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2024/027 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**

Erysiphe corylacearum, a new powdery mildew of hazelnuts, was first found in the Czech Republic (southern Moravia region) in July 2021 on common hazel (*Corylus avellana*) (Šafránková *et al.*, 2023).

Erysiphe corylacearum is first reported from Bulgaria. It was observed in June 2020 on *Corylus avellana* grown in the region of Kavarna (north-eastern Black Sea coast of Bulgaria). In October 2021, it was also found in a hazelnut orchard in the region of Pazardzhik (central southern part of the country) (Boneva *et al.,* 2023).

Ips plastographus (Coleoptera: Scolytinae, EPPO A1 List) is first reported from Mexico. It was trapped during a survey on bark and ambrosia beetles conducted in 2018-2019 in a pine-oak forest in the State of Puebla (Suárez-Hernández *et al.*, 2023).

Spodoptera frugiperda (Lepidoptera: Noctuidae – EPPO A2 List) is first reported from Vanuatu in June 2023 (IPPC, 2004).
The pest status of *Spodoptera frugiperda* in Vanuatu is officially declared as*:* **Present: at low prevalence.**

Tephritis luteipes (Diptera: Tephritidae, EU A1 Quarantine Pest) is a fly species that was previously only recorded on *Artemisia thuscula* in the Canary Islands. El Harym & Korneyev (2023) mention the first record of *T. luteipes* in Morocco where it was reared from *Artemisia barrelieri*.

- **Detailed records**

In Canada, *Cydalima perspectalis* (Lepidoptera: Crambidae – formerly EPPO Alert List) was first reported in 2018 in Ontario. In August 2023, the Canadian Food Inspection Agency (CFIA) confirmed established populations of *C. perspectalis* in association with *Buxus* spp. (boxwood) in residential areas in Quebec, New Brunswick, and Nova Scotia.
The pest status of *Cydalima perspectalis* in Canada is officially declared as*:* **Present, not widely distributed and under official control.**

In China, the root-knot nematode *Meloidogyne enterolobii* (EPPO A2 List) is first reported from Shaaxi (Northern China). It was first observed in September 2022 causing damage in coriander (*Coriandrum sativum*) fields (Pan *et al.*, 2024).

In the USA, *Phyllachora maydis* (EPPO Alert List) causing tar spot on maize was observed for the first time in Delaware in October 2023. Black, raised stromata were observed on leaves of commercially grown maize hybrids in Kent and Sussex counties. Maize plants had reached maturity and disease severity was low, with symptoms present on 1 to 10% of the plants. The identity of the fungus was confirmed by molecular tests (PCR, sequencing) (Henrickson *et al.*, 2024).

- **Host plants**

Euplatypus parallelus (Coleoptera: Curculionidae: Platypodinae, EPPO Alert list) is first reported causing mortality of Indian rosewood (*Dalbergia latifolia*), a major timber species in India (Manohara *et al.*, 2023).

In South Africa, *Neocosmospora* (*Fusarium) euwallaceae* and its vector *Euwallacea fornicatus* (Coleoptera: Curculionidae: Scolytinae - both EPPO A2 List) have been found in four pear (*Pyrus communis*) orchards. Inoculation tests confirmed that *N. euwallaceae* is pathogenic to pear trees. It was observed that *E. fornicatus* is able to establish breeding colonies on pear trees, but apparently at a low frequency and without causing symptoms of dieback (Engelbrecht *et al.*, 2024).

Xiphinema americanum (EPPO A1 List) is first reported causing damage in potato (*Solanum tuberosum*) fields. Trials confirmed the ability of the nematode to reproduce in a number of potato varieties (Goraya *et al.*, 2023).

In Yunnan province (China), watermelon silver mottle virus (WSMoV, *Orthotospovirus citrullomaculosi* -EPPO A1 List) was observed the first time on peanut (*Arachis hypogaea*) in July 2022. Affected plants were severely stunted. Further studies are needed to better understand the distribution of WSMoV and its impact on peanut crops (Hu *et al.*, 2024).

- **Epidemiology**

Phyllocoptes arcani (Acari: Eriophyoidea) is confirmed as a vector of *Emaravirus rosae* (Rose rosette emaravirus, RRV- EPPO A1 List) (Druciarek *et al.*, 2023).

- **New pests and taxonomy**

During quarantine inspections carried out at the Ningbo port (China) on plants of *Acer palmatum* imported from Japan, a new nematode species was found. Approximately 100 second-stage juveniles (J2) were extracted from 1 *A. palmatum* plant (out of 5 examined) with some soil and growing medium still attached to the roots. When dissecting the roots, males and females could be found. These specimens were similar to *Meloidogyne mali*, but morphological and molecular studies confirmed that they belong to a distinct and new species, called *Meloidogyne paramali* n. sp. Due an insufficient number of nematodes, Koch's postulates could not be completed, but it is supposed that *M. paramali* is a pest of *A. palmatum;* the extent of damage that this species may cause remaining unknown for the moment (Gu *et al.*, 2023).

Sources:
Boneva DV, Bobev SG, Van Poucke K (2023) First report of powdery mildew caused by *Erysiphe corylacearum* on hazelnut in Bulgaria. *Plant Disease* **107**(12), 4023. https://doi.org/10.1094/PDIS-05-23-0840-PDN
Druciarek T, Lewandowski M, Tzanetakis I (2023) Identification of a second vector for rose rosette virus. *Plant Disease* **107**(8), 2313-2315.
El Harym Y, Korneyev V (2023) New additions to the fauna of the superfamily Tephritoidea (Diptera) of Morocco. *Zootaxa* **5360**(4), 487-514.
Engelbrecht K, Raubenheimer I, Paap T, Neethling E, Roets F (2024) Detection of *Fusarium euwallaceae* and its vector *Euwallacea fornicatus* on pear (*Pyrus communis*) and in deciduous fruit orchards in South Africa. *Australasian Plant Disease Notes* **19**(1), 3 pp. https://doi.org/10.1007/s13314-023-00524-z

Goraya M, Yan G, Plaisance A, Handoo ZA (2023) Identification and reproduction of dagger nematode, *Xiphinema americanum*, in potato. *Nematology* **25**(10), 1127-1139.
Gu J, Fang Y, Ma X, Shao B, Zhuo K (2023) *Meloidogyne paramali* n. sp. (Nematoda: Meloidogyninae) and first report of *M. marylandi* in maple and yacca tree from Japan. *Journal of Nematology* **55**, e2023-1. https://doi.org/10.2478/jofnem-2022-0036
Henrickson M, Pollok J, Koehler A (2024) First report of *Phyllachora maydis* causing tar spot on corn in Delaware. *Plant Disease* (early view). https://doi.org/10.1094/PDIS-11-23-2332-PDN
Hu B, Xu Z, Wei Z, Huang Y, Guo C, Chen J, Sun Z (2024) Occurrence of Watermelon silver mottle virus in peanut in China. *Plant Disease* (early view). https://doi.org/10.1094/PDIS-06-23-1238-PDN
IPPC website. Official Pest Reports- Vanuatu (2024-01-17): Fall Army Worm (*Spodoptera frugiperda*). https://www.ippc.int/fr/countries/vanuatu/pestreports/2024/01/fall-army-worm-spodoptera-frugiperda/
Manohara TN, Balakrishna SM, Shetteppenavar VS (2023) Infestation of pinhole borer [*Euplatypus parallelus* (F.)] on *Dalbergia latifolia* Roxb. *Plant Science Today* **10**(3), 75-78.
NAPPO Phytosanitary Alert System. Official Pest Reports. Canada (2024-01-05) Report of box tree moth (*Cydalima perspectalis*) in Quebec, New Brunswick, and Nova Scotia, Canada (2023). https://www.pestalerts.org/nappo/official-pest-reports/1083/
Pan S, Wang Q, Wei P, Song Q, Liu C, Chen Z, Li Y (2024) First report of root-knot nematode *Meloidogyne enterolobii* infecting coriander in Shaanxi, Northern China. *Plant Disease* (early view) https://doi.org/10.1094/PDIS-11-23-2385-PDN
Šafránková I, Holkova L, Michutová M (2023) *Erysiphe corylacearum* as a new pathogen of hazelnut in the Czech Republic. *Plant Disease* (early view) https://doi.org/10.1094/PDIS-08-23-1654-PDN.
Suárez-Hernández HD, Infante F, Ortiz-Ceballos ÁI, Díaz-Fleischer F, López-Ortega M (2023) Effect of climatic factors on the diversity and abundance of Scolytinae and Platypodinae (Coleoptera: Curculionidae) in a pine-oak forest. *Agro Productividad* **16**(3). https://doi.org/10.32854/agrop.v16i3.2466

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

Computer codes: CCYV00, DPHNPE, ERYSCY, EUWAWH, FUSAEW, IPSXPL, LAPHFR, MELGMY, MELGPM, PHYCAR, PHYRMA, PLTPPA, TEPRLU, WMSMOV, XIPHAA, BG, CA, CN, CZ, EU, MA, MX, US, VU, ZA

2024/028 New EU Regulations

A new Commission Implementing Regulation (2024/434) was published recently defining measures to prevent the establishment and spread of *Agrilus planipennis* (Coleoptera: Buprestidae – EPPO A2 List) within the territory of the European Union.

An amendment has been adopted on the Implementing Regulation 2022/1927 on containment of *Aleurocanthus spiniferus* (Hemiptera: Aleyrodidae – EPPO A2 List). This is a consequence of surveys carried out in Greece, France, Croatia and Italy showing that eradication of this pest was no longer possible in some areas. Commission Implementing Regulations 2024/589 lists demarcated areas in these countries where containment measures are applied.

An amendment has been adopted on the Implementing Regulation 2022/1629 on containment of *Ceratocystis platani* (EPPO A2 List - canker stain of plane). This is a

consequence of surveys carried out in Italy showing that eradication of this pest was no longer possible in some areas. Commission Implementing Regulations 2024/594 lists demarcated areas in Italy where containment measures are applied.

Source: Commission Implementing Regulation (EU) 2024/434 of 5 February 2024 on measures to prevent the establishment and spread of *Agrilus planipennis* Fairmaire within the Union territory. OJ L 2024/434. http://data.europa.eu/eli/reg_impl/2024/434/oj
Commission Implementing Regulation (EU) 2024/589 of 20 February 2024 amending Implementing Regulation (EU) 2022/1927 as regards the list of demarcated areas for containment of *Aleurocanthus spiniferus* (Quaintance) OJ L 2024/948 http://data.europa.eu/eli/reg_impl/2024/589/oj
Commission Implementing Regulation (EU) 2024/594 of 20 February 2024 amending Implementing Regulation (EU) 2022/1629 as regards the list of demarcated areas for containment of *Ceratocystis platani* (J.M. Walter) Engelbr. & T.C. Harr. OJ L 2024/952 http://data.europa.eu/eli/reg_impl/2024/594/oj

Pictures: *Agrilus planipennis*. https://gd.eppo.int/taxon/AGRLPL/photos
Aleurocanthus spiniferus. https://gd.eppo.int/taxon/ALECSN/photos
Ceratocystis platani. https://gd.eppo.int/taxon/CERAFP/photos

Additional key words: regulations **Computer codes:** AGRLPL, ALECSN, CERAFP, EU

2024/029 Addition of *Limonius californicus* to the quarantine lists of the Eurasian Economic Union (EAEU)

The quarantine lists of the Eurasian Economic Union (EAEU) which is composed of Armenia, Belarus, Kazakhstan, Kyrgyzstan and Russia were first published in November 2016 (EPPO RS 2017/146) and revised in 2018 (RS 2019/050) and 2021 (RS 2022/144). They were further amended in January 2023, with the addition of *Limonius californicus* (Coleoptera: Elateridae, EPPO A1 List) to the 'A1 List of quarantine pests which are absent from the EAEU territory'.

The list has been updated in the EPPO Global Database:
https://gd.eppo.int/rppo/EAEU/categorization

Source: Справочник карантинных объектов Евразийского экономического союза [Directory of Quarantine Objects of The Eurasian Economic Union] https://portal.eaeunion.org/sites/odata/redesign/Pages/QuarantineObjectClassifier.aspx

Additional key words: regulation, quarantine list **Computer codes:** LIMOCF, EAEU

2024/030 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 2024/002), the following new and revised EPPO datasheets have been published in the EPPO Global Database:

- *Polygraphus proximus*: https://gd.eppo.int/taxon/POLGPR/datasheet
- *Sirex ermak*: https://gd.eppo.int/taxon/SIRXER/datasheet
- *Tomato ringspot virus**. https://gd.eppo.int/taxon/TORSV0/datasheet

* Now *Nepovirus lycopersici* according to the new binomial nomenclature.

Source: EPPO Secretariat (2024-02).

Additional key words: publication **Computer codes:** POLGPR, SIRXER, TORSV0

2024/031 Binomial nomenclature for virus species (continued)

For many years, proposals to use binomial names to name virus species have been debated among the virology community. In 2021, the International Committee on Taxonomy of Viruses (ICTV) approved a uniform system of formal virus names which follows the binomial 'genus-species' format with or without Latinized species epithets. For example, the virus species which is causing rose rosette is now called emaravirus rosae. This new rule is being implemented and new names are gradually being proposed by ICTV.

As a user of taxonomy, the EPPO Secretariat has started to implement these changes for virus names (mainly plant viruses) in the EPPO Global Database. In October 2022 and August 2023, the first changes were made for a number of genera (EPPO RS 2022/207, 2023/177). In February 2024, more changes were made in the EPPO Global Database for species belonging to the following genera:

Genus	EPPO Code	Family
Banmivirus	1BANVG	Betaflexviridae
Sustrivirus	1SUSVG	Betaflexviridae
Tralespevirus	1TRAVG	Tombusviridae
Mechlorovirus	1MECVG	Phenuiviridae
Tenuivirus	1TENVG	Phenuiviridae
Orthotospovirus	1TOSPG	Tospoviridae

Source: ICTV website (last consulted 2024-02).
The master species list: https://ictv.global/msl
Virus metadata resource: https://ictv.global/vmr

Useful papers
Kuhn JH 2021) Virus Taxonomy. Encyclopedia of Virology, 28–37.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7157452/pdf/main.pdf

Siddell SG, Walker PJ, Lefkowitz EJ *et al*. (2020) Binomial nomenclature for virus species: a consultation. *Archives of Virology* **165**, 519–525. https://doi.org/10.1007/s00705-019-04477-6

Walker PJ *et al*. (2022) Changes to virus taxonomy and to the International Code of Virus Classification and Nomenclature ratified by the International Committee on Taxonomy of Viruses (2021). *Archives of Virology* **166**, 2633–2648. https://doi.org/10.1007/s00705-021-05156-1

Walker PJ *et al*. (2022) Recent changes to virus taxonomy ratified by the International Committee on Taxonomy of Viruses. *Archives of Virology* **167**, 2429–2440. https://doi.org/10.1007/s00705-022-05516-5

Additional key words: taxonomy

Computer codes: 1BANVG, 1MECVG, 1SUSVG, 1TENVG, 1TOSPG, 1TRAVG

2024/032 First records of *Dacus frontalis* in Algeria and Morocco

Dacus frontalis (Diptera: Tephritidae, EU A1 Quarantine Pest as *Dacus* spp.) is an important pest of cucurbit fruits in many parts of Africa and the Middle East. It was first recorded in Tunisia in 2014 (EPPO RS 2015/137), and more recently in Algeria and Morocco. In Algeria, it was reported to cause severe damage in *Cucumis melo* and *Cucurbita pepo* crops in North-Western Algeria, which is an arid area. In Morocco, it was found in the Souss-Massa-Drâa region. No data is available on its pest status.

In a recent article Hafsi *et al*. (2024), note that *D. frontalis* is likely to further invade other areas in the Mediterranean Basin and Europe as the minimum temperature threshold of this species is lower than that of *Ceratitis capitata* which has spread to many European countries.

Source: Benras H, Ali Ahmed A, Benghedier A, Guezoul O (2023) Note on *Dacus frontalis* Becker (Diptera: Tephritidae) presence as a pest of cucurbit fruits in Timimoun, Algeria. *Journal Algérien des Régions Arides* **15**(1), 61-63.
El-Harym Y, Belqat B (2017) First checklist of the fruit flies of Morocco, including new records (Diptera, Tephritidae). *Zookeys* **702**, 137–171.
Hafsi A, Abbes K, Duyck PF, Chermiti B (2024) Life-history traits of *Dacus frontalis* Becker (Diptera: Tephritidae) reared at four constant temperatures. *Phytoparasitica* **52**(1), 16.
Kettani K, Ebejer MJ, Ackland DM, Bächli G, Barraclough D, Barták M, Carles-Tolrá M, Černý M, Cerretti P, Chandler P, Dakki M (2022) Catalogue of the Diptera (Insecta) of Morocco—an annotated checklist, with distributions and a bibliography. *ZooKeys* **1094**, 1-466. https://doi.org/10.3897/zookeys.1094.62644

Additional key words: new record **Computer codes:** DACUFR, DZ, MA

2024/033 First record of *Carpomya incompleta* in Spain

Carpomya incompleta (Diptera: Tephritidae, EU A1 Quarantine Pest) is fruit fly feeding on jujube (*Ziziphus* spp.) which occurs in Africa and the Mediterranean Basin. It was first reported in France in 2012 (EPPO RS 2021/213) and in Morocco in 2017.
An article reports it recent finding in Spain in 2020 in an organic orchard of jujube (*Ziziphus jujuba)* in Andalucía, where it caused yield reduction of 80%. C. *incompleta* was trapped again in the same location in 2021 and 2022. The authors note that the species has probably been present in Spain for many years but had not been detected because jujube production is still marginal. Control measures including mass trapping proved effective to reduce the pest population.

Source: Garrido-Jurado I, Quesada-Moraga E, Yousef-Yousef M (2022) Zizyphus fruit fly (*Carpomya incompleta* (Becker), Diptera: Tephritidae) is expanding its range in Europe. *Spanish Journal of Agricultural Research* **20**(4), e10SC02-. https://doi.org/10.5424/sjar/2022204-18961

Pictures: *Carpomya incompleta*. https://gd.eppo.int/taxon/CARYIN/photos

Additional key words: new record **Computer codes:** CARYIN, ES

2024/034 Update on the situation of *Bactrocera dorsalis* in Italy

In Italy, *Bactrocera dorsalis* (Diptera: Tephritidae – EPPO A1 List) was trapped in 2022 in Campania region (municipalities of Palma Campania and San Gennaro Vesuviano) (EPPO RS 2022/188, RS 2022/211). A demarcated area has been established and official measures are applied. An update of the situation is provided based on the surveys carried out at the end of 2022 and in 2023.

- **Campania**

In October and November 2022, some specimens were caught in the municipalities of Carbonara di Nola and Pagani. In the laboratory, some adults emerged from fruit collected in Quindici, Palma Campania and Ottaviano.
In 2023, in implementing the national Action Plan, 3293 traps were placed in Campania region (1316 in the infested zone, 1831 in the buffer zone, and 146 in the pest-free area). The first specimens were caught in mid-July. At the end of September, a total of 114 specimens of *B. dorsalis* had been caught in the infested zone (112 in Palma Campania, 1 in Carbonara di Nola, and 1 in San Gennaro Vesuviano). No fruit that were infested by *B. dorsalis* were detected. In addition, the city of Palma Campania installed 1000 traps for mass trapping. A communication campaign was conducted to raise public awareness on this pest. Insecticide treatments have been applied, and the prohibition to move host fruits out of the infested zone, remains in force.

- **Emilia-Romagna**

A specific survey programme has been implemented since 2017. In October 2022, 6 adults suspected to be *B. dorsalis* were first caught in a pear (*Pyrus communis*) orchard in the municipality of Imola (province of Bologna). Additional traps were installed within a 500 m radius and 3 males were trapped in a persimmon (*Diospyros kaki*) orchard and the identification of *B. dorsalis* was confirmed. Fruits were sampled but none were found to be infested. A demarcated area of 1 km around the trap and a buffer zone of 7.5 km have been established. In 2023, a few specimens were also trapped in 3 locations in the province of Bologna (in a park in Bologna, near Bologna airport, and in an orchard in the municipality of San Giovanni in Persiceto).
In addition, a few specimens were caught in traps in other regions as part of the official survey programme. These are considered as incursions linked to the import of fruit.

- **Lombardia**

A specific survey programme has been implemented since 2017. In October 2022, two *B. dorsalis* adults were caught in the municipality of Milano. The trap was located at the Milan Wholesale Fruit and Vegetable Market. In the same site, 4 adults were caught between August and October 2023.

- **Trentino-Alto Adige**

A specific survey programme has been implemented since 2019. One adult was trapped in September 2023 in an apple orchard in the municipality of Merano (province of Bolzano) and located near a fruit processing company.

- **Veneto**

One adult was caught in a trap in October 2023 in a public open-air market in the city centre of Mestre (Venezia province).

The pest status of *Bactrocera dorsalis* in Italy is officially declared as: **Transient, actionable, under surveillance, under eradication.**

Source: NPPO of Italy (2023-03, 2023-10, 2024-01).

Piano di emergenza nazionale per *Bactrocera dorsalis* e *Bactrocera zonata* (2023-07-26) http://www.agricoltura.regione.campania.it/difesa/files/Piano_Emergenza_Bactrocera_26-07-23.pdf

Misure fitosanitarie d'emergenza per il contrasto di *Bactrocera dorsalis* in Campania ed Emilia-Romagna. (Ordinanza n. 6). (24A00188) (GU Serie Generale n.20 del 25-01-2024)

Pictures: *Bactrocera dorsalis*. https://gd.eppo.int/taxon/DACUDO/photos

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

2024/035 *Pseudips mexicanus* (Coleoptera: Curculionidae: Scolytinae): addition to the EPPO Alert List

Why: *Pseudips mexicanus* (Coleoptera: Curculionidae: Scolytinae - Monterey pine engraver) is a North and Central American bark beetle of pine trees. It was recently recorded for the first time out of its native range: it was trapped in Ireland (EPPO RS 2024/004) and intercepted in trade in China. Considering these recent findings in different parts of the world, the EPPO Secretariat considered that *P. mexicanus* could usefully be added to the EPPO Alert List.

Where: *P. mexicanus* originates in the western part of North and Central America.
EPPO Region: Ireland (only trapped).
North America: Canada (Alberta, British Columbia), Mexico, United States of America (Alaska, Arizona, California, Colorado, Idaho, Montana, Oregon, Utah, Washington, Wyoming).
Central America: Guatemala.

On which plants: *P. mexicanus* has been recorded attacking a wide range of pine tree species (*Pinus* spp.) in its native region, including some species that are widely planted in the EPPO region such as *P. ponderosa*.

Damage: *P. mexicanus* is a bark beetle. Damage is due to the galleries under the bark where the pest reproduces, and larvae develop. Reddish sawdust can be observed at the surface of the bark.
P. mexicanus is mainly reported to infest weakened trees but can also be a primary pest causing death of small to medium size trees. In California (US), it has been shown to transmit *Fusarium subglutinans*, causing pitch canker. *P. mexicanus* has one generation per year in Canada, 3 in California and up to 7 in Mexico. Adults are 3.5 to 5 mm long, bright dark brown. There are 4 larval stages. The species can overwinter in both larval and adult stages.
Pictures of *P. mexicanus* are available at https://gd.eppo.int/taxon/IPSXRA/photos

Dissemination: Flight of adults is probably the main means of movement and dispersal to new plants and new areas over short distances but specific data on flying distance is lacking. Over long distances, *P. mexicanus* can be transported on plant material.

Pathways: Host plants for planting, wood, wood chips, wood packaging material, bark. *P. mexicanus* has been intercepted in trade on wood in China and in the USA. It may be noted that in many EPPO countries (including the EU) requirements already apply to relevant commodities (e.g. prohibition of import of conifer wood and plants for planting over 3 m in height, originating from non-European countries).

Possible risks: *P. mexicanus* can attack a wide range of pine species that are widely planted in the EPPO region, though attacks on native European pines have not yet been documented. *P. mexicanus* occurs in a wide range of climates and is likely to be able to establish in the EPPO region.

Sources

Atkinson T (2024) Bark and ambrosia beetles of the Americas. Available online: https://www.barkbeetles.info/index.php

Cibrián Tovar D, Méndez Montiel JT, Campos Bolaños R, Yates HO, Flores Lara J (1995) Forest insects of Mexico. Universidad Autónoma Chapingo, Chapingo, Mexico, pp. 302-303.

Fox JW, Wood DL, Koehler CS, O'keefe ST (1991) Engraver beetles (Scolytidae: Ips species) as vectors of the pitch canker fungus, *Fusarium subglutinans*. *The Canadian Entomologist* **123**(6), 1355-1367.

Haack RA, Rabaglia RJ (2013) Exotic bark and ambrosia beetles in the USA: potential and current invaders. In Potential invasive pests of agricultural crops 2013 (pp. 48-74).

Pan J, Li Y, Shao P, Chen Y, Fu M, Zhu H, An Y (2022) An important insect of the genus Pseudips: *Pseudips mexicanus* Hopkins. *Plant Diseases and Pests* **13**(5), 19-24.

Smith GD, Carroll AL, Lindgren BS (2009) Life history of a secondary bark beetle, *Pseudips mexicanus* (Coleoptera: Curculionidae: Scolytinae), in lodgepole pine in British Columbia. *The Canadian Entomologist* **141**(1),56-69.

EPPO RS 2024/035

Panel review date – Entry date 2024-02

Additional key words: Alert List **Computer codes:** IPSXRA

2024/036 First records of *Amrasca biguttula* in the western hemisphere

The Indian cotton jassid, *Amrasca biguttula* (Hemiptera: Cicadellidae) is a polyphagous pest attacking important crops such as cultivated and wild cotton (*Gossypium* spp.), aubergine (*Solanum melongena*), potato (*Solanum tuberosum*), okra (*Abelmoschus esculentus),* cowpea *(Vigna unguiculata),* maize *(Zea mays),* and sunflower *(Helianthus annuus*). Its native range is in Asia and Oceania, and extends from Iran to Japan and Micronesia.

A. biguttula has been recorded recently from West Africa, firstly in Ghana in 2021 on okra. It was also recorded in Cameroon and Côte d'Ivoire where it has significatively impacted cotton production since 2022. In Côte d'Ivoire, the pest has nearly completely replaced the major pest of cotton there, *Jacobiasca lybica* (Hemiptera: Cicadellidae). It was also recorded causing severe damage in okra and aubergine production. Although no scientific papers could be retrieved for other African countries, technical reports and media articles seem to indicate that *A. biguttula* has also spread in neighbouring countries: Burkina Faso, Chad, Mali, Nigeria, Senegal and Togo.

A. biguttula was also first recorded in Puerto Rico. The pest was observed causing severe damage on cotton in April 2023, as well as damaging aubergine. The authors considers that further research is needed to confirm the status of the species in Puerto Rico but note that

if *A. biguttula* would become established in Puerto Rico, it could further spread from there to other parts of the Americas and threaten agriculture in e.g. the Southern USA and other Caribbean islands.

It is not known how *A. biguttula* was introduced in Puerto Rico or West Africa but these records show that the species spreads naturally, moves in trade, and could be a concern for EPPO countries producing cotton and other host crops.

Source: Cabrera-Asencio I, Dietrich CH, Zahniser JN (2023) A new invasive pest in the Western Hemisphere: *Amrasca biguttula* (Hemiptera: Cicadellidae). *Florida Entomologist* **106**(4), 263-266.
Jacques HD, Socrates DN, Bouladji Y, Djague TL, Moïse A, Noé W (2024) First infestation of an exotic crops pest, *Amrasca biguttula* on cotton *Gossypium hirsutum* L. in North Cameroon. *International Journal of Plant & Soil Science* **36**(3),16-22. http://science.sdpublishers.org/id/eprint/2549
Kouadio H, Kouakou M, Bini KK, Koffi KJ, Ossey CL, Kone PW, Adepo-Gourene AB, Ochou OG (2024) Annual and geographical variations in the specific composition of jassids and their damage on cotton in Ivory Coast. *Scientific Reports* **14**(1), 2094. https://doi.org/10.1038/s41598-024-52127-y
Programme régional de production intégrée du coton en Afrique. https://prpica.org/

Additional key words: new record

Computer codes: EMPOBI, CI, CM, GH, PR

2024/037 First report of *Globodera pallida* in Lithuania

The NPPO of Lithuania recently informed the EPPO Secretariat of the first record of the nematode *Globodera pallida* (EPPO A2 List) on its territory. The nematode was detected in January 2024 in a ware potato farm in Panevėžys region (district of Kupiškis). The soil sample was collected as a part of an official survey. The infested field is 0.54 ha. Phytosanitary measures were applied in accordance with EU Regulation 2022/1192, including the prohibition to grow potatoes and other host plants for a period of 6 years. Specific surveys will be carried out in the adjacent fields. Studies on the possible origin of the outbreak are still ongoing.

The pest status of *Globodera pallida* in Lithuania is officially declared as: **Present, at low prevalence, under eradication.**

Source: NPPO of Lithuania (2024-01).

Commission Implementing Regulation (EU) 2022/1192 of 11 July 2022 establishing measures to eradicate and prevent the spread of *Globodera pallida* (Stone) Behrens and *Globodera rostochiensis* (Wollenweber) Behrens. OJL 185, 12-26. ELI: http://data.europa.eu/eli/reg_impl/2022/1192/oj

Pictures: *Globodera pallida*. https://gd.eppo.int/taxon/HETDPA/photos

Additional key words: new record

Computer codes: HETDPA, LT

2024/038 First report of *Xylella fastidiosa* subsp. *fastidiosa* in Italy

The NPPO of Italy recently informed the EPPO Secretariat of the first finding of *Xylella fastidiosa* subsp. *fastidiosa* on its territory, in the municipality of Triggiano (province of Bari, region of Puglia). Triggiano is located outside of the area currently demarcated for *Xylella fastidiosa* subsp. *pauca*.

As part of the official surveys for *Xylella fastidiosa* (EPPO A2 List) in Italy, specific surveys were conducted on vectors of the bacterium. In October 2023, a specimen of *Philaenus spumarius* captured in the Triggiano area tested positive for *Xylella fastidiosa*. In January 2024, a survey was carried out to detect possibly infected plants: 432 host plant samples were taken. From these samples 6 almond trees (*Prunus dulcis*) were found to be infected by *Xylella fastidiosa* subsp. *fastidiosa*. A demarcated area has been established, it consists of infected areas (50 m radius around each infected plant) and a buffer zone (2.5 km radius around the infected areas)

The pest status of *Xylella fastidiosa* subsp. *fastidiosa* in Italy is officially declared as: **Present**.

Source: NPPO of Italy (2024-02).

Normativa regionale Determinazione del Dirigente Sezione Osservatorio Fitosanitario 21 febbraio 2024, n. 8. Individuazione di focolai di *Xylella fastidiosa* sottospecie *fastidiosa* in agro di Triggiano (BA) Delimitazione dell'area delimitata ai sensi dell'art. 4 del Reg. UE 2020/1201. http://www.emergenzaxylella.it/

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

Additional key words: new record **Computer codes:** XYLEFA, XYLEFF, IT

2024/039 First report of *Phytophthora pluvialis* in Belgium

Phytophthora pluvialis (EPPO Alert List) was first detected in the EPPO region in 2021 in the United Kingdom affecting western hemlock (*Tsuga heterophylla*) and Douglas-fir (*Pseudotsuga menziesii*) (EPPO RS 2021/227, RS 2022/060). Surveillance was conducted in Southern Belgium in 2023 in 15 Douglas-fir plantations. No symptoms on trees in plantations were observed. *P. pluvialis* was first detected in June and September 2023 in two water streams by baiting. In October 2023, needles from 38 Douglas firs plantation nearby one of the streams were collected and needles from two trees tested positive by real-time PCR. It was not possible to collect and test needles in the forest stand located near the other contaminated stream as the trees were mature and the branches inaccessible. The authors considered that its presence in the natural environment in two watercourses suggests that *P. pluvialis* may be established in Southern Belgium.

In order to determine the status of *P. pluvialis*, and if necessary to take appropriate measures, the NPPO of Belgium will conduct additional sampling of *P. menziesii* and *T. heterophylla* in nurseries as well as in (semi-)natural environments in forests throughout Belgium. The forest and plantation near the 2 contaminated streams will continue to be monitored in 2024.

The pest status of *Phytophthora pluvialis* in Belgium is officially declared as: **Present, only in some parts of Wallonia, under surveillance.**

Source: Pirronitto S, Paquet F, Gaucet V, Chandelier A (2024) First report of *Phytophthora pluvialis* in Douglas fir plantations in Belgium. *New Disease Reports* **49**(1), e12244. https://doi.org/10.1002/ndr2.12244

NPPO of Belgium (2024-02).

Pictures: *Phytophthora pluvialis*. https://gd.eppo.int/taxon/PHYTUV/photos

Additional key words: new record **Computer codes:** PHYTUV, BE

2024/040 Update on the situation of *Phytophthora pluvialis* in the United Kingdom, and first record on *Larix* trees

Phytophthora pluvialis (EPPO Alert List) was first detected in the EPPO region in 2021 in the United Kingdom affecting western hemlock (*Tsuga heterophylla*) and Douglas-fir (*Pseudotsuga menziesii*) (EPPO RS 2021/227, RS 2022/060). During surveys done in England in 2022, *P. pluvialis* was also detected in a group of about 10 Japanese larch (*Larix kaempferi*). The symptoms were similar to those observed on western hemlock and Douglas-fir: multiple cankers on branches, and in some instances main stems, defoliation and needle blight. Pathogenicity tests were performed on two- to three-year-old larch trees of European larch (*L. decidua*) and hybrid larch (*L. eurolepis*), and showed that these species are potential hosts.

As of January 2024, there were 6 demarcated areas in England (Cornwall and Devon, Cumbria, Gloucestershire, Herefordshire, Shropshire, Surrey), 3 in Scotland (Argyll and Bute, Isle of Bute, Ross-shire), and 5 in Wales (Carmarthenshire, Crychan, North West and Mid Wales, Powys, South East Wales). A map of the demarcated areas is available at https://www.gov.uk/guidance/phytophthora-pluvialis. As the risk of movement with wood material was shown to be low, restriction of movement of host plants now only applies to plants for planting and no longer applies to wood or isolated bark.

Source: Pérez-Sierra A, Chitty R, Eacock A, Wylder B, Biddle M, Quick C, Olivieri L, Crampton M (2024) First report of *Phytophthora pluvialis* causing cankers on Japanese larch in the United Kingdom. *New Disease Reports* **49**, 12246. https://doi.org/10.1002/ndr2.12246

England: https://www.gov.uk/guidance/phytophthora-pluvialis
Scotland: https://forestry.gov.scot/sustainable-forestry/tree-health/tree-pests-and-diseases/phytophthora-pluvialis
Wales: https://www.gov.wales/phytophthora-pluvialis

Pictures: *Phytophthora pluvialis*. https://gd.eppo.int/taxon/PHYTUV/photos

Additional key words: detailed record, new host plant **Computer codes:** PHYTUV, GB

2024/041 First report of *Sphaerulina musiva* in China and in Asia

Sphaerulina musiva (*Septoria musiva, Mycosphaerella populorum* – EPPO A1 List) is an economically important pathogen of poplars (*Populus* spp.) in North America, causing leaf spot and cankers. During investigations carried out in China in 2023, it was found that *S. musiva* is widespread in the province of Henan, mainly causing leaf spots on poplars. It was observed that the disease incidence reached more than 80% in Nanyang, Jiaozuo and Xinxiang cities. Genetic studies on isolates collected from Henan, revealed a high level of genetic diversity, suggesting that the fungus has been introduced into China several years ago. The EPPO Secretariat had previously no information about the possible presence of this fungus in China. This is also a first record for Asia.

The situation of *Sphaerulina musiva* in China can be described as follows: **Present, not widely distributed.**

Source: Ma T, Hu Y, Li F, Liu L, Cui L (2024) Development of genomic SSR markers and genetic diversity of *Sphaerulina musiva* in China. *Journal of Phytopathology* **172**, e13253. https://doi.org/10.1111/jph.13253

Pictures *Sphaerulina musiva*. https://gd.eppo.int/taxon/MYCOPP/photos

Additional key words: new record **Computer codes:** MYCOPP, CN

2024/042 Potential vectors of *Harringtonia lauricola*

Laurel wilt caused by *Harringtonia lauricola* (EPPO Alert List) is known to be vectored by *Xyleborus glabratus* (Coleoptera: Curculionidae: Scolytinae – EPPO Alert List). Recent studies explored potential other vectors and showed the association of *H. lauricola* with the following species:

- *Xylosandrus crassiusculus* (Coleoptera: Curculionidae: Scolytinae - formerly EPPO Alert List).
- *Xyleborus bispinatus* (Coleoptera: Curculionidae: Scolytinae).
- *Apteromechus ferratus* (Coleoptera: Curculionidae: Cryptorhynchinae). This is the first report of *H. lauricola* being associated with a non-ambrosia beetle (*A. ferratus* is a hidden snout weevil).

Phoretic presence of *H. lauricola* was also detected on the following ambrosia beetle species: *Xyleborus volvulus*, *Xyleborus affinis*, *Xyleborinus saxesenii*.

Source: Cruz LF, Menocal O, Kendra PE, Carrillo D (2021) Phoretic and internal transport of *Raffaelea lauricola* by different species of ambrosia beetle associated with avocado trees. *Symbiosis* **84**, 151–161.
Knutsen MC, Rieske LK (2023) Presence of the causal agent of laurel wilt disease in sassafras-associated insects. *Environmental Entomology* **52**(6), 1042-1047.
Menocal O, Cruz LF, Kendra PE, Berto M & Carillo D (2023) Flexibility in the ambrosia symbiosis of *Xyleborus bispinatus*. *Frontiers in Microbiology* **14**, 1110474. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10018145/

Additional key words: vector, epidemiology **Computer codes:** APTMFE, XYLBSA, XYLBAF, XYLBCR, XYLBBI, XYLBGR, XYLBTO, RAFFLA

2024/043 New findings of cowpea mild mottle virus in the Netherlands

The NPPO of the Netherlands recently informed the EPPO Secretariat of the recent findings of cowpea mild mottle virus (*Carlavirus*, CPMMV – EU A1 Quarantine pest) on its territory. CPMMV had first been found in December 2022 on potted plants of *Hibiscus syriacus* and was subsequently eradicated.

Suspicious symptoms were observed again on a *H. syriacus* potted plant during an export inspection in July 2023. A leaf sample was taken for diagnosis. The transport of the lot of 31 *H. syriacus* potted plants was not put on hold and it was delivered to a third country. The presence of CPMMV in the leaf sample was confirmed in September 2023, together with three additional viruses and one viroid (*Carlavirus* sp., *Crinivirus* sp. *Foveavirus* sp. and *Citrus viroid VI*). At this nursery in the Netherlands, all 16 968 *H. syriacus* potted plants, which were of the same batch, were destroyed. This outbreak is considered eradicated.

At the end of August 2023 the owner of another nursery reported unknown symptoms on *Hibiscus syriacus* potted plant destined for the final consumer. An inspection was conducted at the end of September and the analysis of leaf samples confirmed the presence of CPMMV in November. The plants were co-infected with three additional viruses and one viroid (*Carlavirus* sp., *Crinivirus* sp., *Ilarvirus* sp. and *Citrus viroid VI*). All 111 000 *H. syriacus* potted plants in the nursery were put on hold and destroyed. This outbreak is considered eradicated.

It is unknown whether the symptoms were caused by CPMMV, any of the other viruses and viroid, a combination of those, or had a physiological cause. In both cases, trace-back investigations showed that the plants originated from the same Dutch nursery as in 2022. As no relevant tracing information from that nursery could be retrieved, no trace-forward activities could be initiated.

The pest status of cowpea mild mottle virus is officially declared as: **Present, only in *Hibiscus syriacus* plants, at low prevalence.**

Source: NPPO of the Netherlands (2024-02).

Additional key words: detailed record, **Computer codes:** CPMMV0, NL

2024/044 New host crops of cucurbit chlorotic yellows virus

Cucurbit chlorotic yellows virus (*Crinivirus*, CCYV) is an emerging virus of cucurbits transmitted by *Bemisia tabaci* (Hemiptera: Aleyrodidae – EPPO A2 List) (EPPO RS 2022/043). It was previously only known to cause damage to cucurbit plants. However, recently, it was reported from crops in other families.

CCYV is first reported infecting and damaging lettuce (*Lactuca sativa*) in India. Infected plants were first observed in 2021 and showed blistering, chlorosis, mosaic, rosetting/ excess proliferation, and stunting symptoms.

CCYV is first reported in high cannabidiol-containing cannabis plants (*Cannabis sativa)* grown in farms in Israel. Infected plants showed foliar symptoms of interveinal chlorosis and yellowing, brittleness and occasionally necrosis, more apparent in older leaves. Severe disease symptoms of yellowing and leaf-edge necrosis were observed in the case of mixed infections with lettuce chlorosis virus (*Crinivirus*, LCV – formerly EPPO Alert List) and CCYV.

Source: Gezovitch O, Luria N, Lachman O, Sela N, Smith E, Dombrovsky A (2024) Cucurbit chlorotic yellows virus, a crinivirus infecting *Cannabis sativa* plants. *Plant Pathology* **73**(1), 47-56.

Kumar A, Choudhary S, Lyngdoh YA, Baranwal VK, Jain RK, Basavaraj YB (2023) Evidence for the natural infection of cucurbit chlorotic yellows virus (CCYV) in lettuce plants from India. *VirusDisease* **34**, 554–557.

Additional key words: new host plant

Computer codes: CCYV00, IN, IL

2024/045 Horizon scanning for potential invasive alien species for Spain

Horizon scanning for potential invasive alien species is an important exercise which can identify threats early on and therefore enable mitigation measures against certain species before they enter a region. Horizon scanning was conducted for Spain in a three staged approach involving (1) thematic groups of experts were established (e.g. on plants, terrestrial invertebrates), (2) data collection and preliminary evaluation of species, and (3) consensus ranking of potential invasive alien species. The final consensus found 47 invasive alien species pose a very high risk of arrival, establishment and negative ecological impact in Spain. Of these, 11 species were alien plant species (Table 1).

Table 1. Potential invasive alien species for Spain.

Species	Family	EPPO Status
Cabomba caroliniana	Cabombaceae	List of Invasive Alien Plants
Crassula helmsii	Crassulaceae	EPPO A2 List
Fallopia x *bohemica*	Polygonaceae	List of Invasive Alien Plants
Hydrilla verticillata	Hydrocharitaceae	List of Invasive Alien Plants
Lagarosiphon major	Hydrocharitaceae	List of Invasive Alien Plants
Ligustrum sinense	Oleaceae	
Miscanthus sinensis	Poaceae	EPPO Observation List
Prunus serotina	Rosaceae	List of Invasive Alien Plants
Pueraria montana var. *lobata*	Fabaceae	EPPO A2 List
Salvinia molesta	Salviniaceae	EPPO A2 List
Sphagneticola trilobata	Asteraceae	

Source: Cano-Barbacil C, Carrete M, Castro-Díez P, Delibes-Mateos M, Jaques JA, Lopez-Darias M, Nogales M, Pino J, Ros M, Traveset A, Turon X, Vilá M, Altamirano M, Álvarez I, Arias A, Boix D, Cabido C, Cacabelos E, Cobo F, Cruz J, Cuesta JA, Dáder B, del Estal P, Gallardo B, Gómez Laporta M, González-Moreno P, Hernández JC, Jiménez-Alfaro B, Lázaro Lobo A, Leza M, Montserrat M, Oliva-Paterna FJ, Piñeiro L, Ponce C, Pons P, Rotchés-Ribalta R, Roura-Pascual N, Sánchez M, Trillo A, Viñuela E, García-Berthou E (2023) Identification of potential invasive alien species in Spain through horizon scanning. *Journal of Environmental Management*. https://doi.org/10.1016/j.jenvman.2023.118696

Additional key words: invasive alien plants

Computer codes: CABCA, CSBHE, HYLLI, LGAMA, LIGSI, MISSI, PRNSO, PUELO, REYBO, SAVMO, WEDTR, ES

2024/046 *Erigeron sumatrensis* in Romania

Erigeron sumatrensis (Asteraceae: EPPO List of Invasive Alien Plants) is an annual herb, native to South America, which is widespread within the EPPO region. It can produce up to 200 000 seeds per plant which are wind dispersed. *E. sumatrensis* was first reported in Romania in 2012 and over the last decade it has been further identified in several provinces of the country (Dobrogea, Banat, Moldova, Oltenia and Muntenia). New records of the species are reported for the first time in Dâmbovița, Buzău and Iași, where the species has

been found to colonise railway lines and garden lawns, and the edges of orchards. The current status of the species in Romania is naturalised with the potential to be invasive.

Source: Sirbu C, Operea A, Doroftei M, Covaliov S (2023) New data on the distribution and invasion status of some alien plants in Romania. *Journal of Plant Development* **30** 17-32.

Additional key words: invasive alien plants **Computer codes**: ERISU, RO

2024/047 Use of drones for the detection of *Ailanthus altissima* in the USA

Ailanthus altissima (Simaroubaceae - EPPO List of Invasive Alien Plants) commonly known as the tree of heaven is an invasive alien plant species in the EPPO region and native to Asia. It can invade a variety of habitats including managed and unmanaged grasslands, forests, riverbanks/canal-sides, rail/roadsides, wasteland, and urban areas. It is also an invasive species in the USA and a preferred host of an invasive insect, the spotted lanternfly (*Lycorma delicatula*: Hemiptera: Fulgoridae: EPPO A1 List of pests recommended for regulation). In the USA, managers of the species rely on ground surveys for detecting both *A. altissima* and *L. delicatula*. The use of drones equipped with optical sensors were used to explore their efficacy in detecting *A. altissima*. Aerial surveys were conducted to determine the optimal season, sensor type, and flight altitudes for *A. altissima* detection. The results revealed that *A. altissima* can be detected at different times of the year and at specific flight heights. Male inflorescences were identifiable using an RGB (red, green, blue) sensor in the spring at <40 m, seed clusters were identifiable in summer and autumn at <25 m using an RGB sensor, and remnant seed clusters were identifiable in the winter at <20 m using RGB and thermal sensors. In combination, throughout the year, it is possible to detect both male and female *A. altissima* using drone technology. Drone technology, with optical sensors can provide an efficient method to aid in the development of effective strategies for monitoring managing *A. altissima* and monitoring *L. delicatula*.

Source: Naharki K, Huebner CD, Park YL (2024) The detection of tree of heaven (*Ailanthus altissima*) using drones and optical sensors: implications for the management of invasive plants and insects. *Drones* **8**, 1. https://doi.org/10.3390/drones8010001

Additional key words: invasive alien plants **Computer** codes: AILAL, LYCMDE, USA

2024/048 Alien plants of Kyrgyzstan

Table 1 presents a list of 151 species of vascular plants reported from Kyrgyzstan and considered alien to this country. In total, 58 species are considered naturalised, 92 species are considered transient and for one species the status is uncertain. The species comprise 38 plant families with a predominance of Asteraceae. Of the 151 species, one species, *Cuscuta campestris* is considered to have a major negative impact and nine others (as indicated in the table), are considered to have moderate negative impacts.

Table 1. Alien plants of Kyrgyzstan

Species	Family	Status	native area
Abutilon theophrasti	Malvaceae	naturalised	China
Agrostemma githago	Caryophyllaceae	transient	Mediterranean

Species	Family	Status	native area
*Ailanthus altissima***	Simaroubaceae	naturalised	China
Alkekengi officinarum	Solanaceae	transient	Caucasus-China
Allium atroviolaceum	Amaryllidaceae	transient	Mediterranean
Amaranthus albus	Amaranthaceae	naturalised	Americas
Amaranthus blitoides	Amaranthaceae	naturalised	Americas
Amaranthus blitum	Amaranthaceae	transient	cultivation
Amaranthus caudatus	Amaranthaceae	transient	Americas
Amaranthus cruentus	Amaranthaceae	transient	Americas
Amaranthus retroflexus	Amaranthaceae	naturalised	Americas
Ambrosia artemisiifolia	Asteraceae	naturalised	Americas
Ammannia auriculata	Lythraceae	transient	Americas, Africa, Asia
Anthemis ruthenica	Asteraceae	naturalised	Mediterranean
Anthriscus caucalis	Apiaceae	naturalised	Mediterranean
Apium graveolens	Apiaceae	transient	Mediterranean
Armoracia rusticana	Brassicaceae	transient	cultivation
Arrhenatherum elatius	Poaceae	naturalised	C. Europe-Mediterranean
Asclepias syriaca	Apocynaceae	transient	Americas
Atriplex oblongifolia	Amaranthaceae	naturalised	C.E. Europe Caucasus, Kazakhstan
Avena fatua	Poaceae	naturalised	Mediterranean
Ballota nigra	Lamiaceae	transient	Mediterranean
Bellis perennis	Asteraceae	transient	C. Europe-Mediterranean
Bidens frondosa	Asteraceae	naturalised	Americas
Borago officinalis	Boraginaceae	transient	Mediterranean
Brassica juncea	Brassicaceae	transient	Asia Minor-Caucasus-Iran
Brassica rapa subsp. *sylvestris*	Brassicaceae	transient	Asia Minor-Caucasus-Iran
Bryonia alba	Cucurbitaceae	transient	Mediterranean
Bunias orientalis	Brassicaceae	naturalised	E. Europe-Caucasus
Camelina sativa	Brassicaceae	transient	cultivation
Carduus acanthoides	Asteraceae	naturalised	Eurasia
Carduus albidus	Asteraceae	naturalised	Mediterranean
Caucalis platycarpos	Apiaceae	naturalised	Mediterranean
Centaurea cyanus	Asteraceae	transient	Mediterranean
Centaurea solstitialis	Asteraceae	naturalised	Mediterranean
Cephalaria syriaca	Caprifoliaceae	transient	Asia Minor-Caucasus-Iran
Cerastium nemorale	Caryophyllaceae	naturalised	Caucasus-Iran
Chaerophyllum bulbosum	Apiaceae	transient	Mediterranean
Chaerophyllum temulum	Apiaceae	transient	Mediterranean
Chelidonium majus	Papaveraceae	naturalised	Mediterranean
Chenopodiastrum murale	Amaranthaceae	naturalised	Mediterranean
Chenopodium vulvaria	Amaranthaceae	naturalised	Mediterranean
Convolvulus dahuricus	Convolvulaceae	transient	E. Asia
Coreopsis tinctoria	Asteraceae	transient	America
Cota tinctoria	Asteraceae	transient	Mediterranean
Crambe orientalis	Brassicaceae	naturalised	Asia Minor-Caucasus-Iran

Species	Family	Status	native area
Cucumis melo	Cucurbitaceae	transient	Africa
*Cuscuta campestris**	Convolvulaceae	naturalised	Americas
*Cuscuta chinensis***	Convolvulaceae	naturalised	China
Cyperus rotundus	Cyperaceae	transient	Africa-Asia
Datura innoxia	Solanaceae	transient	Americas
Datura stramonium	Solanaceae	naturalised	Americas
Delphinium hispanicum	Ranunculaceae	transient	Mediterranean
Echinochloa crus-galli	Poaceae	naturalised	Mediterranean
Echinochloa oryzoides	Poaceae	transient	Asia
Echinocystis lobata	Cucurbitaceae	naturalised	Americas
*Erigeron annuus***	Asteraceae	naturalised	Americas
*Erigeron canadensis***	Asteraceae	naturalised	Americas
Erigeron lilacinus	Asteraceae	transient	Americas
Eruca vesicaria subsp. *sativa*	Brassicaceae	transient	Mediterranean
Fagopyrum tataricum	Polygonaceae	transient	China
Galeopsis ladanum	Lamiaceae	naturalised	Mediterranean
Galinsoga parviflora	Asteraceae	transient	Americas
Galinsoga quadriradiata	Asteraceae	transient	Americas
Glaucium corniculatum	Papaveraceae	transient	Mediterranean
Glechoma hederacea	Lamiaceae	naturalised	Europe-Mediterranean
Hemerocallis fulva	Asphodelaceae	transient	E. Asia
Hesperis matronalis	Brassicaceae	transient	Mediterranean
Hesperis pycnotricha	Brassicaceae	transient	C. Europe-Mediterranean
Hibiscus trionum	Malvaceae	naturalised	Mediterranean
Hirschfeldia incana	Brassicaceae	transient	Mediterranean
Hyoscyamus niger	Solanaceae	naturalised	Mediterranean
Iva xanthiifolia	Asteraceae	transient	Americas
Lapsana communis	Asteraceae	transient	Mediterranean
Lathyrus chloranthus	Fabaceae	transient	Asia Minor-Caucasus-Iran
Lathyrus cicera	Fabaceae	naturalised	Mediterranean
Lathyrus sativus	Fabaceae	transient	cultivation
Leucanthemum vulgare	Asteraceae	transient	C. Europe-Mediterranean
Linum usitatissimum	Linaceae	transient	Asia Minor-Caucasus-Iran
Lolium multiflorum	Poaceae	transient	Mediterranean
Lolium perenne	Poaceae	transient	C. Europe-Mediterranean
Malva sylvestris	Malvaceae	transient	Mediterranean
Malva verticillata	Malvaceae	transient	China
Matricaria chamomilla	Asteraceae	transient	Mediterranean
Matricaria discoidea	Asteraceae	transient	Americas
Medicago sativa	Fabaceae	naturalised	C. Europe-Mediterranean
Moricandia arvensis	Brassicaceae	naturalised	Mediterranean
Morus alba	Moraceae	transient	China
Nicandra physalodes	Solanaceae	transient	Americas
Nigella sativa	Ranunculaceae	transient	Asia Minor-Caucasus-Iran

Species	Family	Status	native area
Nonea pulla	Boraginaceae	transient	Mediterranean
Oenothera biennis	Onagraceae	transient	Americas
Oxalis corniculata	Oxalidaceae	naturalised	China
Pastinaca sativa	Apiaceae	transient	Mediterranean
Persicaria orientalis	Polygonaceae	transient	E. Asia
Petrorhagia prolifera	Caryophyllaceae	naturalised	Mediterranean
Phacelia tanacetifolia	Boraginaceae	transient	Americas
*Phelipanche aegyptiaca***	Orobanchaceae	naturalised	Mediterranean
Physalis ixocarpa	Solanaceae	transient	Americas
*Pilosella aurantiaca***	Asteraceae	naturalised	C. Europe
Pimpinella anisum	Apiaceae	transient	Asia Minor
Portulaca granulatostellulata	Portulacaceae	transient	Mediterranean
Portulaca nitida	Portulacaceae	transient	Mediterranean
Prunus domestica	Rosaceae	transient	cultivation
Raphanus raphanistrum	Brassicaceae	transient	Mediterranean
Rapistrum rugosum	Brassicaceae	transient	Mediterranean
Reseda lutea	Resedaceae	naturalised	Mediterranean
Reseda luteola	Resedaceae	naturalised	Mediterranean
Rorippa austriaca	Brassicaceae	transient	C. Europe-Mediterranean
Rorippa sylvestris	Brassicaceae	naturalised	C. Europe-Mediterranean
Rubus praecox	Rosaceae	transient	Europe
Rudbeckia hirta	Asteraceae	transient	America
Salvia aethiopis	Lamiaceae	naturalised	Mediterranean, C. Asia
Salvia verticillata	Lamiaceae	unknown	Mediterranean
Saponaria officinalis	Caryophyllaceae	transient	Mediterranean
Secale cereale	Poaceae	transient	Asia Minor
Senecio vulgaris	Asteraceae	transient	Europe-Mediterranean
Setaria italica	Poaceae	transient	cultivation
Sigesbeckia orientalis	Asteraceae	transient	Africa-Asia-Australia
Silphium perfoliatum	Asteraceae	transient	Americas
Sisymbrium officinale	Brassicaceae	transient	Mediterranean
Solanum nigrum	Solanaceae	naturalised	Asia
Solanum villosum	Solanaceae	naturalised	Mediterranean
Sonchus arvensis	Asteraceae	naturalised	Eurasia
Sonchus asper	Asteraceae	naturalised	Mediterranean
Sonchus oleraceus	Asteraceae	naturalised	Mediterranean
Sorghum halepense	Poaceae	transient	Mediterranean
Spergula arvensis	Caryophyllaceae	transient	C. Europe-Mediterranean
Spergularia rubra	Caryophyllaceae	naturalised	C. Europe-Mediterranean
Stizolophus balsamita	Asteraceae	naturalised	Asia Minor-Caucasus-Iran
Symphytum asperum	Boraginaceae	transient	Asia Minor-Caucasus-Iran
Tanacetum coccineum	Asteraceae	transient	Asia Minor-Caucasus-Iran
Taraxacum officinale	Asteraceae	naturalised	Europe
Thladiantha dubia	Cucurbitaceae	transient	E. Asia

Species	Family	Status	native area
Tragus racemosus	Poaceae	transient	Mediterranean
Tripleurospermum inodorum	Asteraceae	transient	Asia Minor-Caucasus-Iran
Ulmus pumila	Ulmaceae	transient	China
Urtica urens	Urticaceae	transient	Mediterranean
Vaccaria hispanica	Caryophyllaceae	transient	Mediterranean
Vallisneria spiralis	Hydrocharitaceae	naturalised	Mediterranean
Veronica hederifolia	Plantaginaceae	naturalised	Mediterranean
Vicia ervilia	Fabaceae	transient	Asia Minor-Caucasus-Iran
Vicia hybrida	Fabaceae	transient	Mediterranean
Vicia narbonensis	Fabaceae	transient	Mediterranean
Vicia sativa	Fabaceae	transient	Asia Minor-Caucasus-Iran
Vicia villosa	Fabaceae	transient	Mediterranean
Viola prionantha	Violaceae	naturalised	E. Asia
*Xanthium orientale***	Asteraceae	naturalised	Americas
*Xanthium spinosum***	Asteraceae	naturalised	Americas
Xanthium strumarium	Asteraceae	transient	Mediterranean
*Xeranthemum annuum***	Asteraceae	naturalised	Mediterranean

* = alien species with major impacts; ** = alien species with moderate impacts

Source: Sennikov AN, Lazkov GA (2024) Alien plants of Kyrgyzstan: The first complete inventory, distributions and main patterns. *Plants* **13**, 286. https://doi.org/10.3390/plants13020286

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Computer codes: ABUTH, AGOGI, AILAL, ALLAV, AMAAL, AMABL, AMACA, AMACR, AMALI, AMARE, AMBEL, AMMAU, ANRCA, ANTRU, ANTTI, APUGV, ARREL, ARWLA, ASCSY, ATXOB, AVEFA, BELPE, BIDFR, BLLNI, BOROF, BRSJU, BRSRA, BUNOR, BYOAL, CENCY, CENSO, CERNE, CHEMU, CHEVU, CHPBU, CHPTE, CHQMA, CHYCC, CHYLE, CMASA, CPISY, CRLTI, CRMOR, CRUAC, CUCLA, CUMME, CVCCA, CVCCH. CYPRO, DATIN, DATST. ECHCG, ECHOR, ECNLO, ERIAN, ERICA, ERUVE, FAGTA, GAELA, GASCI, GASPA, GLEHE, GUCCO, HEGFU, HEVMA, HEVPY, HIBTR, HIEAU, HISIN, HSYNI, IVAXA, LAPCO, LIUUT, LOLMU, LOLPE, LTHCI, LTHSA, MALSI, MALVE, MATCH, MATIN, MATMT, MEDSA, MOCAR, MORAL, NICPH, NIGSA, NONPU, OEOBI, OXACO, PAVSA, PERPR, PHCTA, PHYIX, PIMAN, POLOR, PORON, PRNDO, RAPRA, RASRU, RESLT, RESLU, RORAU, RORSY, RUBPQ, RUDHI, SALAE, SALVE, SAWOF, SECCE, SENVU, SETIT, SIKOR, SIPPE, SLZBA, SOLLU, SOLNI, SONAR, SONAS, SONOL, SORHA, SPBRU, SPRAR, SSYOF, SYMAS, TAROF, THDDU, TRGRA, ULMPU, URTUR, VAAPY, VAISP, VERHE, VICER, VICHY, VICNA, VICSA, VICVI, VIOPR, XANOR, XANSP, XANST, XEAAN, KG