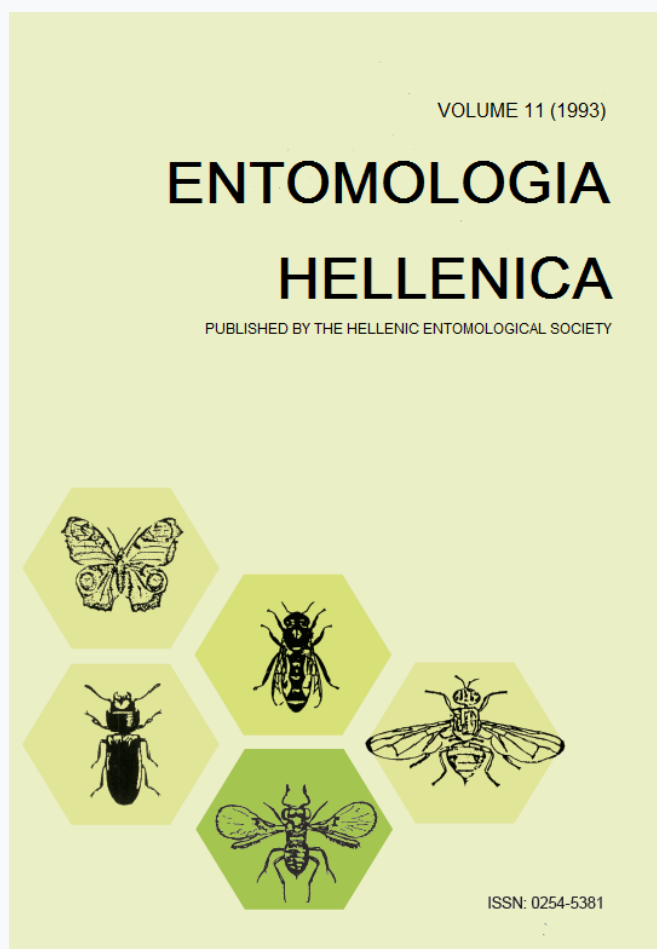


# ENTOMOLOGIA HELLENICA

Vol 11 (1993)



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doi: [10.12681/eh.14008](https://doi.org/10.12681/eh.14008)

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### To cite this article:

Lykouressis, D., Eastop, V., Katis, N., Tsitsipis, J., & Ntjanis H. (1993). Twenty Three Aphid Species New to the Greek Aphidofauna Caught in Yellow Water Traps in Tobacco Fields. *ENTOMOLOGIA HELLENICA*, 11, 23–27.  
<https://doi.org/10.12681/eh.14008>

## Twenty Three Aphid Species New to the Greek Aphidofauna Caught in Yellow Water Traps in Tobacco Fields<sup>1</sup>

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### ABSTRACT

Aphid species abundance was studied by means of yellow Moericke water traps in several tobacco fields in two tobacco growing areas, Aitolokarnania and Pieria, Greece. In 1992, from alate catches, in three different localities in Aitolokarnania, a total number of 69, 40 and 31 taxa were caught and identified. Five of them are new records for the Greek aphidofauna. In 1993, from the traps established near Agrinio and in Nea Ephessos, Pieria, a total number of 55 and 139 aphid taxa were caught and identified. Twenty one of them aphid species are new records for Greece of which 3 had been already recorded in the previous year. In total, 23 aphid species recorded for the first time in Greece are presented in this work.

### Introduction

Fewer aphids are recorded from Greece than some other mediterranean or neighbouring countries. The lists of Remaudiere (1982) and Lykouressis and Tsitsipis (1987) included 133 species. Three more species were recorded by Panayotou and Katis (1986), Katsoyannos et al. (1989) and Lykouressis and Polatsidis (1990), whilst recently, in the known list of 136 species another 20 new species were added by Lykouressis et al. (1992).

Although the number of aphid species found in Greece is increasing, further efforts must be

made to document the aphid fauna. Information on the spatial distribution of the various aphid species and their abundance over Greece is desirable. Since aphids are one of the major group of insect pests, the knowledge of the species and their bioecology is necessary elements for a better understanding of the direct and indirect damages they cause. These data are basic to aphid population management.

Therefore, following our previous efforts, in the present study new records of aphid species are documented. These species were caught in Moericke traps as part of a major project aimed at the study of bioecology and control of some of the most injurious aphid species occurring in Greece.

### Materials and Methods

Moericke type water traps (Moericke 1951) were used to capture alate aphids. They were square steel trays (60 x 60 x 10 cm) similar to those used by Robert and Rouze-Jouan (1978) and painted yellow inside (with 580 nm reflectance). In 1992, three

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TABLE 1. New records of aphid species caught in Moericke traps placed in tobacco fields in three different locations in the County of Aitolokarnania in 1992

| SPECIES                          |                   | Agrinio  |            |                     | Sfina    |       |                     | Kerasovo |       |                     |
|----------------------------------|-------------------|----------|------------|---------------------|----------|-------|---------------------|----------|-------|---------------------|
|                                  |                   | Presence | Dates      | Total no. of alates | Presence | Dates | Total no. of alates | Presence | Dates | Total no. of alates |
| 1 <i>Acyrtosiphon malvae</i> *   | (Mosley)          | +        | 25/4, 11/5 | 3                   | +        | 17/7  | 1                   | +        | 22/4  | 1                   |
| 2 <i>Capitophorus hippophaes</i> | (Walker)          | +        | 29/6       | 1                   | —        |       | 0                   | —        |       | 0                   |
| 3 <i>Lipaphis lepidii</i>        | (Nevsky)          | +        | 4/5        | 1                   | —        |       | 0                   | —        |       | 0                   |
| 4 <i>Aulacorthum palustre</i> *  | Hille Ris Lambers | —        |            | 0                   | +        | 13/4  | 1                   | —        |       | 0                   |
| 5 <i>Neotrama caudata</i>        | (Del Guercio)     | —        |            | 0                   | —        |       | 0                   | +        | 28/4  | 1                   |

\* Tentative identification of numbers of species complexes not previously recorded from Greece.

traps were placed in three different tobacco fields located near Agrinio, Sfina and Kerasovo in Co. Aitolokarnania, Western Greece. In Agrinio, the trap was positioned on April 13 and remained till July 23, whilst in Sfina and Kerasovo the traps were set up on April 13 and remained till July 17. In 1993, three traps were also placed in a tobacco field near Agrinio, and three in another tobacco field located in Nea Ephessos Co. Pieria in Macedonia. Traps were placed in Agrinio on April 17 and remained until September 7 and in Nea Ephessos on March 29 until August 26. The main crops in the areas where traps were placed in Aitolokarnania, were tobacco, olives, corn, lucerne and citrus whilst in the area of Nea Ephessos in Pieria were tobacco, cereals, potato and beans.

The traps were placed inside the tobacco fields between rows, each on a metal base 70 cm from the ground. The traps were inspected twice a week and all insects collected. In each trap, a few drops of detergent were added to facilitate retention of aphids.

Aphids were separated from the other insects and stored in appropriate size plastic vials containing preserving fluid (2 volumes of ethyl alcohol 90-95% and 1 volume lactic acid 75% W/W) (Eastop and van Emden 1972).

The aphids were separated under a binocular stereoscopic microscope and sorted out into species using available keys for alate forms (Jacky and Bouchery 1980, Taylor 1984, Brown 1989, Remaudiere and Seco Fernandez 1990).

## Results and Discussion

In 1992, during the period in which the traps were in the tobacco fields in Aitolokarnania, a number of aphid taxa amounting to 69, 40 and 31 were caught and identified in the areas of Agrinio, Sfina and Kerasovo, respectively. From those taxa, 5 are recorded for the first time in Greece. These species, together with the dates of capture and the total number of alates caught during the entire trapping period are shown in Table 1. The new species for Greece were caught

in very low numbers, whilst some others already included to the Greek aphidofauna were caught in large numbers like *Myzus persicae* (Sulzer), *Aphis gossypii* Glover, *Aphis spiraeicola* Patch, *Aphis nerii* Boyer de Fonscolombe, *Aphis craccivora* Koch and *Microlophium camosum* (Buckton).

From the traps established in 1993, the total number of taxa of alate aphids, which were caught and identified, amounted to 55 and 139 in the Agrinio and Nea Ephessos area, respectively. From those catches, 21 aphid species are new records to the Greek aphidofauna of which *Acyrtosiphon malvae*, *Capitophorus hippophaes* and *Lipaphis lepidii* had been already recorded from the catches of the previous year. Consequently, the new records of aphid species for Greece are 23 from the results of alate monitoring in both years.

The newly recorded species, during 1993, are shown in Table 2 in which the dates of alate catches and the total number of aphids caught in the traps are shown.

Most of these species were caught in very low numbers. A few like *Acyrtosiphon malvae*, *Amphorophora rubi* and *C. hippophaes* appeared in moderate numbers and only *Phorodon humuli* in the area of Nea Ephessos, in Macedonia, was numerous and showed a continuous flight from early to late May.

*Neotrama caudata* was found only once in 1992 (Table 1). This species develops on roots of Compositae like *Lactuca sativa*, *Sonchus asper*, *Sonchus oleraceus*, *Taraxacum officinale* e.t.c. It is encountered only in Europe, and it reproduces ancholocyclically producing alate throughout the year but most in autumn (Eastop 1985).

*A. rubi* showed a flight during May 1993 (Table 2). It develops on wild and cultivated blackberries (Blackman and Eastop 1985). In Greece, plants of *Rubus* are quite common in

TABLE 2. New records of aphid species caught in Moericke traps placed in tobacco fields in Agrinio Aitolocarnania and in Nea Ephessos (Pieria) in 1993

| SPECIES   | Presence | Agrinio   |                    | Presence | Nea Ephessos    |                    |
|---|----------|-----------|--------------------|----------|-----------------|--------------------|
|   |          | Dates     | Total no of alates |          | Dates           | Total no of alates |
| 1 <i>Acyrtosiphon malvae</i> (Mosley)*                      | +        | 15/4-31/5 | 86                 | +        | 13/5-14/6       | 9                  |
| 2 <i>Amphorophora rubi</i> (Kaltenbach)*                    | -        |           | 0                  | +        | 6/5-20/5        | 34                 |
| 3 <i>Aphis sarothamni</i> Fransen*                          | -        |           | 0                  | +        | 5/7             | 2                  |
| 4 <i>Appendiseta robiniae</i> (Gillette)                    | -        |           | 0                  | +        | 10/5            | 1                  |
| 5 <i>Aulacorthum speyeri</i> Börner*                        | -        |           | 0                  | +        | 3/5             | 5                  |
| 6 <i>Capitophorus hippophaes</i> (Walker)                   | -        |           | 0                  | +        | 20/5-26/8       | 19                 |
| 7 <i>Chaetophorus populialbae</i><br>(Boyer de Fonscolombe) | -        |           | 0                  | +        | 10/5, 12/7, 9/8 | 5                  |
| 8 <i>Eucarazzia elegans</i> (Ferrari)                       | +        | 27/4      | 1                  | +        | 13/5-17/5       | 4                  |
| 9 <i>Geocia utricularia</i> (Passerini)                     | -        |           | 0                  | +        | 17/5-20/5       | 4                  |
| 10 <i>Hyadaphis foeniculi</i> (Passerini)                   | -        |           | 0                  | +        | 17/5-29/7       | 10                 |
| 11 <i>Kaltenbachella pallida</i> (Haliday)                  | -        |           | 0                  | +        | 14/6            | 1                  |
| 12 <i>Lipaphis lepidii</i> (Nevsky)                         | -        |           | 0                  | +        | 3/5, 13/5       | 2                  |
| 13 <i>Megoura viciae</i> Buckton                            | +        | 18/5-31/5 | 5                  | +        | 14/6            | 2                  |
| 14 <i>Metopolophium festucae</i> (Theobald)*                | -        |           | 0                  | +        | 20/4            | 1                  |
| 15 <i>Myzus cerasi</i> (Fabricius)                          | -        |           | 0                  | +        | 6/5, 20/5       | 5                  |
| 16 <i>Ovatus crataegarius</i> (Walker)                      | -        |           | 0                  | +        | 26/4            | 2                  |
| 17 <i>Ovatus insitus</i> (Walker)                           | -        |           | 0                  | +        | 3/5-10/5        | 3                  |
| 18 <i>Ovatus mentharius</i> (van der Goot)*                 | -        |           | 0                  | +        | 14/6            | 1                  |
| 19 <i>Phorodon humuli</i> (Schrank)                         | +        | 3/5-31/5  | 30                 | +        | 26/4-5/8        | 1023               |
| 20 <i>Sipha glyceriae</i> (Kaltenbach)                      | -        |           | 0                  | +        | 14/6, 1/7       | 3                  |
| 21 <i>Smythurodes betae</i> Westwood                        | -        |           | 0                  | +        | 24/6            | 1                  |

\* Tentative identification of numbers of species complexes not previously recorded from Greece.

hedges of fields and uncultivated pieces of land.

*C. hippophaes* showed a long lasting flight from May to the end of August (Table 2). This aphid develops populations, on *Elaeagnus* spp. and *Hippophae* spp. in spring, and later alates migrate on *Polygonum* species where they develop their colonies alongside the middle rib on the underside of the leaves. In autumn, alates fly back to *Elaeagnus* and *Hippophae* and lay winter eggs (Hill Ris Lambers 1953).

*Chaetophorus populialbae* was found in May, July and August 1993 in low numbers. It occurs in the Palaearctic region, in north, west and southern Africa, and has been introduced and is widespread in North America. It develops small colonies usually on the undersides of leaves of various *Populus* spp. Oviparae and both apterous and alate males occur in September-November (Eastop 1994).

*Hyadaphis foeniculi* was recorded from May to July 1993. It is a cosmopolitan aphid occurring in Europe and other parts of the world and a vector of about 12 viruses such as celery crinkle leaf mosaic, celery mosaic and celery yellow spot. It is heteroecious holocyclic species, migrating from *Lonicera* to species of Umbelliferae on which it forms colonies in the flower heads.

A few alates of *Myzus cerasi* were recorded only in May 1993. This species occurs in Europe and other parts of the world, and is able to transmit wilt and decline disease of cherries as well as other viruses (Blackman and Eastop 1985). It is a heteroecious holocyclic species having as primary hosts *Prunus cerasus*, *P. avium* and sometimes other *Prunus* and as secondary hosts species in Rubiaceae, Scrophulariaceae and Cruciferae (*Gallium*, *Veronica*, *Capsella*, *Cardamine*, *Lepidium*).

*Ph. humuli* was the most numerous among the new record species and showed a continuous flight from the end of April till the end of August in Nea Ephessos. This species occurs in Europe, Central Asia and North America, and is a vector of hop mosaic and hop split leaf blotch viruses as well as other viruses (Blackman and Eastop 1985). Primary hosts are species of *Prunus* and the secondary host is *Humulus lupulus*.

The most numerous species caught in the traps near Agrinio were *M. persicae*, *Acyrtosiphon pisum* (Harris), *A. craccivora* and *Therioaphis trifolii* (Monell).

In the area of Nea Ephessos the most numerous species were *A. gossypii*, *M. persicae*, *Ph. hu-*

*mul*, *Aphis craccae* L., *A. craccivora*, *Brevicoryne brassicae* (L.) and *Hayhurstia atriplicis* (L.).

There were more aphid species in Pieria than Aitolokarnania. This is probably due to the greater diversity of crops and to more favourable conditions for aphid development and reproduction for a longer period of the year.

### Acknowledgement

Part of the present work was supported by the STRIDE HELLAS 143 research project. Thanks are due to Miss Ch. Chalkia and S. Vardaki for their assistance.

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KEY WORDS: Aphids, New Records, Greece



## **Είκοσι Τρεις Νέες Καταγραφές Ειδών Αφίδων που Συνελήφθησαν σε Παγίδες Moericke Τοποθετημένες σε Φυτείες Καπνού στην Ελλάδα**

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### **ΠΕΡΙΛΗΨΗ**

Η αφθονία των ειδών αφίδων σε διάφορες φυτείες καπνού μελετήθηκε με τη βοήθεια κίτρινων παγίδων νερού τύπου Moericke. Το 1992, από μία παγίδα τοποθετήθηκε σε τρεις φυτείες καπνού στις περιοχές Αγρίνιο, Σφήνα και Κεράσοβο στην Αιτωλοακαρνανία. Το 1993, από τρεις παγίδες τοποθετήθηκαν σε φυτείες καπνού κοντά στο Αγρίνιο και στη Νέα Έφεσσο Πιερίας. Τα τάξα που συνελήφθησαν στις παγίδες στις περιοχές Αγρίνιο, Σφήνα και Κεράσοβο ανήλθαν στον αριθμό 69, 40 και 31 αντίστοιχα. Από αυτά, τα 5 είδη αφίδων είναι νέες καταγραφές. Το 1993, από τις παγίδες που είχαν τοποθετηθεί σε φυτεία καπνού πλησίον του Αγρινίου και από αυτές στη Νέα Έφεσσο Πιερίας συνελήφθησαν συνολικά 55 και 139 είδη αφίδων αντίστοιχα. Εξ αυτών 21 είναι νέες καταγραφές για την Ελλάδα και σε αυτά περιλαμβάνονται 3 τα οποία ήδη είχαν σημειωθεί από τις συλλήψεις του προηγούμενου έτους. Έτσι, το σύνολο των νέων καταγραφών από τη μελέτη αυτή ανέρχεται σε 23. Η πλειοψηφία των ειδών αυτών εμφανίστηκε με πολύ μικρούς αριθμούς, λίγα με μέτριους και μόνο το *Phorodon humuli* (Schrank) συνελήφθη σε μεγάλους αριθμούς στις παγίδες στη Νέα Έφεσσο Πιερίας.