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14.72 – *Phyllonorycter robiniella* (Clemens, 1859)
(Lepidoptera, Gracillariidae)

David Lees

Description and biological cycle: Small moth, wingspan 5.98–6.37 mm. Adult forewings light orange with four silvery-white diagonal striae running from costa towards tergal edge, but reflexed at middle of wing, at least the terminal one divided, apically a black eyespot; base of wings silvery white (see *Figure 11.6g* in *Chapter 11*). Larva in Europe a leaf-miner of *Robinia pseudacacia* (Fabaceae) (in North America using also *R. hispida*, *R. viscosa* and *R. neomexicana*, but not recorded on other genera), from June to October, in two or usually three generations from June to October in Europe. Diaphanous whitish, tentiform blotch mine that does not traverse midrib, but may occupy a large part of one side of the leaf, usually on underside (*Photo*), occasionally on leaf upper-side, and which may sometimes merge to contain up to 15 larvae. Egg, light greenish grey, 6–10 d, larva, hypermetamorphic, in final two of five tissue-feeding instars, cylindrical, 20–50 d, pupa in oval white cocoon within the mine 7–20 d, 5–11 weeks for development. Hibernates as adult.

Native habitat (EUNIS code): G - Woodland, forest and other wooded land.

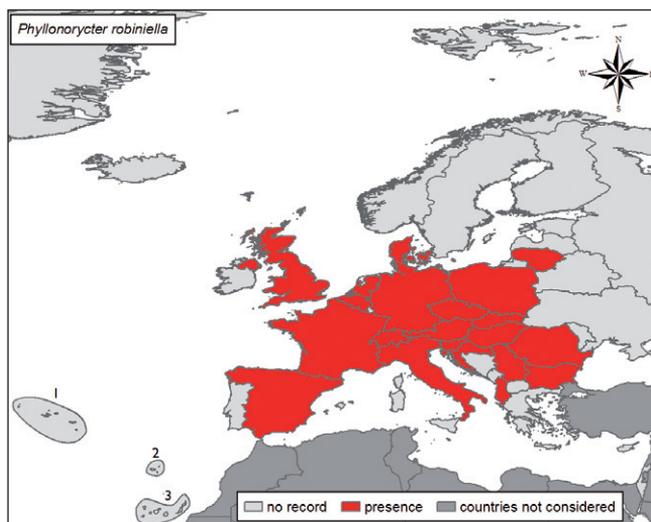
Habitat occupied in invaded range (EUNIS code): I - Regularly or recently cultivated agricultural, horticultural and domestic habitats; I2 - Cultivated areas of gardens and parks.

Native range: Nearctic: Eastern and central USA (North America), throughout the native range of *Robinia pseudacacia*, including Canada (Québec), U.S.A (Connecticut, Florida, Illinois, Kentucky, Maine, Maryland, Massachusetts, Michigan, New York, Texas, Vermont, and Wisconsin).

Introduced range: First recorded in Europe in 1983 in Switzerland, it then invaded most of Western, Central and Northern Europe: Austria, Belgium (from 2000), Croatia, Czech Republic, France, Germany, Hungary, Italy (1988), The Netherlands (1999), Poland, Slovakia, Spain (Barcelona 2000), Switzerland (1983), Ukraine. Apparently spreading faster eastwards than westwards (*Map*).



Credit: Hana Šefrová



Pathways: Passive wind dispersal may be unusually important for this species, as although leaves can be carried by cars, pupae hatch before leaf fall, making leaf transport more more unlikely than for some other gracillariid species.

Impact and management: Causes premature leaf drop to false acacia trees and thus has potential aesthetic and physiological impact. Reported to have a higher surface area impact on industrial plantations than *Parectopa robiniella*. Damage must be weighed against considerations that false acacia is itself an undesirable alien in some European ecosystems. Chitin synthesis inhibitors applied in late May could cure leaf drop. Natural control includes at least 22 species of (polyphagous) braconid (*Apanteles nanus*, *Colastes braconius*, *Pholetesor bicolor*, *P. circumscriptus*, *P. ornigis*), and chalcidoid eupelmid and eulophid wasps (*Achrysocharoides cilla*, *A. gabani*, *Astichus trifasciatipennis*, *Baryscapus nigroviolaceus*, *Chrysocharis nephereus*, *Closterocerus cinctipennis*, *C. trifasciatus*, *Elachertus inunctus*, *Horismenus fraternus*, *Minotetrastichus frontalis*, *M. platanellus*, *Pediobius liocephalatus*, *P. saulius*, *Pnigalio pectinicornis*, *P. soemius*, *Sympiesis acalle*, *S. marylandensis* and *S. sericeicornis*). Parasitoids have easily shifted from other hosts.

Selected references

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