

**NOTES ON THE NOCTUIDAE FAUNA (LEPIDOPTERA)  
COLLECTED BY BAIT TRAPS IN ORGANIC VINEYARD AND  
ORCHARDS OF KEMALPAŞA (İZMİR) PROVINCE OF TURKEY**

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ABSTRACT: In this study, information is given on 40 species belonging to Noctuidae fauna (Lepidoptera) collected by bait traps in organic vineyard and plum, pear and peach orchards in Kemalpaşa (Izmir) province of Western Turkey.

KEY WORDS: Organic agriculture, Noctuidae, Fauna, Bait trap.

To prevent the side effects of conventional agriculture to human health and environment, organic or ecological agriculture applications have been initiated all over the world. In the last two decades, its' importance improved in Turkey and the application of some ecological production methods has been studied in production areas of Western Turkey. This area has a special importance in production of agricultural crops namely grapes (*Vitis vinifera* Linnaeus, 1758), plums (*Prunus domestica* Linnaeus, 1753), pears (*Pyrus communis* Linnaeus, 1758) and peaches [*Prunus persica* (Linnaeus) Batsch, 1801]. Generally, there is not detailed information on agrobiodiversity of such areas in Turkey (Tanyeri et al., 2010). In order to supply an additional information in this field, material belonging to Noctuidae (Lepidoptera) fauna collected in organic vineyard (*V. vinifera*) and plum (*P. domestica*), pear (*P. communis*) and peach (*P. persica*) orchards in Kemalpaşa (Izmir) province of Western Turkey were evaluated in this paper.

### MATERIAL AND METHODS

This study was conducted in organic vineyard (*V. vinifera*) and plum (*P. domestica*), pear (*P. communis*) and peach (*P. persica*) orchards in Kemalpaşa (Izmir) province of Western Turkey during the months of June-October in 2007. Noctuids were collected by bait traps. In each area a total of four bait traps containing 100 ml wine, 900 ml water, 25 gr sugar and 25 ml vinegar per litre were hung for monitoring the adults of noctuids (Lepidoptera: Noctuidae). The traps were emptied at two-week intervals from June to October in 2007. This paper deals with the noctuids which were captured as a by-catch. The material was collected determined by the third author, and is deposited in the Museum of Biology Department, Faculty of Arts and Sciences, Trakya University, Edirne, and the Prof. Dr. Niyazi Lodos Museum (LEMT) of Plant Protection Department,

Faculty of Agriculture, Ege University, İzmir, Turkey. As some of the material was damaged in the liquid of the bait trap, which resulted in the loss of some taxonomic characters, identification was based on genital characteristics. This was done using papers by Pierce, 1967, 1978; Fibiger, 1997; Hacker, 1989; Hacker et al., 2002; Ronkay et al., 2001; Goater et al., 2003; Fibiger et al., 2007.

## RESULTS

Material evaluated in this study is listed below in alphabetical order, by subfamilies and by genera within each subfamily.

### Acontiinae

*Acontia lucida* (Hufnagel, 1766)

**Material examined:** *Prunus persicae*: 14.09.2007 (6). Totally 6 specimens.

### Acronictinae

*Acronicta megacephala* ([Denis & Schiffermüller], 1775)

**Material examined:** *Pyrus communis*: 19.07.2007 (1); 14.08.2007 (1). Totally 2 specimens.

*Acronicta rumicis* (Linnaeus, 1758)

**Material examined:** *Vitis vinifera*: 14.08.2007 (1). *P. communis*: 30.07.2007 (3); 14.08.2007 (1); 14.09.2007 (2); 05.10.2007 (1). *P. persicae*: 14.09.2007 (1); 05.10.2007 (3). Totally 12 specimens.

*Acronicta tridens* ([Denis & Schiffermüller], 1775)

**Material examined:** *P. communis*: 14.08.2007 (1); 05.10.2007 (1). Totally 2 specimens.

### Amphipyriinae

*Actinotia hyperici* ([Denis & Schiffermüller], 1775)

**Material examined:** *V. vinifera*: 05.10.2007 (1). *P. communis*: 30.07.2007 (3); 14.09.2007 (1). Totally 5 specimens.

*Hoplodrina ambigua* ([Denis & Schiffermüller], 1775)

**Material examined:** *P. persicae*: 05.10.2007 (1). Totally 1 specimen.

### Catocalinae

*Anua lunaris* ([Denis & Schiffermüller], 1775)

**Material examined:** *P. communis*: 14.08.2007 (1). Totally 1 specimen.

*Catocala conjuncta* (Esper, 1787)

**Material examined:** *P. communis*: 14.08.2007 (1). *Prunus domestica*: 14.08.2007 (1). Totally 2 specimens.

*Catocala conversa* (Esper, 1787)

**Material examined:** *P. communis*: 29.06.2007 (3); 19.07.2007 (1); 30.07.2007 (2). *P. persicae*: 29.06.2007 (1); 19.07.2007 (2). Totally 9 specimens.

***Dysogonia algira*** (Linnaeus, 1767)

**Material examined:** *P. communis*: 19.07.2007 (1); 30.07.2007 (1); 14.08.2007 (6); 14.09.2007 (2); 05.10.2007 (3). *P. domestica*: 30.07.2007 (1). *P. persicae*: 30.07.2007 (2); 14.09.2007 (3); 05.10.2007 (2). Totally 21 specimens.

***Ophiusa tirhaca*** (Cramer, 1777)

**Material examined:** *P. communis*: 14.08.2007 (2). Totally 2 specimens.

***Prodotis stolidia*** (Fabricius, 1775)

**Material examined:** *V. vinifera*: 30.07.2007 (1); 14.08.2007 (1); 14.09.2007 (8); 05.10.2007 (20). *P. communis*: 29.06.2007 (1); 19.07.2007 (1); 30.07.2007 (9); 14.08.2007 (6); 31.08.2007 (1); 14.09.2007 (45); 05.10.2007 (42). *P. domestica*: 19.07.2007 (1); 30.07.2007 (1); 14.09.2007 (7); 05.10.2007 (16). *P. persicae*: 29.06.2007 (1); 30.07.2007 (2); 14.09.2007 (13); 05.10.2007 (16). Totally 192 specimens.

**Hadeninae*****Anapoma riparia*** (Rambur, 1829)

**Material examined:** *P. communis*: 05.10.2007 (1). Totally 1 specimen.

***Hadula trifolii*** (Hufnagel, 1766)

**Material examined:** *V. vinifera*: 19.07.2007 (2); 05.10.2007 (98). *P. communis*: 30.07.2007 (2); 14.08.2007 (4); 14.09.2007 (29); 05.10.2007 (44). *P. domestica*: 30.07.2007 (1); 05.10.2007 (9). *P. persicae*: 19.07.2007 (1); 30.07.2007 (1); 14.09.2007 (8); 05.10.2007 (35). Totally 234 specimens.

***Hecatera bicolorata*** (Hufnagel, 1766)

**Material examined:** *P. persicae*: 19.07.2007 (1). Totally 1 specimen.

***Hecatera dysodea*** ([Denis & Schiffermüller], 1775)

**Material examined:** *P. communis*: 14.08.2007 (5); 05.10.2007 (1). *P. persicae*: 30.07.2007 (1); 14.09.2007 (1); 05.10.2007 (7). Totally 15 specimens.

***Laconobia oleracea*** (Linnaeus, 1758)

**Material examined:** *P. communis*: 14.08.2007 (1). *P. persicae*: 05.10.2007 (1). Totally 2 specimens.

***Leucania loreyi*** (Duponchel, 1827)

**Material examined:** *P. communis*: 05.10.2007 (1). *P. persicae*: 05.10.2007 (1). Totally 2 specimens.

***Leucania putrescens*** (Hübner, [1824])

**Material examined:** *V. vinifera*: 05.10.2007 (4). *P. communis*: 14.09.2007 (1). Totally 5 specimens.

***Mythimna congrua*** (Hübner, [1817])

**Material examined:** *V. vinifera*: 05.10.2007 (1). *P. communis*: 30.07.2007 (1); 14.09.2007 (1); 05.10.2007 (3). *P. persicae*: 05.10.2007 (1). Totally 7 specimens.

***Mythimna languida*** (Walker, 1858)

**Material examined:** *V. vinifera*: 05.10.2007 (3). *P. communis*: 14.08.2007 (1); 14.09.2007 (2); 05.10.2007 (3). *P. domestica*: 30.07.2007 (1); 14.09.2007 (3); 05.10.2007 (1). *P. persicae*: 30.07.2007 (1); 14.09.2007 (1); 05.10.2007 (15). Totally 31 specimens.

***Mythimna sicula*** (Treitschke, 1835)

**Material examined:** *V. vinifera*: 30.07.2007 (1); 05.10.2007 (1). *P. communis*: 14.08.2007 (1); 14.09.2007 (5); 05.10.2007 (2). *P. persicae*: 05.10.2007 (3). Totally 13 specimens.

***Mythimna unipuncta*** (Haworth, 1809)

**Material examined:** *V. vinifera*: 30.07.2007 (2); 05.10.2007 (11). *P. communis*: 19.07.2007 (6); 30.07.2007 (8); 14.08.2007 (22); 14.09.2007 (11); 05.10.2007 (95). *P. domestica*: 29.06.2007 (2); 30.07.2007 (10); 14.08.2007 (13); 14.09.2007 (7); 05.10.2007 (56). *P. persicae*: 19.07.2007 (2); 30.07.2007 (26); 14.08.2007 (6); 14.09.2007 (12); 05.10.2007 (232). Totally 521 specimens.

***Mythimna vitellina*** (Hübner, 1808)

**Material examined:** *V. vinifera*: 05.10.2007 (1). *P. communis*: 14.08.2007 (2). *P. persicae*: 19.07.2007 (1). Totally 4 specimens.

***Sideritis reticulata*** (Goeze, 1781)

**Material examined:** *P. persicae*: 05.10.2007 (2). Totally 2 specimens.

**Heliothinae*****Helicoverpa armigera*** (Hübner, [1808])

**Material examined:** *V. vinifera*: 05.10.2007 (1). *P. communis*: 30.07.2007 (1); 14.09.2007 (2). *P. domestica*: 05.10.2007 (2). *P. persicae*: 14.09.2007 (2). Totally 8 specimens.

**Noctuinae*****Agrotis atrux*** (Pinker, 1971)

**Material examined:** *P. communis*: 14.08.2007 (6); 05.10.2007 (19). *P. domestica*: 05.10.2007 (12). Totally 37 specimens.

***Agrotis puta*** (Hübner, 1803)

**Material examined:** *V. vinifera*: 29.06.2007 (1); 19.07.2007 (1); 30.07.2007 (6); 05.10.2007 (214). *P. domestica*: 14.09.2007 (2); 05.10.2007 (87). *P. persicae*: 29.06.2007 (5); 19.07.2007 (6); 30.07.2007 (1); 14.09.2007 (12); 05.10.2007 (133). *P. communis*: 30.07.2007 (6); 14.08.2007 (10); 14.09.2007 (29); 05.10.2007 (251). Totally 764 specimens.

***Agrotis segetum*** ([Denis & Schiffermüller], 1775)

**Material examined:** *V. vinifera*: 29.06.2007 (1); 19.07.2007 (7); 30.07.2007 (4); 05.10.2007 (4). *P. domestica*: 19.06.2007 (12); 29.06.2007 (14); 19.07.2007 (34); 30.07.2007 (21); 14.08.2007 (1); 14.09.2007 (2); 05.10.2007 (10). *P. persicae*: 29.06.2007 (46); 19.07.2007 (49); 30.07.2007 (8); 14.08.2007 (1); 14.09.2007 (11); 05.10.2007 (6). *P. communis*: 29.06.2007 (62); 19.07.2007 (59); 30.07.2007 (15); 14.08.2007 (15); 14.09.2007 (10); 05.10.2007 (14). Totally 406 specimens.

***Euxoa tritici*** (Linnaeus, 1761)

**Material examined:** *V. vinifera*: 05.10.2007 (2). *P. persicae*: 05.10.2007 (2). Totally 4 specimens.

***Noctua comes*** Hübner, 1813

**Material examined:** *P. communis*: 19.07.2007 (5). *P. domestica*: 19.06.2007 (1); 19.07.2007 (3). *P. persicae*: 29.06.2007 (1); 19.07.2007 (1). Totally 11 specimens.

***Noctua fimbriata*** (Schreber, 1759)

**Material examined:** *P. communis*: 29.06.2007 (1). Totally 1 specimen.

***Noctua janthina*** ([Denis & Schiffermüller], 1775)

**Material examined:** *P. communis*: 30.07.2007 (1); 14.08.2007 (1). Totally 2 specimens.

***Noctua orbona*** (Hufnagel, 1766)

**Material examined:** *V. vinifera*: 19.07.2007 (1). *P. communis*: 29.06.2007 (14); 14.08.2007 (1). *P. domestica*: 30.07.2007 (3); 14.08.2007 (1). *P. persicae*: 05.10.2007 (2). Totally 22 specimens.

***Noctua pronuba*** (Linnaeus, 1758)

**Material examined:** *V. vinifera*: 19.07.2007 (2). *P. persicae*: 19.07.2007 (1). Totally 3 specimens.

***Peridroma saucia*** (Hübner, [1803-1808])

**Material examined:** *V. vinifera*: 30.07.2007 (1); 05.10.2007 (1). *P. communis*: 29.06.2007 (3); 30.07.2007 (4); 14.09.2007 (1). *P. domestica*: 29.06.2007 (1); 30.07.2007 (4). *P. persicae*: 30.07.2007 (7). Totally 22 specimens.

***Xestia xanthographa*** ([Denis & Schiffermüller], 1775)

**Material examined:** *V. vinifera*: 05.10.2007 (1). *P. communis*: 05.10.2007 (2). *P. domestica*: 05.10.2007 (2). Totally 5 specimens.

**Ophiderinae*****Aedia funesta*** (Esper, [1786])

**Material examined:** *V. vinifera*: 14.08.2007 (1). *P. communis*: 19.07.2007 (1); 30.07.2007 (1); 14.08.2007 (1); 14.09.2007 (2); 05.10.2007 (5). *P. domestica*: 19.07.2007 (1); 30.07.2007 (1). *P. persicae*: 29.06.2007 (1); 19.07.2007 (1); 30.07.2007 (3); 14.08.2007 (2); 14.09.2007 (4); 05.10.2007 (6). Totally 30 specimens.

***Catephia alchymista*** ([Denis & Schiffermüller], 1775)

**Material examined:** *P. communis*: 30.07.2007 (7). Totally 7 specimens.

***Tyta luctuosa*** ([Denis & Schiffermüller], 1775)

**Material examined:** *V. vinifera*: 05.10.2007 (1). *P. communis*: 30.07.2007 (1); 14.09.2007 (1); 05.10.2007 (2). *P. persicae*: 14.09.2007 (1); 05.10.2007 (2). Totally 8 specimens.

**DISCUSSION**

The dominant species in the collected materials was *Agrotis puta* (764 caught individuals) and the relative abundance of this species is 31.53%. *Mythimna unipuncta* (521), *Agrotis segetum* (406), *Hadula trifolii* (234), and *Prodotis stolidi* (192) followed by the relative abundances of 21.50; 16.76; 9.66; 7.92 percent, respectively.

Among those *Acronicta megacephala*, *Acronicta rumicis*, *Acronicta tridens*, *Actinotia hyperici*, *Hoplodrina ambigua*, *Catocala conjuncta*, *Catocala conversa*, *Dysogonia algira*, *Ophiusa tirhaca*, *Prodotis stolidi*, *Hecatera dysodea*, *Laconobia oleracea*, *Leucania putrescens*, *Mythimna vitellina*, *Agrotis segetum*, *Noctua comes*, *Noctua fimbriata*, *Noctua orbona*, *Noctua pronuba*, *Peridroma saucia*, *Xestia xanthographa*, *Aedia funesta*, *Catephia alchymista* and *Tyta luctuosa* were reported from organic cherry orchards by Okyar and Tezcan (2001). In the light of previous works (Hacker, 1989) *Acronicta rumicis* and *A.tridens* are known as pests of rosaceous plants.

In organic vineyard the number of recorded species was 20, in plum orchard 15, in peach orchard 27, in pear orchard 34. A total of 405 specimens (16.71%) were recorded in organic vineyard as well as 948 specimens (39.13%) from pear orchard, 726 specimens (29.96%) from peach orchard and 344 specimens (14.20%) from plum orchard.

In the following studies, it is hoped that further studies on the feeding habits of species and their roles in organic vineyards and orchards will be realised.

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