

First record of *Stephanitis lauri* Rietschel, 2014 in mainland Greece

(Hemiptera, Tingidae)

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We report the first occurrence of *Stephanitis lauri* Rietschel, 2014, in mainland Greece, specifically from Xanthi, in the Region of Eastern Macedonia and Thrace. This species, previously known from Crete and other Mediterranean locations, was identified on laurel *Laurus nobilis* L. during fieldwork in October 2024. Morphological characteristics of the collected specimens were compared with descriptions from the literature, confirming their identity. The record expands the known distribution of *S. lauri* and raises questions about its potential spread in mainland Greece. This finding contributes to the understanding of the biogeography of Tingidae in the Mediterranean region.

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Introduction

The lace bug *Stephanitis lauri* Rietschel, 2014 belongs to the family Tingidae, a group of phytophagous insects commonly associated with specific host plants. It has been first recorded in Greece on the island of Crete (Rietschel 2013, 2014), and considered as a Cretan endemic. However later, the species was found in other Mediterranean countries: in France in 2017 (Streito et al. 2018), in Italy (Abenaim et al. 2020) and Spain (Riba-Flinch & Goula 2021) in 2020 and in Portugal in 2024 (Cherpitel & Filipe 2024). It is associated with the laurel tree *Laurus nobilis* L.

The present study reports the first record of *S. lauri* from mainland Greece, providing details on the locality, host plant, and morphological identification. This finding contributes to the biogeographical knowledge of the species and raises questions about its ecological adaptability and potential distribution in Southeastern Europe.

Materials and methods

Fieldwork was conducted in the city of Xanthi, on 31 October 2024, following some inspections on ornamental bay laurel plants, where unusual symptoms, like atypical and highly visible foliar discolorations – chlorotic spotting, were strongly visible (Fig. 1). On the underside of the affected leaves, we easily found mixed colonies of nymphs and adults, leaving traces of their activity through excrement and exuviae. Specimens were collected by hand, preserved in 70 % ethanol and later examined under a stereomicroscope. Photographs of the specimens were taken using Nikon D90 camera and Olympus SZX7 stereomicroscope at magnifications between 80–140×, with a cold-light source equipped with two flexible cold light arms covered with a light diffusor, and a LED ring mounted on the stereomicroscope focus. Morphological features were compared to descriptions provided by Rietschel (2014). Identification focused on key diagnostic traits, particularly the structure of the hemelytra and pronotum.



Fig. 1. Host plant damage caused by *Stephanitis lauri*. The characteristic chlorotic stippling and necrotic patches are visible, along with black excrement spots on the leaf surface.

Specimens are deposited in the Laboratory of Forest Protection and Environmental Pollution, Department of Forestry and Management of Environment and Natural Resources of the Faculty of Agriculture and Forestry, Democritus University of Thrace, Greece.

Results and discussion

Specimens were identified as *Stephanitis lauri* (Fig. 2). *S. lauri* can be confused with other species present in Greece, such as *S. pyri* (Fabricius, 1775) or *S. pyrioides* (Scott, 1874). However, the long antennae, the large, spherical, proximally tapered vesicula that covers the head and eyes, and the high, rounded median keel on the pronotum are different. The specimens represent the first known record of *Stephanitis lauri* on the Greek mainland (Fig. 3). Its collection on *Laurus nobilis* in a region beyond Crete suggests that *S. lauri* is capable of adapting to varying environmental conditions within Greece. Additional sampling efforts could determine whether *S. lauri* has established a stable population in mainland habitats.

Lauraceae is one of the largest families of trees and shrubs, distributed worldwide with approximately 55 genera and over 3000 species (Zhang et

al. 2023), but, hitherto, *S. lauri* is recorded only on bay laurel, and it is unclear if this species could pose any significant risk to other Lauraceae species. Bay laurel is naturally widespread across many countries of the Mediterranean basin, along the Atlantic coast of the Iberian Peninsula and the southern coast of the Black Sea (Rodríguez-Sánchez & Arroyo 2008), but it is also cultivated in warm regions of America, Eastern Asia, the Balkans, and Asia Minor (Batoöl et al. 2020, Singletary 2021). Bay laurel is of high economic importance because of its use in public and private gardens as an ornamental tree or hedging plant (Raviv et al. 1982, Malaspina et al. 2022), as well as a spice and flavouring agent in the culinary and food industries worldwide (Stefanaki & van Andel 2021). Also, further monitoring is advisable to document its spread and ecological and economic impacts.

Regarding damage, *S. lauri* feeding causes chlorotic spots on leaves. Given that its feeding causes highly visible damage to its host plant – difficult to overlook in ornamental plants – and considering its invasive behaviour in southeastern France in 2018, it is more likely that it is an introduced exotic species (Riba-Flinch & Goula 2021). It may be a *Stephanitis* species originally associated with an East Asian Lauraceae host, which first established in Crete before

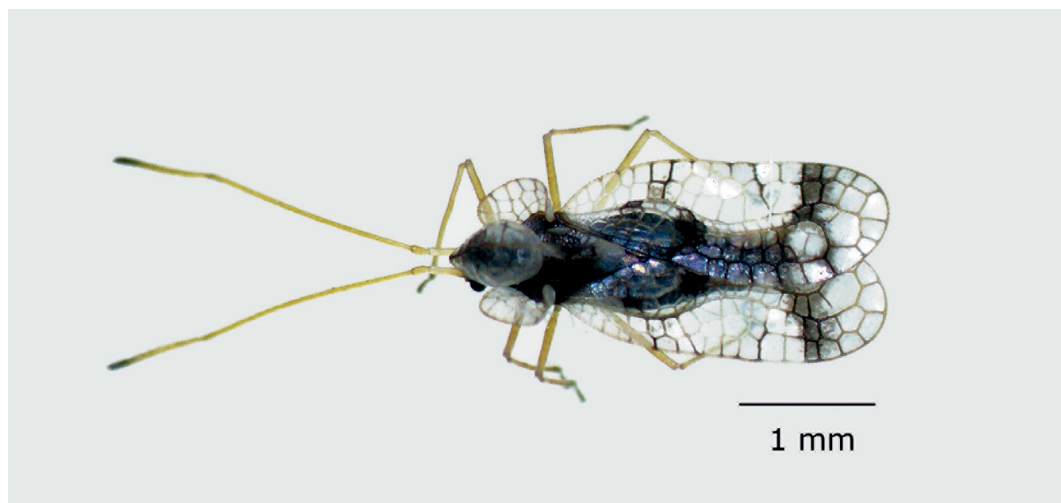


Fig. 2. Adult *Stephanitis lauri* – habitus and morphological details.

spreading to France (Streito et al. 2018). The exact route of *S. lauri* introduction to Europe remains unknown, accidental introduction via the importation of ornamental Lauraceae from Asia is a plausible explanation. The simultaneous detection in multiple European locations following its first detection in

Crete suggests independent introductions – either via infested host plants from Asia or through EU-internal plant trade. However, it is also possible that it is a native Mediterranean species that recently shifted to *L. nobilis* from a previously unrecognized host plant. This scenario would be consistent with other cases



Fig. 3. Distribution map of *Stephanitis lauri* in Greece. The dot represents the previously known locality reported by Rietschel (2014), while the star indicates the newly recorded locality.

of rapid host switching among native hemipterans and should be further investigated (Janz et al. 2001, Tishechkin 2016).

The species has never been studied in terms of its biology. We can assume that it has a life cycle like other *Stephanitis* species: eggs are laid beneath the leaf surface, and there are 5 larval stages. In Crete, it has been recorded in late May and early June, while in France it was recorded only in early June. The number of possible generations is unknown, but it likely produces two generations annually under normal conditions and up to three or four generations in warmer climates. Adults probably overwinter in the soil under fallen leaves (Arnaud & Roberti 2020).

Its presence on the mainland has not previously been documented, likely because the species was simply not present in the area until recently. Given the conspicuous damage it causes to *L. nobilis* – a common and widely cultivated ornamental tree – it is likely that its presence would have been detected earlier if it had already been established. *S. lauri* is characterized by its intricate lace-like wing structure, typical of the Tingidae family. Documenting its spread is essential for understanding the distribution of Mediterranean lace bugs, particularly given its potential as a pest on ornamental laurel.

Conclusion

This record extends the known range of *Stephanitis lauri* to mainland Greece, indicating a possible adaptation to mainland habitats. Its establishment in the region highlights the need for further research on its ecology, dispersal pathways, and potential management strategies. Continuous surveillance will be essential to assess its impact on both cultivated and native Lauraceae.

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