

# First Records of the Jumping Plant-Louse *Acizzia jamatonica* (Kuwayama) (Hemiptera: Sternorrhyncha: Psyllidae) in Slovakia and Greece

PAVEL LAUTERER<sup>1</sup>, RASTISLAV BARTOŠ<sup>2</sup> and PANAGIOTIS MILONAS<sup>3</sup>

<sup>1</sup>Department of Entomology, Moravian Museum, Brno, Czech Republic; <sup>2</sup>Section of Diagnostics, Central Control and Testing Institute of Agriculture in Bratislava, Bratislava, Slovak Republic;

<sup>3</sup>Biological Control Laboratory, Department of Entomology, Benaki Phytopathological Institute, Kifissia, Greece

## Abstract

LAUTERER P., BARTOŠ R., MILONAS P. (2010): **First records of the jumping plant-louse *Acizzia jamatonica* (Kuwayama) (Hemiptera: Sternorrhyncha: Psyllidae) in Slovakia and Greece.** Plant Protect. Sci., 47: 37–40.

The psyllid *Acizzia jamatonica* (Kuwayama, 1908), an introduced pest of the ornamental tree *Albizia julibrissin* Durazz., was found for the first time in Slovakia and Greece. In both countries it occurs in large numbers and reduces the aesthetic qualities as well as the health of the host plant.

**Keywords:** *Acizzia jamatonica*; Psyllidae; *Albizia julibrissin*; Mimosoideae; pest; first records; Slovakia; Greece

The ornamental tree *Albizia julibrissin* Durazz. (Fabaceae: Mimosoideae), commonly named Persian silk tree, was introduced into warmer parts of Europe and North America around 1750. In both public and private gardens, it is favoured for its decorative form, flowers and leaves. *A. julibrissin* is native to eastern and southern Asia from China, Korea and Japan in the East to Azerbaijan and Iran in the West (RAK 2007). It is a thermophilous plant which can be grown in Europe only southwards of the line passing through France, Switzerland, Austria, and Slovakia (in Slovakia, it is planted altogether in four orchards; ŘEHOŘEK personal comm.). E.g. in the Czech Republic, it may suffer from freeze and can be grown successfully only in greenhouses. In North America, it became naturalised and is considered as an invasive species in most south-eastern states of the USA (ULYSHEN & MILLER 2007). Until 2002, *A. julibrissin* prospered well both in Europe and America having no natural pests.

The psyllid *Acizzia jamatonica* (Kuwayama, 1908) was described from Japan (KUWAYAMA 1908). Until the 1980's, *A. jamatonica* was known only from Japan (KLIMASZEWSKI 1973). KWON (1983) recorded it in South Korea, YANG (1984) in Taiwan, and LI (1992) in China. In their monographic treatment of the west Palaearctic psyllids associated with Fabaceae HODKINSON and HOLLIS (1987) did not consider *A. jamatonica* even as a potential member of the European fauna in contrast to the related *Acizzia acaciaebaileyanae* (Froggatt, 1901), *A. uncatoides* (Ferris & Klyver, 1932) and *A. hollisi* (Burckhardt, 1981), which nowadays occur in Italy and some other European countries (BURCKHARDT 2009). *A. jamatonica* was, however, introduced into Italy in 2001 where it soon became common because of its good migration capacities and four generations per year (ALMA *et al.* 2002; ZANDIGIACOMO *et al.* 2002). Only a year later, *A. jamatonica* became a pest in Slovenia and Croatia (SELJAK 2003; ŠIMALA *et al.* 2006) and southern

Switzerland (BURCKHARDT & MÜHLETHALER 2003). Nowadays, it is present also in France including Corsica (CHAPIN & COCQUEMPOT 2005; GRIMAU 2006), Hungary (RÉDEI & PENZES 2006), Spain (SÁNCHEZ & BURCKHARDT 2009), United Kingdom (EPPO 2003, 2006), Serbia (VÉTEK *et al.* 2009) and Bulgaria (VÉTEK & RÉDEI 2009). In North America, it was first recorded in the USA in Georgia in 2006 (HALBERT 2007; ULYSHEN & MILLER 2007). In 2007–2008, it already colonised an area of 765 × 580 km (WHEELER & HOEBEKE 2009). The causes of such a fast expansion of a species which had been known for a long time only from its original range are unknown.

## MATERIAL AND METHODS

*A. jamatonica* was found for the first time in Greece by P. Milonas in September 2006 in Thessaloniki and its close environs. Milonas documented the finding by photographs of adult psyllids and larvae. Several migrating adults of *A. jamatonica* were also caught by G. Ramel in northern Greece in the environs of the Kerkini Lake on the Strimon River (LAUTERER & RAMEL in preparation). The first record in Slovakia is by R. Bartoš from mid-July 2009 from the village of Baloň (district Dunajská Streda), where *A. jamatonica* occurred on four trees in a public area near the main road and on two trees in private gardens. In both places, *A. jamatonica* occurred in masses and was present in all developmental stages. No insecticide treatment was applied against the psyllid either in Greece or in Slovakia. The voucher material is deposited in the collections of the Moravian Museum in Brno in alcohol and dry-mounted.

## RESULTS AND DISCUSSION

A detailed morphological description of adult male and female and the fifth instar larva was presented by BURCKHARDT and MÜHLETHALER (2003) and WHEELER and HOEBEKE (2009). *A. jamatonica* is the largest species of the genus *Acizzia* occurring in Europe. From the other Psylloidea, the genus *Acizzia* differs in the shape of the male pygophore which bears a basal extension posteriorly, rounded or nearly pointed at the apex. *A. jamatonica* can be easily distinguished from the other *Acizzia* species by the uniformly

yellowish forewings lacking a darker pattern. The body of adults is uniformly yellow green, orange brown in overwintered specimens. The males are 1.8–2.0 mm in size, females 2.0–2.3 mm. The genal processes are longer than the half-length of the vertex along the midline. The surface spinules on forewings are densely arranged, leaving only narrow spinule-free bands along the veins. The parameres of the male are lamellar, in lateral view with almost parallel margins, narrowed in the apical third and slightly turned posteriorly at the apex which is strongly sclerotised; the inner surface of the paramere bears numerous setae. The female terminalia are cuneate (like in most psyllids), the proctiger is slightly concave dorsally. The larval development passes through five instars. The older instars are green with brownish wing pads. They have relatively long legs and antennae and produce large amounts of honeydew enveloped in waxy secretions of circumanal glands. They often deform leaves of the host plant. The eggs are vitreous light orange, with the petiole inserted into leaf mesophyll, phloem or epidermis basally and with the micropyle slightly processed upwards and terminal filament apically.

*Acizzia jamatonica* is monophagous on *Albizia julibrissin*. Also the other members of *Acizzia* are monophagous or narrowly oligophagous on Mimosoideae (Fabaceae), mostly on *Acacia* and *Albizia*. In mass occurrence, *A. jamatonica* causes primary damage to the host plant by the take-off of nutrients and assimilates and deformation of leaves which get yellow and drop off prematurely. Secondary damage can be caused by the excreted honeydew which seals up the spiracles and is a good substrate for fungi (sooty moulds); drops of honeydew also spoil the area under the trees, especially parked cars (ALMA *et al.* 2002; ZANGIDIACOMO *et al.* 2002). Mass attack in several consecutive years can even lead to the death of the host plant (SELJAK 2006). The psyllid causes, however, aesthetic damage in the first place. In south-eastern states of the USA, *Albizia julibrissin* has become an invasive plant which is driving out autochthonous trees. There, the psyllid could potentially be used to control the invasive tree; according to WHEELER and HOEBEKE (2009) it however only weakens the host plant and the damage is rather aesthetic. Nevertheless, SELJAK (2006) observed many trees of *A. julibrissin* killed by *A. jamatonica* in the south-western part of Slovenia. ULYSHEN and MILLER (2007) also considered the psyllid as

an effective biocontrol agent. It does not transmit, however, any bacterial or viral diseases of the host plant (WHEELER & HOEBEKE 2009).

*A. jamatonica* can produce up to four generations per year. The individual generations overlap and, especially in summer, usually all developmental stages can be found on the host plant. The psyllid overwinters as adult on conifers. Especially the adults of the overwintering generation can spread over long distances (ALMA *et al.* 2002; WHEELER & HOEBEKE 2009). VÉTEK and RÉDEI (2009) also mentioned a dispersal by wind over long distances. Lauterer also found an overwintering female of *A. jamatonica* on *Abies alba* far from trees of *Albizia* in north-western Italy (Meugliano Lake near the town of Ivrea, 715 m, 7°47'36"E, 45°28'36"N, August 8, 2007, unpublished). Eggs are laid in large numbers around buds since the end of March. The first larvae hatch in mid-April. The first adults can be observed in early May. Later in the year, the eggs are laid especially on veins and leaf margins, less frequently on the lower surface of leaves. Both larvae and adults suck out the phloem of leaves and petioles.

In Europe and North America, only generalist predators are the natural enemies of *A. jamatonica*, e.g. coccinellid beetles (*Adalia*, *Hippodamia*, *Harmonia*, and *Scymnus*) and anthocorid bugs (*Orius* and *Anthocoris*, *Deraeocoris*) (ZANDIGIACOMO *et al.* 2002; SELJAK *et al.* 2004, SÁNCHEZ & BURCKHARDT 2009). An insecticide treatment of the attacked trees should be considered carefully as the honeydew strongly attracts pollinators as well as beneficial insect predators and parasitoids. PELLIZZARI *et al.* (2005) recommend a single treatment with imidaclopride or abamectin or two treatments with preparations based on lambda-cyhalothrin and thiamethoxam. It is known, however, that in psyllids in general, and in polyvoltine species in particular, resistance against insecticides can arise quite readily.

P.S.: After the manuscript was sent to print, a paper about the occurrence of *A. jamatonica* in Greece (PÁSZTOR *et al.* 2010) appeared and we found an older short note about the appearance of this species in Greece (ZARTALLOUDIS 2007).

## References

- ALMA A., TEDESCHI R., ROSSI J. (2002): *Acizzia jamatonica* (Kuwayama), nova psilla per l'Europe (Homoptera: Psylloidea). *Informatore Fitopatologico*, **52**: 64–65.
- BURCKHARDT D. (2009): Fauna Europaea: Psylloidea. Fauna Europaea, version 2.1. Available at <http://www.faunaeur.org> (accessed 1.3. 2009)
- BURCKHARDT D., MÜHLETHALER R. (2003): Exotische Elemente der schweizer Blattflohfauna (Hemiptera, Psylloidea) mit einer Liste weiterer potentieller Arten. *Mitteilungen der Entomologischen Gesellschaft Basel*, **53**: 98–110.
- CHAPIN E., COCQUEMPOT C. (2005): Psylle de l'Albizia. 1ers signalements en France. *PHM Revue horticole*, **467**: 49–52.
- EPPO (2003): EPPO report on notifications of non-compliance (detection of regulated pests). European and Mediterranean Plant Protection Organisation Reporting Service: 175.
- EPPO (2006): *Acizzia jamatonica* (Homoptera: Psyllidae) – a new pest of *Albizia*. Deletions from the EPPO (European and Mediterranean Plant Protection Organisation) Alert List: Panel Review 2006-03.
- GRIMAU R. (2006): *Acizzia jamatonica* (Kuwayama 1908). *Paisajismo*, **5**: 44–47.
- HALBERT S.E. (ed.) (2007): *Acizzia jamatonica* (Kuwayama), a psyllid. Tri-ology (Bureau of Entomology, Nematology & Plant Pathology, Florida Department of Agriculture & Consumer Services, Gainesville, 46(2): 8.
- HODKINSON I. D., HOLLIS D. (1987): The legume-feeding psyllids (Homoptera) of the west Palaearctic Region. *Bulletin of the British Museum of Natural History (Entomology)*, **56**(1): 1–86.
- KLIMASZEWSKI S. M. (1973): The jumping plant lice or psyllids (Homoptera, Psyllodea) of the Palaearctic. An annotated check-list. *Annales zoologici (Warszawa)*, **30**: 155–286.
- KUWAYAMA S. (1908): Die Psylliden Japans. *Transactions of the Sapporo Natural History Society*, **2**: 149–189.
- KWON Y.J. (1983): Psylloidea of Korea (Homoptera: Sternorrhyncha). *Insecta Koreana*, **2**: 1–181.
- LI F. S. (1992): Psylloidea (Homoptera Sternorrhyncha). In: PENG J., LIU Y. (eds): *Iconography of Forest Insects in Hunan China*. Science and Technology Press, Hunan: 204–213.
- PÁSZTOR B., RÉDEI D., VÉTEK D. (2010): First record of *Acizzia jamatonica* (Kuwayama) (Homoptera: Psyllidae) in Greece. *Hellenic Plant Protection Journal*, **3**: 25–27.
- PELLIZZARI G., MORI N., GALBERO G., ANTONUCCI C. (2008): Risultati di due anni di sperimentazione contro la Psilla dell' *Albizia*, *Acizzia jamatonica* (Kuwayama). *Informatore Fitopatologico*, **55**(11): 33–39.

- RAK L. (2007): *Albizia julibrissin* Durazz. – albízie růžová. Available at <http://botany.cz/cs/albizia-julibrissin/> (accessed 1.3. 2009).
- RÉDEI D., PÉNZES B. (2006): A selyemakác levélbolha, *Acizzia jamatonica* (Kuwayama, 1908) (Sternorrhyncha: Psyllidae: Acizzinae) megjelenése Magyarországon. Növényvédelem, **42**: 153–157.
- SÁNCHEZ I., BURCKHARDT D. (2009): First record of *Acizzia jamatonica* (Kuwayama, 1908) (Hemiptera: Psylloidea) for the Iberian peninsula. Boletín Sociedad Entomológica Aragonesa, **45**: 525–526.
- SELJAK G. (2003): Azijska bolšica ogroža albicie. Moj mali svet, **35**: 20–21.
- SELJAK G. (2006): An overview of the current knowledge of jumping plant-lice of Slovenia (Hemiptera: Psylloidea). Acta Entomologica Slovenica **14**(1): 11–34.
- SELJAK G., ŠIMALA M., STIGTER H. (2004): Three new non-European psyllids (Hemiptera, Psyllidae) in Slovenia and Croatia. In: KERZHNER I.M. (ed.): 3<sup>rd</sup> European Hemiptera Congress, St. Petersburg, June 8–11, 2004, Abstracts. Russian Academy of Sciences, Department of Biological Sciences, St. Petersburg Scientific Centre, Zoological Institut: 66–67.
- ŠIMALA M., SELJAK G., POJE I., MASTEN T. (2006): Novo zabilježene vrste lisnih buha (Hemiptera: Psylloidea) na drvenastom ukrasnom bilju u Hrvatskoj. Glasilo biljne zaštite, **6**: 294–298.
- ULYSSEN M. D., MILLER D. R. (2007): First record of *Acizzia jamatonica* (Hemiptera: Psyllidae) in North America: friend or foe? Florida Entomologist, **90**: 573.
- VÉTEK G., RÉDEI D. (2009): First record of *Acizzia jamatonica* (Kuwayama) (Hemiptera: Psyllidae) in Bulgaria. Acta Zoologica Bulgarica, **61**: 323–325.
- VÉTEK G., BABIĆ, A., BOGNAR-PASTOR H. (2009): *Acizzia jamatonica* (Kuwayama) (Hemiptera: Psyllidae) – nova štetočina albicije u Srbiji. Biljni lekar, **37**: 608–613.
- WHEELER A. G., HOEBEKE E. R. (2009): *Acizzia jamatonica* (Kuwayama) (Hemiptera: Sternorrhyncha: Psyllidae): U.S. distribution of a recently detected Asian psyllid. Proceedings of the Entomological Society of Washington, **111**: 505–514.
- YANG C. T. (1984): Psyllidae of Taiwan. Taiwan Museum Special Publications Series, No. 3: 1–305.
- ZANDIGIACOMO P., BERNARDIELLI I., STERGULC F. (2002): Psilla dell'albizia: prima segnalazione per l'Italia nord-orientale. Notiziario ERSA, Friuli-Venezia Giulia (N. Ser.), **15**(4): 18–20.
- ZARTALOUDIS Z. (2007): Et1: Species identification-examination of samples. Et1.1: It was identified, the green psyllid, *Acizzia jamatonica* (Homoptera: psyllidae) in the Laboratory of Entomology and Zoology. Annual Report of Nagref-Plant Protection Institute of Thessaloniki: 64.

Received for publication March 1, 2010

Accepted after corrections August 13, 2010

---

*Corresponding Author:*

RNDr. PAVEL LAUTERER, Entomologické oddělení, Moravské zemské muzeum, Hvězdoslavova 29a, 627 00 Brno, Česká republika  
tel.: + 420 545 218 277, e-mail: ento.laut@volny.cz

---