

## The occurrence of *Phyllonorycter issikii* (KUMATA, 1963) and *Phyllonorycter robiniella* (CLEMENS, 1859), two invasive leafminer species in the fauna of Romania (Lepidoptera, Gracillariidae)

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### Abstract:

Two Gracillariid species, the Eastern Asian species *Phyllonorycter issikii* (KUMATA, 1963), which mines the leaves of *Tilia* species, and the North American species *Phyllonorycter robiniella* (CLEMENS, 1859), mining the leaves of *Robinia pseudoacacia* L., are reported from Romania for the first time.

### Rezumat

*Phyllonorycter issikii* (KUMATA, 1963) și *Phyllonorycter robiniella* (CLEMENS, 1859), două specii miniere invazive în fauna României (Lepidoptera, Gracillariidae)

Două specii miniere din familia Gracillariidae sunt semnalate pentru prima oară din fauna de lepidoptere a României. Specia *Phyllonorycter issikii* (KUMATA, 1963) este originară din estul Asiei și minează în frunzele speciilor de *Tilia*. *Phyllonorycter robiniella* (CLEMENS, 1859) este o specie Nord-Americană ca și planta ei gazdă, *Robinia pseudoacacia* L., în a cărei frunze minează. Sunt prezentate date de biologie și de răspândire în Europa pentru fiecare specie în parte. Răspândirea lor în România este prezentată pe hărți UTM (Fig.1 și 2).

**Key words:** biogeography, Romania, *Phyllonorycter*, Gracillariidae, Lepidoptera.

Two invasive leafminer Gracillariid species are reported from Romania for the first time. *Phyllonorycter issikii* (KUMATA, 1963) is an Eastern Asian species, which mines the leaves of *Tilia* species. *Phyllonorycter robiniella* (CLEMENS, 1859) and its host plant, *Robinia pseudoacacia* L. are North American species. Both leafminer species are already widely distributed in Europe.

Their actually, only little known distribution in Romania is illustrated on a UTM map (Fig. 1 and 2), which is a corrected, unfortunately less known version (PAȘCOVICI & CIOCHIA 1979), so in brackets there are also mentioned the wrong, but more accessible coordinates (LEHRER 1977).

### *Phyllonorycter issikii* (KUMATA, 1963)

**Material studied:** Carpații Orientali, Munții Gurghiu, 700 m, Toplița (jud. Harghita) (KA 70), 7. VIII. 2005. - mines on *Tilia cordata* (legit & coll. Cs. SZABÓKY); Carpații Orientali, Munții Ciucului, 800 m, Ghimeș Făget, railway station (jud. Bacău) (LZ 26), 8. VIII. 2005. - mines on *Tilia cordata* (legit & coll. Cs. SZABÓKY); Carpații Orientali, Depresiunea Ciucului, 700 m, Miercurea Ciuc, Ciuboteni (jud. Harghita) (LZ 03), 8. VIII. 2005. - mines on *Tilia platyphyllos* and 1 female emerged on 15.

VIII. 2005. (Cs. SZABÓKY legit, coll. S. & Z. KOVÁCS); same locality, 10. VIII. 2005. - mines on *Tilia platyphyllos* (legit & coll. S. & Z. KOVÁCS); Carpații Orientali, Depresiunea Giurgeului, 800 m, Joseni (jud. Harghita) (KZ 87), 7. VIII. 2005. - mines on *Tilia cordata* (legit & coll. Cs. SZABÓKY) (Fig. 1).

Native in Eastern Asia, estimated to be introduced to Eastern Europe during the 70s (ŠEFROVÁ 2002b). Reached Central Europe in 2000 (Hungary, the Czech and the Slovak Republic), now is nearly omnipresent in Europe, locally rather abundant, reaching about 700 m above sea level. It prefers trees growing in forest stands and lower branches of trees in parks, avenues, churchyards, etc. Hosts are the *Tilia* species.

The species develops two seasonal forms (V-IX.), whereby its winter form adults hibernate. The larva is yellowish white, makes a blotch mine on the underside. It moderately pulls the leaves together. The faeces are in a pile at one end of the mine (ŠEFROVÁ 2002a; CSÓKA 2003).

The low number of the mines found in each Romanian site shows no influence on the aesthetic appearance of the trees and does not causes premature drying of the leaves.

The species should be placed in the check-

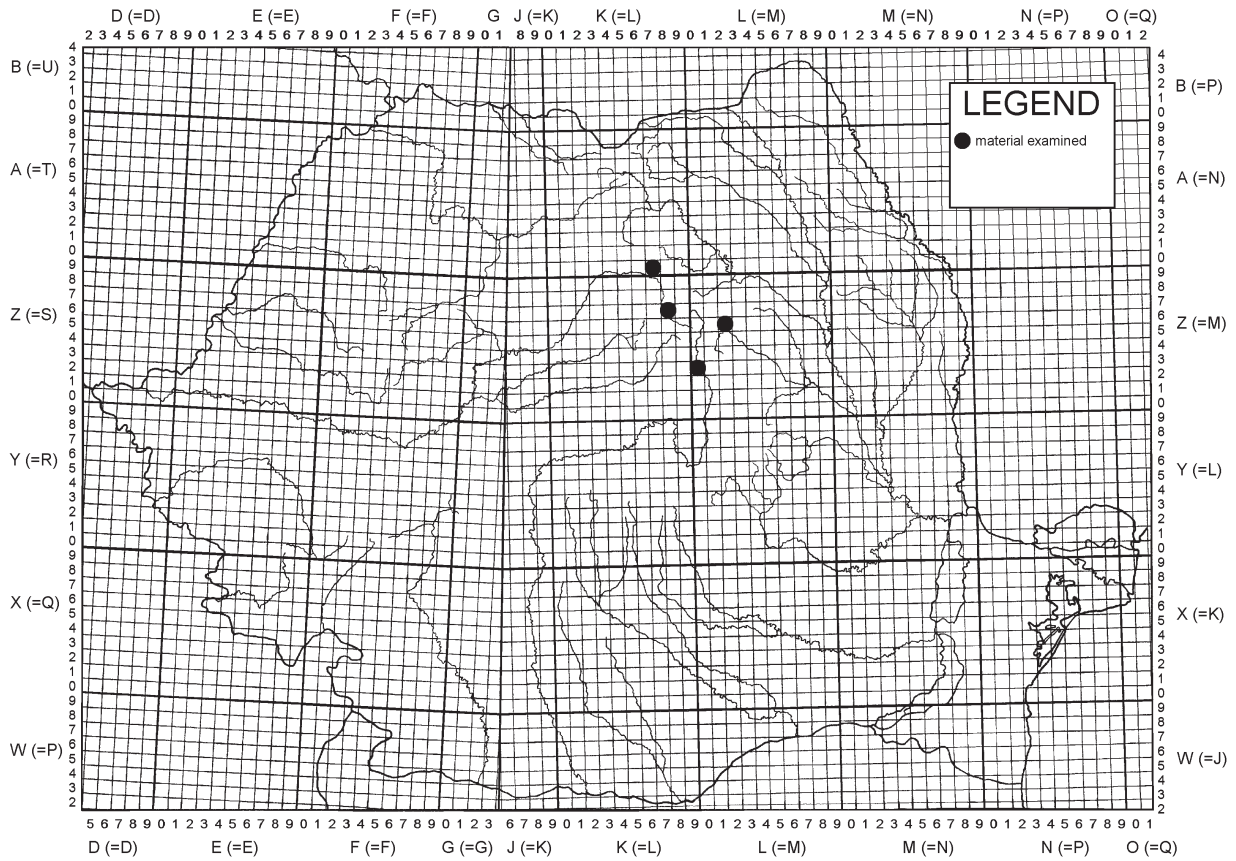


Fig. 1. The distributinal map of *Phyllonorycter issikii* (KUMATA, 1963) in Romania.

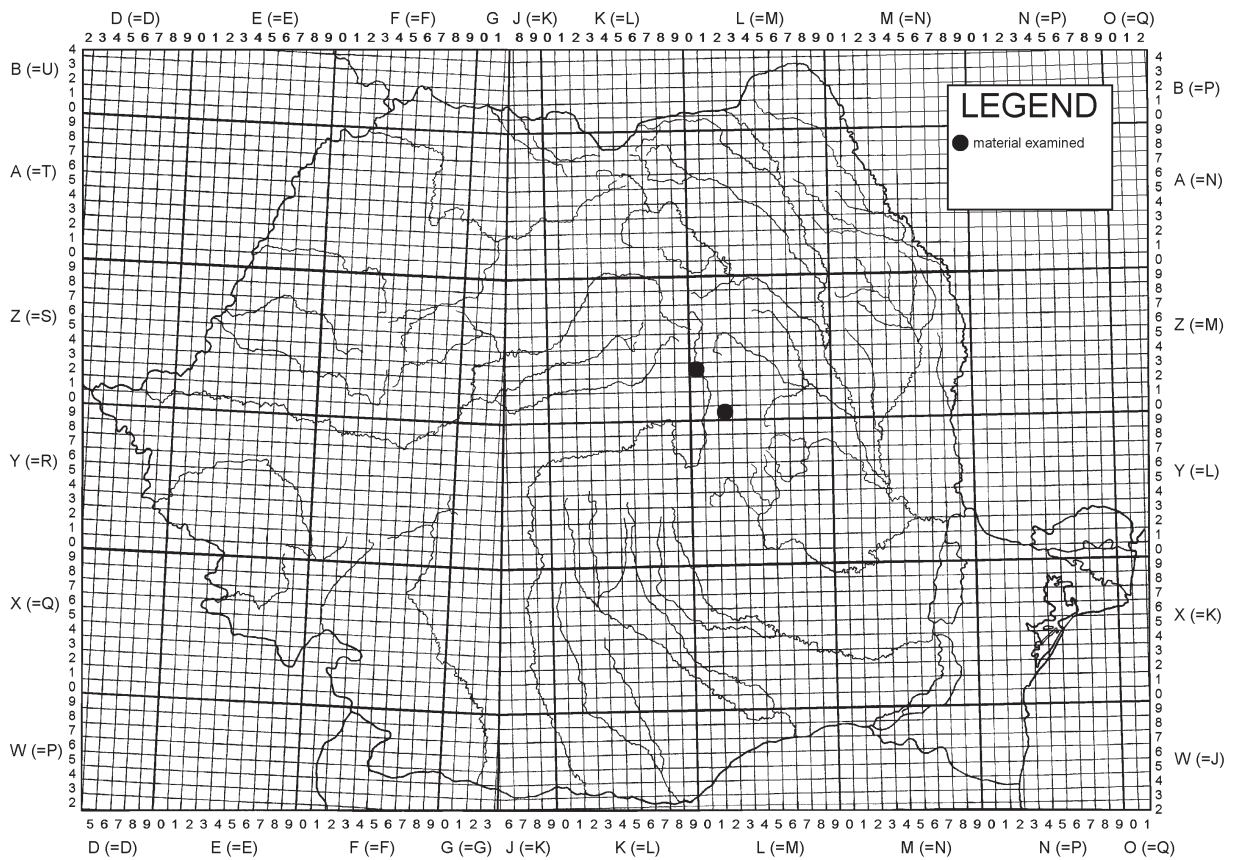


Fig. 2. The distributinal map of *Phyllonorycter robiniella* (CLEMENS, 1859) in Romania.

list of the Romanian Lepidoptera (RÁKOSY, GOIA & KOVÁCS 2003) with the number 568a, following the species *Phyllonorycter insignitella* (ZELLER, 1846).

***Phyllonorycter robiniella* (CLEMENS, 1859)**

**Material studied:** Carpații Orientali, Munții Bodoc, 650 m, Alungeni (LZ 20), 23. X. 2004. - 5 specimens (legit & coll. S. & Z. KOVÁCS); Carpații Orientali, Depresiunea Ciucului, 650 m, Miercurea Ciuc (LZ 03), 20. X. 2005. - mines on *Robinia pseudoacacia* L. including 2 specimens emerged on 25. X. 2005. and 1 XI. 2005. (legit & coll. S. & Z. KOVÁCS) (Fig. 2).

It is native in the Eastern and Central-Western part of the USA. It was first time reported from Europe in Basle (Switzerland) in 1983 and from it extended to France, Germany, northern Italy (1988), Austria (1989), Czech Republic and Slovakia (1992), reaching Hungary in 1996 (SZABÓKY & CSÓKA 1997). In 1999 it was first recorded in Poland. *Phyllonorycter robiniella* (CLEMENS, 1859) and *Parectopa robiniella* (CLEMENS, 1859) (recorded from Romania by RUȘTI in 1994, further data by RÁKOSY, GOIA & KOVÁCS op. cit.) are the main pests of *Robinia pseudoacacia* L. leaves. Black locust, native to North America, was introduced to Europe in the early 17<sup>th</sup> century as an ornamental tree, today also an important and widespread tree in forest plantations.

The monophagous species develops three overlapping generations per year (VI-X.). The white caterpillars make oval blotch mines on the underside of the leaves. The mine never crosses the midrib. Regularly, mainly if the population density is high, more than one mine can be found on a leaf. These mines often merge each other and therefore sometimes even 15 larvae can be found in one mine. The fully grown larvae pupate in oval, white cocoons within the mine (CSÓKA 2003).

The large number of *Phyllonorycter robiniella* (CLEMENS, 1859) mines found in Miercurea Ciuc causes premature leaf drop influencing negatively

the aesthetic appearance of the trees and probable significantly decreases the black locust's productivity.

The species should be placed in the checklist of the Romanian Lepidoptera (RÁKOSY, GOIA & KOVÁCS op. cit.) with the number 584a, following the species *Phyllonorycter rajella* (LINNAEUS, 1758).

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