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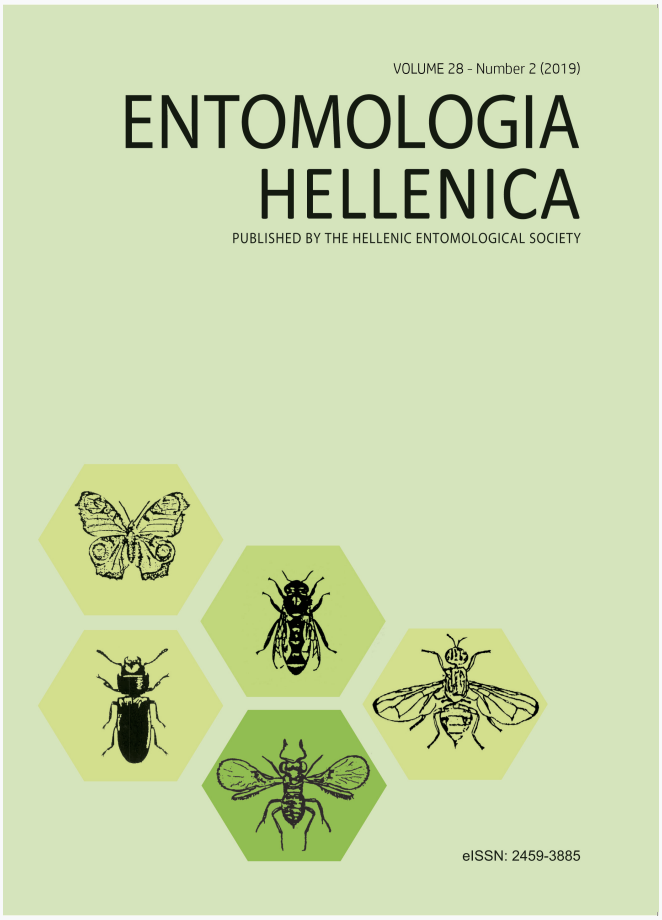

First record of the alien exotic sap beetle Phenolia (Lasiodites) picta (Coleoptera: Nitidulidae) in Greece

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SHORT COMMUNICATION

First record of the alien exotic sap beetle *Phenolia (Lasiodites) picta* (Coleoptera: Nitidulidae) in Greece

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ABSTRACT

The exotic sap beetle *Phenolia (Lasiodites) picta* (Macleay, 1825) is recorded for the first time in Greece. In August 2018, a nitidulid beetle was found near Mt. Pelion of Central Greece. It was later identified as *P. picta*, a recent alien species in Europe, previously recorded from Spain, France, and Turkey. Photographic material and information on the species' distribution, biology, and potential economic and ecological implications are presented and discussed.

KEY WORDS: Coleoptera, Nitidulidae, *Phenolia*, exotic species, alien species, Greece.

Introduction

In the last decades, the abundance of alien species in Europe has grown continuously due to the tremendous growth of global trade. Alien insects represent one of the most numerous groups of introduced organisms in Europe (Roques et al. 2009). Several non-native insects have also been reported in Greece over the last years, as a result of climatic change and/or intensified international movement of horticultural plants and products, e.g. leafhopper assassin bug, *Zelus renardii* Kolenati, 1856 or armadillo weevil, *Otiorhynchus armadillo* (Rossi, 1792) (Petrakis and Moulet 2011, Mpamnaras and Eliopoulos 2018). Many of them have dramatic economic or sanitary consequences, e.g. red palm weevil, *Rhynchophorus ferrugineus* (Olivier, 1790) or Asian tiger mosquito, *Aedes albopictus* (Skuse, 1894) (Knudsen 1995, Ferry and Gomez 2002), but also serious ecological impacts, by either displacing species of the native entomofauna, e.g. Asian ladybird, *Harmonia axyridis* (Pallas, 1773) or harming the local flora, e.g. box tree moth, *Cydalima perspectalis* (Walker, 1859) (Pell et al. 2008, Strachinis et al. 2015).

Herein we present the first record of the exotic sap beetle *Phenolia* (*Lasiodites*) *picta* (Macleay, 1825) in Greece. The nitidulid genus *Phenolia* Erichson, 1843 is divided into four subgenera (Kirejtshuk and Kvamme 2002, Kirejtshuk 2008), of which the subgenus *Lasiodites Jelínek, 1999* is the one that presents a wider distribution, which spans the Ethiopian, Oriental, Australian, and Eastern Palearctic zoogeographical realms. *Phenolia picta* is recorded from the Palaearctic, Madagascan, Indo-Malayan, Australian regions, and probably also the Polynesian region (Kirejtshuk and Kvamme 2002). Recently, the species has been introduced into Europe (Spain, France) and Turkey (Jelínek et al. 2016).

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Materials and Methods

On August 30, 2018 in Platanidia, near Mt. Pelion of Central Greece, an individual of the genus *Phenolia*, subgenus *Lasiodites*, was recorded (Fig. 1). The beetle was found at night, walking on a stone, next to a stream (Fig. 2). Species identification was carried out by the authors, based on the determination key of Kirejtshuk and Kvamme (2002).

FIG. 1. *Phenolia (Lasiodites) picta* found in Platanidia near Mt. Pelion in Greece.

Results

Based on the aforementioned determination key, the individual was identified as *Phenolia* (*Lasiodites*) *picta* (Macleay, 1825) [synonyms *Nitidula picta* Macleay, 1825 (original combination); *Phenolia testudinaria* Reitter, 1873 (most frequently used synonym)] i.e. the posterior pronotal angles not projecting backwardly, the light yellowish elytral band formed by the union of some of the light small elytral spots, distinctively bicoloured femora (light and dark brown). These characters distinguish it from the quite similar species *Phenolia* (*Lasiodites*) *tibialis* (Boheman, 1851), which is known as recently introduced into Europe, but not reported from Greece: the posterior pronotal angles moderately projecting backwardly, and the dorsum nearly unicoloured light to dark brown, or with small lighter elytral spots (contrasting reddish to yellowish) arranged in three irregular rows, not forming conspicuous band; femora uniformly dark brown. The differences in these characters are discussed in detail by Montagud and Orrico (2015).

Until now, *P. picta* had not been recorded in Greece. It is a widespread species, known from some islands east of the Ethiopian region (Madagascar, Mauritius, Nosy Be, Reunion, and Seychelles), from the Australian and Indomalayan regions, eastern Palaearctic zone (including Korea, China, Japan, and Pakistan), Hawaii, and is probably also present in Polynesia (Montagud and Orrico 2015). The species was recently introduced into Europe (specifically recorded from eastern and southern Spain, and southern France), and Turkey (Jelínek et al. 2016; Fig. 3). The individual documented in the present paper is the first record of *P. picta* in Greece.

We note here that, although both *P. picta* and *P. tibialis* are known from Spain (Montagud and Orrico 2015), the specimen in the paper of Viñolas et al. (2014) about the first record of the second species in Spain, is actually and clearly *P. picta*. This misidentification is mentioned by Jelínek et al. (2016). Eventually, Viñolas and Muñoz-Batet (2017) documented correctly both species in Spain, with new records from Catalonia.

FIG. 2. The habitat in Platanidia near Mt. Pelion where *P. picta* was observed.

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Discussion

The recent introduction of *P. picta* in Greece and other European countries could potentially lead to its further dispersal across the continent over the next years, similarly to the expansion of several other members of the sap beetle fauna that have been introduced from tropical areas; e.g., *Stelidota geminata* (Say, 1825), *Epuraea (Haptoncus) luteola* Erichson, 1843, and others (Audisio 1993, Jelínek and Audisio 2007). It is still unknown how the species was introduced in Greece. The sap beetle could have either actively dispersed from Turkey, where its presence is already confirmed or it could have been passively introduced via commercial importations of fruits infested with the beetle, which could easily go unnoticed. Further investigation is needed in order to determine the origin of the species in Greece.

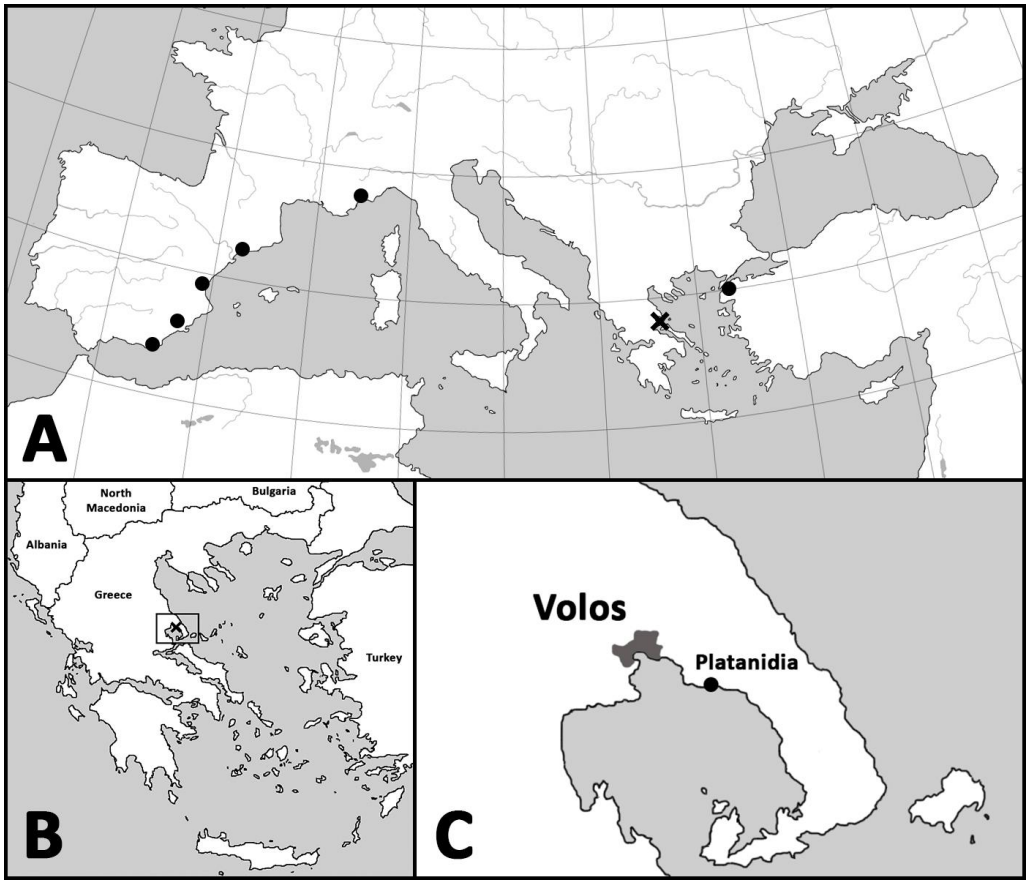

FIG. 3. (A) Partial map of the Mediterranean basin showing previous published records of *Phenolia* (*Lasiodites*) *picta* in Europe and Turkey (indicated with dots), and our new record of the species in Greece (indicated with x). (B) A more detailed map of Greece, where the location of Magnesia is denoted. (C) A more detailed map of Magnesia, where the urban area of Volos is highlighted and the exact location of the record is indicated.

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Even though the recorded individual inhibited an area of thermo-Mediterranean climate that is not typical for their survival, according to the observations of Montagud and Orrico (2015), this species can also survive in quite arid areas, with dry soils, as long as they provide microclimatic shelters of constant moisture that favor their presence. Such shelters are usually fallen fruit on the ground or the substrate that is created under these. In our case, the individual was found on a summer night next to a stream – an area of high humidity that potentially enabled the establishment of the species in that region.

A great number of beetles from the family Nitidulidae have been reported over the last years as pests on both plants (e.g. canola crops; Mason et al. 2003) and animals (e.g. European honey bees; Elzen et al. 1999). These sap beetles can induce damage to fruits (e.g. strawberries; Rondon et al. 2011) through any opening on their surface. However, the trophic activity of the *Phenolia* species focuses exclusively on fruits in the advanced stage of maturity that have already fallen to the ground (Marthur et al. 1958, Delobel and Tran 1993, Hishike et al. 2009, Naka et al. 2010). Additionally, introduced populations of *P. picta* have been observed to successfully coexist with other native species of nitidulids in several localities (Viñolas et al. 2014, Montagud and Orrico 2015). Thus, although we believe that this species does not pose an immediate threat for local farming or native biodiversity, further actions need to be taken in order to minimize its spread and thoroughly assess whether latent hazards can be determined.

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Πρώτη καταγραφή του ξενικού κολεοπτέρου *Phenolia (Lasiodites) picta* (Coleoptera: Nitidulidae) στην Ελλάδα

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ΠΕΡΙΛΗΨΗ

Το εξωτικό κολεόπτερο *Phenolia (Lasiodites) picta* (Macleay, 1825) καταγράφεται για πρώτη φορά στην Ελλάδα. Τον Αύγουστο 2018, ένα κολεόπτερο της οικογένειας Nitidulidae βρέθηκε κοντά στο όρος Πήλιο της Κεντρικής Ελλάδας. Αναγνωρίστηκε αργότερα ως *P. picta*, ένα πρόσφατο ξενικό είδος στην Ευρώπη, προηγουμένως καταγεγραμμένο από Ισπανία, Γαλλία και Τουρκία. Φωτογραφικό υλικό και πληροφορίες για την κατανομή του είδους, την βιολογία του και τις πιθανές οικονομικές και οικολογικές επιπτώσεις της εισαγωγής του παρουσιάζονται.

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