

**THE GALL MIDGE *OBOLODIPLOSIS ROBINIAE* (HALDEMAN, 1847)
(*DIPTERA:CECIDOMYIIDAE*) – THE NEW INVASIVE SPECIES
IN THE OPOLE PROVINCE**

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ABSTRACT: The paper presents localities and the intensity of infestation by the gall midge *Obolodiplosis robiniae* (Haldeman, 1847) (*Diptera: Cecidomyiidae*) in the Opole Province (Southwest Poland). Native to the North America *Obolodiplosis robiniae* is spreading rapidly in recent years in Europe. This species was for the first time discovered in Poland in 2007.

KEY WORDS: *Obolodiplosis robiniae*, *Diptera*, *Robinia pseudoacacia*, invasive species, alien species, Poland, Silesia

Introduction

The gall midge *Obolodiplosis robiniae* (Haldeman, 1847) (*Diptera: Cecidomyiidae*) was for the first time reported in Poland in Cracow in 2007 (Skrzypczyńska 2007). In the next year information about intensity of infestation by this insect was announced (Skrzypczyńska 2008).

This species is native to the North America, its host plant is black locust *Robinia pseudoacacia* L. Larvae of *O. robiniae* cause characteristic galls on leaflets of black locust leaves – the margin of attacked leaflet is swollen and rolled downwards (Fig.1).

O. robiniae probably arrived to Europe with plant materials and started to spread rapidly. In 2003 galls caused by this insect were observed in north-eastern Italy. Occurrence of this species was discovered in next years also in Czech Republic, Germany, Slovakia, Croatia, Serbia, Ukraine, the Netherlands, Austria, Switzerland, France, United Kingdom and Hungary (Skuhrová et al. 2007).

To this moment any information of this species occurrence in Southwest Poland hasn't been published.

Methods

The study was carried out in the Opole Province from 2nd August to 12^{ve} September 2008. In total 39 localities of black locust *Robinia pseudoacacia*, located in forests, small woods in agricultural landscape and in rural and urban green, were chosen in low-lying part of the province (Fig. 2). At each locality 10 specimens of black locust (in total 390 trees) were selected. From each tree 50 leaves were collected. Leaves were analysed in laboratory to estimate the intensity of their infestation by *O. robiniae*. Taking presence of galls into consideration, number of attacked leaves and leaflets for each locality was established. Obtained data were used to estimate percentage of trees attacked by the insect, percentage of attacked leaves and leaflets and medium number of galls falling on leaf and leaflet for particular localities.

Galls were identified on the basis of Skuhrová et al. (2007).

Names of localities were ordered alphabetically. For each one the symbol of adequate UTM grid square was given.

The evidence from particular localities (leaves with galls) has been stored by the author.

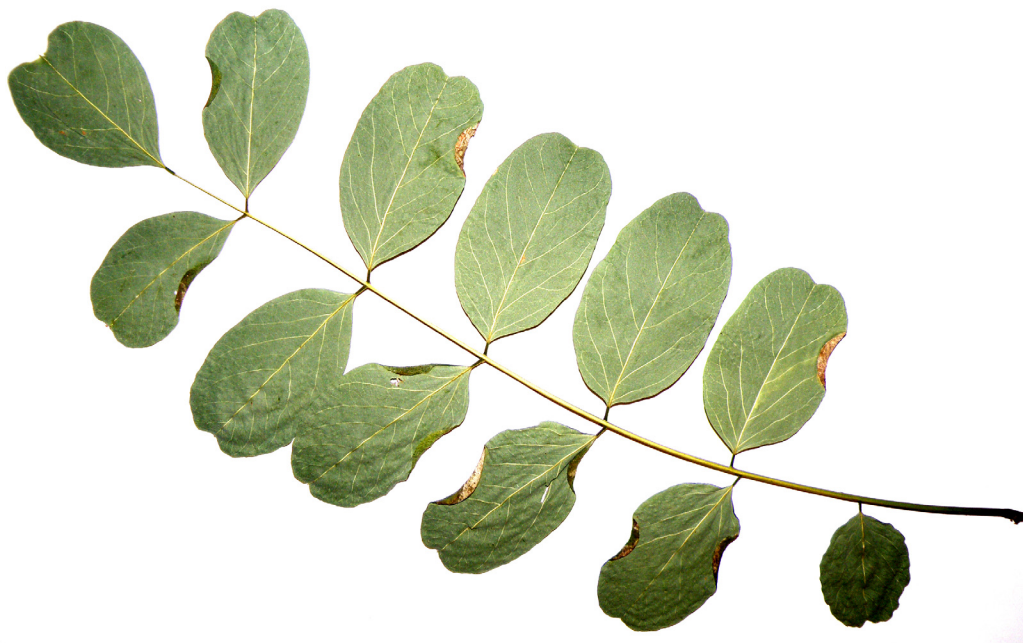


Fig.1. *Robinia pseudoacacia* L. leaf with galls caused by *Obolodiplosis robiniae* (Haldeman) (photo K. Olszanowska-Kuńska).

Results

Locations:

Chróścice (XS93), Chrzastowice (BB91), Czarnowasy (YS02), Dąbrowa Opolska (XS91), Dębska Kuźnia (BB91), Dylaki (CB02), Falmirowice (BB91), Folwark (YS01), Grabczok (YS03), Kały (BB93), Kaniów (XS93), Karłowice (XS83), Kotórz Wielki (BB92), Krzywa Góra (YS03), Lipowa (XS92), Łubniany (YS02), Łubniany (YS12), Nakło (BB90), Nowa Schodnia (CB01), Nowe Kolnie (XS83), Oldrzychowice (XS82), Opole (YS01) (Budowlanych st., Cmentarna st., Jagiellonów st., Luboszycka st., Niemodlińska st.,

Oleska st., Sosnkowskiego st., Stare Miasto, Wojska Polskiego st., Zbożowa st.), Opole (YS11) (Oświęcimska st., Strzelecka st., Wschodnia st.), Przecza (XS82), Suchy Bór (BB91), Wielopole (XS93), Winna Góra (YS04), Winów (YS01).

Intensity of infestation:

Studies showed that 97.4% of trees were attacked by *O. robiniae* at presented localities.

In total, 3 886 leaves with galls were discovered, which was 19.9% of total number (i.e. 19 500) of all taken leaves. At particular localities this value was fluctuated in range from 2.4 to 44.6%.

Leaves with galls were consisted of 61 273 leaflets, of which 15 034 had galls caused by *O. robiniae*. Medium percentage of attacked leaflets was 22.8% (minimum and maximum value was respectively 11.0% and 53.1%).

In total, 20 798 galls were found at all localities. From 1 to 5 galls were located on one leaflet. On average, 1.3 galls per a leaflet (depending on the locality from 1.1 to 1.9) and 4.8 galls per a leaf (from 2.0 to 15.5) were being found.

In most cases galls were empty, only some galls contained larvae, pupae and larvae attacked by a parasitoid.

Dried, dark brown galls as well as greenish galls in initial developmental stage were discovered. It means, that at least two generations of *O. robiniae* develop in the course of one vegetative season in the Opole Province.

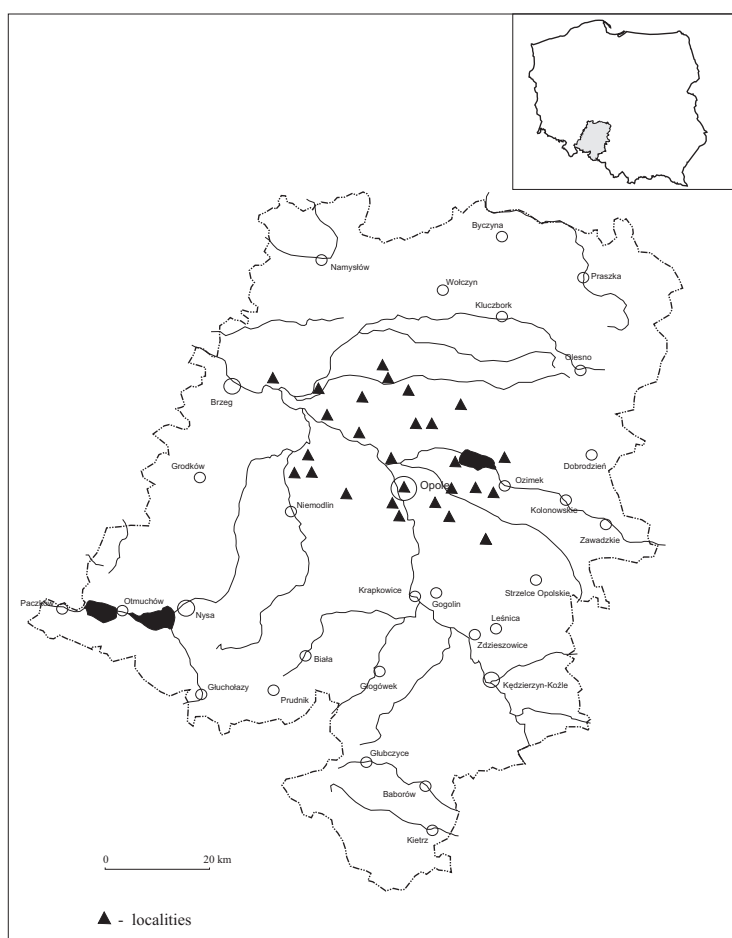


Fig.2. Localities of the gall midge *Obolodiplosis robiniae* (Haldeman) in the Opole Province.

Conclusions

1. Presence of galls at all studied localities indicates rapid spread of *O. robiniae* in Silesia.
2. Intensity of infestation by *O. robiniae* differs considerably at particular localities.
3. Next years permanence of *O. robiniae* population and its influence on host plant *R. pseudoacacia* in Poland should be studied.

Bibliography

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