

First record of the broad-headed bug *Nemausus sordidatus* (Stål, 1858) (Hemiptera: Heteroptera: Alydidae) from Greece and Cyprus

LEONIDAS-ROMANOS DAVRANOGLOU^{1*}, NIKOS CHEILADAKIS²
& CHRISTODOULOS MAKRIS³

¹Department of Zoology, University of Oxford, OX1 3SZ, UK. E-mail: lrdreduvius@yahoo.gr

²Anagnostou Mantaka 20, Chania, Crete, 73100, Greece. E-mail: nikosxil@otenet.gr

³Ethnikis Antistaseos 21, Lemesos, CY-3022, Cyprus. E-mail: r.c.makris@cytanet.com.cy

*Corresponding author

ABSTRACT

The broad-headed bug *Nemausus sordidatus* (Stål, 1858), distributed across Africa, the Near East, southern Iberian Peninsula and Sicily, is recorded from Greece and Cyprus for the first time. Habitus photographs of the recorded specimens are presented, and the status of the species as invasive in the two countries is discussed.

KEYWORDS: Hemiptera, Heteroptera, Alydidae, Alydinae, new record, invasive species, *Acacia*, Crete, Palaearctic.

ΠΕΡΙΛΗΨΗ

Το Ημίπτερο *Nemausus sordidatus* (Stål, 1858), με εξάπλωση στην Αφρική, στη Μέση Ανατολή, στη νότια Ιβηρική χερσόνησο και στη Σικελία, καταγράφεται για πρώτη φορά στην Ελλάδα και την Κύπρο. Η παρούσα μελέτη παρουσιάζει φωτογραφίες των καταγεγραμμένων ατόμων, και συζητά την πιθανότητα το είδος αυτό να έχει εισαχθεί ανθρωπογενώς στις δύο χώρες.

ΛΕΞΕΙΣ-ΚΛΕΙΔΙΑ: Ημίπτερα, Alydinae, νέα καταγραφή, είδος εισβολέας, Ακακία, Ελλάδα, Κρήτη, Κύπρος, Παλαιαρκτική.

INTRODUCTION

The broad-headed bug *Nemausus sordidatus* (Stål, 1858) (Hemiptera: Heteroptera: Alydidae) is distributed mainly across Africa and the Near East (Carapezza 1997; Carapezza *et al.* 2017; Dolling 2006; Linnavuori 1987, 2004; Schaefer & O'Donnell 2008). In Europe, it is known only from southern Spain, Portugal and Sicily (Carapezza *et al.* 2020; Grosso-Silva & Ramos 2021; Vivas & Burgers 2015). Whether this species is native in Europe or introduced due to recent natural or anthropogenic dispersal remains to be determined (Carapezza *et al.* 2020). *Nemausus sordidatus* prefers arid habitats, where it feeds on several *Acacia* species (Fabaceae) (Carapezza *et al.* 2020; Vivas & Burgers 2015). In Southern Europe, *N. sordidatus* is closely associated with *Acacia saligna* (Labill.) H.L. Wendl (Carapezza *et al.* 2020). This *Acacia* species is frequently cultivated as an ornamental plant in urban and suburban areas, and it has become a noxious naturalised invasive species in both disturbed and undisturbed habitats (Christodoulou 2003; Vivas & Burgers 2015).

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Carapezza *et al.* (2020) provided an in-depth review of the distribution, ecology and diagnostic features of *N. sordidatus*.

In the present study, we provide the first records of *N. sordidatus* from Greece (Crete) and Cyprus, and discuss whether this species is native or invasive in these countries.

MATERIAL AND METHODS

Material examined

One female, on a house wall, Ethnikis Antistaseos Street, Lemesos, Cyprus, 34°40'54.89"N 33°02'17.35"E, 17 m asl, 5.iv.2017. C. Makris (deposited in the personal collection of C. Makris).

One male, on a house wall, Anagnostou Mantaka Street, Chania, Crete, Greece, 35°30'31.97"N 24°00'32.26"E, 9 m asl, 13.xii.2020.

Photography

Live specimens from Crete and Cyprus were photographed using an OLYMPUS SZ-14 and a CANON EOS 5D mark II + Canon EF 100mm f/2.8L IS USM Macro Lens, respectively.

The habitus image of the female from Cyprus was taken with a CANON EOS 5D mark II + Canon MP-E 65mm f/2.8 1-5× Macro Photo Lens + Canon Macro Twin Lite MT-24EX and a focus stacking technique using StackShot Macro Rail Package and Zerene Stacker.

Identification

Identification of the species was based on Dursun *et al.* (2012), Linnavuori (1987), Moulet (1995) and Ribes (1971).

RESULTS AND DISCUSSION

Nemausus sordidatus can be readily distinguished from all other European species in the family Alydidae by the following combination of characters: body orange to light brown, distal portion of hind femur and base of hind tibia darkened; macropterous; fourth antennal segment slightly shorter than segments two and three combined; second labial segment longer than third and fourth combined; hind femur not enlarged; ventral surface of hind tibia armed distally with five spines; first tarsal segment 1 to 1.5 times as long as remaining tarsal segments combined.

These characters have been observed in both specimens and confirm the identity of the species (Figs 1, 2).

We presume that *N. sordidatus* is almost certainly an invasive species in all parts of its European distribution, for the following reasons:

(1) All life instars of *N. sordidatus* depend on *Acacia* species, which are not native to any part of Europe. The specimen from Crete was found in Chania, where several plantations of the highly invasive *A. saligna* occur (Cheiladakis, pers. obs.), which is also the host plant for *N. sordidatus* in Sicily (Carapezza *et al.* 2020).



Fig. 1: Habitus image of a female specimen of *N. sordidatus* from Cyprus. Scale bar = 1 mm. (Photo by C. Makris)

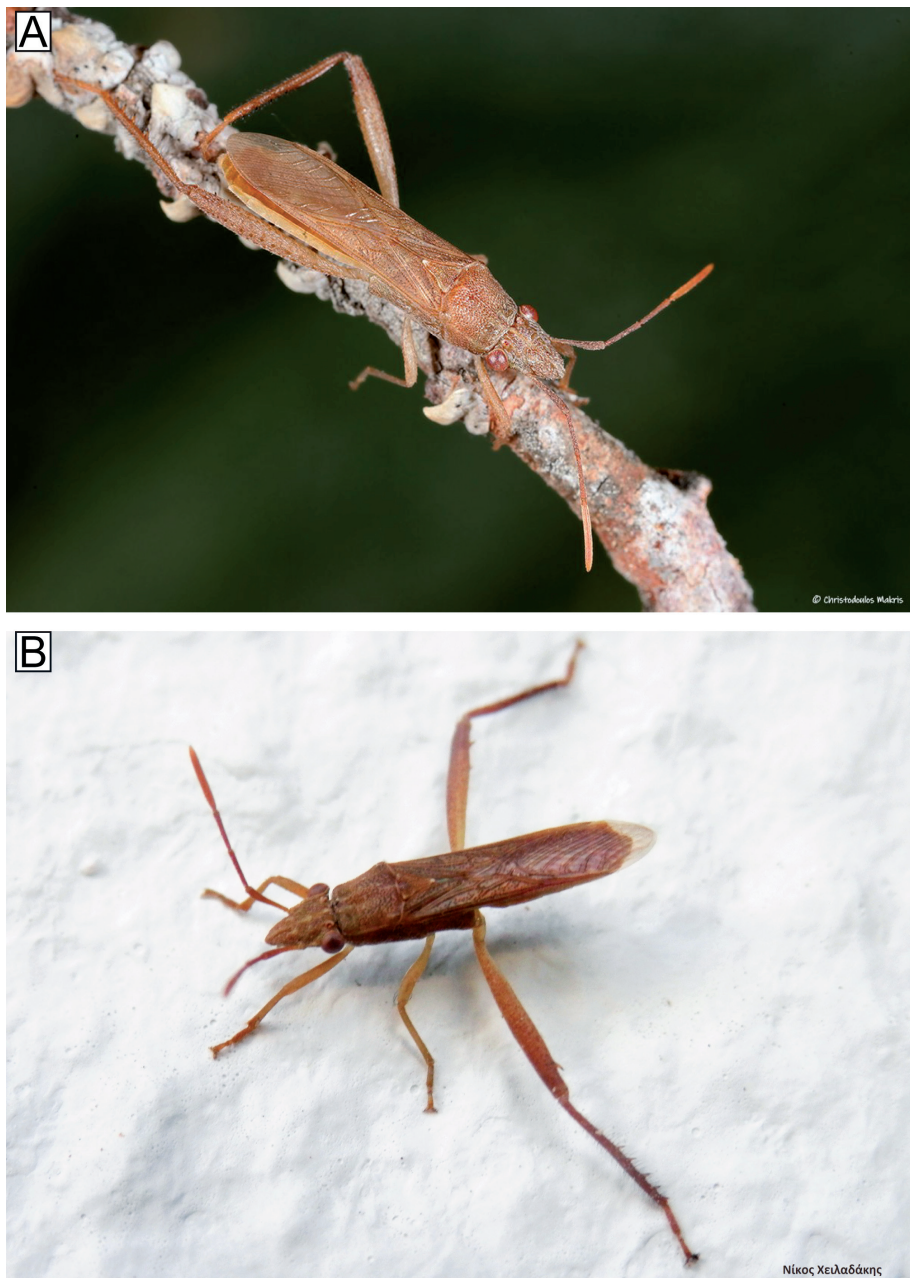


Fig. 2: Live specimens of *N. sordidatus* from Cyprus and Greece: (A) female from Cyprus; (B) male from Chania, Greece. (Photos by C. Makris (A) and N. Cheiladakis (B))

(2) All specimens were found in heavily disturbed, anthropogenic environments; the specimens from Crete and Cyprus were photographed in the central areas of the cities of Chania and Lemesos, respectively.

(3) Most European records have been made over the last 16 years (Carapezza *et al.* 2020; Vivas & Burgers 2015), with the exception of Cádiz and Málaga, Spain (Ribes 1971; Vázquez 1985). It is unlikely that a fairly large, non-cryptic and actively dispersing insect such as *N. sordidatus* would have evaded areas where several heteropterists have been collecting for years (e.g. Crete, Cyprus, Sicily).

It is likely that at least in Crete, this species has been introduced by humans and not due to active or passive aerial dispersal, as this island is very far from areas where this species was previously recorded. The situation in Cyprus, Sicily, Spain and Portugal is less clear. Only molecular analysis of different populations of *N. sordidatus* will elucidate the origin of this species in Europe and its invasion dynamics.

Since *N. sordidatus* appears to feed exclusively on introduced *Acacia* spp. (Carapezza *et al.* 2020; Vivas & Burgers 2015), its presence in Europe is unlikely to be of economic importance. On the other hand, *N. sordidatus* is known to form occasionally large populations in patches of *Prosopis* weed (Zimmermann 1991), and the species can be tested as a biocontrol agent of invasive *Acacia* or *Prosopis* spp., the latter becoming recently naturalized in South Europe (Pasicznik 2018).

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