, Singh B, Kumar S, Hallan V, Nagpal AK (2022) First report of tomato chlorosis virus (ToCV) and detection of other viruses in field-grown tomatoes in North-Western region of India. *VirusDisease* (early view). https://doi.org/10.1007/s13337-022-00801-y

Garcia-Estrada RS, Marquez I, Osuna-Garcia LA, Tovar-Pedraza JM, Cruz-Lachica I (2023) First report of *Ralstonia pseudosolanacearum* causing wilt disease in tomato (*Solanum lycopersicum* L.) plants from Mexico. *Plant Disease* **107**(early view). https://doi.org/10.1094/PDIS-08-22-1838-PDN

Gaspar H, Castro S, Grosso-Silva JM, van der Heyden T, Loureiro J (2023) Exponential outspread of *Halyomorpha halys* (Stål, 1855) (Hemiptera: Pentatomidae) in Portugal. *Arquivos Entomolóxicos* **22**, 373-376.

Ferguson C, Ali A (2022) First report of tobacco ringspot virus naturally infecting cotton (*Gossypium hirsutum*) in the United States. *Plant Disease* **106**(10), 2764. https://doi.org/10.1094/PDIS-02-22-0303-PDN

Hajihassani A, Nugraha GT, Tyson C (2023) First report of the root-knot nematode *Meloidogyne enterolobii* on sweet potato in Georgia, United States. *Plant Disease* **107**(early view). https://doi.org/10.1094/PDIS-11-22-2692-PDN

Hu Y, Pan F, You J, Sha H, Fang J (2023) First report of *Aphelenchoides besseyi* causing white tip disease of rice in Heilongjiang province of China. *Plant Disease* (early view). https://doi.org/10.1094/PDIS-06-22-1387-PDN

Jia L, Wang Y, Gao F, Chen Q, Yang S, Wu H (2023) First report of the root-knot nematode *Meloidogyne enterolobii* infecting *Acalypha australis* in China. *Plant Disease* **107**(2), 587. https://doi.org/10.1094/PDIS-05-22-1063-PDN

Nakayama K, Lindner MF (2022) Ocorrência do tripes da pimenta (*Scirtothrips dorsalis* Hood, [Thysanoptera: Thripidae]) em cacaueiro (*Theobroma cacao* L.). *Agrotrópica* **34**(2), 121-130.

Naveenkumar KR, Dash M, Khan MR, Kumar S, Pasupuleti S, Kundu A, Sirohi A, Kranti KVVS, Kamil D, Somvanshi VS (2023) A survey of guava orchards of Uttarakhand, Uttar Pradesh and Haryana states in northern India to assess the spread of root-knot nematodes. *Indian Phytopathology*. (early view) https://doi.org/10.1007/s42360-023-00608-x

van der Heyden T, Petrovan S (2023) New records of Heteroptera from the Canary Islands (Spain), II. *Arquivos Entomolóxicos* **26**, 109-111.

Additional key words: absence, detailed records, eradication, host plant, new pest

Computer codes: APLOBE, DIAACI, HELYHA, MELGMY, MELGMY, RALSPS, SCITDO, TOCV00, TOLCND, TRSV00, TYLCV0, BR, CN, ES, IN, MX, US

2023/056 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 2023/032), the following new and revised EPPO datasheets have been published in the EPPO Global Database:

- *Cucumber vein yellowing virus*. https://gd.eppo.int/taxon/CVYV00/datasheet
- *Melampsora farlowii*. https://gd.eppo.int/taxon/MELMFA/datasheet
- *Pissodes nemorensis*. https://gd.eppo.int/taxon/PISONE/datasheet
- *Pissodes strobi*. https://gd.eppo.int/taxon/PISOST/datasheet
- *Spodoptera eridania*. https://gd.eppo.int/taxon/PRODER/datasheet
- *Spodoptera litura*. https://gd.eppo.int/taxon/PRODLI/datasheet
- *Strawberry vein banding virus*. https://gd.eppo.int/taxon/SVBV00/datasheet

Source: EPPO Secretariat (2023-03).

Additional key words: publication

Computer codes: CVYV00, MELMFA, PISONE, PISOST, PRODER, PRODLI, SVBV00

2023/057 Recommendations from Euphresco projects

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

Rapid identification of plant-health related bacteria by MALDI-TOF mass spectrometry (MALD-ID)

MALDI-TOF mass spectrometry is a powerful analytical method that can be used to identify molecules and organisms: it is rapid (less than 1 hour), can be high-throughput, cheap and accurate. Correct identification relies on reliable databases of spectra, however, the available databases are commercial (maintained by the companies that produce the mass spectrometers), and they lack spectra for the identification of plant pests. The project (MALD-ID) aimed to produce reference spectra to support the identification of plant pathogenic bacteria (*Clavibacter* spp., *Curtobacterium* spp., *Erwinia* spp., *Pantoea* spp., *Pectobacterium* spp., *Pseudomonas* spp., *Ralstonia* spp. and *Xylophilus* spp.) and to validate their use amongst the project partner laboratories. 117 reference spectra were obtained in the framework of the project activities. The reference spectra proved to be sufficient, when used alongside the commercial databases, to reliably identify bacteria from the eight studied taxa to at least genus level. However, the efficiency of the method to identify strains differs from genus to genus. MALDI-TOF MS is reliable for identification of some bacteria at species level (e.g. species belonging to *Pantoea*, *Ralstonia* and *Xylophilus*), but it is not precise enough to discriminate between closely related species, such those belonging to *Curtobacterium*, *Pectobacterium* and *Pseudomonas*. For these three latter genera, the identification at the is reliable to genus level. In plant health, the relevant taxonomic level for the diagnosis of bacteria is often at the infra-specific level. For example, *Pantoea stewartii* subsp. *stewartii* is a quarantine pest while *Pantoea stewartii* subsp. *indologenes* is not. In these cases, it is essential to discriminate between the subspecies. The project partners recommend that MALDI-TOF mass spectrometry is used as a first step in the diagnostic workflow. By providing identification these bacteria to genus level, MALDI-TOF mass spectrometry can help users choose the most relevant test for the identification of the pathogen at a lower taxonomic level.

Duration of the project: 2019-02-01 to 2022-03-31.

Authors: Perrine Portier, Jeroen van der Bilt, Annette Wensing.

Link: https://drop.euphresco.net/data/aead15b6-34ac-4fc0-8111-e0b83fd893c3/

Source: Euphresco (2023-03).

Additional key words: research, diagnostics

Computer codes: 1CLABG, 1CURTG, 1ERWIG, 1PECBG, 1PNTOG, 1PSDMG, 1RALSG, 1XLPHG

2023/058 First report of *Platynota stultana* in Italy

Platynota stultana (Lepidoptera: Tortricidae – omnivorous leafroller- EPPO A2 List) is reported for the first time from Italy. After an entomologist reported on an Internet forum on Lepidoptera that he caught 2 specimens in a light trap in Puglia region (near Zapponeta) in 2020, scientists carried out monitoring activities between May and October 2022 in two locations in the Puglia region (in Manfredonia and Margherita di Savoia) and three locations in the neighbouring region of Molise (in Montenero di Bisaccia, Campomarino, and Ferrazzano). Monitoring surveys included the use of pheromone traps, light traps and entomological nets. Overall, 11 specimens of *P. stultana* were caught with pheromone traps: 10 in Manfredonia (in August and in October 2022) and 1 in Margherita di Savoia (August 2022). The use of entomological nets and light traps did not lead to the capture of specimens. It is not clear from this report whether *P. stultana* is established in this area or not.

The situation of *Platynota stultana* in Italy can be described as follows: **Present: not widely distributed and not under official control**.

Source: Trematerra P, Colacci M (2022) *Platynota stultana* Walsingham, 1884 (Lepidoptera Tortricidae) found in Italy, invasive pest in Europe. *Redia* **105**, 183-189. http://dx.doi.org/10.19263/REDIA-105.22.23

Pictures: *Platynota stultana*. https://gd.eppo.int/taxon/PLAAST/photos

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

2023/059 First report of *Pochazia shantungensis* in Russia

In Russia, a small population of *Pochazia shantungensis* (Hemiptera: Cicadellidae – EPPO Alert List) was observed for the first time in September 2022 in Sochi (Krasnodar). During a survey on ornamental plants, *P. shantungensis* was found on *Ligustrum lucidum* in the park of a sanatorium. No other findings were made in Sochi and its surroundings, thus suggesting a recent introduction.
In these studies, the presence of another Cicadellidae, *Graphocephala fennahi* is also reported for the first time in Russia. *G. fennahi* was observed in 2018 in a botanical garden in Moscow on *Calystegia sepium* and *Rhododendron* spp. It is supposed that both insects have been accidentally introduced with ornamental plants for planting.

The situation of *Pochazia shantungensis* in Russia can be described as follows: **Present, not widely distributed.**

Source: Zhuravleva EN, Gnezdilov VM, Tishechkin DY, Mikhailenko AP, Shoshina EI, Karpun NN, Musolin DL (2023) First records of *Graphocephala fennahi* Young, 1977 and *Pochazia shantungensis* (Chou & Lu, 1977) (Hemiptera: Cicadellidae, Ricaniidae) in Russia. *EPPO Bulletin* (early view). https://doi.org/10.1111/epp.12910

Pictures: *Pochazia shantungensis*. https://gd.eppo.int/taxon/POCZSH/photos

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

2023/060 Update of the situation of *Scirtothrips citri* in Israel

Scirtothrips citri (Thysanoptera: Thripidae – EPPO A1 List) was first reported in Israel in spring 2022, from citrus groves in the Upper Galilee area (Northern Israel) (EPPO RS 2022/164). An extensive official survey has been conducted by the NPPO of Israel. As a result, *S. citri* was also detected in the northern Negev area. In this region, the pest is mainly found on jojoba trees (*Simmondsia chinensis*). In the Upper Galilee area, *S. citri* was found on grapevine (*Vitis vinifera*) in addition to *Citrus* plants.
The distribution of the species in two separate areas (approximately 200 km apart), strengthens the initial suspicion of the NPPO that the source of the outbreaks is illicit import of vegetative propagation material. In order to manage the pest outbreaks and prevent further spread, appropriate insecticides are applied. A range of insecticides is being registered against *S. citri* on different hosts. The official survey is maintained and any additional host or location is recorded and officially managed.

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

Source: NPPO of Israel (2023-03).

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

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

2023/061 Update on the situation of *Xylotrechus chinensis* in France

In France, the presence of *Xylotrechus chinensis* (Coleoptera: Cerambycidae – EPPO Alert List) was first reported on *Morus* trees in 2018 in Sète (Hérault department, Occitanie region) and in Le Bouscat (Gironde department, Nouvelle-Aquitaine region) (EPPO RS 2018/220, RS 2019/098).
X. chinensis is listed as a temporary quarantine pest in France since March 2022. An official delimiting survey was carried out in 2022:

- In Occitanie, *X. chinensis* was detected in 29 municipalities in Hérault department. 409 sites were inspected as part of the planned official survey (from 23 June to 15 September 2022), and 45 additional sites were inspected following reports from the public (from 30 May to 15 September). Symptomatic *Morus* were observed in 68 and 17 of these sites, respectively. In total, 34 samples were taken, and 33 were positive.
- In Nouvelle-Aquitaine, *X. chinensis* was detected in 12 new municipalities, resulting in a total of 21 municipalities with outbreaks.

The official phytosanitary measures have to be defined. For the moment, it is recommended to rapidly destroy the infested plants or parts of plants by shredding and/or incineration.

The pest status of *Xylotrechus chinensis* in France is officially declared as: **Transient, actionable, under surveillance.**

Source: NPPO of France (2023-03).

A map of the outbreaks in Occitanie is available at:
https://draaf.occitanie.agriculture.gouv.fr/xylotrechus-chinensis-point-de-situation-janvier-2023-a7673.html

Arrêté du 11 mars 2022 portant établissement des listes d'organismes nuisibles au titre du 5° de l'article L. 251-3 du code rural et de la pêche maritime. JORF n°0063 du 16 mars 2022.
https://www.legifrance.gouv.fr/eli/arrete/2022/3/11/AGRG2135065A/jo/texte

Pictures: *Xylotrechus chinensis*. https://gd.eppo.int/taxon/XYLOCH/photos

Additional key words: detailed record **Computer codes:** XYLOCH, FR

2023/062 Update on the situation of *Toumeyella parvicornis* in France

In France, the presence of *Toumeyella parvicornis* (Hemiptera: Coccidae – EPPO Alert List) was first detected in a private garden on *Pinus pinea* in the peninsula of Saint Tropez (Var department, Provence-Alpes-Côte d'Azur region) (EPPO RS 2021/240).
T. parvicornis is listed as a temporary quarantine pest in France since March 2022. An official delimiting survey was carried out in 2022 (January to May) and the pest was found in eight municipalities: Cogolin, Gassin, Grimaud, La Croix-Valmer, Le Plan de la Tour, Ramatuelle, Saint-Tropez, Sainte-Maxime. A demarcated area has been established, as well as a 5-km buffer zone around it.
Official measures include the obligation for professional operators to report any finding and prune or destroy infested plants, as well as the prevention of movement of infested plant material out of the demarcated area. Host plants for planting may only be traded out of the demarcated area after an official inspection.

The pest status of *Toumeyella parvicornis* in France is officially declared as: **Present, only in some parts of the Member State concerned.**

Source: NPPO of France (2023-03).

Arrêté du 11 mars 2022 relatif aux mesures visant à éviter l'introduction et la propagation de *Toumeyella parvicornis*.
https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000045358762
https://www.var.gouv.fr/les-mesures-de-lutte-contre-la-cochenille-tortue-a10839.html

Pictures: *Toumeyella parvicornis*. https://gd.eppo.int/taxon/TOUMPA/photos

Additional key words: detailed record **Computer codes:** TOUMPA, FR

2023/063 Two new *Lasioptera* species infesting tomato: *Lasioptera tomaticola* and *L. yoichiensis*

Two new species of gall midges (Diptera: Cecidomyiidae) infesting tomato (*Solanum lycopersicum*) crops have been described from two different regions of the world: *Lasioptera tomaticola* infesting tomato and cucumber (*Cucumis sativus*) in the Mediterranean region (Greece, Romania and Türkiye) and *Lasioptera yoichiensis* infesting tomato in Japan (Hokkaido).

- ***Lasioptera tomaticola***

In 2001, unusual damage caused by insect larvae was first observed in cucumber (*Cucumis sativus*) crops in Trifylia (Western Peloponnesus), Greece, and was attributed to an unidentified species of *Lasioptera*. In the following years, this insect was observed in glasshouse cucumber and tomato crops in Trifylia, as well as in glasshouses close to Athens. Damage is caused by larvae living gregariously inside plant stems. Their feeding activity induces necrosis of plant tissues, wilting, stem breakage and reduction of fruit production. Damaged plant tissues are also invaded by fungi. Similar damage and the presence of a *Lasioptera* species were then also recorded in Türkiye and Romania. In 2020, this insect was described as new species and called *Lasioptera tomaticola*.

In Türkiye, *L. tomaticola* was first found in 2012 in tomato-producing areas in Mersin and then in Antalya and Çanakkale, as well as in cucumber in Izmir. In Romania, the first signs of infestation were observed in 2011 in Dâmbovița county. In 2020, *L. tomaticola* was also found in tomato and cucumber samples collected from Dolj county. Surveys carried out from 2020 to 2022 detected the pest in greenhouse tomato and cucumber crops in Timiș county.

Genetic studies identified at least 6 different haplotypes within *L. tomaticola*, indicating that it has been present in the Mediterranean region for a long time before its infestations were noticed. Although these studies could not conclude as to whether *L. tomaticola* originates from the Palaearctic region or not, the appearance of new damage in crops that have been widely grown in the Mediterranean Basin for many years might suggest an accidental introduction or a change in host range.

- ***Lasioptera yoichiensis***

In 2010, necrosis on tomato stems was observed in a farmer's glasshouses in Yoichi, Hokkaido, Japan. In 2012, damage on tomato stems and fruit was observed in other glasshouses in Yoichi and Niki, a neighbouring town. Damaged stems and fruit contained larvae and pupae of a Cecidomyiidae which was identified as a new species and called *Lasioptera yoichiensis*. For the moment, the fungal pathogens that are observed in association with *L. yoichiensis* damage have not been identified. *L. yoichiensis* has only been found on tomato and in Hokkaido (Yoichi and adjacent areas). Genetic studies have identified only one haplotype. Considering its limited distribution in Hokkaido and its low genetic diversity, it is suggested that *L. yoichiensis* has recently been introduced into Japan, but its possible origin and pathways of introduction remain unknown.

Source: Anagnou-Veroniki M, Papaioannou-Souliotis P, Karanastasi E, Giannopolitis CN (2008) New records of plant pests and weeds in Greece, 1990-2007. *Hellenic Plant Protection Journal* **1**, 55-78.

Büyüköztürk HD, Bilgin MG, Keçeci M (2016) [A new tomato pest, *Lasioptera* sp. (Diptera: Cecidomyiidae) and its distribution in Mediterranean Region of Turkey]. *Derim* **33**(2), 211-220 (in Turkish).

Cotuna V, Grigor D, Radu A, Carabet A, Stef R, Cotuna O (2022) *Lasioptera tomaticola* (Yukawa et Harris) (Diptera: Cecidomyiidae) a new pest in tomato and cucumber crop from south western part of Romania. *Research Journal of Agricultural Science* **54**(3), 49-57.

NPPO of the Netherlands (2013) Quick scan on *Lasioptera* sp. https://pra.eppo.int/pra/d8776159-d8ce-405e-834f-96dd522f6510

Perdikis D, Lykouressis D, Paraskevopoulos A, Harris KM (2011) A new insect pest, *Lasioptera* sp. (Diptera: Cecidomyiidae), on tomato and cucumber crops in glasshouses in Greece. *EPPO Bulletin* **41**(3), 442-444.

Topakcı N, Yükselbaba U (2016) [A new pest in tomato production: *Lasioptera* sp. (Diptera: Cecidomyiidae)]. *Turkish Journal of Agriculture -Food Science and Technology* **4**(11), 914-918 (in Turkish).

Yukawa J, Harris KM, Kim W (2020) Descriptions of two new species of the genus *Lasioptera* (Diptera: Cecidomyiidae) that infest tomato in the Mediterranean Region and Hokkaido, Japan. *Applied Entomology and Zoology* **55**, 129-140.

Pictures: *Lasioptera sp.* https://gd.eppo.int/taxon/LASOSP/photos

Additional key words: new pest, new record **Computer codes:** LASOTO, LASOYO, GR JP, RO, TR

2023/064 *Globodera pallida* is absent from Argentina

In 2005, during an inspection of a potato-growing area in North-Western Argentina, cysts belonging to the genus *Globodera* were detected on Andean potato roots in a field, in the province of Salta (Lax *et al.*, 2005). At that time, the nematode population was identified as *Globodera pallida* (EPPO A2 List) based on morphological and morphometric characters. This was considered to be the first report of *G. pallida* in Argentina. However, molecular studies (comparison of ITS-rRNA gene sequences) were conducted and showed that the species found in Salta was not *G. pallida* but *G. ellingtonae* (Lux *et al.*, 2014). Therefore, *G. pallida* is considered as absent from Argentina.

Source:

Lax P, Manduric S, Doucet ME, Gallardo C, L'Argentier SM de (2005) Primera cita del nematodo blanco del quiste de la papa, *Globodera pallida*, en Argentina continental. XIII Congreso Latinoamericano de Fitopatología. III Taller Argentino de Fitopatología, Carlos Paz, Córdoba, Argentina (2005-04-19/22).

Lax P, Rondan Dueñas JC, Franco-Ponce J, Gardenal CN, Doucet ME (2014) Morphology and DNA sequence data reveal the presence of *Globodera ellingtonae* in the Andean region. *Contributions to Zoology* **83**(4), 227-243.

Personal communication with Dr P. Lax, University of Cordoba, Argentina (2023-03).

Additional key words: absence **Computer codes:** HETDPA, GLOBEL, AR

2023/065 First report of huanglongbing in Uruguay

In December 2022, the presence of huanglongbing (associated with '*Candidatus* Liberibacter spp.' – EPPO A1 List) was recorded for the first time in Uruguay and the Ministry of Agriculture declared a phytosanitary emergency. The disease (bacterial species not specified) has been detected by PCR test in one citrus plant growing in a private garden in Bella Unión (Artigas department, Northern Uruguay). The infected plant has immediately been destroyed and surveys are being carried out within a radius of 10 km around the detection site. Phytosanitary measures are being put in place to prevent the spread of the disease, following a contingency plan which had been developed during the last 10 years between public and private institutions. In addition, *Tamarixia radiata* (Hymenoptera: Eulophidae) has been released in Bella Unión to control populations of *Diaphorina citri* (Hemiptera: Psyllidae) which is one of the insect vectors of huanglongbing.

The situation of huanglongbing in Uruguay can be described as follows: **Transient (detected in 1 citrus plant which has been destroyed).**

Source: Ministerio de Ganaderia, Agricultura y Pesca (2023-01-19) Emergencia sanitaria: HLB en Bella Unión: Liberan insecto para control biológico del vector and comunicado de prensa ante la detección de HLB. https://www.gub.uy/ministerio-ganaderia-agricultura-pesca/comunicacion/noticias/hlb-bella-union-liberan-insecto-para-control-biologico-del-vector

Pictures: '*Candidatus* Liberibacter asiaticus'. https://gd.eppo.int/taxon/LIBEAS/photos

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

2023/066 First report of *Xanthomonas arboricola* pv. *pruni* in Greece

In 2021, 2 samples of almond (*Prunus dulcis*) shoots with symptoms resembling those caused by *Xanthomonas arboricola* pv. *pruni* (EPPO A2 List) were examined at the Benaki Phytopathological Institute, Greece. The first sample had been collected in June 2021 from a 0.4 ha orchard of 15-year-old trees (*P. dulcis* cv. Texas) with 40 % disease incidence and located in the Serres regional unit (Northern Greece). The second sample had been collected by a grower in September 2021 from a 3.7-ha orchard of 5-year-old trees (*P. dulcis* cv. Tuono) with 50% disease incidence and located in regional unit of Fthiotida (Central Greece). In both cases, laboratory analysis (molecular and pathogenicity tests) confirmed the presence of *X. arboricola* pv. *pruni*. This is the first time that *X. arboricola* pv. *pruni* is reported from Greece. As these two outbreaks occur in regions where almond is extensively grown, it is noted that measures for eradication have been advised.

The situation of *Xanthomonas arboricola pv. pruni* in Greece can be described as follows: **Present, not widely distributed.**

Source: Holeva MC, Glynos PE, Reppa C, Karafla CD, Mylonopoulos IS (2023) First report of the occurrence of the bacterial spot disease of stone fruits caused by *Xanthomonas arboricola* pv. *pruni* on almond in Greece. *Plant Disease* (early view). https://doi.org/10.1094/PDIS-06-22-1492-PDN

Pictures: *Xanthomonas arboricola* pv. *pruni*. https://gd.eppo.int/taxon/XANTPR/photos

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

2023/067 Absence of *Xylella fastidiosa* in Türkiye

Official surveys have been conducted in Türkiye since 2014 to assess the possible presence of *Xylella fastidiosa* (EPPO A2 List), as well as its potential vectors.

- In 2014, visual surveys focused on olive, and were then extended to more crops and provinces.
- In 2016, surveys were carried out in 25 provinces where olives, citrus fruits, grapevine and almonds are grown. Samples were taken when suspicious symptoms were observed. In total, 440 samples were tested and were negative.
- In 2017, surveys covered olive, citrus, grapevine, almond and ornamental plants in 26 provinces: 500 samples were tested and were negative.
- In 2018-2020, surveys covered olive, citrus, grapevine, almond, cherry and ornamental plants in 34 provinces. All samples were tested negative: 600 in 2018, 308 in 2019, 207 in 2020.
- In 2021 and 2020, surveillance was conducted following EFSA guidelines and included host plants in commercial orchards, in natural and semi-natural areas, in nurseries and gardens, as well as host trees on roadsides and parks. In 2021, they covered 10 565 plots in 51 provinces, and in 2022 12 157 plots in 49 provinces. All samples tested negative.

The pest status of *Xylella fastidiosa* in Türkiye is officially declared as: **Absent, confirmed by survey**.

Source: NPPO of Türkiye (2023-03).

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

Additional key words: absence **Computer codes:** XYLEFA, TR

2023/068 First report of sweet potato chlorotic stunt virus in Greece

In Southern Greece, typical symptoms of sweet potato virus disease such as purple ringspots, distortion and crinkling of the leaves were observed in 2018 on a sweet potato (*Ipomea batatas*) crop located in Messinia. High-throughout sequencing (HTS) analysis of symptomatic leaves revealed the presence of 7 viruses: sweet potato feathery mottle virus (*Potyvirus*, SPFMV), sweet potato chlorotic stunt virus (*Crinivirus*, SPCSV, EU Annexes), sweet potato virus C (*Potyvirus*, SPVC), sweet potato virus G (*Potyvirus*, SPVG), sweet potato virus 2 (*Potyvirus*, SPV2), sweet potato leaf curl virus (*Begomovirus*, SPLCV, EU Annexes as *Begomovirus*) and sweet potato pakakuy virus (*Badnavirus,* SPPV). These viruses were again detected in symptomatic plants in another field in the same region in 2020. SPPV, SPLCV and SPFMV were also detected in a field with asymptomatic plants. This is the first report of these seven viruses in Greece.

Source: Orfanidou CG, Efthimiou K, Katis NI, Maliogka VI (2022) Elucidating the sweet potato virome in Greece with the aid of high-throughput sequencing technology. *Plant Pathology* **71**(9), 1880-1891.

Additional key words: new record **Computer codes: SPFMV0,** SPCSV0, SPVC00, SPVG00, SPV200, SPLCV0, SPPV00, GR

2023/069 Potential vectors of grapevine red blotch virus

Two recent articles report potential vectors of grapevine red blotch virus (*Grablovirus*, GRBV – EPPO A1 List).

- LaFond *et al*. (2022) tested insects collected from Missouri (US). Six species were shown to be able to acquire GRBV from infected *Vitis* plants: *Acutalis tartarea, Campylenchia latipes, Enchenopa binotata, Entylia carinata, Publilia reticulata and Stictocephala* sp. Two species, *E. carinata* and *E. binotata* were shown to be able to transmit GRBV to healthy grapevines. *E. carinata* is considered to be a more economically important vector as it is abundant in vineyards whereas *E. binotata* is quite rare.

- Wilson *et al*. (2022) conducted a survey in vineyards in California (US). Ten insect genera or species tested positive for GRBV using quantitative PCR, in addition to the known vector *Spissistilus festinus*. These insect taxa include the cicadellids *Aceratagallia* spp., *Acinopterus angulatus, Caladonus coquilletti, Colladonus montanus reductus, Colladonus* sp., *Empoasca* spp., *Erythroneura elegantula,* and *Scaphytopius graneticus*, as well as unknown species of Aphididae and *Delphacidae*. Considering the proportion of positive specimens, and the frequency of their finding in *Vitis* plants, *Scaphytopius graneticus* is considered as the strongest candidate vector.

Source: LaFond HF, Volenberg DS, Schoelz JE, Finke DL (2022) Identification of potential grapevine red blotch virus vector in Missouri vineyards. *American Journal of Enology and Viticulture* **73**(4), 247-255.

Wilson H, Hogg BN, Blaisdell GK, Andersen JC, Yazdani AS, Billings AC, Ooi KL, Soltani N, Almeida RP, Cooper ML, Al Rwahnih M (2022) Survey of vineyard insects and plants to identify potential insect vectors and noncrop reservoirs of grapevine red blotch virus. *PhytoFrontiers* **2**(1), 66-73.

Pictures: *Grapevine red blotch virus*. https://gd.eppo.int/taxon/GRBAV0/photos

Additional key words: vector, epidemiology, host plants

Computer codes: GRBAV0, 1ACEAG, ACIPAN, ACTLTA, CAMCLA, CLDSMO, CLDUCO, ENCHBI, ENTICA, ERYTEL, PUBLRE, SCAHGR, STICFE, US

2023/070 Economic value of *Stenopelmus rufinasus* to Great Britain

Azolla filiculoides (Azolloideae: EPPO Observation List) is an invasive aquatic fern species native to North America and widespread in the EPPO region. It can have negative effects on the aquatic system when it forms dense mats over the surface of waterbodies preventing sunlight from penetrating the water. Since its introduction to Great Britain, *A. filiculoides* has become naturalised and spread throughout lowland regions of southern and central Great Britain in ponds, lakes, canals, ditches and other slow-moving fresh water and it also infests some sites in more northerly locations. Management using traditional approaches, (manual/mechanical removal or chemical treatment) has limited efficacy and the effects are short-lived. Repeated measures are often required at significant cost. The natural enemy *Stenopelmus rufinasus* (Coleoptera: Curculionidae) was first recorded in Great Britain in 1921, probably entering the country as an accidental introduction on imported *A. filiculoides* plants. *S. rufinasus* has been used successfully as a classical biological control agent in South Africa, although in Great Britain, its development and dispersal ability are restricted due to climatic constraints. Thus, to overcome this, augmentative releases of mass-reared *S. rufinasus* are carried out. In the absence of biocontrol, the expected average annual costs of *A. filiculoides* management were estimated to range from 8.4 to 16.9 million GBP (approx. 9.4 to 19 million EUR). The impacts of naturalised *S. rufinasus* populations on *A. filiculoides* were expected to reduce management costs to 0.8 to 1.6 million GBP (approx. 0.9 to 2 million EUR) per year. With additional augmentative releases, *A. filiculoides* management costs were estimated to be lower still, ranging from 31.5 to 45.8 thousand GBP (approx. 35.5 to 51.6 thousand EUR) per year, giving an estimated benefit to cost ratio of augmentative *S. rufinasus* releases of 44:1 to 88:1.

Source: Pratt CF, Constantine K, Wood SV (2022) A century of *Azolla filiculoides* biocontrol: the economic value of *Stenopelmus rufinasus* to Great Britain. *CABI Agriculture and Bioscience* **3**, 70. https://doi.org/10.1186/s43170-022-00136-0

Pictures: *Azolla filiculoides*. https://gd.eppo.int/taxon/AZOFI/photos

Additional key words: biological control **Computer codes:** AZOFI, STNPRU, GB

2023/071 Potential of using iolinid mites for the biological control of *Aculops lycopersici*

Two iolinid predatory mites were studied in the laboratory as potential biological control agents of the tomato russet mite, *Aculops lycopersici* (Acari: Eriophyidae). The development, reproduction and predation capacity of *Pronematus ubiquitus* (Augmentative BCA (PM 6/3)) and *Homeopronematus anconai* (Acari: Iolinidae) on *A. lycopersici* were investigated. For *P. ubiquitus*, development time from egg to adult at 25°C averaged 9.59 days on *A. lycopersici*, 9.31 on *A. lycopersici* and *Typha angustifolia* pollen and 9.52 days on pollen only. *H. anconai* required slightly longer time periods to complete development. The survival of immature stages of each predatory mite exceeded 83 % on all diets. In experiments, both predators caused a substantial reduction of *A. lycopersici* with the immature population reduced by 78% and 57% by *P. ubiquitus* and *H. anconai*, respectively. The addition of pollen lowered this population reduction to 35% and 27% for the respective predators. The results suggest that both *P. ubiquitus* and *H. anconai* have good potential to suppress *A. lycopersici* populations and that *T. angustifolia* pollen can support population establishment of the predators.

Source: Vervaet L, Parapurath G, De Vis R, Van Leeuwen T, De Clercq P (2022) Potential of two omnivorous iolinid mites as predators of the tomato russet mite, *Aculops lycopersici*. *Journal of Pest Science* **95**, 1-10.

Additional key words: biological control **Computer codes:** PROUUB, HOMEAN, VASALY

2023/072 Honeydew from *Trioza erytreae* increases performance of *Tamarixia dryi*

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) was utilised as a classical biological control agent against *T. erytreae* on Reunion Island in the 1970s. The biocontrol agent has recently been released in the Canary Islands and in mainland Spain (Galicia). *T. dryi* is a synovigenic ectoparasitoid, which lives more than twenty days when offered continuous access to carbohydrate sources under laboratory conditions. Its potential as biological control agent depends on the presence of carbohydrate sources in the field although in citrus orchards, nectar is scarce and honeydew is the main carbohydrate source for parasitoids. The nutritional value of honeydew as a food source for the parasitoid can be variable and depends on the hemipteran species, the host plant, and environmental conditions. The nutritional value of *T. erytreae* honeydew was evaluated as a suitable food source for *T. dryi*. The results showed that *T. erytreae* honeydew enhanced the longevity of *T. dryi* compared to other diets such as water, sucrose alone, or sucrose and protein. Females which fed on honeydew also oviposited more eggs than those fed on water or sucrose alone. *T. dryi* which were fed on honeydew parasitized more psyllids than those fed on the other diets. The results contribute to understanding the successful and rapid establishment of *T. dryi* in areas where it has been released.

Source: Urbaneja-Bernat P, González-Cabrera J, Hernández-Suárez E, Tena A (2023) Honeydew of HLB vector, *Trioza erytreae*, increases longevity, egg load and parasitism of its main parasitoid *Tamarixia dryi*. *Biological Control*, https://doi.org/10.1016/j.biocontrol.2023.105169

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

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

2023/073 *Ranunculus sardous* in Uzbekistan

Ranunculus sardous (Ranunculoideae) is native to the Canary Islands, North Africa, and from Europe (excluding Northern Europe) to the West Caucasus. It has been accidentally introduced in other regions of the world, including Northern European countries such as Sweden. Additionally, it occurs in Australia, China, India, Japan, the Korean Peninsula, and North America. In its native and invasive ranges, it occurs in disturbed areas, particularly wet habitats and lowlands, irrigated crops and road verges. *R. sardous* was first observed in Uzbekistan in 2012 and since then field observations have confirmed the presence of at least ten populations of this species in the Tashkent and Namangan regions. It is found in many types of disturbed habitats, especially in damp habitats. It occurs in protected areas in Ugam-Chatkal National Park and occasionally invades natural plant communities. Populations include densities ranging from 70–100 per 100 m^2. Overall, *R. sardous* does not currently pose a major threat to biodiversity in Uzbekistan. However, due to its limited range and that it has further areas suitable for expansion, an eradication campaign should be carried out to prevent any possible future expansion. Both natural spread and accidental human-mediated spread could promote its arrival and establishment in new sites.

Source: Makhkamov TKh, Brundu G, Jabborov AM, Gaziev AD (2023) Predicting the potential distribution of *Ranunculus sardous* (Ranunculaceae), a new alien species in the flora of Uzbekistan and Central Asia. *BioInvasions Records* **12**(1), 63–77, https://doi.org/10. 3391/bir.2023.12.1.05

Additional key words: invasive alien plants **Computer codes:** BACDR, LT

2023/074 Riparian invasive alien plants in Portugal

Continental Portugal harbors at least 3 314 vascular plant species, of which at least 772 are alien and 113 are listed as invasive species in the Portuguese law. To assess the current status of riparian invasive alien plant species in Portugal, data was collected between 2003 and 2006 in 404 sites located in 29 river basins in continental Portugal. The data was collected during field work for the implementation of the Water Framework Directive (EU). This data was compared to habitat variables from where the vegetation data were collected. Habitat variables included ecological features as well land use change. All data were entered into a model to predict the future distribution of riparian invasive alien plants in Portugal. A total of 960 plant species were found in riparian ecosystems of continental Portugal. In 382 sites, 97 alien species were found and of these 34 are invasive alien plant species (Table 1). The highest number of alien species found in a single site was 15, and the highest number of invasive alien species was 10. Of the 382 sites, invasive plants were recorded in 297 sites. *Bidens frondosa* (207 sites), *Conyza bonariensis* (131 sites) and *Arundo donax* (83 sites) were the most frequently recorded invasive alien plants. The model suggested that the species richness of invasive alien plant species is positively associated with the size of the upstream catchment and the percentage of urban areas. The model predicts that there is a higher diversity of invasive alien plant species in the central and northwestern, lowland, regions of continental Portugal. Low species richness values were predicted for river sections in inland regions, regions south of Lisbon, and for mountainous areas. The model predicts that for 43.1% of river sections of Continental Portugal there are one to two invasive plant species, for 11.5% there are three to five, and for 2.2% there are five or more invasive plant species.

Table 1. Thirty-four invasive alien plant species identified on rivers in Portugal (EPPO List of IAP = EPPO List of Invasive Alien Plants)

Species	Family	EPPO status	Origin
Acacia dealbata	Fabaceae	EPPO List IAP	Australia
Acacia longifolia	Fabaceae		Australia
Acacia melanoxylon	Fabaceae		Australia
Acer negundo	Sapindaceae		N America
Ailanthus altissima	Simaroubaceae	EPPO List IAP	Asia
Amaranthus albus	Amaranthaceae		N America
Amaranthus blitoides	Amaranthaceae		Americas
Amaranthus blitum subsp. *emarginatum*	Amaranthaceae		Americas
Amaranthus hybridus	Amaranthaceae		Americas
Amaranthus powellii	Amaranthaceae		N & Central America
Amaranthus retroflexus	Amaranthaceae		N & Central America
Amaranthus viridis	Amaranthaceae		S & Central America
Arundo donax	Poaceae		Asia
Symphyotrichum squamatum	Asteraceae		S America
Azolla filiculoides	Salviniaceae	EPPO List IAP	Americas
Bidens frondosa	Asteraceae	Observation List	N America
Erigeron bonariensis	Asteraceae		Americas
Erigeron canadensis	Asteraceae		N America
Erigeron sumatrensis	Asteraceae	EPPO List IAP	S America
Cortaderia selloana	Poaceae	EPPO List IAP	S America
Datura stramonium	Solanaceae		N America
Pontederia crassipes	Pontederiaceae	EPPO A2 List	S America
Elodea canadensis	Hydrocharitaceae		N America
Erigeron karvinskianus	Asteraceae		Americas
Eryngium pandanifolium	Apiaceae		S America
Galinsoga parviflora	Asteraceae		Americas
Gleditsia triacanthos	Fabaceae		N America
Myriophyllum aquaticum	Haloragaceae	EPPO List IAP	S America
Nicotiana glauca	Solanaceae		S America
Oxalis pes-caprae	Oxalidaceae	EPPO List IAP	S Africa
Phytolacca americana	Phytolaccaceae		N America
Robinia pseudoacacia	Fabaceae		N America
Tradescantia fluminensis	Commelinaceae		S America

Source: Pabst R, Dias FS, Borda-de-Água L, Rodríguez-González PM, Capinha C (2022) Assessing and predicting the distribution of riparian invasive plants in continental Portugal.

Frontiers in Ecology and Evolution **10**, 875578. https://doi.org/10.3389/fevo.2022.875578

Additional key words: invasive alien plants

Computer codes: ACADA, ACALO, ACAME, ACRNE, AILAL, AMAAL, AMABL, AMALI, AMACH, AMAPO, AMARE, AMAVI, ABDO, ASTSQ, AZOFI, BIDFR, ERIBO, ERICA, ERISU, CDTSE, DATST, EICCR, ELDCA, ERIKA, ERXPA, GASPA, GLITR, MYPBR, NIOGL, OXAPC, PHTAM, ROBPS, TRAFL, PT

2023/075 Climate change increases the global threat of three ragweed species

Ambrosia artemisiifolia (Asteraceae: EPPO List of invasive alien plants) *A. psilostachya* and *A. trifida* (EPPO A2) are native to the Americas and have various impacts (impacts on biodiversity, ecosystem services and human health) in their invasive regions. To study the probable effect of climate change on the distribution of each species, global geographic occurences of each species were collected. These data were included in a species distribution model (biomod2 package RStudio) along with bioclimatic variables and climatic data projections for 2050s under four Representative Concentration Pathways (RCP2.6, RCP4.5, RCP6.0 and RCP8.5). RCP8.5 assumes an increase in atmospheric CO_2 concentrations to approximately 850 ppm by the 2070s. The model predicts that for all three species, the total area of suitable habitats is expected to expand under the four climatic scenarios in Europe in the 2050s. Future projections suggest that the geographical distribution of the three species would overlap mainly in Asia (Kazakhstan and China), Europe (Western Russia) and North America.

Source: Xian X, Zhao H, Wang R, Huang H, Chen B, Zhang G, Liu W, Wan F (2023) Climate change has increased the global threats posed by three ragweeds (*Ambrosia* L.) in the Anthropocene. *Science of the Total Environment* **859**, 160252.

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

Additional key words: invasive alien plants

Computer codes: AMBEL, AMBPS, AMBTR

2023/076 Management of *Cenchrus setaceus* in the USA

Cenchrus setaceus (Poaceae: EPPO List of Invasive Alien Plants) is a popular ornamental plant that has been widely planted in gardens and parks. It is native to Africa and has become invasive in Hawaii and the southern continental United States, Australia, the Canary Islands and Southern Europe. It can have a negative impact on native biodiversity and ecosystem services. Experiments were conducted in North America (Sonoran Desert, Arizona) to assess cost-effective removal efforts that also protect the surrounding native plant community. Experiments were conducted in Arizona from March 2018 to March 2021 in 5 m × 5 m plots to test the efficacy and record costs for common removal techniques (cut and herbicide treatment, herbicide treatment one or two times per year and manual removal (digging up the plants)). Each treatment took 2.5 years to achieve control in the plots, and treatments did not negatively affect the native plant community. Plots that received the manual removal treatment had on average almost five more native plant species than the control treatment. Herbicide (glyphosate) applied in spring and autumn increased efficacy of removals in the first year but was not significantly different from the other treatments averaged over the year. Herbicide applied once per year was most cost effective across

different sized areas. Manual removal was also cost effective in small areas (< 0.06 hectares) but was more expensive than herbicide applied twice a year in larger areas. The authors concluded that their results provide a toolset that enables managers to select removal treatments based on a balance of convenience, resources, and scale of the infestation.

Source: Rowe HI, Sprague TA, Staker P (2022) Comparing common fountain grass removal techniques: cost efficacy and response of native plant community. *Biological Invasions* **24,** 3817-3830.

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

2023/077 Invasion history of *Elodea canadensis* and *E. nuttallii* in Italy

Elodea canadensis (Hydrocharitaceae) and *E. nuttallii* (EPPO List of Invasive Alien Plants) are both native to North America and are invasive alien plants within the EPPO region. The invasion history of both species was analysed in Italy, by reviewing all available herbarium, field records and literature, dating between 1850 and 2019. *E. canadensis* arrived in Italy before 1866 and had two invasion phases, between the 1890s and 1920s and between the 1990s and 2000s. *E. nuttallii*, probably arrived in the 1970s and started invading in 2000 and the invasion is still ongoing. The current invasion range of both species is centred in Northern Italy, with scattered occurrences of *E. canadensis* in central and southern regions. The study detects differences in the niches of the two species during the introduction and naturalisation phase and that a habitat switch occurred after 1980 in *E. canadensis* and after 2000 in *E. nuttallii*, during their expansion phases. Until 1980, canals were the most frequent habitat for *E. canadensis* recorded in the herbarium dataset. However, from 1990 onwards the number of *E. canadensis* occurrence records from rivers and lakes increased considerably, with river records exceeding canal records in 2000–2010. *E. nuttallii* occurred almost exclusively in lakes until 2000, but in the subsequent decade it was most frequently recorded in canals and rivers. In the last 10 years, *E. canadensis* was mostly found in canals, whereas *E. nuttalli* was mostly found in rivers, however differences in the number of occurrences between canals, rivers and lakes became less evident in both species.

Source: Buldrini F, Pezzi G, Barbero M, Alessandrini, Amadei L, Andreatta S, Ardenghi NMG, Armiraglio S, Bagella S, Bolpagni R, Bonini I, Bouvet D, Brancaleoni L, Brundu G, Buccheri M, Buffa G, Ceschin S, Chiarucci A, Cogoni A, Domina G, Forte L, Guarino R, Gubellini L, Guglielmone L, Hofmann N, Iberite M, Lastrucci L, Lucchese F, Marcucci R, Mei G, Mossetti U, Nascimbene J, Passalacqua NG, Peccenini S, Prosser F, Repetto G, Rinaldi G, Romani E, Rosati L, Santangelo A, Scoppola A, Spampinato G, Stinca A, Tavano M, Caruso FT, Vangelisti F, Venanzoni F, Vidali M, Wilhalm T, Zonca F, Lambertini C (2023) The invasion history of *Elodea canadensis* and *E. nuttallii* (Hydrocharitaceae) in Italy from herbarium accessions, field records and historical literature. *Biological Invasions* **25**, 827–846.

Additional key words: invasive alien plants **Computer codes**: ELDCA, ELDNU, IT

2022/078 *Senecio brasiliensis* in the EPPO region: addition to the EPPO Alert List

Why

Senecio brasiliensis (Asteraceae) was recorded in 2021 for the first time in the EPPO region. A naturalised population was found in the Matosinhos port area in Portugal. It has previously been recorded as a causal species in Great Britain. Dana *et al*. (2021) assess *S. brasiliensis*

as having a high potential of becoming an invasive alien plant species in Europe, due to its biology and that climatic conditions are suitable for the species establishment. The EPPO Panel on Invasive Alien Plants are seeking further information on any additional occurrences of *S. brasiliensis* the EPPO region.

Geographical distribution
EPPO region: Portugal.
South America: Argentina, Bolivia, Brazil, Paraguay, Uruguay.

Morphology
Erect glabrous herbaceous perennial, 100–200 cm tall, branched and densely leafy throughout. Leaves 6–12 cm long, alternate, sessile, deeply pinnatisect with 2–4 pairs of linear segments 25–50 mm long and +/- 2 mm wide. Inflorescence a terminal multi-flowered corymb; heads radiate, campanulate, 3.5–4 mm diameter., glabrous. Ray florets female, +/- 12 in number; 4–5 mm long, bright yellow. Cypselae densely pubescent, 1.2 mm long, brownish; pappus white, 5 mm long.

Biology and Ecology
Senecio brasiliensis is a perennial shrub which produces a large number of seeds which are wind dispersed. Other species of *Senecio* are known to have large and persisting seed banks.

Habitats
In its native range, *S. brasiliensis* is recorded as a serious weed in agriculture. In Portugal, 10–20 individuals were recorded in several habitat types, specifically hygrophilous woodlands, in the fringe of mixed plantations and on disturbed ground dominated by small shrubs, perennial grasses and forbs.

Pathways for movement
It is likely that *S. brasiliensis* has entered the EPPO region as a contaminant of seed, grain or imported wood material. The Matosinhos port in Portugal receives shipments of logs of eucalyptus imported from Brazil and Uruguay.

Impacts
Senecio brasiliensis can form thick stands which can have the potential to outcompete native plant species. It is reported to be allelopathic and can inhibit seed germination. In South America, it is reported to be one of the main species that can cause natural intoxication of livestock, and it also has negative impacts in agriculture. It can contaminate hay reducing its value. *S. brasiliensis* has the potential to degrade pastureland in the EPPO region.

Control
Controlling large populations of *Senecio* species can be difficult due to the persistent seed bank and wind dispersed seeds. Physical control measures can be applied but to be successful, all parts of the plant must be removed.

Sources
Dana ED, Verloove F, Alves P, Heiden G (2021) *Senecio brasiliensis* (Spreng.) Less. (Asteraceae), another potentially invasive alien species in Europe. *BioInvasions Records* **10**(3), 521–536. https://doi.org/10.3391/bir.2021.10.3.02

Pictures: *Senecio brasiliensis*. https://gd.eppo.int/taxon/AMBTR/photos

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