



## ***Hyalesthes obsoletus* Signoret, 1865 (Hemiptera: Cixiidae): a lacehopper new to Belgium**

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### **Abstract**

*Hyalesthes obsoletus* Signoret, 1865 was observed for the first time in Belgium. On 13.VII.2019, one specimen was collected by sweeping the vegetation in the nature reserve 'Thier des Vignes' in Lanaye (Province of Liège).

**Keywords:** Auchenorrhyncha, Fulgoromorpha, Thier des Vignes

### **Samenvatting**

*Hyalesthes obsoletus* Signoret, 1865 werd voor het eerst in België waargenomen. Op 13.VII.2019 werd één exemplaar gevangen door in de vegetatie te slepen in het natuurreserveaat 'Thier de Vignes' in Lanaye (Provincie Luik).

### **Résumé**

*Hyalesthes obsoletus* Signoret, 1865 a été observé pour la première fois en Belgique. Le 13.VII.2019, un exemplaire a été collecté dans la réserve naturelle 'Thier des vignes' à Lanaye (Province de Liège) en fauchant la végétation.

### **Introduction**

Cixiidae or lacehoppers are a family of Auchenorrhyncha. They belong to the Fulgoromorpha and the insertions of the median coxae are thus widely separated, while these insertions are situated close to the body axis in Cicadomorpha. Cixiidae bear a regular row of spines apically on the second hind tarsi, but the hind tibiae do not bear a strongly enlarged spine as in Delphacidae and the head is not elongated as in Dictyopharidae. So far, 11 species of Cixiidae have been observed in Belgium (VAN STALLE, 1987; LOCK, 2017). Here, *Hyalesthes obsoletus* Signoret, 1865 is added to the fauna of Belgium.

### **Material and methods**

Auchenorrhyncha were sampled by sweeping the vegetation. Species were identified using BIEDERMANN & NIEDRINGHAUS (2009) in combination with KUNZ *et al.* (2011). The collected specimen of *Hyalesthes obsoletus* Signoret, 1865 was deposited to the entomological collection of the Royal Belgian Institute of Natural Sciences (I.G. 34.172).

### **Results**

On 13.VII.2019, one specimen of *Hyalesthes obsoletus* Signoret, 1865 was collected in the nature reserve 'Thier de Vignes' in Lanaye (Province of Liège, UTM: 31UFS8929). The reserve is situated on one of the steep slopes along the eastern side of the Sint-Pietersberg bordering the Albert Canal. In the framework of the LIFE project Héliantheme, several hectares

were deforested in 2011 and 2012 in order to restore calcareous grasslands on the Cretaceous limestone. These grasslands are now grazed by sheep of a local race (Mergellandschaap), which can take shelter in several entrances of underground marlstone quarries. In this biotope, *H. obsoletus* was found on common nettle (*Urtica dioica* L.).

*H. obsoletus* measures 3-6 mm. The mesonotum possesses five indistinct longitudinal keels (Fig. 1). The pronotum is yellowish-white, which strongly contrasts with the black mesonotum (Figs 1-2). The black vertex and frons are bordered by a white line, the eyes are wine-coloured and the wings are unmarked (Figs 1-2).



Fig. 1. Dorsal view of *Hyalesthes obsoletus* Signoret, 1865. © Koen Lock.

### Discussion

*Hyalesthes obsoletus* Signoret, 1865 is a thermophilic species that can be found on sun-exposed vineyard situations on abandoned land, along walls and sunny embankments, also in old gardens and in disturbed patches in dry grassland, usually on stony or crumbly soils, however, the species is more eurytopic towards the south (HOLZINGER *et al.*, 2003). It is a polyphagous species that mainly occurs on *Convulvulus arvensis* L., but also on *Ranunculus* L., *Urtica* L., *Senecio* L., *Artemisia* L. and other herbs; occasionally on woody plants such as *Vitis* L. and *Salix* L. (HOLZINGER *et al.*, 2003). Adults are found from the end of May till mid-August (HOLZINGER *et al.*, 2003). The species occurs in the southern parts of central Europe, the Mediterranean region, southern Russia, Kazakhstan and Asia Minor (HOLZINGER *et al.*, 2003).

Until recently, *H. obsoletus* was almost exclusively restricted to *C. arvensis* in the northern parts of its range, but recently, and apparently triggered by the unusually hot summer of 2003, it also started using *U. dioica* as a host plant in Germany and in addition, it started to spread to sites with less favourable microclimatic conditions (BOUDON-PADIEU & MAIXNER, 2007). Nymphs of *H. obsoletus* need two or three additional weeks to develop on *U. dioica* compared to *C. arvensis* and it was hypothesized that the phenomenon of the recent exploitation of *U. dioica* might be due to the climate change induced prolonged growth period of *U. dioica*, leading to an extended feeding interval of *H. obsoletus* nymphs and thus compensating for the lower growth rate on *U. dioica* (BOUDON-PADIEU & MAIXNER, 2007).



Fig. 2. Lateral view of *Hyalesthes obsoletus* Signoret, 1865. © Koen Lock.

*H. obsoletus* is of economic importance because it is known as a major vector of stolbur phytoplasma of tomatoes and potatoes and it is the only known vector of grapevine yellows (HOLZINGER *et al.*, 2003; PANASSITI *et al.*, 2013). However, Belgium is currently situated on the northern limit of its distribution range and the species is restricted here to sun-exposed calcareous grassland. It is therefore unlikely that the species will serve as a vector of these diseases in Belgium, although this could possibly change in the future due to global warming.

The study of mitochondrial and nuclear genetic markers provided evidence for cryptic species diversification within *H. obsoletus* sensu lato (KOSOVAC *et al.*, 2018). Populations associated with *Urtica dioica* L. and *Convolvulus arvensis* L. formed a homogenous group, while populations affiliated with *Vitex agnus-castus* L. and *Crepis foetida* L. constituted two independent plant-associated lineages (KOSOVAC *et al.*, 2018). Since the specimen captured in Belgium was found on *U. dioica*, it probably belongs to the first group.

*H. obsoletus* was expected in Belgium (LOCK, 2017) because it was already observed in the Grand Duchy of Luxembourg (DEN BIEMAN *et al.*, 2011) and the German federal state Rheinland-Pfalz bordering Belgium (KUNZ *et al.*, 2011). Since the species was found only 2 km from the border with the Netherlands, it can also be expected there. At least four additional lacehoppers are still expected in Belgium: *Cixius beieri* (f. *haupti*) Wagner, 1939 and *Myndus musivus* (Germar, 1825) have already been found in the Netherlands, while *Cixius* (*Acanthocixius*) *sticticus* Rey, 1891 and *Reptalus* (*Reptalus*) *quinquecostatus* (Dufour, 1833)

have already been observed in the Grand Duchy of Luxembourg (DEN BIEMAN *et al.*, 2011; DE HAAS, 2020).

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