ALIEN INSECT SPECIES ESTABLISHED IN LITHUANIA IN THE LAST TWO DECADES

J. Rimšaitė, P. Ivinskis
Nature Research Centre, 2 Akademijos Str., 08412, Vilnius, Lithuania
Corresponding author: J. Rimšaitė (*entlab@gmail.com*)

Introduction. The spreading of alien species can significantly alter the balance of natural habitats and ecosystems. The spread of some alien invertebrates species in Lithuania is directly related to the introduction and transit of ornamental plants and transit transport. Observed climate change helps settle southern species.

Materials and methods. The material was collected in the whole territory of Lithuania at 2007–2020 years. Insects were collected using an entomological net, light and pheromone trapping, plant mine collecting was used.

Results. Black locust *Robinia pseudoacacia* L. trees were introduced to Lithuania many years ago as an ornamental plants. It is endemic to a few small areas of the United States, but it has been widely planted in temperate zone and is considered an invasive species in Lithuania and other European countries. The species associated with black locust, as *Macrosaccus robiniella* (Clemens, 1859), *Parectopa robiniella* (Lepidoptera, Gracillariidae), *Obolodiplosis robiniae* (Haldeman, 1847) (Diptera, Cecidomyiidae) were discovered since 2007 (Ivinskis, Rimšaitė, 2008). *M. robiniella* is currently widespread and abundant in Kaunas, Vilnius. On the Curonian spit, where species was discovered in 2007, it is currently not found. Only few leaves with mines of *P. robiniella* were found in Curonian spit in 2007. Further investigation of these mines on *R. pseudoacacia* in Lithuania did not yield any results, until in 2019 – we found many mines in Vilnius, Kaunas, Curonian Spit and Šalčininkai region. Meanwhile, *O. robinia,* found stably and widespread in Lithuania. This year, *Caloptilia fidella* (Lepidoptera, Gracillariidae) mines were common on hops (*Humulus lupulus* L.), butterflies were also caught. Until this year, the species was unknown in Lithuania, now found in 10 regions of Lithuania. Another species, *Cydalima perspectalis* (Walker, 1859) (Lepidoptera, Crambidae), associated with common box (*Buxus sempervirens* L.), is spreading in Lithuania. It was first detected in Lithuania in 2018 (Paulavičiūtė, Mikalauskas, 2018), and in 2020 it was found on the Curonian Spit, Palanga, Vilnius, Kaunas. *Helicoverpa armigera* (Hübner, [1808]) (Lepidoptera, Noctuidae) every year immigrate in Lithuania.

In 2010, there was a massive appearance of *Otiorhynchus armadillo* (Rossi, 1792) (Coleoptera Curculionidae) in Vilnius, beetles damage ornamental plants in the flower garden (Ivinskis et al., 2013). The beetles were observed in 2020 again. This species spread due to trade of plants. Import of horticultural plants seems to be the most effective way for the weevils to reach new areas as many of them lack the ability to fly. The horticultural plants are often imported with soil that gives all life stages of the weevils the ability to come as stowaway. Adults often feed on the foliage of different host plants making round cuts along the leaf edge, while the larvae feed on the roots (Staverløkk, 2010).

Lignyodes bischoffi (Blatchley, 1916) (Coleoptera, Curculionidae) at first found in Kaunas Botanical garden in 2015. The species are origin from South America, but now known from Central Europe, Poland. The species is trophic associated with *Fraxinus* spp., larvae develop in seeds. Ladybird species *Harmonia axyridis* (Pallas, 1773) (Coleoptera, Coccinellidae) first found in Curonian spit in 2011 (Nagrockaitė et al., 2011). Now the species are found over all Lithuania, in Vilnius city are abundant.

Some alien species establish in new territories and form massive foci such as the horse-chestnut leaf miner *Cameraria ohridella* Deschka & Dimić, 1986 (Lepidoptera, Gracillariidae). Found in 2005 after a few years it became a massive species, damaged greenery of settlements.

In the last decade, the spread of *Mantis religiosa* (Linnaeus, 1758) (Mantodea, Mantidae) was observed throughout Lithuania. The species, first discovered in 2008, has now spread

throughout Lithuania and successfully reproduce. This species is not alien, but its natural range has always been much south of Lithuania.

Conclusion. The immigration and establishing of species in Lithuania are observed during the two last decades. The observation of immigration of alien species helps to understand the immigration paths, the scale of settlement and find methods of control.

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