ORGANISATION EUROPEENNE
ET MEDITERRANEENNE
POUR LA PROTECTION DES PLANTES

EUROPEAN AND MEDITERRANEAN
PLANT PROTECTION
ORGANIZATION

EPPO Reporting Service

NO. 4 PARIS, 2021-04

21 Bld Richard Lenoir
75011 Paris

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

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

2021/074 New data on quarantine pests and pests of the EPPO Alert List

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

- **New records**

Brevipalpus yothersi (Acari: Tenuipalpidae - vector of citrus leprosis disease, EPPO A1 List) is reported for the first time from Peru. During a survey conducted from September to December 2020 in small farms producing organic cocoa (*Theobroma cacao*), the pest was found in 8 localities in the department of Piura. Mites were collected on leaves, peduncles, and epicarps of cocoa fruits at different phenological stages. Damage (brown spots) could be observed on some fruits. This is also the first time that *B. yothersi* is reported on cocoa (Escobar-Garcia *et al.*, 2021). **Present, only in some areas.**

Fusarium odoratissimum (Fusarium oxysporum f. sp. *cubense* tropical race 4) the causal agent of Panama disease of banana was first reported in Peru in April 2021. The pathogen was detected in a plot of 0.5 ha in the Querecotillo district (province of Sullana, department of Piura). All infected plants have been destroyed and official phytosanitary measures have been taken to prevent any further spread (SENASA, 2021). **Present, only in some areas.**

Pomacea canaliculata (Gastropoda: Ampullariidae, EPPO A1 List) is first recorded in Kenya (Buddie *et al.*, 2021). It was detected at two locations (Tebere and Ndekia) in the Mwea irrigation scheme. Surveys were conducted in September 2020 and the identification was confirmed by molecular methods. This is the first confirmed report of *P. canaliculata* in continental Africa. **Present, only in some areas**.

Pomacea canaliculata (Gastropoda: Ampullariidae, EPPO A1 List) occurs in Peru. The apple snail was first recorded in the province of Sullana (department of Piura). Official surveys are conducted to define the infested area and control measures are applied (SENASA, 2021). **Present, only in some areas**.

Spodoptera frugiperda (Lepidoptera: Noctuidae – EPPO A1 List) was first found in Mauritius in March 2019. The pest also occurs on Rodrigues Islands. Studies are being conducted in Mauritius on potential natural enemies and awareness campaigns are being carried out (Anonymous, 2020). **Present**.

Tuta absoluta (Lepidoptera: Gelechiidae – EPPO A2 List) was first found in Mauritius in September 2019. The insect was trapped in Bon Air. Surveys carried out on the island detected only one larva in a tomato leaflet in a small field. Awareness campaigns are being carried out (Anonymous, 2020). **Present, only in some areas.**

Zaprionus indianus (Diptera: Drosophilidae – formerly EPPO Alert List) is first reported from Bangladesh. This fruit fly was caught in yeast-banana traps in the Northern part of the country (Rahman *et al.*, 2020). **Present**.

- **Detailed records**

Official surveys have confirmed that *Globodera rostochiensis* (EPPO A2 List) is no longer found in the province of Alberta, Canada. In February 2021, the NPPO of Canada removed the regulated area for *G. rostochiensis* and declared that Alberta is now considered to be free of potato cyst nematodes (NAPPO, 2021).

The pest status of *Globodera rostochiensis* in Canada is officially declared as: **Present, not widely distributed and under official control.**

- **Host plants**

Hylotelephium spectabile (=*Sedum spectabile* – Crassulaceae) is reported for the first time as a host plant of *Cacoecimorpha pronubana* (Lepidoptera, Tortricidae – EPPO A2 List). In mid-August 2020, larvae of *C. pronubana* were found feeding on *H. spectabile* plants in private gardens in urban areas of Drama, Greece. Infestations had caused serious damage on foliage as well as on blossoms, reducing the aesthetical value of this ornamental plant (Simoglou *et al.*, 2021).

- **New pests and taxonomy**

In Australia, a new phytoplasma species called '*Candidatus* Phytoplasma stylosanthis' has been detected in the following cultivated plants causing various symptoms: *Arachis pintoi* (little leaf), *Carica papaya* (yellow crinkle), *Medicago sativa* (yellowing and little leaf), *Solanum tuberosum* (stunted growth and little leaf), *Saccharum officinarum* (asymptomatic), and *Stylosanthes scabra* (little leaf). Concerning potato, '*Ca.* P. stylosanthis' was detected in 2019 in Victoria in one plant and it is estimated that the disease incidence was less than 1% of crop. This phytoplasma has also been found in two weed species, *Bonamia pannosa* and *Indigofera linifolia*, which showed proliferation, phyllody and little leaf symptoms (Rodrigues Jardim *et al.*, 2021).

Sources:

Anonymous (2020) Annual Report – Technical Highlights 2019/2020. Food and Agricultural Research and Extension Institute (FAREI), Mauritius, 89 pp. http://farei.mu/farei/wp-content/uploads/2021/02/Technical-Highlights-2019-2020.pdf

Buddie AG, Rwomushana I, Offord LC, Kibet S, Makale F, Djeddour D, Cafa G, Vincent KK, Muvea AM, Chacha D, Day RK (2021) First report of the invasive snail *Pomacea canaliculata* in Kenya. *CABI Agriculture and Bioscience* **2,** 11 https://doi.org/10.1186/s43170-021-00032-z

Escobar -Garcia HA, de Andrade Jr D, Carrillo D, Ochoa R (2021) *Theobroma cacao*, a new host *for Brevipalpus yothersi* (Acari: Tenuipalpidae) in Peru. *Acarologia* **61**(2), 211-216. https://doi.org/10.24349/acarologia/20214427

NAPPO Phytosanitary Alert System. Official Pest Reports. Canada (2021-04-01) *Globodera rostochiensis* (golden nematode) - Canadian Food Inspection Agency removes regulated area in the Province of Alberta. https://www.pestalerts.org/official-pest-report/globodera-rostochiensis-golden-nematode-canadian-food-inspection-agency

Rahman S, Roy DK, Alam MS (2020) First record of *Zaprionus indianus* (Gupta, 1970) (Diptera Drosophilidae) from Bangladesh. *Biodiversity Journal* **11**(3), 757–760. https://doi.org/10.31396/Biodiv.Jour.2020.11.3.757.760

Rodrigues Jardim B, Kinoti WM, Tran-Nguyen LTT, Gambley C, Rodoni B, Constable F (2021) '*Candidatus* Phytoplasma stylosanthis', a novel taxon with a diverse host range in Australia, characterised using multilocus sequence analysis of 16S rRNA, secA, tuf, and rp genes. *International Journal of Systematic Microbiology* **71**, 004589. https://doi.org/10.1099/ijsem.0.004589

SENASA (2021-02-25) MIDAGRI despliega acciones de prevención y control de caracol manzana en Piura. https://www.gob.pe/institucion/senasa/noticias/344331-midagri-despliega-acciones-de-prevencion-y-control-de-caracol-manzana-en-piura

SENASA (2021-04-12) SENASA confirma brote de Fusarium Raza 4 Tropical en Piura. https://www.gob.pe/institucion/senasa/noticias/429832-senasa-confirma-brote-de-fusarium-raza-4-tropical-en-piura

Simoglou KB, Avtzis DN, Baixeras J, Sarigkoli I, Roditakis E (2021) *Hylotelephium spectabile*, a new host for carnation tortrix moth (*Cacoecimorpha pronubana*) and

molecular characterization in Greece. *Insects* **12**, 245. https://doi.org/10.3390/insects12030245

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

Computer codes: BRVPYO, FUSAC4, GNORAB, HETDRO, LAPHFR, POMACA, TORTPR, ZAPRIN, BD, CA, GR, KE, MU, PE, PE

2021/075 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 2021/050), the following new and revised EPPO datasheets have been published in the EPPO Global Database:

- *Diabrotica undecimpunctata undecimpunctata*. https://gd.eppo.int/taxon/DIABUN/datasheet
- *Naupactus leucoloma*. https://gd.eppo.int/taxon/GRAGLE/datasheet
- *Premnotrypes latithorax*. https://gd.eppo.int/taxon/PREMLA/datasheet
- *Premnotrypes vorax*. https://gd.eppo.int/taxon/PREMVO/datasheet
- *Xylophilus ampelinus*. https://gd.eppo.int/taxon/XANTAM/datasheet

Source: EPPO Secretariat (2021-04).

Additional key words: publication

Computer codes: DIABUN, GRAGLE, PREMLA, PREMVO, XANTAM

2021/076 EPPO Standards on efficacy evaluation of plant protection products: update of the PP1 database

The EPPO Standards for the efficacy evaluation of plant protection products (PP1) describe the conduct of trials carried out to assess the efficacy of plant protection products against specific pests. They are addressed to all institutions, official registration authorities, public institutes or private firms carrying out such trials. All PP1 Standards[1] are stored in a database: https://pp1.eppo.int
The database has now been updated with the new and revised Standards that were approved by EPPO Council in September 2020.

General Standards

- PP 1/319 (NEW) General principles for efficacy evaluation of plant protection products with a mode of action as plant defence inducers
- Revision of PP 1/239 (3) Dose expression for plant protection products
- Revision of PP 1/307 (2) Efficacy considerations and data generation when making changes to the chemical composition or formulation type of plant protection products

[1] General Standards (e.g. design, conduct, reporting and analysis of trials, phytotoxicity, effects on succeeding crops, analysis of resistance risk, minor uses) can be accessed free of charge. Access to specific Standards (e.g. aphids on potato, weeds in cereals) is provided for an annual fee. Subscriptions should be made directly online via the database.

Specific Standards

- PP 1/320 (NEW) *Trioza erytreae* on citrus
- PP 1/321 (NEW) Root knot nematodes (*Meloidogyne* sp.) in outdoor crops
- PP 1/322 (NEW) Root knot nematodes (*Meloidogyne* sp.) on fruiting vegetables in protected conditions
- PP 1/323 (NEW) Evaluation of mating disruption techniques against Lepidopteran pests in grapevine, pome and stone fruits under semi-field conditions
- Revision of PP 1/002 (5) *Phytophthora infestans* on potato
- Revision of PP 1/019 (5) Seed-borne cereal fungi
- Revision of PP 1/050 (4) Weeds in maize
- Revision of PP 1/052 (4) Weeds in sugar and fodder beet and industrial chicory
- Revision of PP 1/073 (4) *Psylliodes chrysocephala* on oilseed rape
- Revision of PP 1/076 (4) Weeds in forage legumes
- Revision of PP 1/091 (4) Weeds in *Phaseolus* and *Pisum*
- Revision of PP 1/184 (3) Regulation of growth in citrus
- Revision of PP 1/218 (2) *Phyllotreta* spp. on oilseed rape
- Revision of PP 1/255 (2) Regulation of growth in pome fruits by post-harvest and 'in store' applications
- Revision of PP 1/259 (2) *Delia radicum* on oilseed rape

Extrapolation tables approved to accompany EPPO Standard PP 1/257 Efficacy and crop safety extrapolations for minor uses are available on the EPPO website: https://www.eppo.int/ACTIVITIES/plant_protection_products/extrapolation_tables

Source: EPPO Secretariat (2021-04).

2021/077 EPPO report on notifications of non-compliance

The EPPO Secretariat has gathered below the notifications of non-compliance for 2021 received since the previous report (EPPO RS 2021/031). Notifications have been sent via TRACES for the EU countries, and directly by Bosnia and Herzegovina. The EPPO Secretariat has selected notifications of non-compliance made because of the detection of pests. Other notifications of non-compliance due to prohibited commodities, missing or invalid certificates are not indicated. It must be pointed out that the report is only partial, as many EPPO countries have not yet sent their notifications. When a consignment has been re-exported and the country of origin is unknown, the re-exporting country is indicated in brackets. When the occurrence of a pest in a given country is not known to the EPPO Secretariat, this is indicated by an asterisk (*).

Pest	Consignment	Type of commodity	Exporting country	Reporting country	nb
Aleyrodidae	*Pogostemon stellatus*	Cuttings	Côte d'Ivoire	France	1
Aonidiella aurantii	*Citrus sinensis*	Fruit	Tunisia	Italy	1
Aphididae, Thripidae	*Argyranthemum frutescens, Bidens ferulifolia, Cleome hassleriana, Ipomoea batatas, Lantana montevidensis, Nemesia fruticans*	Cuttings	Israel	Spain	1

Pest	Consignment	Type of commodity	Exporting country	Reporting country	nb
Bemisia tabaci	*Adansonia, Ipomoea, Solanum macrocarpon*	Vegetables (leaves)	Togo	Belgium	1
	Alternanthera, Bacopa, Hemigraphis, Hygrophila	Plants for planting	Côte d'Ivoire	France	1
	Amaranthus	Cut flowers	Israel	Netherlands	1
	Anubias	Plants for planting (aquatic)	Cameroon	France	1
	Artemisia dracunculus, Ocimum basilicum	Vegetables (leaves)	(Spain)	Spain	1
	Capsicum	Vegetables	Israel	Netherlands	1
	Capsicum frutescens	Vegetables	South Africa	Netherlands	1
	Cestrum latifolium	Vegetables (leaves)	Suriname	Netherlands	5
	Corchorus, Ipomoea, Solanum macrocarpon	Vegetables (leaves)	Togo	Belgium	1
	Echinodorus	Cuttings	Côte d'Ivoire	France	2
	Eryngium foetidum	Vegetables	Malaysia	Netherlands	1
	Eryngium foetidum, Polygonum	Vegetables	Thailand	Sweden	1
	Euphorbia	Plants for planting	China	Netherlands	1
	Hibiscus	Vegetables (leaves)	Congo, Democratic Rep.	Belgium	1
	Hibiscus	Vegetables (leaves)	Togo	Belgium	1
	Hibiscus, Solanum macrocarpon	Vegetables (leaves)	Togo	Belgium	1
	Hygrophila	Plants for planting (aquatic)	Thailand	Romania	1
	Ipomoea	Vegetables (leaves)	Congo, Democratic Rep.	Belgium	1
	Ipomoea	Vegetables (leaves)	Togo	Belgium	1
	Ipomoea batatas	Vegetables	Egypt	Netherlands	1
	Ipomoea, Solanum macrocarpon	Vegetables (leaves)	Togo	Belgium	1
	Lisianthus	Cut flowers	Israel	Netherlands	1
	Mixed plants	Plants for planting	Israel	Belgium	1
	Ocimum basilicum	Vegetables (leaves)	Brazil	France	2
	Ocimum basilicum	Vegetables (leaves)	Togo	Belgium	1
	Ocimum tenuiflorum	Vegetables (leaves)	Laos	France	3
	Ocimum tenuiflorum	Vegetables (leaves)	Malaysia	Netherlands	2
	Ocimum tenuiflorum	Vegetables (leaves)	Thailand	Netherlands	1
	Pentaclethra macrophylla, Telfairia	Vegetables (leaves)	Nigeria	Belgium	1
	Pterocarpus soyauxii	Vegetables (leaves)	Nigeria	Belgium	1
	Solanum macrocarpon	Vegetables (leaves)	Togo	Belgium	1
	Solidago	Cut flowers	Zambia	Netherlands	4
	Trachelium	Cut flowers	Israel	Netherlands	1
	Vernonia amygdalina	Vegetables (leaves)	Nigeria	Belgium	1
	Veronica longifolia	Cut flowers	Costa Rica	Netherlands	1
	Viburnum	Cut flowers	Egypt	Netherlands	1
Bemisia tabaci, Thaumatotibia leucotreta	*Annona muricata, Ipomoea*	Fruit and vegetables	Togo	Belgium	1
***Botryosphaeria dothidea, Colletotrichum* spp.**	*Mangifera indica*	Fruit	Brazil	Spain	1
Chloridea virescens	*Asparagus officinalis*	Vegetables	Peru	Netherlands	5

Pest	Consignment	Type of commodity	Exporting country	Reporting country	nb
Chlorophorus, Chloridea virescens	*Asparagus officinalis*	Vegetables	Peru	Netherlands	1
Citrus tristeza virus	*Citrus*	Plants for planting	(Malta)	Malta	1
Colletotrichum acutatum	*Psidium guajava*	Fruit	India	France	1
Cryptophlebia ombrodelta	*Vigna*	Vegetables	United Kingdom	Ireland	1
Diaspididae	*Citrus clementina*	Fruit	Tunisia	Italy	1
	Citrus limon	Fruit	Tunisia	Italy	2
	Citrus limon, Citrus sinensis	Fruit	Tunisia	Italy	2
	Citrus sinensis	Fruit	Tunisia	Italy	5
Diptera, Hemiptera	*Aponogeton*	Plants for planting (aquatic)	Madagascar	Hungary	1
Frankliniella occidentalis	*Cucurbita pepo*	Vegetables	Morocco	France	1
Frankliniella panamensis	*Rosa bella*	Cut flowers	Colombia	Portugal	2
Globodera rostochiensis	*Solanum tuberosum*	Ware potatoes	Poland	Bosnia and Herzegovina	1
Gymnandrosoma aurantianum	*Citrus sinensis*	Fruit	Colombia	France	1
Helicoverpa	*Capsicum annuum*	Vegetables	Uganda	France	1
	Solanum aethiopicum	Vegetables	Senegal	France	1
Helicoverpa armigera	*Pisum sativum*	Vegetables	Morocco	France	2
	Solanum aethiopicum	Vegetables	Senegal	France	2
	Solanum aethiopicum	Vegetables	Senegal	France	1
Lepidoptera	*Solanum tuberosum*	Ware potatoes	Algeria	Spain	1
Leucinodes	*Solanum*	Vegetables	Sri Lanka	Italy	1
	Solanum melongena	Vegetables	Sri Lanka	Italy	2
Leucinodes orbonalis	*Solanum*	Vegetables	Sri Lanka	Italy	2
	Solanum aethiopicum	Vegetables	Sri Lanka	Italy	2
	Solanum aethiopicum, Solanum torvum	Vegetables	Togo	France	1
	Solanum melongena	Vegetables	Sri Lanka	Italy	5
	Solanum torvum	Vegetables	Sri Lanka	France	1
	Solanum torvum	Vegetables	Thailand	France	1
Leucinodes pseudorbonalis	*Solanum aethiopicum*	Vegetables	Kenya	Belgium	1
	Solanum aethiopicum	Vegetables	Uganda	Belgium	2
	Solanum melongena	Vegetables	Burundi	Belgium	1
Liriomyza sativae	*Ocimum basilicum*	Vegetables (leaves)	Cambodia*	France	2
	Ocimum basilicum	Vegetables (leaves)	Laos*	Netherlands	1
	Ocimum basilicum	Vegetables (leaves)	Thailand	Germany	1
	Ocimum x citriodorum	Vegetables (leaves)	Thailand	Sweden	1

Pest	Consignment	Type of commodity	Exporting country	Reporting country	nb
Meloidogyne enterolobii	*Anubias*	Plants for planting (aquatic)	Singapore*	Belgium	1
Neoleucinodes elegantalis	*Solanum melongena*	Vegetables	Suriname	Netherlands	15
Parlatoria	*Citrus limon*	Fruit	Tunisia	Italy	1
Parlatoria ziziphi	*Citrus sinensis*	Fruit	Tunisia	Italy	3
Phyllosticta citricarpa	*Citrus maxima*	Fruit	China	Italy	1
Potato spindle tuber viroid, Xanthomonas euvesicatoria* pv. *euvesicatoria	*Capsicum annuum, Solanum lycopersicum*	Seeds	(Italy)	Italy	1
Protopulvinaria pyriformis	*Citrus sinensis*	Fruit	Tunisia	Italy	1
***Ralstonia solanacearum* (suspected)**	*Solanum tuberosum*	Ware potatoes	Egypt	Estonia	1
Ralstonia solanacearum sensu lato	*Solanum tuberosum*	Ware potatoes	Egypt	Italy	1
Resseliella citrifrugis	*Citrus maxima*	Fruit	China	Netherlands	5
***Rhizoecus* (suspect *R. hibisci*)**	*Zelkova*	Plants	China	Netherlands	1
Scirtothrips	*Solanum aethiopicum*	Vegetables	Uganda	France	1
Scirtothrips aurantii	*Solanum melongena*	Vegetables	Kenya	France	1
Scirtothrips dorsalis	*Asparagus officinalis*	Vegetables	Thailand	Netherlands	2
	Rhododendron indicum	Plants for planting	Japan	Netherlands	1
***Scirtothrips* (suspect *S. dorsalis*)**	*Colocasia esculenta*	Vegetables	Bangladesh	Belgium	1
Spodoptera	*Capsicum chinense*	Vegetables	Dominican Republic	France	2
	Limnophila	Vegetables (leaves)	Laos	France	1
Spodoptera frugiperda	*Apium graveolens*	Vegetables	Suriname	Netherlands	1
	Asparagus officinalis	Vegetables	Mexico	Netherlands	1
	Asparagus officinalis	Vegetables	Peru	Netherlands	5
	Aster	Cut flowers	Zimbabwe	Netherlands	1
	Capsicum	Vegetables	Suriname	Netherlands	1
	Eryngium	Cut flowers	Zimbabwe	Netherlands	1
	Solanum aethiopicum	Vegetables	Burkina Faso	France	1
	Solidago	Cut flowers	Zimbabwe	Netherlands	1
	Xanthosoma	Vegetables	Suriname	Netherlands	1
	Zea mays	Vegetables	Senegal	Netherlands	1
Spodoptera frugiperda, Thaumatotibia leucotreta	*Capsicum frutescens*	Vegetables	Kenya	Switzerland	1
Spodoptera litura	*Basella alba*	Vegetables	Bangladesh	Belgium	1
	Limnophila	Vegetables (leaves)	Laos	France	1

Pest	Consignment	Type of commodity	Exporting country	Reporting country	nb
***Spodoptera litura* (cont.)**	*Ocimum tenuiflorum*	Vegetables (leaves)	Viet Nam	France	1
Thaumatotibia leucotreta	*Capsicum*	Vegetables	Zimbabwe	Netherlands	1
	Capsicum annuum	Vegetables	(Sweden)	Sweden	1
	Capsicum annuum	Vegetables	Uganda	Belgium	1
	Capsicum chinense	Vegetables	Rwanda	Belgium	2
	Citrus reticulata	Fruit	Israel	France	1
	Persea americana	Vegetables	Cameroon	Belgium	1
	Punica granatum	Fruit	Israel	France	1
	Rosa	Cut flowers	Kenya	Netherlands	13
	Rosa	Cut flowers	Uganda	Netherlands	3
	Rosa	Cut flowers	Zambia	Netherlands	5
	Rosa Tea hybrids	Cut flowers	Zambia	Netherlands	1
Thrips palmi	*Dendrobium*	Cut flowers	Malaysia	Netherlands	1
	Dendrobium	Cut flowers	Thailand	Netherlands	1
	Dischidia	Plants	Thailand	Netherlands	1
	Oncidium	Cut flowers	Taiwan	Netherlands	1
	Solanum aethiopicum	Vegetables	Burkina Faso*	France	2
	Solanum macrocarpon	Vegetables	Suriname	Netherlands	1
	x Mokara	Cut flowers	Thailand	Netherlands	1
Tomato brown rugose fruit virus	*Capsicum annuum*	Seeds	China	Czech Republic	5
	Capsicum annuum	Seeds	Taiwan*	Czech Republic	1
	Solanum lycopersicum	Seeds	Australia*	Spain	1
	Solanum lycopersicum	Seeds	China	Cyprus	1
	Solanum lycopersicum	Seeds	China	Czech Republic	1
	Solanum lycopersicum	Seeds	China	Netherlands	3
	Solanum lycopersicum	Seeds	China	Poland	1
	Solanum lycopersicum	Seeds	India*	Czech Republic	1
	Solanum lycopersicum	Seeds	Israel	Germany	1
	Solanum lycopersicum	Seeds	Israel	Greece	1
	Solanum lycopersicum	Seeds	Israel	Hungary	1
	Solanum lycopersicum	Seeds	Israel	Netherlands	2
	Solanum lycopersicum	Seeds	Taiwan	Greece	1
Tuta absoluta	*Solanum lycopersicum*	Vegetables	Morocco	France	1
Xanthomonas citri* pv. *citri	*Citrus maxima*	Fruit	China	Netherlands	1

- **Fruit flies**

Pest	Consignment	Exporting country	Reporting country	nb
Anastrepha	*Acca sellowiana*	Colombia	Netherlands	1
	Mangifera indica	Brazil	France	1
	Mangifera indica	Peru	Netherlands	1
Anastrepha fraterculus	*Mangifera indica*	Brazil	Portugal	1
Bactrocera	*Averrhoa carambola*	Malaysia	Netherlands	1
	Capsicum frutescens	Thailand	Switzerland	1
	Citrus maxima	China	Netherlands	5
	Coccinia	India	Netherlands	1
	Coccinia grandis	India	Netherlands	1

Pest	Consignment	Exporting country	Reporting country	nb
***Bactrocera* (cont.)**	*Azadirachta indica, Ipomoea aquatica, Neptunia oleracea, Pithecellobium, Piper, Sesbania*	Thailand	Switzerland	1
	Psidium guajava	Egypt	Germany	1
	Salacca edulis	Indonesia	Netherlands	1
	Trichosanthes	Sri Lanka	Switzerland	1
Bactrocera dorsalis	*Mangifera indica*	Cameroon	Belgium	5
	Mangifera indica	Uganda	Belgium	1
	Psidium guajava	India	Sweden	1
Bactrocera latifrons	*Capsicum frutescens*	Thailand	Austria	1
Dacus	*Coccinia grandis*	India	Netherlands	1
Dacus ciliatus	*Coccinia grandis*	Uganda	Sweden	1
	Luffa acutangula, Momordica charantia	Uganda	Sweden	1
Dacus, Zeugodacus cucurbitae	*Coccinia grandis, Momordica charantia*	Uganda	Sweden	1
Tephritidae (non-European)	*Cucumis*	India	Netherlands	1
	Mangifera indica	Burkina Faso	France	1
	Mangifera indica	Cameroon	France	1
	Mangifera indica	Ghana	France	1
	Mangifera indica	Peru	France	1
	Psidium guajava	Brazil	France	1
Zeugodacus cucurbitae	*Coccinia grandis*	Uganda	Sweden	1
	Trichosanthes	Bangladesh	Sweden	2
	Trichosanthes	India	Sweden	1

- Wood

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
Arhopalus rusticus	Unspecified	Wooden objects	China	Austria	1
Buprestidae	*Juglans nigra*	Wood and bark	USA	Italy	1
Bursaphelenchus mucronatus	Pinales	Wood packaging material	Belarus	Latvia	1
	Unspecified	Wood packaging material	Belarus	Lithuania	1
	Pinales	Wood packaging material	Ukraine	Latvia	1
Bursaphelenchus mucronatus, Tylenchidae	Unspecified	Wood packaging material	Belarus	Lithuania	1
Bursaphelenchus xylophilus	Unspecified	Wood	USA	Sweden	1
	Unspecified	Wood packaging material	Portugal	Sweden	1
	Pinales	Wood packaging material (pallet marked in PT)	(France)	France	1
	Unspecified	Wooden objects	China	Latvia	1
Coleoptera	*Juglans nigra*	Wood and bark	USA	Italy	1

Pest	Consignment	Type of commodity	Country of origin	Destination	nb
Coleoptera, *Formica*	*Juglans*	Wood and bark	USA	Italy	1
Coleoptera, Psyllidae	*Juglans nigra*	Wood and bark	USA	Italy	1
Insecta	*Quercus alba*	Wood (sawn wood)	USA	France	1
	Juglans nigra	Wood and bark	USA	Italy	1
Lepidoptera	*Juglans nigra*	Wood and bark	USA	Italy	1
Lyctus	Unspecified	Wooden objects	China	Austria	1
Tylenchidae	Unspecified	Wood packaging material	Belarus	Lithuania	1
Xyleborus	*Copaifera mildbraedii*	Wood and bark	Cameroon	France	1
Xylosandrus crassiusculus	*Juglans nigra*	Wood and bark	USA	Germany	1
Xylotrechus	Unspecified	Wooden objects	China	Austria	1

- **Bonsais**

Pest	Consignments	Exporting country	Reporting country	nb
Insecta	*Taxus cuspidata*	Japan	Italy	1

Source: EPPO Secretariat (2021-04).

TRACES. Annual and monthly reports of interceptions of harmful organisms in imported plants and other objects.
http://ec.europa.eu/food/plant/plant_health_biosecurity/europhyt/interceptions/index_en.htm

2021/078 First report of *Euwallacea fornicatus sensu lato* and cf. *Cryphalus* sp. in the Netherlands

The NPPO of the Netherlands recently informed the EPPO Secretariat of the first occurrence of *Euwallacea fornicatus sensu lato* (Coleoptera: Scolytinae, EPPO A2 List) on its territory. The pest was detected, as well as another bark beetle cf. *Cryphalus* sp. (Coleoptera: Scolytinae, EU Annexes as 'non-European *Scolytinae* spp.'), following trace-back of consignments linked to a recent finding of *E. fornicatus* in Germany (EPPO RS 2021/033). In March 2021, two plants for planting of *Artocarpus altilis* and one plant of *Ficus microcarpa* were found to be infested in a greenhouse (44 000 m^2) for commercial wholesale in the Province of Zuid-Holland. Several exit holes and frass were recorded on affected plants. More than 10 adults and larvae of cf. *Cryphalus* sp. were detected and several adults and larvae of *Euwallacea fornicatus*. Morphological identification of adults was followed by subsequent molecular analysis.
All affected lots have been destroyed under official supervision. All woody plants and palms (Arecaceae) in the greenhouse have been put on hold pending further investigations. Monitoring with traps will be conducted for 12 weeks in the greenhouse. Trace-back and forward are ongoing. The source of the infestations is unclear as the company imports plants from different countries.
The pest status of *Euwallacea fornicatus sensu lato* in the Netherlands is officially declared as: **Present, actionable, under eradication.**

Source: NPPO of the Netherlands (2021-04).

Additional key words: new record **Computer codes:** XYLBFO, 1CRYHG, NL

2021/079 Update on the situation of *Anoplophora glabripennis* in France

In France *Anoplophora glabripennis* (Coleoptera: Cerambycidae – EPPO A1 List) was first found in 2003 in Gien (Centre-Val de Loire region) (see EPPO RS 2003/114). Since then 4 other outbreaks were found in different parts of France; 2 of which have been successfully eradicated (Strasbourg and Sainte-Anne-sur-Brivet). Following EU Decision 2015/893, eradication measures are being applied in Corsica. In Gien and Divonne-les-Bains, the French authorities have declared to the Commission that they are applying containment measures in accordance with European Decision 2015/893, while maintaining an overall objective of eradication. This change to the pest status does not modify the strategy for eradication, which is realistic, as fewer and fewer infested trees are found each year, but formalizes the fact that in the infested zone some specified trees are not cut down but are subject to intensive monitoring.
An update on these outbreaks is provided below.

- In the outbreak of Gien (Loiret department, Centre-Val de Loire region), 13 infested trees (10 *Acer* spp. in 2020 and 2 *Populus* spp. and 1 *Betula* spp. in 2019) were felled in 2020. The demarcated area covers 42 km^2 in the municipalities of Gien, Nevoy, Poilly-lez-Gien, Saint-Martin-sur-Ocre and Saint-Gondon. Preventative felling of host trees (as specified in EU Decision 2015/893) in an area of 100 m around the infested trees was partially done. Some host trees in this area have not been felled ('derogatory trees'), because of their high cultural, social or environmental value but are being intensively monitored. An awareness campaign is also being conducted.
- In Corsica, *A. glabripennis* was first detected in the department of Haute-Corse (Corse region) in 2013 (RS 2013/139). Official surveys are conducted annually in the

municipalities of Furiani, Bastia and Biguglia. No infested trees were detected in 2020, for the third consecutive year.
- In Divonne-les-bains (Ain department, Auvergne-Rhône-Alpes region), the pest was first found in 2016 (RS 2017/005). In 2020, no infested trees were detected. Derogatory trees are being intensively monitored.

The pest status in France is officially declared as: **Present, restricted distribution, under eradication.**

Source: NPPO of France (2021-04).

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

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

2021/080 Eradication of the *Anoplophora glabripennis* outbreak at Paddock Wood, United Kingdom

In a recent paper, Eyre and Barbook (2021) explained how the outbreak of *Anoplophora glabripennis* (Coleoptera: Cerambycidae – EPPO A1 List) discovered in 2012 at Paddock Wood (Kent) has been successfully eradicated. This outbreak was discovered in 2012 on a site that was adjacent to the premises of a stone importer that had stored wooden crates associated with imported stones. In 2007, an amateur entomologist had reported an adult *A. glabripennis* near this site (approximately 0.5 km away), but as the beetle was not caught the record could not be confirmed. In October 2009, an adult *A. glabripennis* was caught in a garden adjacent to the stone importer and reported to the NPPO. Surveys were conducted in 2009, 2010 and 2011 but no signs of the insect could be found. In 2012, scientists from Forest Research joined the survey and *A. glabripennis* larvae were detected in a *Salix cinerea* tree close to the garden where the beetle had been found in 2009.

The eradication campaign involving plant health and forestry authorities was initiated in 2012, based on a draft national contingency plan for *Anoplophora chinensis*, on EU emergency measures for *A. chinensis,* and the experience from other countries managing outbreaks of *A. glabripennis* in the EU and in North America. The sequence of events that took place during the eradication campaign is presented, and the paper provides details on how surveillance activities were conducted over the years, using visual inspections, tree climbers, pheromone traps, trap trees and sniffer dogs. Authors also explain how infested and potentially infested trees were felled, inspected and destroyed in a safe way. Restrictions on the movement of host plant material were enforced by means of statutory plant health notices issued to individual landowners.

In parallel to surveys, communication campaigns were organized. They included meetings with local residents, arborists and other professionals, school visits, distribution of leaflets, interviews with local and national media, and press releases on a government website. The general public was also invited to look for and report any findings. Various tools were developed to communicate with the public and stakeholders, including posters, leaflets, a mobile app to report findings, specimens of *A. glabripennis* in acrylic blocks, a large model of *A. glabripennis*, and a photographic field guide. The impact of the eradication campaign at Paddock Wood on the local community has also been studied by interviewing 9 persons directly impacted by the removal of their trees and 2 officials involved in the eradication campaign. It revealed a tension between the need to act quickly to eradicate the pest and

the interests of the local residents, as well as the necessity to involve local communities at a very early stage of an eradication campaign.

In 2019, after more than 3 years without any findings of the pest, the outbreak was officially declared eradicated. In conclusion to their paper, the authors present the lessons learnt during this eradication campaign, illustrating the complexity in organizing these activities in an effective and timely manner and the importance of public awareness.

Source: Eyre D, Barbrook J (2021) The eradication of Asian longhorned beetle at Paddock Wood, UK. *CABI Agriculture and Bioscience* **2**, 12. https://doi.org/10.1186/s43170-021-00034-x

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

Additional key words: eradication **Computer codes:** ANOLGL, GB

2021/081 First report of *Ripersiella hibisci* in Italy

The NPPO of Italy recently informed the Secretariat of the first finding of the root mealybug *Ripersiella hibisci* (Hemiptera: Pseudococcidae – EPPO A1 List) on its territory. In April 2021, *R. hibisci* was found in a nursery of ornamental plants in the municipality of Fiumefreddo di Sicilia (Province of Catania - Sicilia). The pest has been detected on roots of potted *Callistemon* plants. Phytosanitary measures are being adopted with the aim of eradicating the outbreak. All infested plants have been destroyed and monitoring is in progress in the area.
The pest status of *Ripersiella hibisci* in Italy is officially declared as: **Transient, actionable, under eradication.**

Source: NPPO of Italy (2021-04).

Pictures: *Ripersiella hibisci*. https://gd.eppo.int/taxon/RHIOHI/photos

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

2021/082 *Toumeyella parvicornis* (Hemiptera: Coccidae - pine tortoise scale): addition to the EPPO Alert List

Why: *Toumeyella parvicornis* is a scale pest of *Pinus* spp. which was first described in Florida (US) in 1897 and was only known to occur in North America until the early 2000s. It was accidentally introduced into Turks & Caicos Islands (2005) and Puerto Rico (2009) where it was found on endemic pine species (*P. caribaea* var. *bahamensis* and *P. caribaea* var. *hondurensis*, respectively). In 2014, its presence was first recorded in Italy, in several municipalities of Campania region (Naples and neighbouring municipalities), infesting *Pinus pinea* in urban environments. By 2020, the pest had spread to a larger area along the coast from Caserta to Salerno causing serious damage. In 2018, *T. parvicornis* was also found in the city of Roma (Lazio) damaging pine trees and raising concerns from the general public, as *P. pinea* is an iconic tree in the city landscape.

Where:
EPPO region: Italy.
North America: Canada (Manitoba, Ontario, Québec), Mexico, USA (Alabama, California, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, West Virginia, Wisconsin).
Central America and the Caribbean: Puerto Rico, Turks and Caicos Islands.

On which plants: *T. parvicornis* feeds on *Pinus* species including: *P. banksiana, P. caribaea* var. *bahamensis, P. caribaea* var. *hondurensis, P. contorta, P. echinata, P. elliottii, P. glabra, P. mugo, P. nigra* subsp. *laricio, P. palustris, P. pinaster, P. pinea, P. sylvestris, P. taeda, P. virginiana.*

Damage: Feeding of the nymphs and adult females on the twigs causes branches to die (flagging). Heavily attacked trees turn yellow and finally may die. The scale produces large amounts of honeydew on which black sooty moulds develop, hindering photosynthesis and thus contributing to tree decline. Ants often feed on the sugary honeydew. In Puerto Rico, *Solenopsis invicta* (fire ant) and *Wasmannia auropunctata* (little fire ant) were observed in association with *T. parvicornis*. In North America, *T. parvicornis* periodically causes mortality of pine seedlings and saplings. It is considered as a pest in young pine plantations, seed orchards and Christmas tree farms. In Turks and Caicos Islands, the situation has been particularly severe with high levels of pine tree mortality. On these islands, *P. parvicornis* infestations are threatening the survival of the endemic pine, *P. caribaea* var. *bahamensis* and restoration programmes are being implemented.
Eggs are small, pinkish and ovoid. The first instar nymphs are the mobile stage (crawlers). Once they have selected a feeding site, they remain in place. Females have 3 nymphal instars, and an adult stage. Mature females are oval to elongate, 3.5 to 5 mm in length and 3.0 to 4.0 mm in width, reddish brown, mottled with darker spots. The shape and markings give the scale the appearance of a tortoise shell, hence its name. Two distinct morphological forms have been observed, depending on the part of the plant where females are present: a shoot/twig form and a needle form. Males have 2 nymphal instars followed by prepupa, pupa and adult stages. Adult males are brown with white wings. In the northern part of its range, *T. parvicornis* has only one generation per year, whereas in the southern part of is range, several generations (up to 4) can be completed. In areas with cold winters, the scale overwinters as fertilized, immature females. In Campania (IT), at least 3 generations, partially overlapping, have been observed on *P. pinea*.

Dissemination: Crawlers can move from infested trees to adjacent pines, but can also be carried by wind for longer distances. They can also transported by other animals (birds, insects) or machinery. In Campania, it is thought that the widespread presence of *P. pinea* along main roads has contributed to its rapid spread. Over long distances, movement of infested plants for plantings and cut branches, including Christmas trees, can transport the pest. The pathway of introduction into Turks and Caicos Island is suspected to have been the import of live, cut pine trees from the USA that were intended to be used as Christmas trees.

Pathways: Plants for planting, cut branches (including Christmas trees) of *Pinus* spp. from countries where *T. parvicornis* occurs.

Possible risks: Pine trees are widely planted across the EPPO region for forestry and ornamental purposes. In its invaded range, *T. parvicornis* has shown invasive behaviour and can be a serious pest of pine trees, both in the natural environment (in Turks and Caicos

Islands) and in an urban environment (Italy). On ornamental pine trees, dieback and development of sooty moulds reduce the aesthetic value of the plants. As for many other scale insects, chemical control is generally difficult, and may not be possible in forest or urban environments. In North America, several species of natural enemies have been observed. In Campania (IT), *Metaphycus flavus* (Hymenoptera: Encyrtidae) has been observed parasitizing *T. parvicornis*, but it was not able to hamper pest spread or prevent pine dieback. In this region, phytosanitary measures have been taken to contain the pest, and include surveys to delimit infested areas, destruction of infested plants, restrictions on the movement of plants outside demarcated areas and appropriate pest control. As *T. parvicornis* could be a threat to pine trees in urban environments and possibly in forests, it is advisable to monitor the situation of this pest in the EPPO region.

Sources

Ben-Dov Y (1993) *A systematic catalogue of the soft scale insects of the world (Homoptera: Coccoidea: Coccidae)*. Sandhill Crane Press Gainesville, (US), 536 pp.

Bradley GA (1973) Effect of *Formica obscuripes* (Hymenoptera: Formicidae) on the predator-prey relationship between *Hyperaspis congressis* (Coleoptera: Coccinellidae) and *Toumeyella numismaticum* (Homoptera: Coccidae). *Canadian Entomologist* **105**, 1113-1118 (abst.)

Clarke SR (2013) Pine tortoise scale. Forest Insect & Disease Leaflet 57. USDA. Forest Service, 9 pp. http://dnrc.mt.gov/divisions/forestry/docs/assistance/pests/fidls/057.pdf

Garonna AP, Foscari A, Russo E, Jesu G, Somma S, Cascone P, Guerrieri E (2018) The spread of the non-native pine tortoise scale *Toumeyella parvicornis* (Hemiptera: Coccidae) in Europe: a major threat to *Pinus pinea* in Southern Italy. *iForest* **11**, 628-634. https://doi.org/10.3832/ifor2864-011

Garonna AP, Scarpato S, Vicinanza F, Espinosa B (2015) First report of *Toumeyella parvicornis* (Cockerell) in Europe (Hemiptera: Coccidae). *Zootaxa* **3949**(1), 142–146.

Hamon AB, Williams ML (1984) The soft scale insects of Florida (Homoptera: Cocoidea: Coccoidae). Florida Department of Agriculture and Consumer Services. Division of Plant Industry, Gainesville (US), pp 122-123.

INTERNET

- Les hémiptères du Québec - cochenilles. *Toumeyella parvicornis*. Cochenille -tortue du pin. http://entomofaune.qc.ca/entomofaune/cochenilles/cochenilles_t_parvicornis.html
- Servizio Fitosanitario Regionale. *Toumeyella parvicornis* (Cockerell). Cocciniglia tartaruga del pino. http://www.agricoltura.regione.campania.it/difesa/toumeyella.html

Kondo T, Pellizzari G (2011) Description of a new species of *Toumeyella* Cockerell from Mexico. *Revista Brasileira de Entomologia* **55**(2), 229-233.

Malumphy C, Hamilton MA, Manco BN, Green PW, Sanchez MD, Corcoran M, Salamanca E (2012) *Toumeyella parvicornis* (Hemiptera: Coccidae), causing severe decline of *Pinus caribaea* var. *bahamensis* in the Turks and Caicos Islands. *Florida Entomologist* **95**(1), 113-119.

NPPO of Italy (2020-08).

Ross MS, O'Brien JJ, Ford R, Zhang K, Morkill A (2009) Disturbance and the rising tide: the challenge of biodiversity management on low-island ecosystems. *Frontiers in Ecology and the Environment* **7**(9), 471-478. https://doi.org/10.1890/070221

Sanchez MD, Manco BN, Blaise J, Corcoran M, Hamilton MA (2019) Conserving and restoring the Caicos pine forests: The first decade. *Plant Diversity* **41**, 75-83.

Segarra-Carmona AE, Cabrera-Asencio I (2010) *Toumeyella parvicornis* (Cockerell) (Hemiptera: Coccoidea: Coccidae): a new invasive pest of pine trees in Puerto Rico. *Journal of Agriculture of the University of Puerto Rico* **94**(1/2), 175-177.

EPPO RS 2021/082

Panel review date – Entry date 2021-04

2021/083 First report of *Arboridia kakogawana* in Serbia

In Serbia, the first specimens of *Arboridia kakogawana* (Hemiptera: Cicadellidae – EPPO Alert List) were collected in July 2020 in the city centre of Novi Sad (Northern Serbia, Vojvodina province). They were caught in a light trap located in a private garden. In August 2020, more findings were made:

- Two specimens were observed in Klisa (a suburban area, 5 km from the city centre-of Novi Sad) on *Vitis vinifera* plants which appeared healthy.
- An abundant population was observed on old *V. vinifera* plants in a private garden in the town of Srbobran, 35 km north of Novi Sad. *A. kakogawana* was also observed on *Parthenocissus quinquefolia*. Infested grapevine plants showed bleached dots and chlorotic patches on the leaves. However, it was noted that another insect species, *Empoasca* sp., was also present and may have contributed to this type of damage.
- An abundant population of *A. kakogawana* was found in Zemun, a suburban area of Belgrade on *V. vinifera* plants. In this locality, 3 other insect species were collected from the same grapevine plants, *Scaphoideus titanus, Erasmoneura vulnerata* and *Stictocephala bisonia*.
- Approximately 20 specimens of *A. kakogawana* were observed in the town of Crvenka (Northern Serbia, Vojvodina province) on healthy-looking grapevine plants in a private garden.

A. kakogawana originates from Asia and was first reported in the early 2000s in Southern Russia (Krasnodar). It was then found in the Crimean Peninsula (UA), Bulgaria, and Romania (EPPO RS 2016/097, 2020/006, 2021/056). This new record from Serbia illustrates the westward expansion of this invasive insect species on the European continent.
The situation of *Arboridia kakogawana* in Serbia can be described as: **Present, restricted distribution.**

Source: Šćiban M, Mirić R, Kosovac A (2021) First record of the Japanese grape leafhopper *Arboridia kakogawana* (Hemiptera: Auchenorrhyncha: Cicadellidae: Typhlocybinae) in Serbia. *Acta Entomologica Serbica* **26**(1), 1-4. https://aes.bio.bg.ac.rs/index.php/aes/article/view/313

Pictures: *Arboridia kakogawana*. https://gd.eppo.int/taxon/ARBOKA/photos

Additional key words: new record **Computer codes:** ARBOKA, RS

2021/084 Alien species of Auchenorrhyncha found in Serbia

In Serbia, a faunistic study on Auchenorrhyncha species was conducted in 2019. Three types of habitats were surveyed: (1) urban area of Novi Sad; (2) vegetation near the Belgrade customs office terminal and areas along the A1 motorway; (3) undisturbed habitats in the Special Nature Reserves of Zasavica and Deliblatska peščara, as well as in the Stara planina Nature Park. Out of more than 200 Auchenorrhyncha species identified during these studies, the following 3 alien species were recorded for the first time in Serbia.

- ***Acanalonia conica*** (Hemiptera: Acanaloniidae): 4 male and 4 female specimens were collected by hand in Novi Sad (Vojvodina, Northern Serbia) in July 2019. The insects were found on an ornamental *Prunus salicina*. *A. conica* originates from North America and is a polyphagous species. In the EPPO region, it was first found in Italy in 2003, and then also

reported from Romania, Slovenia and Switzerland (see EPPO RS 2007/217 and https://gd.eppo.int/taxon/ACNLCO/distribution).

- ***Erasmoneura vulnerata*** (Hemiptera: Cicadellidae): 2 male and 2 female specimens were found near Belgrade along the A1 motorway in September 2019. These specimens were collected (sweep net) on *Vitis* sp. plants growing among a bushy vegetation. *E. vulnerata* originates from North America. In the EPPO region, it was first reported in Italy in 2004 and in Slovenia in 2010 (https://gd.eppo.int/taxon/ERYTVU/distribution). *E. vulnerata* feeds on wild and cultivated *Vitis* species, and a number of secondary hosts. In Italy, it has been observed that it could cause damage such as leaf curling, discoloration and scorching on *Vitis labrusca* and *V. vinifera*.

- ***Orientus ishidae*** (Hemiptera: Cicadellidae): two specimens were caught in light traps in Vojvodina (Northern Serbia). A male specimen was caught in Novi Sad in July 2019 and a female was caught in Zasavica in August 2019. *O. ishidae* originates from Asia and has been introduced into North America, as well as in several countries of the EPPO region (see EPPO RS 2015/098 and https://gd.eppo.int/taxon/ORIEIS/distribution). *O. ishidae* is a highly polyphagous species which has been experimentally shown to transmit a phytoplasma associated with flavescence dorée and is suspected to be a vector of other phytoplasmas (e.g. '*Candidatus* Phytoplasma pruni').

In addition, the following alien species of Auchenorrhyncha were found during these studies: *Japananus hyalinus* (Hemiptera: Cicadellidae), *Metcalfa pruinosa* (Hemiptera: Flatidae), *Phlogotettix cyclops* (Hemiptera: Cicadellidae, *Scaphoideus titanus* (Hemiptera: Cicadellidae), and *Stictocephala bisonia* (Hemiptera: Membracidae). The authors noted that *A. conica, E. vulnerata, O. ishidae* and *P. cyclops* are recognized as either potential or true pests of grapevine by causing direct feeding damage or transmitting phytoplasma diseases (*O. ishidae*), and therefore may present new phytosanitary risks for Serbian vineyards.

Source: Šćiban M, Kosovac A (2020) New records and updates on alien Auchenorrhyncha species in Serbia. *Pesticides and Phytomedicine (Belgrade)* **35**(1), 9-17. https://doi.org/10.2298/PIF2001009S

Pictures: *Acanalonia conica*. https://gd.eppo.int/taxon/ACNLCO/photos
Metcalfa pruinosa. https://gd.eppo.int/taxon/METFPR/photos
Orientus ishidae. https://gd.eppo.int/taxon/ORIEIS/photos
Scaphoideus titanus. https://gd.eppo.int/taxon/SCAPLI/photos

Additional key words: new record

Computer codes: ACNLCO, ERYTVU, JAPNHY, METFPR, ORIEIS, PHTTCY, SCAPLI, STICBI, RS

2021/085 Studies on the spread capacity of *Pityophthorus juglandis*

The walnut twig beetle, *Pityophthorus juglandis* (Coleoptera: Curculionidae: Scolytinae) is the vector of *Geosmithia morbida* (both EPPO A2 List), a pathogen causing the thousand cankers disease on walnut (*Juglans* spp.). Both organisms were found for the first time in Veneto region, Italy in 2013 (EPPO RS 2014/001) and represent a serious threat for walnut orchards in the EPPO region. A study was conducted in Veneto region to survey the annual increase of the invaded range of *P. juglandis* and to develop a model assessing its spread capacity according to specific environmental parameters.

A survey for *P. juglandis* was conducted for 8 consecutive years (2013–2020) in 106 walnut (*J. nigra* and *J. regia*) orchards and showed that out of the 106 sites monitored, 44 walnut orchards were found to be infested. It was also found that *P. juglandis* had a mean annual dispersal of 9.4 km, with peaks of approximately 40 km. Pest dispersal was affected by distance of suitable hosts from the nearest infested site, number of walnut orchards in the surroundings (both infested and healthy), orchard size and walnut species in the orchard. Observations made in Veneto confirmed that *P. juglandis* has a preference for *J. nigra* (black walnut) over *J. regia* (English walnut).
Based on this data, a model was developed to calculate the colonization risk for a specific walnut orchard, taking into account its characteristics. For example, it was calculated that a medium-size orchard (5 000 trees) of *J. nigra* located at 25 km from the nearest infested orchard had a 50% probability of becoming infested. According to this model, using a 2 km radius to delimit a buffer zone around the infested site corresponds to an infestation risk higher than 80% and 40 % for medium-sized orchards of *J. nigra* and *J. regia*, respectively. The authors considered that an increase of the buffer zone radius could be used with other control methods (e.g. use of repellents) to control the spread of *P. juglandis*. They also noted that other studies had determined that the active flight distance covered by P. *juglandis* was less than 2 km. This showed that factors, other than active flight, should be taken into account to explain the spread observed in Veneto, in particular the human-mediated movement of walnut logs or wood products, and possibly wind. Considering the outbreaks that have been reported in other Italian regions, as they are distantly located (more than 200 km away from the original finding site in Veneto), the hypothesis of multiple introductions seems to be the most plausible one but remains to be confirmed by further studies.

Source: Marchioro M, Faccoli M (2021) Dispersal and colonization risk of the walnut twig beetle, *Pityophthorus juglandis*, in southern Europe. *Journal of Pest Science*. https://doi.org/10.1007/s10340-021-01372-5

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

Additional key words: biology **Computer codes:** PITOJU

2021/086 Update on the situation of tomato brown rugose fruit virus in the Netherlands

Tomato brown rugose fruit virus (*Tobamovirus*, ToBRFV – EPPO A2 List) was first detected in the Netherlands in October 2019 in one greenhouse on tomato (*Solanum lycopersicum*) in the municipality of Westland (EPPO RS 2019/209) and later in 20 sites in 8 municipalities (RS 2020/225). National official measures have been implemented since October 2019 and are in line with EU regulation (EU implementing decisions 2019/1615 and 2020/1191).

The NPPO of the Netherlands informed the EPPO Secretariat that as of March 2021, measures are applied in 23 sites producing tomato fruit in 12 municipalities (436.8 ha in total). Since October 2019, ToBRFV had been detected in 32 companies (476.6 ha), it was eradicated in 5 companies (25.7 ha), and in 4 companies measures are on hold as non-host plants are cultivated. In 8 sites eradication was not successful and ToBRFV was confirmed in the new crop.

Measures in infected fruit production sites include strict hygiene measures (disinfection or replacement of clothing, machines, equipment, surfaces and packaging material). Disinfection with potassium peroxymonosulfate is recommended. Fruits may be harvested provided that specific hygiene measures are applied both at the production place and at the packing station, including cleaning and disinfection of packaging material. Following removal of the crop, cleaning and disinfection of the greenhouse, the production site is monitored, including testing at least six months after planting, to verify absence of the virus in the succeeding crop, before measures are lifted. Fruit growers reported losses varying between 5-30%. Some companies reported less than 5% loss. Other companies had to remove a crop and start a new crop. Costs of measures for official waste destruction amount to approximately EUR 5 000 – 10 000 per hectare. In addition extra costs are needed for hygiene measures.

Seed lots are tested as part of trace-back measures. As a result, four seed lots tested positive. However, it was not possible to confirm whether these seeds had caused the infection of the fruit crop, since sequencing of the virus was not possible. Following trace-back measures, measures were also applied in one site producing tomato plants for planting. The source of the outbreaks is not known. Based on genome sequencing analysis it is concluded that probably at least 3 different introductions have occurred.

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

Source: NPPO of the Netherlands (2021-03).

Commission Implementing Regulation (EU) 2020/1191 of 11 August 2020 establishing measures to prevent the introduction into and the spread within the Union of Tomato brown rugose fruit virus (ToBRFV) and repealing Implementing Decision (EU) 2019/1615. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020R1191

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

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

2021/087 Update on the situation of tomato brown rugose fruit virus in Poland

Tomato brown rugose fruit virus (*Tobamovirus*, ToBRFV – EPPO A2 List) was first detected in Poland in March 2020 and eradicated (EPPO RS 2020/122 and RS 2020/200). Since then, the virus has been found again in the following provinces:

- in the province of Podkarpackie at the end of November 2020, in a seed lot produced from tomato mother plants (*Solanum lycopersicum*) grown in a greenhouse (50 m^2).
- in the province of Michałowice at the end of January 2021, in a seed lot produced from *Capsicum annuum* mother plants grown in a greenhouse (50 m^2). The mother plants had been inspected in July 2020 and did not present symptoms.
- In both cases, the infested seeds were destroyed. Official inspection will be carried out on host plants of ToBRFV in the entire place of production in 2021.
- in the province of Łódzkie (municipality of Wola Krzysztoporska) in 4 lots of plants for planting of tomato (*Solanum lycopersicum*) grown in a greenhouse in February 2021. Official phytosanitary measures will be implemented.

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

Source: NPPO of Poland (2020-11, 2021-01, 2021-02).

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

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

2021/088 First report of *Puccinia graminis* f. sp. *tritici* Ug99 in Iraq

In Iraq, during a survey conducted in 2019, 27 wheat (*Triticum* sp.) plants showing symptoms of stem rust were collected and tested. Molecular analyses and pathogenicity tests confirmed that the causal agent was the wheat stem rust fungus *Puccinia graminis* f. sp. *tritici* Ug99 race TTKTT. This is the first time that the Ug99 race group is detected in Iraq. The Ug99 race group of *P. graminis* f. sp. *tritici* is a lineage of wheat stem rust that is able to overcome a number of resistance genes of wheat varieties previously resistant to the disease. This race group has been found in several countries in Africa and the Middle East (see also RS 2008/147).

Source: Nazari K, Al-Maaroof EM, Kurtulus E, Kavaz H, Hodson D, Ozseven I (2021) First report of Ug99 race TTKTT of wheat stem rust (*Puccinia graminis* f. sp. *tritici*) in Iraq. *Plant Disease* (early view). https://apsjournals.apsnet.org/doi/pdf/10.1094/PDIS-02-21-0404-PDN

Additional key words: detailed record **Computer codes:** PUCCGT, IQ

2021/089 Studies on the diversity and phylogeny of *Heterobasidion* species

The genus *Heterobasidion* include several species that are aggressive pathogens of managed coniferous forests in Europe (*H. abietinum, H. annosum sensu stricto, H. parviporum*) and North America (*H. irregulare* (EPPO A2 List) and *H. occidentale*). In addition, other species have been described in Asia (*H. amyloideopsis, H. amyloideum, H. australe, H. ecrustosum, H. insulare, H. linzhiense, H. orientale, H. tibeticum*) and in Australia *(H. araucariae*). Based on mating studies, it is now considered that both *H. annosum* and *H. insulare* are species complexes.

Phylogenetic studies have been carried out on a set of *Heterobasidion* samples from Asia, Europe, North America, and Oceania. During these studies, the following three new *Heterobasidion* species from East Asia (China) have been described:

- *Heterobasidion armandii* sp. nov. (found on a *Pinus armandii* stump in Yunnan);
- *Heterobasidion subinsulare* sp. nov. (found on a *Pinus* sp. stump in Yunnan);
- *Heterobasidion subparviporum* sp. nov. (found on a fallen trunk of *Larix* sp. in Hebei; as well as on a fallen trunk of *Picea* sp and a living tree of *Abies* sp. in Jilin, and on a stump of *Picea* sp. in Xizang (Tibet)).

A fourth species, *Heterobasidion* sp. found in California (US) on *Pinus ponderosa* is probably another distinct species but it could not be further studied.

The present phylogenetic studies also concluded that *Heterobasidion* consists of three lineages:

- lineage associated to pines, firs and spruces (*H. amyloideopsis, H. amyloideum, H. araucariae, H. armandii, H. australe, H. insulare, H. linzhiense, H. orientale, H. subinsulare,* and *H. tibeticum*);
- lineage mainly associated to pines (*H. annosum s.s., H.* sp. and *H. irregulare*);
- lineage associated to firs and spruces (*H. abietinum, H. occidentale, H. parviporum,* and *H. subparviporum*).

The authors noted that as most Asian species (8 out of 10) have been found in the Himalayas this could confirm the hypothesis of an Asian origin for *Heterobasidion*. Considering the pathogenicity of European and North American species and the fact that Asian taxa are saprotrophs, they suggested that Asian countries should consider the European and North American species as quarantine fungi. Parallelly, they propose that European countries should consider the American *H. occidentale* and *H. irregulare* as quarantine fungi, while North America should treat *H. abietinum, H. annosum s.s.,* and *H. parviporum* as quarantine fungi.

Source: Yuan Y, Chen J-J, Korhonen K, Martin F, Dai Y-C (2021) An updated global species diversity and phylogeny in the forest pathogenic genus *Heterobasidion* (Basidiomycota, Russulales). *Frontiers in Microbiology* **11**, 596393. https://doi.org/10.3389/fmicb.2020.596393

Pictures: *Heterobasidion irregulare*. https://gd.eppo.int/taxon/HETEIR/photos

Additional key words: taxonomy **Computer codes:** 1HETEG

2021/090 First report of *Houttuynia cordata* in Italy

Houttuynia cordata (Saururaceae) is a perennial herb native to temperate and tropical Asia. In the native range, it is utilised as a medicinal plant, as a vegetable, and as a garden ornamental. It has been introduced into the EPPO region as a garden ornamental. Globally, *H. cordata* is naturalised in South America, and invasive in New Zealand, Madagascar, the USA and Costa Rica. In the EPPO region, it is recorded as a casual species in Austria, Belgium, the Czech Republic and the United Kingdom. In Hungary it is reported as established. In 2019, *H. cordata* was found along the banks of the river Stella in the municipality of Palazzolo dello Stella (Northeast Italy). Here it was growing in a disturbed riverine woodland. Over 2 years, a significant expansion of the initial population was observed. In July 2019, the population occupied less than 1 m^2 with less than 10 shoots, while in June 2020, the population was formed by 3–4 stands, occupying at least 50 m^2 with more than 70 shoots. These observations suggest an ongoing establishment and spread with a high invasive potential. Although it there is no evidence to how the species arrived in this location, it is considered that it spread from gardens through flooding events.

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

Additional key words: new record, invasive alien plants **Computer codes**: HOTCO, IT

2021/091 *Ambrosia artemisiifolia* along roads in Germany

Ambrosia artemisiifolia (Asteraceae: EPPO List of Invasive Alien Plants) is native to North America and is a widespread invasive alien plant in the EPPO region. *A. artemisiifolia* is an annual weed which competes strongly with crop plants for water and nutrients. It is a very prolific seed producer (a plant typically produces 30 000- 40 000 seeds per year and can produce up to 100 000) and seeds can remain viable for 5-14 years. Habitats where it occurs include waterways, wasteland, railways and roads. Roads in particular have been shown to facilitate the spread of invasive plant species. Construction work, road maintenance and private vehicles can all act to spread plant propagules and factors like the size of the road and the volume of traffic can act to increase the movement of invasive plants. In Brandenburg (Germany), roadside populations of *A. artemisiifolia* were mapped along four road types, defined according to traffic volumes over five years (2008-2012), and habitat mapping was conducted in 2012 to define unshaded sites and shaded sites where the latter can limit the establishment of *A. artemisiifolia*. Unshaded roadside locations were further divided into disturbed (vegetation cover <50 %) and undisturbed (vegetation cover >50 %). The results showed that traffic intensity and roadside habitat features affect the population dynamics of *A. artemisiifolia*. High traffic intensity and high disturbance resulted in the highest population growth whereas population growth in less suitable habitats (e.g. shaded roadsides) declined with decreasing traffic intensity. High levels of traffic facilitate *A. artemisiifolia* invasion along roads, due to continued seed dispersal. Management efforts should be prioritised along roads with high traffic intensity and disturbed habitats along roadsides should be kept to a minimum.

Source: Lemke A, Buchholz S, Kowarik I, Starfinger U, von der Lippe M (2021) Interaction of traffic intensity and habitat features shape invasion dynamics of an invasive alien species (*Ambrosia artemisiifolia*) in a regional road network. *NeoBiota* **64**, 155-175.

Photos: https://gd.eppo.int/taxon/AMBEL/photos

Additional key words: invasive alien plants **Computer codes:** AMBEL, DE

2021/092 Potential for the biological control of *Lycium ferocissimum* in Australia

Lycium ferocissimum (Solanaceae: EPPO Alert List) was recently identified as naturalised in France (2019) where it poses a risk to natural plant communities and associated ecosystem services. The species is native to South Africa and is reported as invasive in Australia and New Zealand. In Australia, it is a designated Weed of National Significance and in Southern Australia, it occurs in coastal and semi-arid inland habitats. *Lycium ferocissimum* is a major problem in agricultural and natural systems and dense stands can act to exclude native plant species, reduce access to water, harbour pest species (rabbits) and host agricultural pests (e.g. *Bactrocera tryoni* and *B. cockerelli*). Australian researchers carried out surveys for potential biological control agents across the plants' native range and two promising strains (eastern and western Cape) of the rust fungus *Puccinia rapipes* were identified as potential candidates. Life cycle studies confirmed that the species is macrocyclic and autoecious, producing all five spore stages on *L. ferocissimum*. Pathogenicity and species susceptibility testing was conducted *L. ferocissimum* and all of the *Lycium* species of Eurasian origin (*L. barbarum*, *L. chinense* and *L. ruthenicum*) were susceptible to both isolates of *P. rapipes*. The Australian native *L. australe* and three more distantly related species in different genera (*Hyoscyamus albus, H. aureus* and *Solanum aviculare*) were resistant to both isolates. The isolate from the Western Cape was more pathogenic on *L. ferocissimum* from Australia, than the Eastern Cape isolate. The results suggest that *P. rapipes* may be sufficiently host specific to pursue as a biological control agent for Australia, if regulators are willing to accept damage to the Eurasian goji berries which are grown to a limited extent.

Source: Ireland KB, Hunter GC, Wood A, Delaisse C, Morin L (2019) Evaluation of the rust fungus *Puccinia rapipes* for biological control of *Lycium ferocissimum* (African boxthorn) in Australia: Life cycle, taxonomy and pathogenicity. *Fungal Biology* **123**, 811-823.

Additional key words: biocontrol, invasive alien plants **Computer codes:** LYUFE, AU

2021/093 Weed hosts of *Cuscuta campestris* in Turkey

Cuscuta campestris (Convolvulaceae), commonly known as dodder, is an annual parasitic plant native to temperate North America. It is regarded as invasive in Africa, Asia, some islands in the Pacific (for example Cook Islands, Fiji, New Caledonia), New Zealand and parts of the EPPO region (for example Hungary and Spain). The risk of introduction of *C. campestris* is mainly from contaminated seed crops. Impacts are generally associated with yield reduction and a 57 % reduction has been reported in lucerne forage production. The host range of *C. campestris* is very wide and several hundred weed and crop species have been listed as hosts. Between 2015-2018, surveys were conducted in Edirne, Kırklareli and Tekirdağ Provinces in Northwestern Turkey to identify *Cuscuta* species and assess their ecology. *C. campestris* was identified on 23 dicotyledonous weed species from 15 families where Asteraceae had the highest number of hosts followed by Brassicaceae, Plantaginaceae and Polygonaceae. Within these families Plantaginaceae members were considered as most susceptible to *C. campestris*. *Polygonum aviculare* and *Rumex crispus* were very widespread species and were attacked frequently. Although the prevalence of *C. campestris* was very

common in *P. aviculare* plants, the symptoms of parasite damage were not visible. In contrast several wilted and dried *R. crispus* plants were observed under heavy infections. Other species with a high infection included *Lactuca serriola*, *Convolvulus arvensis, Portulaca oleracea, Tribulus terrestris* and *Ecballium elaterium*. Species from Plantaginaceae, *Plantago major* and *P. lanceolata* had lower prevalence rate and degree of infection.

Source: Şin B, Őztürk L, Sivri N, Avci GG, Kadioglu I (2020) Weed hosts of field dodder (Cuscuta campestris Yunck.) in Northwestern Marmara region of Turkey. *Journal of Aegean Agricultural Research Institute* **30**, 80-86.

Photos: https://gd.eppo.int/taxon/CVCCA/photos

Additional key words: invasive alien plants **Computer codes:** CVCCA, TR

2021/094 Biological control of *Impatiens glandulifera* in Great Britain

Impatiens glandulifera (Balsaminaceae: EPPO List of Invasive Alien Plants) is an invasive, annual species native to the Western Himalayas. It was originally introduced into the EPPO region as a garden ornamental and has spread throughout Europe. Management of such a widespread species using traditional methods can be both time consuming and expensive. Two strains (India and Pakistan) of the rust fungus *Puccinia komarovii* var. *glanduliferae* have been released as biological control agents against *I. glandulifera* in Great Britain, and the performance of the rust has been monitored across the release sites. *P. komarovii* var. *glanduliferae* is a macrocyclic pathogen with urediniospores which cycle on the leaves through the summer months, forming teliospores later in the season. The latter spore type overwinters and produces the basidiospores in the spring which infect the hypocotyl of the emerging seedlings. Although leaf infection levels are high in many sites across Great Britain, the rust has only successfully overwintered at four of the release sites. Experiments to assess the virulence of the two rust strains against different biotypes of *I. glandulifera* were conducted. The results highlight a large variation in susceptibility of urediniospore infection across *I. glandulifera* populations. In addition, the infectivity of basidiospores differed where some populations were fully susceptible to the urediniospore stage but immune to basidiospore infection. Looking towards the future, additional strains of the rust from the native range will need to be released in Great Britain to tackle resistant biotypes of *I. glandulifera*.

Source: Pollard KM, Varia S, Seier MK, Ellison CA (2021) Battling the biotypes of balsam: the biological control of *Impatiens glandulifera* using the rust fungus *Puccinia komarovii* var. *glandulifera* in GB. *Fungal Biology* (early view). https://doi.org/10.1016/j.funbio.2021.03.005

Photos: https://gd.eppo.int/taxon/IPAGL/photos

Additional key words: biocontrol, invasive alien plants **Computer codes:** IPAGL, GB

2021/095 *Amaranthus palmeri* in Spain

Amaranthus palmeri (Amaranthaceae - EPPO A2 pest) is a dioecious summer annual species native to North America. In its native range, it is a weed in agricultural fields and disturbed habitats. It has a high fecundity and a long-lived seed bank, which make management of the species difficult. In the EPPO region, it is established in a few countries and transient in several others. In Spain in 2007, three locations of *A. palmeri* were found in the north east of the country. These populations were on roadsides and field margins in Lleida and Menàrguens provinces, in industrial areas near the city of Lleida and on roadsides in Binéfar. Research was carried out to determine if these populations were independent introduction events and if there was herbicide resistance in the populations. Seed material was collected from all populations, and also from populations in Georgia (USA) with no history of herbicide use in the last 20 years. The latter populations were used as a control to measure susceptibility to herbicides. Seed was grown from all populations and dose-response experiments were conducted using a selection of herbicides, at different rates and different timings (e.g. pre-emergence and post-emergence). The dose response trials confirmed that all three populations were susceptible to glyphosate but resistant to acetolactate synthase inhibiting (ALS) herbicides. Molecular analysis of ALS gene sequence revealed target site mutations in the three *A. palmeri* populations that confer resistance to ALS inhibitors. All three populations were however, controlled with other herbicides with three different modes of action, highlighting that there is still an opportunity to control these populations using herbicides. Additionally, molecular analysis highlighted that the three populations had genetic differences which suggests the populations result from separate colonisation events. Preventing new introductions of *A. palmeri* in the EPPO region is important, especially as new herbicide resistance traits may arrive. In 2020, EPPO published a pest risk analysis for *A. palmeri* which includes recommended phytosanitary measures.

Source: Torra J, Royo-Esnal A, Romano Y, Osuna MD, León RG, Recasens J (2020) *Amaranthus palmeri* a new invasive weed in Spain with herbicide resistant biotypes. *Agronomy* **10**(7), 993. https://doi.org/10.3390/agronomy10070993
EPPO (2020) Pest risk analysis for *Amaranthus palmeri*. EPPO, Paris. Available at: https://gd.eppo.int/taxon/AMAPA/documents

Photos: https://gd.eppo.int/taxon/AMAPA/photos

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