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21 Bld Richard Lenoir
75011 Paris

Tel: 33 1 45 20 77 94
Fax: 33 1 70 76 65 47

E-mail: hq@eppo.int
Web: www.eppo.int

2017/182 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**

'*Candidatus* Phytoplasma prunorum' (EU Annexes – associated with European stone fruit yellows) occurs in Belarus. The pathogen was found during a study carried out in autumn 2014 in the experimental field of the Institute for Fruit Growing in Samochvalovichi. '*Ca.* P. prunorum' was detected in symptomatic apricot *(Prunus armeniaca)* trees, as well as in asymptomatic *Prunus spinosa* (Valasevich and Schneider, 2016). **Present, no details.**

Drosophila suzukii (Diptera: Drosophiliidae – EPPO A2 List) was first found in 2017 in Chile. The first specimens were caught in traps placed in blackberry bushes (*Rubus* spp.) in the municipality of Pucón y Villarrica (La Araucanía region), near the international road which leads to the border point of Maluil Malal. Official control measures have been taken to contain the pest (SAG, 2017). Since these initial captures, other specimens were caught in the regions of Los Lagos and Los Ríos. No damage has been reported on crops (Internet, 2017). **Present, only in some areas (captures only, in La Araucanía, Los Lagos and Los Ríos regions), under official control.**

Fusarium oxysporum f.sp*. lactucae* (formerly EPPO Alert List) is reported for the first time from France. During summer 2016, the fungus was detected in wilting lettuce (*Lactuca sativa* cv. Tourbillon) plants growing under plastic tunnels in Nice, Southern France. Affected plants were stunted and displayed yellow leaves with an orange discoloration of the vascular tissues. The disease incidence reached 15 to 40% with a yield loss of up to 50%. It is noted that the disease is restricted to a few production sites for the moment (Gilardi *et al*., 2017). **Present, only in some areas (few production sites in Southern France).**

Grapevine Pinot gris virus (*Trichovirus*, GPGV) has recently been found in Spain. In 2016, specific surveys were carried out in different grapevine production areas in Spain. The virus was detected in 3 samples (*V. vinifera* cvs. Garnacha and Bobal) showing leaf deformation and collected from the 'Denominación de Origen' Utiel-Requena (Comunidad Valenciana), and in 2 asymptomatic samples (*V. vinifera* cv. Tempranillo) from the 'Denominación de Origen' La Manchuela (Castilla La Mancha). Further studies will be performed to better understand the distribution and incidence of GPGV in Spanish vineyards (Ruiz-Garcia and Olmos, 2017). **Present: only in some areas (Castilla La Mancha, Comunidad Valenciana).**

Leptoglossus occidentalis (Heteroptera: Coreidae - Western conifer seed bug) was first found in Chile in April 2017. The first specimens were identified in Valparaíso in an urban environment. However, it is noted that this insect had incidentally been found in March 2017 in Coquimbo region (contiguous to Valparaíso region) on a ship coming from the Philippines, without evidence that these specimens had escaped from the ship. However, this observation suggests that ship transport might have been a pathway of introduction. Following these initial findings, *L. occidentalis* rapidly spread to the following other regions of Chile: Atacama, Metropolitana, Maule, and Bíobío. This is also the first time that *L. occidentalis* is reported from South America (Faúndez and Rocca, 2017; Faúndez *et al.*, 2017). **Present: only in some areas (Atacama, Bíobío, Coquimbo, Maule, Metropolitana, Valparaíso).**

Xanthomonas citri subsp. *citri* (EPPO A1 List) occurs in Timor-Leste. During surveys carried out from 2006 to 2016, leaves of citrus plants showing characteristic symptoms of citrus canker were collected. Laboratory studies (biochemical, molecular tests, and pathogenity tests) have recently confirmed the identity of the bacterium (Ray *et al.*, 2017). **Present, no details.**

- **Detailed records**

Grapevine Pinot gris virus (*Trichovirus*, GPGV) has recently been found in Southern China. The virus was detected in 14 symptomatic samples (showing leaf chlorotic mottling and deformation) which had been collected in 2014 from grapevine (*Vitis vinifera* cv. Shine Muscat) growing in the provinces of Hainan, Guangxi and Guangdong (Lou *et al.*, 2016).

Meloidogyne graminicola was found for the first time in Hubei province, China, in May 2016. The nematode was found in rice (*Oryza sativa*) root samples which had been collected from 3 adjacent fields in the village of Hexin (Gongan county). Several hook-shaped galls were observed on the roots (Wang *et al.*, 2017).

In China, *Tomato spotted wilt virus* (*Tospovirus*, TSWV - EPPO A2 List) has been detected in a pumpkin (*Cucurbita moschata*) field in Linyi, Shandong province. In August 2015, pumpkin plants showed symptoms of leaf mottling, crinkling and mosaic, as well as a high incidence of thrips (*Thrips palmi*) (Sun *et al.*, 2016).

In Italy, *Pseudomonas syringae* pv. *actinidiae* (EPPO A2 List) was found in the province of Trento during extensive field surveys carried out during 2012-2015 on kiwifruit (mainly *Actinidia deliciosa* cv. Hayward, but also *A. chinensis* cv. Soreli) (Cainelli *et al.*, 2016)

In Italy, *Tomato leaf curl New Delhi virus* (*Begomovirus*, ToLCNDV – EPPO Alert List) occurs in Sardegna. In August 2016, unusual symptoms were observed in a field of zucchini (*Cucurbita pepo*) located in Decimoputzu. Laboratory analysis confirmed the presence of ToLCNDV (Luigi *et al.*, 2016).

- **Eradication**

In Italy, *Chrysanthemum stem necrosis virus* (*Tospovirus*, CSNV – EPPO A1 List) was detected on *Chrysanthemum morifolium* in February 2014 in a nursery located in the province of Savona, Liguria region (EPPO RS 2014/129). Eradication measures were taken, and all infected plants were destroyed. Results of surveys (including sampling and laboratory tests) which have been carried out during the last 3 years in the largest floricultural companies of Liguria have confirmed the absence of CSNV. The NPPO of Italy now considers that CSNV has been eradicated (NPPO of Italy, 2017-10).

- **Host plants**

In China, *Watermelon silver mottle virus* (*Tospovirus*, WSMoV – EPPO A1 List) was detected in tomato (*Solanum lycopersicum*) plants during a survey conducted in November 2015 in Mangshi county, Yunnan province. Affected tomato plants were showing leaf chlorosis and were also infested by thrips. This is the first time that WSMoV is detected in tomato (Yin *et al.*, 2016).

- **New pests and taxonomy**

A new *Nepovirus* causing a leaf mottling disease in *Petunia* hybrids has recently been characterized. Infected plants originated from South America and displayed foliar interveinal chlorosis and mottling. This new virus has tentatively been called Petunia chlorotic mottle virus (PCMoV) (Bratsch *et al.*, 2017).

A new phytoplasma species, '*Candidatus* Phytoplasma wodyetiae' has been described. It is associated with a yellow decline disease of *Wodyetia bifurcata* (foxtail palm) which has been observed in Bangi (State of Selangor), Malaysia. Affected palm trees grown for landscaping displayed severe foliar chlorosis, stunting, general decline and mortality reminiscent of coconut yellow decline disease. '*Ca*. P. wodyetiae' belongs to a new phytoplasma ribosomal group, 16SrXXXVI, subgroup A (Naderali *et al.*, 2017).

- **Erratum**

In the EPPO RS 2017/131 summaring the situation of *Agrilus planipennis* in Russia, the list of administrative divisions of European Russia where the pest has been found should be corrected as follows:
Southern European Russia: ~~Belgorod~~, ~~Kursk~~, ~~Rostov~~, ~~Saratov~~, ~~Volgograd~~, **Voronezh**.
Central European Russia: ~~Bryansk~~, ~~Ivanovo~~, **Kaluga**, ~~Kostroma~~, ~~Lipetsk~~, **Moscow**, ~~Mordovia~~, ~~Nizhny Novgorod~~, ~~Novgorod~~, **Orel**, ~~Penza~~, ~~Pskov~~, **Ryazan**, **Smolensk**, **Tambov**, **Tula**, **Tver**, **Vladimir**, ~~Vologda~~, **Yaroslavl**.
A corrected version of this article can be obtained from the EPPO website or the EPPO Global Database.

Sources:

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Yin YY, Li TT, Lu X, Gu ZL, Zhao LL, Guo M, Zhao JF, Ding M (2016) First report of *Watermelon silver mottle virus* infecting tomato in Yunnan, China. J*ournal of Plant Pathology* **98**(3), p 681.

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

Computer codes: AGRIPL, DROSSU, FUSALC, GPGV00, LEPLOC, MELGGC, PHYPPR, PHYPWO, TOLCND, TSWV00, WMSM0V, XANTCI, BY, CL, CN, ES, FR, IT, MY, RU, TL

2017/183 1st International Congress for Plant Protection in Mediterranean Agroecosystems: Biological invasions in Mediterranean Agroecosystems (Montpellier, FR, 2018-07-16/20)

The 1st International Congress for Plant Protection in Mediterranean Agroecosystems (ICPPMA) will be held from July 16th to 20th 2018 in Montpellier, France. The congress will be dedicated to biological invasions in Mediterranean agroecosystems, and the following main topics will be addressed:

- Food webs in Mediterranean agroecosystems
- Epidemiological surveys in Mediterranean plant protection
- Role and functioning of phytosanitary agencies in the context of new emerging pests
- IPM: agroecological structures and biocontrol in Mediterranean agroecosystems
- NTIC in plant protection in the Mediterranean area
- Regulations in plant protection in the Mediterranean area

Simultaneous interpretation (French/English) will be provided during the plenary sessions. The deadline for submitting abstracts is the 15th of December 2017.

For more information, consult the congress website: http://www.icppma.com/

Source: EPPO Secretariat (2017-10).

Additional key words: conference

Computer codes: FR

2017/184 EMPHASIS summer school on 'Emerging pests and diseases in horticultural crops: innovative solutions for diagnosis and management' (Grugliasco, IT, 2018-07-02/06)

Within the framework of the EU-funded project EMPHASIS (Effective Management of Pests and Harmful Alien Species – Integrated Solutions), a summer school will be organised by AGROINNOVA (Centre of Competence for Innovation in the Agro-Environmental Field). This training course will take place in Grugliasco (near Torino, Italy) from the 2nd to the 6th of July 2018. This course aims to train young researchers on epidemiological issues related to emerging pests and pathogens, and on innovative management strategies in horticultural systems.
The summer school will include the following three sessions:

- innovative strategies for diagnosis and management in horticultural crops;
- emerging pests in horticultural crops;
- use of LAMP technology.

The deadline for registration is the 31st of May 2018. For more information, consult the summer school website:
https://www.eventbrite.com/e/emphasis-summer-school-tickets-34566975755?utm-medium=discovery&utm-campaign=social&utm-content=attendeeshare&aff=escb&utm-source=cp&utm-term=listing

Source: EPPO Secretariat (2017-10).

Additional key words: training **Computer codes:** IT

2017/185 First report of *Tuta absoluta* in Norway

In Norway, *Tuta absoluta* (Lepidoptera: Gelechiidae – EPPO A2 List) was detected for the first time in April 2017 in a tomato glasshouse located in the municipality of Klepp, Rogaland county. Since then, the pest has been detected in 3 additional greenhouses in close proximity to the first outbreak site. The NPPO of Norway has provisionally imposed phytosanitary measures to growers to avoid any further spread of the pest. In order to delimit the extent of the infestation, the NPPO has requested all commercial tomato growers in Norway to use pheromone traps and report suspicious findings. A Risk Assessment of *T. absoluta* has been published and concluded that *T. absoluta* has the capacity to cause damage to the Norwegian tomato industry if no control measures are taken, and that the probability of crop loss and increased use of chemical and biological pesticides is high.
The situation of *Tuta absoluta* in Norway can be described as follows: **Present, only in some areas, under official control.**

Source: NPPO of Norway (2017-06).

VKM (2017) Risk assessment of Tomato leaf miner moth (*Tuta absoluta*). Scientific Opinion of the Panel on Plant Health of the Norwegian Scientific Committee for Food Safety, ISBN: 978-82-8259-281-9, Oslo, Norway. https://vkm.no/download/18.773639b215c8657f2a482e2c/1497965945176/0f1af046c4.pdf

Pictures: *Tuta absoluta*. https://gd.eppo.int/taxon/GNORAB/photos

Additional key words: new record **Computer codes:** GNORAB, NO

2017/186 First report of *Cacyreus marshalli* in Algeria

In Algeria, unusual insect larvae on a *Pelargonium peltatum* plant were reported by a member of the public in June 2017. This plant had been bought two weeks before in a nursery located in Zeralda near Algiers. The diseased plant was sent to the University of Mostaganem which confirmed the presence of *Cacyreus marshalli* (Lepidoptera: Lycaenidae - EPPO A2 List). While re-examining lists of lepidoptera found in Algeria, it was noted that *C. marshalli* had been caught in the municipality of Rouiba (near Algiers) during a study carried out in 2009-2010. For the moment, no damage has been observed on pelargonium plants near Algiers, nor the presence of the insect reported from other parts of Algeria.
The situation of *Cacyreus marshalli* in Algeria can be described as follows: **Present, confirmed in June 2017 in one *Pelargonium peltatum* plant near Algiers.**

Source: Guenaoui Y, Rekad FZ, Labdaoui ZE (2017) Dégâts causés par *Cacyreus marshalli* sur des pélargoniums en Algérie. *Phytoma* no. 707, 44-46.

Pictures: *Cacyreus marshalli*. https://gd.eppo.int/taxon/CACYMA/photos

Additional key words: new record **Computer codes:** CACYMA, DZ

2017/187 First report of *Aproceros leucopoda* in Estonia

The NPPO of Estonia recently informed the EPPO Secretariat of the first detection of *Aproceros leucopoda* (Hymenoptera: Argidae, zigzag elm sawfly – formerly EPPO Alert List) on its territory. The pest was found by a member of the public who had noticed defoliated elm trees (*Ulmus glabra*) in Ida-Viru county. He also found cocoons and larvae which were identified by a forest entomologist. No official phytosanitary measures will be taken.
The pest status of *Aproceros leucopoda* in Estonia is officially declared as: **Present, only in some areas.**

Source: NPPO of Estonia (2017-09).

Pictures: *Aproceros leucopoda*. https://gd.eppo.int/taxon/APRCLE/photos

Additional key words: new record **Computer codes:** APRCLE, EE

2017/188 First records of damage caused by *Lymantria dispar* in Estonia

In Estonia, there have been sporadic records of *Lymantria dispar* (Lepidoptera: Lymantriidae) in the past. Adults were first observed in 1967 in Ida-Viru county, and a few times since 2009 in Tartu county and the Island of Saaremaa. In July 2017, extensive damage caused by larvae, covering approximately 10 ha, was reported for the first time on the Island of Saaremaa. The affected species were *Acer* sp., *Betula* sp., *Crataegus* sp., *Filipendula* sp., *Malus* sp., *Phragmites australis*, *Quercus* sp., *Salix* sp., and *Typha* sp. No official phytosanitary measures will be taken.
The pest status of *Lymantria dispar* in Estonia is officially declared as: **Present, only in some areas.**

Source: NPPO of Estonia (2017-09).

Additional key words: new record **Computer codes:** LYMADI, EE

2017/189 First report of *Dactylopius opuntiae* in Lebanon

In 2012, *Dactylopius opuntiae** (Hemiptera: Dactylopiidae) was detected for the first time in Lebanon in the region of Nabatieh on *Opuntia ficus-indica* (prickly pear). The origin of this introduction remains unknown. A survey conducted in 2014 showed that the pest is widespread in Southern Lebanon and causes severe damage to *O. ficus-indica* (including plant mortality in some cases) leading to crop losses for farmers who depend on prickly pear production to increase their incomes. In 2015, new outbreaks were discovered in the region of Jezzine and Chouf, approximately 18 km away from the first site of detection. In many observed sites, the predator *Cryptolaemus montrouzieri* (Coleoptera: Coccinelllidae) was found in association with *D. opuntiae,* but predator populations were too low to regulate the pest. This is the first time that *D. opuntiae* is reported from Lebanon.

* *Dactylopius opuntiae* feeds on *Opuntia* species. This scale has been used as a biocontrol agent against *Opuntia* spp. where these plants are considered as weeds. However, in areas where *Opuntia* spp. are grown as crops, the presence of this scale can cause severe damage.

Source: Moussa Z, Yammouni D, Azar D (2017) *Dactylopius opuntiae* (Cockerell, 1896), a new invasive pest of the cactus plants *Opuntia ficus-indica* in the South of Lebanon (Hemiptera, Coccoidea, Dactylopiidae). *Bulletin de la Société entomologique de France* **122**(2), 173-178.

Additional key words: new record **Computer codes:** DACLOP, LB

2017/190 *Aculops fuchsiae* found again in the Netherlands

In the Netherlands, *Aculops fuchsiae* (Acari: Eriophyidae – EPPO A2 List) was first found in August 2015 on 3 fuchsia plants in a private garden in Amsterdam (EPPO RS 2016/053). This outbreak was subsequently eradicated. In July 2017, *A. fuchsiae* was found again in the Netherlands on fuchsia plants in a private garden in Hoeven (municipality of Halderberge, Noord-Brabant province). The origin of this outbreak remains unknown so far. In this garden (800 m²) where many fuchsia plants were grown, significant damage was observed on 90% of the plants. In July 2017, following the recommendations made by the Dutch NPPO and under its supervision, the garden owner destroyed all his fuchsia plants. A delimiting survey to further investigate the spread, severity and possible source of this outbreak will be conducted. The survey will cover all neighbouring gardens and gardens of members of the fuchsia society in the municipality of Halderberge, as well as the commercial company where the owner of the infested plants had purchased his fuchsias in 2016.
The pest status of *Aculops fuchsiae* in the Netherlands is officially declared as: **Transient, actionable, under surveillance.**

Source: NPPO of the Netherlands (2017-07).

Pictures: *Aculops fuchsiae*. https://gd.eppo.int/taxon/ACUPFU/photos

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

2017/191 *Spodoptera frugiperda* continues to spread in Africa

In early 2016, outbreaks of *Spodoptera frugiperda* (Lepidoptera: Noctuidae – EPPO A1 List) were reported for the first time in Africa where high armyworm populations damaging maize (*Zea mays*) crops have been noticed (EPPO RS 2016/188, 2017/035, 2017/116). Since then, the following African countries have also reported the presence of the pest on their territory: **Angola, Central African Republic, Chad, and Congo.**

Source: INTERNET
FAO (2017-09-01) Briefing note on FAO actions on fall armyworm in Africa. http://www.fao.org/3/a-bs183e.pdf

Pictures: *Spodoptera frugiperda*. https://gd.eppo.int/taxon/LAPHFR/photos

Additional key words: new record **Computer codes:** LAPHFR, AO, CF, CG, TD

2017/192 *Anoplophora glabripennis* not found during the 2016/2017 survey in Finland

In October 2015, an isolated outbreak of *Anoplophora glabripennis* (Coleoptera: Cerambycidae – EPPO A1 List) was found in the municipality of Vantaa (near Helsinki) in Finland and eradication measures were immediately implemented (EPPO RS 2015/184). Official annual surveys are being carried out in accordance with Commission Implementing Decision 2012/138/EU. From April 2016 to April 2017, 174 inspections were carried out in public parks and gardens, forests and other sites. In Vantaa, 78 inspections were carried out, using pheromone traps, tree climbers and sniffer dogs. In other sites, such as stone importers and industrial areas, 79 inspections were carried out. During these inspections, the pest was not found. In addition, several samples (4 from Vantaa, 3 from other sites, 3 from wood packing material) were collected and tested but all gave negative results. Results of the pheromone trapping programme in Vantaa and other sites were also negative. In conclusion, the 2016-2017 survey for *A. glabripennis* did not detect the pest; eradication continues.

Source: NPPO of Finland (2017-04).

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

Additional key words: absence, detailed record **Computer codes:** ANOLGL, FI

2017/193 *Globodera pallida* no longer occurs in Poland

The NPPO of Poland recently informed the EPPO Secretariat of the current situation of *Globodera pallida* (EPPO A2 List) on its territory. For many years, official surveys (visual surveys and sampling for laboratory testing) for quarantine nematodes, including *G. pallida*, have been conducted in Poland. *G. pallida* was detected only twice in Poland. The first detection was made in 2010 in Opolskie region, and the second one in 2012 in Podkarpackie region. In these 2 areas, phytosanitary measures have been taken to eradicate the nematode and no new outbreaks have been detected. At national level, surveys (including the yearly testing of more than 40 000 samples) have been conducted for quarantine nematodes in all fields intended for seed potato production, in all fields intended for growing plants for planting that require plant passports, in at least 0.5% of the surface area of fields for potato production (other than seed potato production), as well in areas where plants and plant products are grown for export. The NPPO states that since 2013, no new outbreaks have been observed and *G. pallida* has not been detected in any of the tested samples.
The pest status of *Globodera pallida* in Poland is officially declared as: **Absent: pest no longer present.**

Source: NPPO of Poland (2017-07).

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

Additional key words: absence **Computer codes:** HETDPA, PL

2017/194 Taxonomic revision of *Ralstonia solanacearum*

Since 1975, *Ralstonia solanacearum* (Smith) Yabuuchi *et al.* has been included in the EPPO A2 list of pests recommended for regulation as quarantine pests, and this bacterium is also a regulated pest in many EPPO member countries. *R. solanacearum* has a large range of economically important hosts, such as: *Solanum tuberosum* (potato), *S. lycopersicum* (tomato), *S. melongena* (aubergine), *Musa* spp. (banana), *Nicotiana tabacum* (tobacco), and many ornamental plants. Despite being classified as a single species, its large host range, pathogenic specialization, cultural and physiological properties, as well as its phylogeny supported the fact that *R. solanacearum* would probably be better described by a species complex. Before the use of molecular tools, *R. solanacearum* was subdivided into races (based on host range) and biovars (based on biochemical properties). However, it was later shown that these race/biovar subdivisions did not correspond to phylogenetic relationships among *R. solanacearum* strains, and therefore could not be retained to separate them into taxonomically distinct groups. In the 2000s, the concept of 'species complex' became more widely accepted and phylogenetic studies identified 4 phylotypes (based on ITS region sequence analysis) within this complex: Phylotype I (strains of Asian origin), Phylotype II (strains of South American origin), Phylotype III (strains which have evolved in African highlands), and Phylotype IV (strains of Indonesia).
More recently, the taxonomy of the *R. solanacearum* species complex was revised using a combination of genomic and proteomic methods, and it was proposed to separate this complex into 3 distinct species: *Ralstonia pseudosolanacearum, Ralstonia solanacearum* and *Ralstonia syzygii*. This new species delimitation was found to be congruent with the previous phylotype classification: *R. pseudosolanacearum* (Phylotypes I and III), *R. solanacearum* (Phylotype II) and *R. syzygii* (Phylotype IV). In addition, it was suggested that *R. syzyggi* was composed of 3 subspecies. In summary, the following taxonomic revision of the *R. solanacearum* complex was proposed:

- *Ralstonia pseudosolanacearum* sp. nov.
- *Ralstonia solanacearum* (with a revised description)
- *Ralstonia syzygii* (with a revised description)
  - *Ralstonia syzygii* subsp. *syzygii* subsp. nov.
  - *Ralstonia syzygii* subsp. *indonesiensis* subsp. nov.
  - *Ralstonia syzygii* subsp. *celebesensis* subsp. nov.

Table summarizing the different taxonomic changes for *Ralstonia solanacearum*.

Smith, 1914	*Pseudomonas solanacearum* (originally described as '*Bacterium solanacearum'* by Smith in 1896)			
Yabuuchi *et al.*, 1992	*Burkholderia solanacearum*			
Yabuuchi *et al.*, 1995	*Ralstonia solanacearum*			
Fegan & Prior, 2006	*Ralstonia solanacearum* species complex			
Prior & Fegan, 2005	Phylotype I	Phylotype II	Phylotype III	Phylotype IV
Safni *et al.* 2014	*R. pseudosolanacearum*	*R. solanacearum*	*R. pseudosolanacearum*	*R. syzygii*

Consequences for EPPO:
As a result of these taxonomic changes, the EPPO A1 and A2 lists of pests recommended for regulation as quarantine pests (see also EPPO RS 2017/158) have been modified as follows: *R. solanacearum* remains on the A2 List (but now corresponds to the newly revised description), *R. pseudosolanacearum* is added to the A2 List, and *R. syzygii* is added to the EPPO A1 List.

In the EPPO Global Database, several significant changes will have to be made to reflect these taxonomic changes. This illustrates the challenges that taxonomic revisions may represent in the management of information systems (e.g. treatment of past and new information), and more generally in plant health (e.g. policy, diagnostics, management).

1) The code that was previously attributed to *R. solanacearum* (RALSSO) is now attributed to the species complex (i.e. *R. solanacearum* sensu lato). New codes have been created for *R. pseudosolanacearum* (RALSPS), *R. solanacearum* (RALSSL), *R. syzygii* (RALSSY), *R. syzygii* subsp. *celebesensis* (RALSSC), *R. syzygii* subsp. *indonesiensis* (RALSSI), and *R. syzygii* subsp. *syzygii* (RALSSS).
2) As it is now clear that the concepts of races/biovars should no longer be used to separate strains into taxonomic groups, the codes for *R. solanacearum* race 1 (PSDMS1), *R. solanacearum* race 2 (PSDMS2), *R. solanacearum* race 3 (PSDMS3) will be deactivated in the future. The information (e.g. lists of hosts, geographical distributions) currently attached to these codes will gradually be transferred to the species complex (RALSSO). Finally, new geographical distributions and new lists of host plants will have to be constructed for the newly proposed species and subspecies: *R. pseudosolanacearum* (RALSPS), *R. solanacearum* (RALSSL), *R. syzygii* subsp. *celebesensis* (RALSSC), *R. syzygii* subsp. *indonesiensis* (RALSSI), and *R. syzygii* subsp. *syzygii* (RALSSS).

Source: Prior P, Ailloud F, Dalsing BL, Remenant B, Sanchez B, Allen C (2016) Genomic and proteomic evidence supporting the division of the plant pathogen *Ralstonia solanacearum* into three species. *BMC Genomics* 17:90. DOI 10.1186/s12864-016-2413-z

Safni I, Cleenwerck I, de Vos P, Fegan M, Sly L, Kappler U (2014) Polyphasic taxonomic revision of the *Ralstonia solanacearum* species complex: proposal to emend the descriptions of *Ralstonia solanacearum* and *Ralstonia syzygii* and reclassify current *R. syzygii* strains as *Ralstonia syzygii* subsp. *syzygii* subsp. nov., *R. solanacearum* phylotype IV strains as *Ralstonia syzygii* subsp. *indonesiensis* subsp. nov., banana blood disease bacterium strains as *Ralstonia syzygii* subsp. *celebesensis* subsp. nov. and *R. solanacearum* phylotype I and III strains as *Ralstonia pseudosolanacearum* sp. nov. *International Journal of Systematic and Evolutionary Microbiology* **64**, 3087-3103.

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

Additional key words: taxonomy **Computer codes:** RALSPS, RALSSC, RALSSI, RALSSL, RALSSO, RALSSS, RALSSY

2017/195 Recent surveys did not detect *Ralstonia solanacearum* and *Clavibacter michiganensis* subsp. *sepedonicus* in potato-growing areas in Lebanon

In Lebanon, potato cultivation covers around 11 000 ha with a production of approximately 300 000 tonnes per year. This production is mainly concentrated in the Bekaa valley in Central-Eastern Lebanon (70% of the total potato-growing area), and in the Akkar plain in Northern Lebanon (25-30%). In the past there had been reports of *Ralstonia solanacearum* (species complex) and *Clavibacter michiganensis* subsp. *sepedonicus* (both EPPO A2 List) in Lebanon, but outbreaks were considered to be rare and localized (Saad and Nienhaus, 1969). According to these old studies, *R. solanacearum* was reported in Akkar, only on the basis of symptoms, and this was not confirmed by diagnostic methods. *C. michiganensis* subsp. *sepedonicus* was reported in Bekaa valley where it was presumably isolated from symptomatic material. These old records were not confirmed during more recent studies, and are therefore considered to be doubtful. In the 2000s, studies conducted in some

Lebanese potato-growing areas did not detected the two bacteria (Abou-Jawdah *et al*., 2001; Choueiri *et al*., 2004). Therefore, it was felt necessary to establish an extensive and reliable survey programme to assess the possible presence (or confirm absence) of both *R. solanacearum* and *C. michiganensis* subsp*. sepedonicus.* Over the longer term, the objectives were also to establish a monitoring programme, as well as a traceability system and contingency plan in case of positive findings.
From 2012 to 2015, extensive field surveys were carried out in the Bekaa valley and Akkar plain to assess the occurrence of *R. solanacearum* and *C. michiganensis* subsp*. sepedonicus* (Choueiri *et al*., 2017). A total of 232 potato samples were collected from the Bekaa valley and 145 samples from the Akkar plain. Composite samples of 200 potato tubers were randomly collected from each field, in accordance with EC Council Directive 93/85/EEC. Twelve potato demonstration fields, designed for export of early potatoes to European markets, were established in the Akkar plain and surveyed using the same methodology. A network of 40 sampling sites in the Bekaa valley and 19 sites in the Akkar plain was established to collect and test surface water. In addition, the largest potato storage, processing and distribution facility in Lebanon was monitored. Collected plant and water samples were tested for both *R. solanacearum* and *C. michiganensis* subsp*. sepedonicus* and all results were negative. It is concluded that continuous efforts should be made to ensure regular monitoring for these quarantine bacteria in Lebanese potato production fields and potato industrial premises, as this will allow certification of their absence from potato lots both for export and domestic use.

Source: Abou-Jawdah Y, Sobh H, Saad A (2001) Incidence of potato virus diseases and their significance for a seed certification program in Lebanon. *Phytopathologia Mediterranea* **40**, 113-118.
Choueiri E, El-Zammar S., Jreijiri F, Mnayer D, Massaad R, Saad AT, Hanna L, Varveri C (2004) Phytosanitary status of potato in the Bekaa valley in Lebanon. *Bulletin OEPP/EPPO Bulletin* **34**(1), 117-212.
Choueiri E, Jreijiri F, Wakim S, El Khoury MI, Valentini F, Dubla N, Galli D, Habchy R, Akl K, Stefani E (2017) Surveys of potato-growing areas and surface water in Lebanon for potato brown and ring rot pathogens. *Phytopathologia Mediterranea* **56**(1), 87-97.
Saad AT, Nienhaus F (1969) Plant disease in Lebanon. *Zeitschrift für Pflanzenpathologie und Pflanzenschutz* **76**, 537-551.

Pictures: *C. michiganensis* subsp*. sepedonicus*. https://gd.eppo.int/taxon/CORBSE/photos
Ralstonia solanacearum. https://gd.eppo.int/taxon/RALSSO/photos

Additional key words: absence **Computer codes:** CORBSE, RALSSO, LB

2017/196 First report of *Xanthomonas fragariae* in Iran

In Iran, characteristic symptoms of angular leaf spot were observed in May 2015 in a strawberry (*Fragaria ananassa* cv. Paros) field in the city of Sanandaj, Kurdistan province. In this field, strawberry plants were grown for fruit production and irrigated by overhead aspersion. Affected plants displayed angular and water-soaked lesions on leaves. Older, necrotic lesions were also present on leaves, leaf veins, and calyces. Films of dried exudate were observed on the abaxial side of the leaves. In the affected field, approximately 75% of the strawberry plants showed at least one of the above symptoms. The planting material had been purchased from a local nursery, which was then inspected but found free of angular leaf spot symptoms. In the affected field, symptomatic leaves were collected from 7 plants and tested. Results of the laboratory analysis (isolation, sequencing) confirmed the presence of *Xanthomonas fragariae* (EPPO A2 List) in diseased samples. At the end of spring 2015, the

whole field was treated with copper. However, in spring 2016 the disease was observed again in the same field with a 70% incidence. Surveys did not detect the disease in other strawberry fields. Eradication measures were decided by the NPPO of Iran and all strawberry plants of the affected field were burned on-site. This is the first time that *X. fragariae* is reported from Iran.
The situation of *Xanthomonas fragariae* in Iran can be described as follows: **Present, first found in 2015 in 1 strawberry field in the Kurdistan province, under eradication.**

Source: Kamangar SB, van Vaerenbergh J, Kamagar S, Maes M (2017) First report of angular leaf spot on strawberry caused by *Xanthomonas fragariae* in Iran. *Plant Disease* **101**(6), 1031-1032.

Pictures: *Xanthomonas fragariae*. https://gd.eppo.int/taxon/XANTFR/photos

Additional key words: new record **Computer codes:** XANTFR, IR

2017/197 First report of *Xanthomonas arboricola* pv. *pruni* in Hungary

In Hungary, symptoms of bacterial spot were observed in June 2016 on apricot (*Prunus armeniaca* cvs. Bergecot and Toyesi) trees in a commercial orchard (5 ha) in Fejér county. Affected trees displayed red-purple necrotic leaf lesions (1-5 mm diameter) surrounded by a chlorotic halo, and water-soaked or dark brown sunken lesions on the fruit. Disease incidence ranged from low (10%) on cv. Toyesi to more than 90% on cv. Bergecot. As the disease progressed, the necrotic areas on leaves dropped out, leaving a 'shot-hole' appearance. Symptomatic leaf and fruit samples were collected from 20 apricot trees and tested (biochemical, molecular, and pathogenicity tests). Results confirmed the presence of *Xanthomonas arboricola* pv. *pruni* (EPPO A2 List) in diseased samples. This is the first time that *X. arboricola* pv. *pruni* is reported from Hungary.
The situation of *Xanthomonas arboricola* pv. *pruni* in Hungary can be described as follows: **Present, first found in 2016 in 1 apricot orchard in Fejér county.**

Source: Schwarczinger I, Bozsó Z, Szatmári Á, Süle S, Szabó Z, Király L (2017) First report of bacterial spot caused by *Xanthomonas arboricola* pv. *pruni* on apricot in Hungary. *Plant Disease* **101**(6), p 1031.

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

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

2017/198 First report of '*Candidatus* Liberibacter solanacearum' in Greece

In July 2016, a sample of carrot plants (*Daucus carota* cv. Dordogne) showing suspicious symptoms (formation of secondary taproots) was collected near Neochoraki (Boeotia) in Central Greece, and sent to the Benaki Phytopathological Institute. Results of the analysis (PCR) confirmed the presence of '*Candidatus* Liberibacter solanacearum' (potato haplotypes are listed in the EPPO A1 List) in the symptomatic carrot sample. In addition, '*Ca.* L. solanacearum' was detected in archived DNA from leaves of 3 carrot plants (*D. carota* cv. Newhall) which had been sent to Benaki Phytopathological Institute in September 2014 from an area located approximately 18 km away from Neochoraki. These plants were showing yellowish and purple leaf discolorations, as well as stunted shoots. Further sequence analysis

indicated that all strains of '*Ca.* Liberibacter solanacearum' identified so far in Greece belong to haplotype D. This is the first time that '*Ca*. L. solanacearum' is reported in Greece. The situation of '*Candidatus* Liberibacter solanacearum' in Greece can be described as follows: **Present, only in some areas (found on carrots near Neochoraki, Central Greece).**

Source: Holeva MC, Glynos PE, Karafla CD (2017) First report of '*Candidatus* Liberibacter solanacearum' on carrot in Greece. *Plant Disease* **101**(10), p 1819

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

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

2017/199 First report of *American plum line pattern virus* in Japan

In late spring 2015, several flowering cherry trees (*Prunus serrulata*) showing conspicuous yellowish oak-leaf patterns on their leaves were observed in the Kyoto and Nara prefectures, Japan. Samples were collected from 3 symptomatic trees and tested (sequencing, NGS). Results confirmed the presence of *American plum line pattern virus* (*Ilarvirus*, APLPV – EPPO A1 List) in the 3 symptomatic samples. According to NGS data, all samples were also infected by *Cherry virus A* and *Little cherry virus 2* (EU Annexes). The samples from Kyoto additionally contained *Cherry necrotic rusty mottle virus* and *Plum bark necrosis stem pitting-associated virus*. This is the first time that APLPV is reported from Japan. It is noted that further studies are needed to evaluate the prevalence of APLPV and its impact on *P. serrulata*.
The situation of *American plum line pattern virus* in Japan can be described as follows: **Present, only in some areas (first found in 2015 in 3 samples of *Prunus serrulata* from Kyoto and Nara prefectures).**

Source: Candresse T, Faure C, Theil S, Marais A (2017) First report of *American plum line pattern virus* infecting flowering cherry (*Prunus serrulata*) in Japan. *Plant Disease* **101**(8), p 1561.

Pictures: *American plum line pattern virus*. https://gd.eppo.int/taxon/APLPV0/photos

Additional key words: new record **Computer codes:** APLPV0, JP

2017/200 Update on the situation of *Potato spindle tuber viroid* in the Netherlands

The NPPO of the Netherlands recently provided updated information about the situation of *Potato spindle tuber viroid* (*Pospiviroid*, PSTVd – EPPO A2 List) on its territory.

Eradication of PSTVd from potato breeding material
In August 2016, PSTVd was detected in potato (*Solanum tuberosum*) breeding material (EPPO RS 2016/176). The viroid was detected in 4 potato plants belonging to the same genotype, and which were grown in 2 small fields owned by a breeding company located in the municipality of Noordoostpolder. All infected material was destroyed. As no further detections of PSTVd have been made, the Dutch NPPO officially declared the eradication of this outbreak in June 2017.

Eradication of PSTVd from *Capsicum annuum* plants for planting (seedless cultivars)
In March 2016, the presence of PSTVd was confirmed in 5 greenhouses producing plants for planting of *Capsicum annuum* (several seedless cultivars). One glasshouse was located in the municipality of 'Peel en Maas' and the others in the municipality of Westland (EPPO RS 2016/083). In November 2016, another greenhouse (approximately 3 ha) producing seedless *C. annuum* was also found to be infected. By the end of 2016, measures for eradication were completed at all 6 production sites. As no further detections of PSTVd have been made, the Dutch NPPO officially declared the eradication of this outbreak in June 2017.

Interception of PSTVd on *Solanum sisymbriifolium* seeds imported from Asia
In May 2017, a Dutch breeding company reported to the NPPO a suspicion of PSTVd infection in a seed lot of *Solanum sisymbriifolium** originating from Asia. Due to a low viroid concentration in the tested sample, the results of the diagnosis indicated that the detected *Pospiviroid* was most probably PSTVd but a final confirmation is still needed. In fact, this suspicion had initially been raised by the consignee of a third country to which the seed lot had been exported by the Dutch breeding company. This seed lot of 1400 kg had been produced in 2012, 2014 and 2015 by 2 Asian countries by order of the breeding company. All seed lots of the breeding company are currently under investigation. Tracing-back and -forward studies are ongoing. In the Netherlands, one seed lot has been sown and the resulting crop will be destroyed. So far, *S. sisymbriifolium* has not been recorded as a host plant of PSTVd.

The pest status of *Potato spindle tuber viroid* in the Netherlands is officially declared as: **Transient in ornamentals (*S. jasminoides*); Pest eradicated in *Dahlia, Solanum lycopersicum* fruit production, *Capsicum annuum* fruit production and *Solanum tuberosum* breeding material.**

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* *Solanum sisymbriifolium* is a tropical plant which is occasionally used in the Netherlands as a trap crop in fields infested by potato cyst nematodes. Full development of the plant is difficult to obtain under temperate climates. The Dutch NPPO explained that the plant breeder has gradually developed and marketed this crop since 2002. In 2008 and 2009, 15 fields of *S. sisymbriifolium* were sampled and tested for PSTVd. All results were negative.

Source: NPPO of the Netherlands (2017-06).

Pictures: *Potato spindle tuber viroid*. https://gd.eppo.int/taxon/PSTVD0/photos

Additional key words: absence, eradication, host plant, interception **Computer codes:** PSTVD0, NL

2017/201 Major emerging alien plants in Austrian crop fields

A high level of habitat modification in agricultural systems makes such areas prone to invasion by invasive alien plants. In Austria, several species have become invasive and have negative impacts on crop yields. Six alien plant species (Table 1) in Austria were evaluated to determine their invasion process and impact to agriculture. Occurrence data for each species in crop fields was collected from 1965 to 2016. *Abutilon theophrasti* was first recorded in crop fields in 1973 and since 2000, the species occurs in large populations in the lowlands in east Austria. *Ambrosia artemisiifolia* (EPPO List of IAP) was first recorded in 1978, with a small number of occurrences in Eastern Austria by 2000. Since 2000, the species has become a common weed in agricultural areas in Southern and eastern lowlands. Similarly, *Cyperus esculentus* (EPPO List of IAP) was rarely recorded up until 2000, but more recently the species has spread, and large populations are now recorded in southern Austria. A similar pattern has been shown for *Datura stramonium, Panicum schinzii* and *Sorghum halepense*. The impact of each species on crop yield in Austria is likely to be high and affect different crops. *C. esculentus, P. schinzii* and *S. halepense* mainly invade maize fields in Austria whereas *A. theophrasti* is more associated with sugar beet. *A. artemisiifolia* and *D. stramonium* are associated with more than one type of crop.

Table 1. Six major emerging alien plants in Austrian crop fields

Species	Family	Main pathway	Current presence (EPPO region)
Abutilon theophrasti	Malvaceae	Seed contaminant	AT, BG, CH, DE, DK, ES, FR, GB, GR, HU, HR, IT, MT, NL, PL PT, RO, RU, RS, SE, UA
Ambrosia artemisiifolia	Asteraceae	Contaminant	Widespread
Cyperus esculentus	Cyperaceae	Contaminant	Widespread
Datura stramonium	Solanaceae	Crop/horticulture	Widespread
Panicum schinzii	Poaceae	Contaminant	AT, BE, DK, FR, DE, NL, SI, SE, CH, GB
Sorghum halepense	Poaceae	Contaminant	AT, BE, BG, ES, GR, HU, IL, IT, JO, MT, PL RO, RU, RS, TR, UA

Source: Follak S, Schleicher C, Schwarz M, Essl F (2017) Major emerging alien plants in Austrian crop fields. *Weed Research.* DOI:10.1111/wre.12272.

Pictures: *Abutilon theophrasti*. https://gd.eppo.int/taxon/ABUTH/photos
Ambrosia artemisiifolia. https://gd.eppo.int/taxon/AMBEL/photos
Cyperus esculentus. https://gd.eppo.int/taxon/CYPES/photos
Sorghum halepense. https://gd.eppo.int/taxon/SORHA/photos

Additional key words: invasive alien plants **Computer codes:** ABUTH, AMBEL, CYPES, DATST, PANLF, SORHA, AT

2017/202 Does public awareness increase support for the management of invasive species?

When managing invasive species, it is important to consider conflicts of interest between sectors of society at an early stage to avoid problems when implementing such actions. Using literature reviews and face to face interviews (in South Africa and the United Kingdom), the present study assessed if human perceptions were influenced by taxonomic position (i.e.

plant or animal species) and landscape (urban vs non-urban). From the literature review, 83 % of the papers reviewed highlighted that a lack of public support in the management of animal species in both urban and non-urban areas was due to utilitarian or ethical reasons. For invasive plants, conflicts of interest were mainly due to ethical concerns. For the face to face surveys, participants were asked their perceptions on the management of two species. For South Africa, participants were presented with questions around *Opuntia stricta* (prickly pear) and *Sclerophrys gutturalis* (guttural toad), both non-native invasive species in the region. Likewise, for the United Kingdom, participants were presented with questions concerning *Impatiens glandulifera* (Himalayan balsam – EPPO List of IAP) and *Sciurus carolinensis* (grey squirrel). In South Africa, 66 % of participants recognized *O. stricta* compared to 16 % recognizing *S. gutturalis*. In GB, it was the opposite, only 18 % of participants recognized the invasive plant *I. glandulifera* though all recognized *S. carolinensis*. When provided with information on each species, including the status of the species in the country, invasiveness and associated impacts, respondents who had previously replied negatively to management actions were more prone to accept actions against the species. Informing the public about the status of a species proposed for management, i.e. it is non-native and causes detrimental impacts, is often enough to substantially increase support for management actions.

Source: Novoa A, Dehnen-Schmutz K, Fried J, Vimercati G (2017) Does public awareness increase support for invasive species management? Promising evidence across taxa and landscape types. *Biological Invasions*. DOI: 10.1007/s10530-017-1592-0.

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

2017/203 Restoring riparian habitats improves functional diversity of dragonfly and damselfly

Odonates (dragonflies and damselflies) are reliable bio-indicators to evaluate the quality of riparian and terrestrial habitats as they are sensitive to water quality, habitat modification and the presence of invasive alien plants. In the present study, Odonate populations were sampled at 45 sites along 6 rivers in North-eastern South Africa. Fifteen sites were sampled in three habitat types including, (1) invaded (where the cover of invasive plants was greater than 20 % of the identified vegetation), (2) cleared of invasive plants, and (3) natural sites (consisting of native vegetation). The invaded sites included the non-native species *Pinus patula*, *Eucalyptus grandis* and *Caesalpinia decapetala* – species which have been shown to significantly reduce water availability. In total, 1151 Odonates consisting of 45 species were identified during the study. Species richness of Odonates showed no difference between habitat types. However, functional diversity (a measure of the number of functionally disparate species within a population) was lower in invaded sites compared to sites cleared of invasive plants and sites with native vegetation. Therefore, the study highlights that Odonate functional diversity can respond positively to restoration efforts.

Source: Modiba RV, Joseph GS, Seymour CL, Fouche P, Foord SH (2017) Restoration of riparian systems through clearing of invasive plant species improves functional diversity of Odonate assemblages. *Biological Conservation* **214**, 46-54.

Additional key words: invasive alien plants **Computer codes:** CAESE, EUCGD, PIUPT, ZA

2017/204 New invasive alien plant species recommended for regulation in the EPPO region

Four invasive alien plant species have been added to the EPPO A2 List in 2017 and therefore recommended for regulation within the EPPO region. All species were risk assessed within the framework of the LIFE funded project: Mitigating the threat of invasive alien plants in the EU through pest risk analysis to support the EU Regulation 1143/2014. The four species (table 2) include three aquatic species (*Gymnocoronis spilanthoides*, *Pistia stratiotes* and *Salvinia molesta*) and one vine (*Cardiospermum grandiflorum*). All aquatic species were assessed as a high phytosanitary risk to the EPPO region. *C. grandiflorum* has a moderate phytosanitary risk to the EPPO region. Two additional species, *Hygrophila polysperma* (Acanthoideae) and *Cinnamomum camphora* (Lauraceae), were presented to the EPPO Working party on Phytosanitary Regulations with a low phytosanitary risk, and thus will not be recommended for regulation. Under current climatic conditions, the latter two species are not predicted to establish within the natural environment in the EPPO region.

Table 2. List of plant species added to the EPPO A2 List in 2017 and recommended for regulation in the EPPO region. Abbreviations are as follows: Inv: invasive, Intro: Introduced. Countries are represented by ISO country codes.

Species	Family	EPPO List	Main pathway	Current distribution (EPPO region)
Cardiospermum grandiflorum	Sapindaceae	A2	Horticulture	MT (Inv), FR & IT (Casual)
Gymnocoronis spilanthoides	Asteraceae	A2	Horticulture	HU, IT (Intro)
Pistia stratiotes	Araceae	A2	Horticulture	MA (Inv), AT, BE, CZ, FR, DE, HU, IT, NL, NO, PT, RO, RU, SI, ES, GB (Intro)
Salvinia molesta	Salviniaceae	A2	Horticulture	AT, BE, FR, DE, IL, IT, NL, PT (Intro)

Source: EPPO website: https://www.eppo.int/INVASIVE_PLANTS/ias_lists.htm
LIFE project website: http://www.iap-risk.eu/

Pictures: *Cardiospermum grandiflorum*. https://gd.eppo.int/taxon/CRIGR/photos
Gymnocoronis spilanthoides. https://gd.eppo.int/taxon/GYNSP/photos
Pistia stratiotes. https://gd.eppo.int/taxon/PIIST/photos
Salvinia molesta. https://gd.eppo.int/taxon/SAVMO/photos

Additional key words: invasive alien plants, regulation **Computer codes:** CINAR, CRIGR, GYNSP, HYGPO, PIISS, SAVMO

2017/205 International Symposium on Biological Control of Weeds (2018-08-26/31, Engelberg, Switzerland)

The International Symposium on Biological Control of Weeds will be held in Engelberg, Switzerland between the 26 – 31st August 2018. Abstract submissions are invited from the 1st December until 15 March 2018 under the following scientific sessions:

- Target and agent selection,
- Novel methods to determine efficacy and environmental safety of agents,
- Making classical biological control more predictive: moving from ecological to evolutionary processes,
- Regulations for agent release and access to genetic resources,
- Post-release monitoring and evaluation,
- Social and economic assessments of biological control,
- Integrated Weed Management and restoration,
- Opportunities and constraints for classical weed biocontrol in developed countries.

More details on each session are available via the symposium website.

Source: Conference website: http://isbcw-2018.com/

Additional key words: invasive alien plants, biological control, conference **Computer codes:** CH