

SHORT COMMUNICATION

The fig-tree skeletonizer moth, *Choreutis nemorana* (Hübner, 1799) (Lepidoptera: Choreutidae), a new species for the Algeria fauna

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Summary The fig-tree skeletonizer moth, *Choreutis nemorana* (Hübner, 1799) (Lepidoptera, Choreutidae), is a widespread species in the Mediterranean region. In October 2023 and June 2024, during pest control operations as part of the harvesting campaign in the fig groves of the Bordj Ghedir and Wilaya de Bouira regions (Algeria), *C. nemorana* was documented for the first time in Algeria.

Additional keywords: Africa, Algeria, *Choreutis nemorana*, fig-tree skeletonizer moth, first record

Introduction

The fig tree (*Ficus carica* L.) is a highly prevalent plant species in the Mediterranean region. It represents one of the oldest cultivated fruit trees globally and possibly the earliest domesticated plant of the Neolithic revolution, being cultivated approximately a thousand years before cereals (Kislev *et al.*, 2006). In Algeria, fig trees have been cultivated for centuries, renowned for their exceptional quality (Abdelkader *et al.*, 2023). Alongside olive and citrus, fig trees stand out as economically and socially significant

fruit species, comprising over 10% of the national arboricultural heritage. According to FAO (2023), the cultivated area for fig trees in Algeria was 39.065 ha in 2021. A notable decline from the 80.000 ha was recorded in 1950 (Rebour, 1952). In 2021, the fig tree production in the country reached 107.266 tons (FAO, 2023) with a relatively low yield, not surpassing 2.75 tons per ha. These statistics highlight that fig tree cultivation in Algeria persists in a traditional manner, being part of an extensive farming system.

There are few studies on the pests affecting the fig tree in Algeria; the species studied include: *Hypoborus ficus* Erichson and *Hypocryphalus scabricollis* (Eichhoff) (Curculionidae, Scolytinae), *Niphona picticornis* (Mulsant) and *Trichoferus fasciculatus* (Faldermann) (Cerambycidae), *Scobicia chevrieri* (A. Villa and G.B. Villa) and *Sinoxylon sexdentatum* (Olivier) (Bostrichidae), *Lagriia viridipennis* (Tenebrionidae, Lagriinae), *Ceroplastes rusci* (Hemiptera, Coccidae), *Paratylenchus* sp. (Nematoda, Tylenchidae) (Biche *et al.*, 2012; Chelli *et al.*, 2023; Mellal *et al.*, 2023).

In this account we report the first occurrence in Algeria of the fig-tree skeletonizer moth, *C. nemorana* (Hübner, 1799) (Lepidoptera: Choreutidae), a monophagous species on *F. carica* (Moraceae).

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Choreutis nemorana (Hübner, 1799)

Tortrix nemorana Hübner [1799]: pl. 1, fig. 3.

Examined material

Algeria - Bordj Ghedir region, Bordj Bou Arreridj (35°53' N, 4°53' E), 1 ♀, 05-X-2023; Wilaya de Bouira region, Bouira 1 ♂, 12-VI-2024, leg. et coll. B.A. Boulaouad.

Results and discussion

The first specimen of *C. nemorana* (Fig. 1) was observed on 5 October, 2023, during the fig harvest period in the Bou Arreridj territory, located to the south of the provincial capital and on 12 June, 2024, in the Bouira territory, in Algeria. In the first site the moth was observed flying from a fig tree to a nearby lemon verbena (*Aloysia citrodora* Paláu) (Verbenaceae). The specimen was identified based on the specific wavy wing shape: forewings mainly reddish brown to ochreous brown, suffused with black and marked extensively with white to grey scales; hindwings brownish, each with a pair of pale spots towards the margin (Alford, 2007). The damage caused by this species on fig trees includes significant skeletonization of leaves, resulting in visible deformation, discoloration, and tearing of the laminae (Alford, 2013).

Choreutis nemorana is a widely distributed species in the Mediterranean region, including Southern Europe and North Africa



Figure 1. Fig-tree moth *Choreutis nemorana* (Hübner) on *Aloysia citrodora* in Bordj Ghedir region, Algeria.

(Fig. 2). It is also present in the Canary Islands and Madeira, and in parts of Asia (Armenia, Georgia, Iran, Iraq, Azerbaijan, and Uzbekistan) (Rota *et al.*, 2014; Lepiforum, 2024). In Europe, it has been observed in Albania, Austria, Belgium, Bosnia and Herzegovina, British Isles, Bulgaria, Croatia, Czech Republic, Cyprus, France (including Corsica), Germany, Gibraltar, Greece (including Crete, Aegean and Dodecanese Islands), Hungary, Italy (including Sicily and Sardinia), Macedonia, Malta, Portugal, Romania, Serbia, Slovakia, Spain (including Balearic Islands), Switzerland, the Netherlands, Turkey, and Ukraine (Gaedike, 2008; De Prins and De Prins, 2014; De Prins *et al.*, 2014; Werno, 2014; Szabóky, 2015; Vossen, 2015; Fauster, 2016; Lendel, 2017; Vaneva-Gancheva, 2017; Stojanović *et al.*, 2020; Singh *et al.*, 2022; Šumpich *et al.*, 2023; Lepiforum, 2024). *Choreutis nemorana* was observed in North Africa in Tunisia (Zouba, 2010) and Egypt (El-Abbassi *et al.*, 1997) but no prior observations have been made in Algeria and Morocco. Thus, the current record represents the first documented observation of this species in Algeria.

Regarding the introduction of *C. nemorana* in Algeria, global plant trade and climate change offer great opportunities for numerous insect species to occupy new territories and most likely, these aspects are also having an impact on the spreading of *C. nemorana* in the Mediterranean basin. In fact, the moth has rapidly expanded its distribution area northwards and eastwards during the last 20 years (Vaneva-Gancheva, 2017; Stojanović *et al.*, 2020; Lepiforum, 2024).

The cultivation of fig trees in Algeria is conducted within a traditional extensive system that heavily relies on natural resources and the intrinsic characteristics of cultivated varieties. The improvement of current situation in terms of surface area, yield, and production depends on various factors, with a primary emphasis on cultural practices at the orchard level. In addition to the modernization of the irrigation systems and the establishment of effective fertilization programs, controlling pests and diseases in this cultivation has become an absolute necessity for

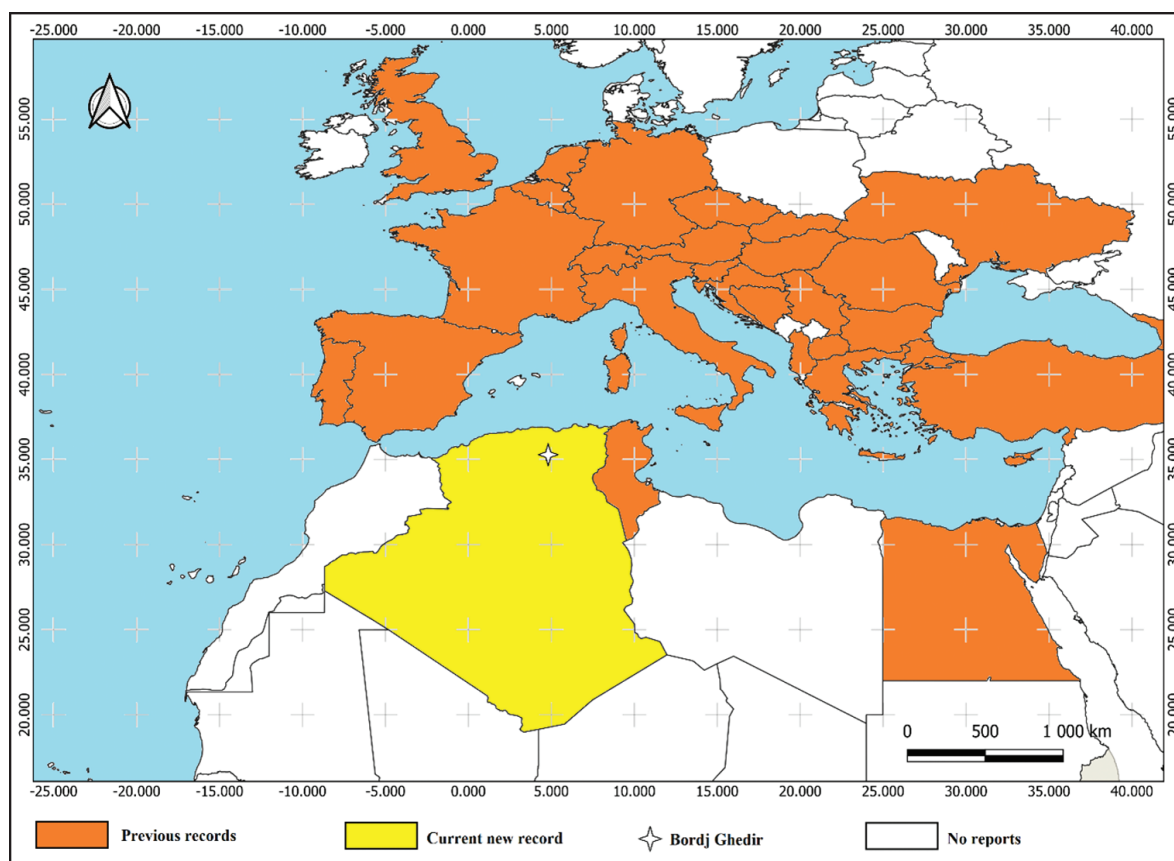


Figure 2. Distribution of *Choreutis nemorana* (Hübner) in Northern Africa - Yellow indicates the new record, orange represents the countries where the species was recorded before, and white indicates no reports.

the preservation of this traditional species (Di Silvestro *et al.*, 2021). Notably, *C. nemorana* poses a new threat to fig growers, necessitating national awareness campaigns for the pest recognition (harmful stages, number of generations, etc.). *Choreutis nemorana* is considered a minor pest of *F. carica*, that mainly attacks abandoned, spontaneous, and neglected plants. Control measures are performed by removing and destroying the infested leaves with the caterpillars. In these agroecological conditions, it is important to encourage the spread of the natural enemies of the fig-tree skeletonizer moth, i.e. tachinid diptera, and numerous generic predatory insects (Baviera *et al.*, 2017; Singh *et al.*, 2022). Furthermore, the development of a control strategy is crucial, emphasizing prevention as the primary approach and considering insecticide treatment as a last resort. Chitgar *et al.* (2014) examined digestive enzyme inhibitors in the gut of *C. nemorana* in the per-

spective of application in transgenic plants as a safe method against the pest while minimizing environmental impact.

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ΣΥΝΤΟΜΗ ΑΝΑΚΟΙΝΩΣΗ

***Choreutis nemorana* (Hübner, 1799) (Lepidoptera: Choreutidae), ένα νέο είδος για την πανίδα της Αλγερίας**

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Περίληψη Ο εντομολογικός εχθρός της συκιάς, *Choreutis nemorana* (Hübner, 1799) (Lepidoptera, Choreutidae), είναι ένα ευρέως διαδεδομένο είδος στην περιοχή της Μεσογείου. Τον Οκτώβριο του 2023 και τον Ιούνιο του 2024, κατά τη διάρκεια εφαρμογών φυτοπροστασίας στο πλαίσιο της συγκομιδής σε οπωρώνες συκιάς των περιοχών Bordj Ghedir και Wilaya de Bouira (Αλγερία), τεκμηριώθηκε η παρουσία του *C. nemorana* για πρώτη φορά στην Αλγερία.

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