

First Records of the Rhododendron Leafhopper (*Graphocephala fennahi*) (Hemiptera: Auchenorrhyncha: Cicadellidae) from the Czech Republic

PAVEL ŠPRYŇAR

Department of Botany, Faculty of Science, Charles University, Prague, Czech Republic

Abstract

ŠPRYŇAR P. (2005): **First records of the rhododendron leafhopper** (*Graphocephala fennahi*) (Hemiptera: Auchenorrhyncha: Cicadellidae) **from the Czech Republic**. Plant Protect Sci., **41**: 38–41.

In summer and autumn of 2004 the cicadellid leafhopper species *Graphocephala fennahi* was detected in the Czech Republic for the first time as a new alien insect species feeding on *Rhododendron*. The species is native to North America and was introduced in the 1930's to Great Britain and in the 1970's to continental Europe, where its invasion and relationship to the rhododendron bud blast disease have been studied in detail. At present, the Czech populations of *G. fennahi* appear to be restricted to the Prague city area and near surroundings, but further spread of *G. fennahi* can be expected.

Keywords: Homoptera; insect invasions; ornamental horticulture; plant-animal interactions

Graphocephala fennahi Young 1977 was introduced to Europe from mountain regions in North America in the first half of the 20th century. The first record of its occurrence from Great Britain was published in 1935 (England) and subsequently referred to as *Graphocephala coccinea* (Forster 1771) (e.g. HOWELL & WOOD 1962). In 1977, D.A. Young revealed that the leafhopper concerned was not *G. coccinea* but a new species, *G. fennahi*, with the two species differing slightly in colour and male genitalia as well as in host preferences (ULENBERG & VAN FRANKENHUYZEN 1986).

The first record of *G. fennahi* from continental Europe was published in 1971 (Switzerland) – see SERGEL (1987). Since then, *G. fennahi* has spread into many countries in central and southern Europe: Germany, Denmark, The Netherlands, Belgium, France, Switzerland, Austria and Italy (SERGEL 1987; VIDANO *et al.* 1987). This expansion may have been supported by warm weather in the last decades as well as by international trade and

transportation of plants of *Rhododendron* (see also HOFFMANN 1990). Still, the dispersion mode of *G. fennahi* has not been exactly explained yet (FELDMANN & BUSSMANN 1993).

Determination of *G. fennahi* is easy due to the conspicuous appearance of adult specimens: they are light green with yellow legs and two strikingly red or orange stripes on the side of their first pair wings (Figures 1–3). Length of the adult body is 8–9.5 mm, females are a little longer than males. In the Czech Republic the use of coloured identification guides translated from German into Czech is also possible and helpful (e.g. NIENHAUS *et al.* 1998; STICHMANN & KRETZSCHMAR 1998; BÖHMER & WOHANKA 2003).

The main host plants of *Graphocephala fennahi* belong to the genus *Rhododendron* (incl. *Azalea*). However, the list of host plants of *G. fennahi* in Europe compiled by SERGEL (1987) and other records have indicated that *G. fennahi* has extended its host plant spectrum in its allochthonous area



Figure 1. Adult specimen (female) of the rhododendron leafhopper (*Graphocephala fennahi*) from Prague-Hrnčire, Central Bohemia (Photo J. Dvořák)



Figure 2. Two specimens of *Graphocephala fennahi* on the leaf surface of *Rhododendron* (Photo J. Dvořák)



Figure 3. *Graphocephala fennahi*, lateral view; length 9 mm (Photo J. Dvořák)

in the Palearctic (e.g. NIEDRINGHAUS & OLTHOFF 1986; SERGEL 1987). In Europe it has one generation per year, while in North America two generations are common (HOFFMANN 1990). Oviposition occurs from September till the end of October, and the eggs are the overwintering stage. The first larval instars emerge at the beginning of May, just before flowering of the rhododendrons (ULENBERG & VAN FRANKENHUYZEN 1986). There are five larval instars; they feed on sap from the undersides of the leaves. The adults can be found from July to November, rarely to the middle of December (ULENBERG & VAN FRANKENHUYZEN 1986; SERGEL 1987). The leafhopper can reach high population densities in gardens, cemeteries, parks and nurseries, especially in the lowlands and in the hilly vegetation belt (FELDMANN & BUSSMANN 1993). It can be eliminated with an appropriate insecticide.

Moreover, *G. fennahi* is believed to facilitate transmission of the rhododendron bud blast disease caused by the hyphomycete *Seifertia azaleae* (Peck) Partridge & Morgan-Jones (\equiv *Pycnostysanus azaleae*

(Peck) E.W. Mason (e.g. GESSNER 1984; PARTRIDGE & MORGAN-JONES 2002). In European countries the co-occurrence of *G. fennahi* and *S. azaleae* has been recorded often (e.g. ULENBERG & VAN FRANKENHUYZEN 1986). It is assumed that egg-laying damages the *Rhododendron* buds and creates points of entry for the disease. Eggs are inserted into the bud scales between the epidermis and the subepidermal layer by the ovipositor, but laboratory experiments provided no conclusive evidence that the fungus entered the bud tissue through this wound (HOWELL & WOOD 1962). Recent studies showed that infestation by *S. azaleae* is largely influenced also by other factors, especially waterlogged soil and dispersion pattern of plants (HOMMES *et al.* 2003). The hyphomycete *S. azaleae* has not yet been recorded in the Czech Republic.

According to my knowledge, *Graphocephala fennahi* was first detected in the Czech Republic in Central Bohemia in Prague-Hrnčiče area by my colleague Josef Dvořák, who drew my attention to the spread of this leafhopper. Currently it is known from the following localities (the grid cell codes of the Central European grid mapping are mentioned): Bohemia centr., Praha-Hrnčiče, street Za Šmatlíkem (6053a), 1.–18. VIII. 2004, in the garden, more ex. observed on the leaves of *Rhododendron* spp., 2 ♀ J. Dvořák leg. et det., P. Špryňar revid. et coll.; Praha-Nové Město, street Na slupi, Botanical Garden of Charles University (5952b), beating of *Rhododendron* species, 1. IX. 2004, 2 ♀, 20. IX. 2004, 2 ♂, 4 ♀, P. Špryňar leg., det. et coll.; Průhonice, Průhonický park (5953c and 6053a), beating of *Rhododendron* species, 31. VIII. 2004, 5 ♂, 16 ♀, 2. IX. 2004, 2 ♂, 5 ♀, 26. X. 2004, 2 ♂, 14 ♀, P. Špryňar leg., det. et coll.

These records indicate that *G. fennahi* could be widespread in the surroundings of Prague in larger plantations of *Rhododendron* bushes. Further spread of this species in the Czech Republic can be expected, and monitoring of its invasion should be required.

References

- BÖHMER B., WOHANKA W. (2003): Atlas chorob a škůdců okrasných rostlin, ovoce a zeleniny. Nakladatelství Brázda, Praha.
- FELDMANN R., BUSSMANN M. (1993): Die Ausbreitung der Rhododendron-Zikade (*Graphocephala fennahi* Young) im Sauerland und im Hellwegraum. *Natur und Heimat*, **53**: 93–98.
- GESSNER E. (1984): *Pycnostysanus azaleae* (Peck.) Mason (Hyphomycetes), ein Schadpilz an Rhododendron. *Nachrichtenblatt des Deutschen Pflanzenschutzdienstes*, **36**: 119–120.
- HOFFMANN H.-J. (1990): Zur Ausbreitung der Rhododendronzikade *Graphocephala fennahi* Young (Homoptera, Cicadellidae) in Deutschland, nebst Anmerkungen zu anderen Neueinwanderern bei Wanzen und Zikaden. *Verhandlungen Westdeutscher Entomologentag*, **1989**: 285–301.
- HOMMES M., DIEDERICH F., WERRES S. (2003): Investigations on interactions between the rhododendron leafhopper (*Graphocephala fennahi* Young) and the rhododendron bud blast disease (*Pycnostysanus azaleae* (Peck) E. Mason). *Mitteilungen aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft, Berlin-Dahlem*, **394**: 48–49.
- HOWELL P.J., WOOD R.K.S. (1962): Some factors affecting rhododendron bud blast and its control. *Annals of Applied Biology*, **50**: 723–733.
- NIEDRINGHAUS R., OLTHOFF T. (1986): Zum Auftreten der Zikaden *Graphocephala fennahi* Young 1977, *Fieberiella macchiae* Linnavuori 1962 und *Zyginella pulchra* Löw 1885 in städtischen Bereichen Nordwestdeutschlands (Homoptera: Auchenorrhyncha). *Drosera* '86 (2): 71–74.
- NIENHAUS F., BUTIN H., BÖHMER B. (1998): Atlas chorob a škůdců okrasných dřevin. Nakl. Brázda, Praha.
- PARTRIDGE E.CH., MORGAN-JONES G. (2002): Notes on Hyphomycetes. LXXXVIII. New genera in which to classify *Alysidium resinae* and *Pycnostysanus azaleae*, with a consideration of *Sorocybe*. *Mycotaxon*, **83**: 335–352.
- SERTEL R. (1987): On the occurrence and ecology of the Rhododendron-leafhopper, *Graphocephala fennahi* Young 1977, in the Western Palaearctic region (Homoptera, Cicadellidae). *Anzeiger für Schädlingskunde, Pflanzenschutz, Umweltschutz*, **60**: 134–136.
- STICHMANN W., KRETZSCHMAR E. (1998): Svět zvířat kolem nás. Granit, Praha.
- ULENBERG S.A., VAN FRANKENHUYZEN A. (1986): The occurrence of the American leafhopper *Graphocephala fennahi* in Europe and its relation to the bud blast disease of *Rhododendron*. *Meded. Facult. Landbouwwetenschappen Rijksuniversiteit Gent*, **51/3b**: 1245–1248.
- VIDANO C., ARZONE A., MEOTTO F. (1987): Dati morfologici, biologici e fitopatologici su *Graphocephala fennahi* (Homoptera: Auchenorrhyncha) nuovo fitomizo di *Rhododendron* spp. in Italia. *La Difesa delle Piante*, **10**: 101–112.

Received for publication December 2, 2004

Accepted January 4, 2005

Abstrakt

ŠPRYŇAR P. (2005): **První údaje o výskytu sítinovky pěnišníkové (*Graphocephala fennahi*) (Hemiptera: Auchenorrhyncha: Cicadellidae) v České republice.** Plant Protect. Sci., **41**: 38–41.

V létě a na podzim 2004 byl v České republice poprvé zaznamenán výskyt sítinovky pěnišníkové (*Graphocephala fennahi* Young 1977), nového nepůvodního druhu křísa žijícího na pěnišnicích (*Rhododendron* spp.). *G. fennahi* pochází ze Severní Ameriky, ve třicátých letech 20. století byl tento křís zavlečen do Velké Británie a v sedmdesátých letech 20. století na evropský kontinent. Invazní šíření tohoto druhu v Evropě a jeho vztah k chorobě pěnišníků způsobované houbou *Seifertia azaleae* (Peck) Partridge & Morgan-Jones (≡ *Pycnostysanus azaleae* (Peck) E. W. Mason) bylo poměrně podrobně studováno. Dosud známé české populace křísa *G. fennahi* jsou zatím omezeny na území hlavního města Prahy (Hrnčíře a Botanická zahrada Karlovy univerzity) a na jeho nejbližší okolí (Průhonický park), lze však očekávat jejich další šíření.

Klíčová slova: sítinovka pěnišníkovaná; hmyzí invaze; okrasné rostliny; pěnišník

Corresponding author:

Mgr. PAVEL ŠPRYŇAR, Univerzita Karlova, Přírodovědecká fakulta, Katedra botaniky, Benátská 2, 128 01 Praha 2, Česká republika

tel.: + 420 221 951 641, fax: + 420 221 951 645, e-mail: sprynar@natur.cuni.cz
