

Some New Xylophagous Species on Fig Trees (*Ficus carica* cv. *Calymirna* L.) in Aydın, Turkey

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Abstract: Xylophagous insects, Bostrychidae, Buprestidae, Cerambycidae, Curculionidae and Scolytidae (Coleoptera), on fig trees in Aydın province, Turkey, were investigated in 2000 and 2001. Sixteen species of Coleoptera were collected, of which 8 are new records as fig pests in Turkey: *Anthaxia cichorii* Olivier, *Agrilus roscidus* Kiesenwetter, *Acmaeodera* (s.str.) *flavolineata* Laporte and Gory (Buprestidae), *Stenopterus flavicornis* Küster (Cerambycidae), *Xyloperthella picea* Olivier, *Xylonites praeustus* Germar, *Scobicia chevrieri* Villa (Bostrychidae) and *Hypothenemus eruditus* Westwood (Scolytidae). In addition, *X. picea* is the first record for the Turkish fauna. However, it was observed that *Hypoborus ficus* Erichson (Scolytidae), *Hesperophanes griseus* Fabricius (Cerambycidae), *Scobicia chevrieri* Villa and *Sinoxylon sexdentatus* Oliver (Bostrychidae) were common species and caused losses by damaging both stems and branches.

Key Words: Fig pests, *Ficus carica*, xylophagous, Cerambycidae, Buprestidae, Bostrychidae, Scolytidae, Curculionidae, Turkey.

Aydın'da İncir Ağaçlarında Saptanan Odun Dokusu Zararlıları

Özet: İncir ağaçlarında odun dokusunda zararlı olan Bostrychidae, Buprestidae, Cerambycidae, Curculionidae ve Scolytidae (Coleoptera) familyalarına ait türler 2000-2001 yılları arasında Aydın ilinde saptanmıştır. Sonuçta toplam 16 tür elde edilmiş ve bunlardan 8 tanesi Türkiye' de incir zararlısı olarak ilk kayıttır. Bu türler *Anthaxia cichorii* Olivier, *Agrilus roscidus* Kiesenwetter, *Acmaeodera* (s.str.) *flavolineata* Laporte and Gory (Buprestidae), *Stenopterus flavicornis* Küster (Cerambycidae), *Xyloperthella picea* Olivier, *Xylonites praeustus* Germar, *Scobicia chevrieri* Villa (Bostrychidae) ve *Hypothenemus eruditus* Westwood (Scolytidae)'tur. *X. picea* aynı zamanda Türkiye faunası için yeni kayıttır. Elde edilen türlerden *Hypoborus ficus* Erichson (Scolytidae), *Hesperophanes griseus* Fabricius (Cerambycidae), *Scobicia chevrieri* Villa ve *Sinoxylon sexdentatus* Oliver (Bostrychidae) incir ağaçlarında en yaygın ve bol bulunan türler olarak saptanmıştır.

Anahtar Sözcükler: İncir zararlıları, *Ficus carica*, xylophagous, Cerambycidae, Buprestidae, Bostrychidae, Scolytidae, Curculionidae, Türkiye.

Introduction

Turkey has approximately half of the world's dried fig production and trade (İTC, 1998). Fig production in Turkey is mainly concentrated in the Big and Small Menderes valleys in the Aegean region. One Turkish cultivar Sarılop, *Ficus carica* cv. *Calymirna*, possesses good quality characteristics for drying and has been extensively grown in this region for many years.

The first study on fig pests in the Aegean region was conducted by Hagan (1929), followed by İyriboz (1940), Bodenheimer (1941), Özar et al. (1985), Akşit et al.

(2003), Çakmak and Akşit (2003) and Özsemerci and Akşit (2003). Xylophagous species, which are serious pests of woody plants, obtained from fig trees have included some species of the families Bostrychidae, Buprestidae, Cerambycidae, Curculionidae and Scolytidae (Coleoptera). These species mostly cause secondary damage in fig trees. The larva makes tunnels in phloem and xylem tissues and under the bark. The adults mostly feed on flowers and foliage of some plants, except for Scolytids and Bostrychids, which feed in wood tissue.

Xylophagous species on fig trees have not been studied extensively and little information about them is

available in the literature. The aim of this study was to determine xylophagous species on fig trees (*Ficus carica* cv. *Calymirna* L.) in Aydın, Turkey.

Materials and Methods

Xylophagous species of *Ficus carica* cv. *Calymirna* were collected from Aydın province in the Aegean region (Turkey), between March and September in 2000 and 2001 at the following sampling sites: İncirliova, Buharkent, Germencik, Nazilli, Bozdoğan, Köşk, Sultanhisar and Kuyucak. Plant parts, stems, branches and shoots infested with xylophagous species were picked and placed in plastic bags once a month. Samples were taken to the laboratory in an ice chest, then transferred to a cage consisting of a wooden frame (40 x 30 x 55 cm), covered with insect-proof gauze and held at 25 ± 2 °C and 60 ± 10 Rh. Thus, immature insects in the wood tissue were allowed to reach the adult stage. Monthly observations were made to determine the numbers of adult insects from each collection site and date. All insects emerging from the collected material were sent to specialists for identification. The specimens have been deposited in the Department of Plant Protection, Faculty of Agriculture, Adnan Menderes University, Aydın, Turkey.

Results and Discussion

Sixteen species belonging to 4 families of Coleoptera were collected, of which 8 are new records as fig pests in Turkey: *Anthaxia cichorii* Olivier, *Agrilus roscidus* Kiesenwetter, *Acmaeodera* (s.str.) *flavolineata* Laporte and Gory (Buprestidae), *Stenopterus flavicornis* Küster (Cerambycidae), *Xyloperthella picea* Olivier, *Xylonites praeustus* Germar, *Scobicia chevrieri* Villa (Bostrychidae) and *Hypothenemus eruditus* Westwood (Scolytidae). In addition, *X. picea* is the first record for the Turkish fauna.

The number of xylophagous species on the fig trees was 26, including 10 species determined previously. The 10 species in question are as follows: in Cerambycidae *Dorcatypus tristis* L., *Prionus besicanus* Fair., *Chlorophorus varius* (Muller) (Gül-Zümreoğlu, 1975), *Batocera rufomaculata* DeGeer (Özbek and Tozlu, 2000),

Niphona picticornis Muls. and *Cerambyx scopoli* Füssl.; in Bostrychidae, *Certallum ebulinum* L.; in Buprestidae *Chrysobothris affinis* F. and *Agrilus obscuricollis* Kiesw. (Lodos and Tezcan, 1995) and in Scolytidae: *Hypothenemos chlersi* F. (İyriboz, 1940).

However, it was observed that *Hypoborus ficus* Erichson (Scolytidae), *Hesperophanes griseus* Fabricius (Cerambycidae), *Scobicia chevrieri* Villa and *Sinoxylon sexdentatus* Oliver (Bostrychidae) were common species and caused losses by damaging both stems and branches. All the species usually preferred branches that were weakened or dried up for other reasons.

List of xylophagous species collected on fig trees in Aydın, Turkey

Family: Buprestidae

**Agrilus roscidus* Kiesenwetter, 1857

Material examined: İncirliova 27.09.2000; Buharkent 28.09.2000; Germencik 20.03.2001, 30.03.2001, 15.05.2001; Nazilli 28.09.2000, 30.03.2001 (32 specimens).

Host plants: This is a polyphagous species found on *Pyrus communis*, *Prunus persica*, *P. armenica*, *P. cerasus*, *P. amygdalus*, *P. domestica* and *Cerotonia siliqua* in Turkey (Lodos and Tezcan, 1995).

Anthaxia umbellatarum Fabricius, 1787

Material examined: İncirliova 20.03.2001, 19.04.2001, 27.09.2001; Buharkent 28.09.2000, 30.03.2001 (30 specimens).

Host plants: *Dacus carota*, *Pimpinella anisum*, *Prunus domestica* (Ulay and Tezcan, 1998), *Acacia karo*, *Castanea sativa*, *Ficus carica*, *Pistacia lentiscus*, *P. terebinthus*, *Prunus persica* and *Ulmus campestris* (Levey, 1985; Gobbi, 1986).

Acmaeodera quadrizonata Abeille de Perin, 1891

Material examined: Bozdoğan 30.03.2001; Buharkent 11.05.2000, 28.09.2000, 30.03.2001; İncirliova 27.09.2000, 15.05.2001 (31 specimens).

Host plants: *Ficus carica* (Niehuis, 1989), Fagaceae and Moraceae (Danielson, 2003).

* Species marked with an asterisk are new records as fig pests in Turkey.

****Acmaeodera* (s.str.) *flavolineata* Laporte and Gory, 1835**

Material examined: Nazilli and Buharkent 30.03.2001 (2 specimens).

Host plants: *Achillea biebersteinii*, *A. millifolium*, *Anthemis tinctoria* (Tozlu and Özbek, 2000), *Quercus* sp. (Niehuis, 1989), *Fagaceae* and *Cistaceae* (Gigli, 2003).

****Anthaxia cichorii* Olivier, 1790**

Material examined: Buharkent 28.09.2000; Germencik 17.08.2000; İncirliova 20.03.2001, 19.04.2001; Nazilli 28.09.2000 (7 specimens).

Host plants: *Ficus* sp. (Hoskovec and Rejzek, 2003), *Acer campestre*, *Ceratonia siliqua*, *Cercis siliquastrum*, *Fagus sylvatica*, *Pistacia terebinthus*, *Prunus* sp. and *Salix alba* (Gobbi, 1986).

Family: Cerambycidae

***Hesperophanes griseus* Fabricius, 1792**

Material examined: Bozdoğan 08.04.2000, 11.05.2000, 11.07.2000, 20.09.2000, 17.08.2000; Buharkent 11.05.2000, 11.07.2000, 28.09.2000, 30.03.2001; Germencik 11.05.2000, 08.06.2000, 17.08.2000, 27.09.2000, 20.03.2001, 27.04.2001; İncirliova 27.09.2000, 27.04.2001, 13.07.2001, 27.09.2001; Nazilli 30.03.2000, 28.09.2000 (172 specimens).

Host plants: *Ceratonia siliqua*, *Punica granatum*, *Taxus baccata*, *Morus alba*, *Pistacia lentiscus*, *Nerium oleander*, *Quercus mirbeckii*, *Acer* sp., *Acacia* sp., *Eucalyptus* sp. (Balachowsky, 1962), *Ficus* sp. (Demelt, 1962), *Cytisus* sp., *Populus* sp., *Salix* sp. (Duffy, 1957), *Corylus avellana*, *Prunus cerasus* and *Prunus amygdalus* (Lodos, 1998).

****Stenopterus flavicornis* Küster, 1846**

Material examined: Bozdoğan 11.05.2000; Buharkent 30.03.2001; Germencik 27.09.2000, 20.03.2001; İncirliova 27.09.2001 (9 specimens).

Host plants: Polyphagous in deciduous trees. *Achillea* sp. (Hoskovec and Rejzek, 2003), Umbellifera (Winkler, 1924-1932).

***Clytus gulekanus* Pic, 1904**

Material examined: Buharkent 30.03.2001 (1 specimen).

C. gulekanus is a species endemic to Turkey, described from Namrun and Tarsus in İçel (Lameere and Aurivillius, 1912-1913; Hoskovec and Rejzek, 2003).

Host plants: *Ficus carica* (Hoskovec and Rejzek, 2003).

Family: Bostrychidae

****Xylonites praeustus* Germar, 1817**

Material examined: Germencik 20.09.2000, 15.05.2001; Nazilli 28.09.2000; Buharkent 17.08.2000 (11 specimens).

Host plants: *Ficus* sp., *Eucalyptus* sp., *Quercus* sp., *Pistacia* sp. and *Acacia* sp., *Poplar* sp. (Bonnemoison, 1962; Derwesh, 1963).

****Scobicia chevrieri* Villa, 1835**

Material examined: Germencik 20.03.2000, 13.04.2000, 17.08.2000, 20.09.2000, 27.09.2000, 15.05.2001; Buharkent 04.05.2000, 11.05.2000, 17.08.2000, 28.09.2000, 30.02.2001, 04.05.2001; İncirliova 28.09.2000; Köşk 18.10.2000; Nazilli 28.09.2000, 30.03.2001; Bozdoğan 11.07.2000 (272 specimens).

Host plants: *Ceratonia siliqua* (Balachowsky, 1962), *Morus alba*, *Citrus* sp., *Ficus carica*, *Eucalyptus* sp. (Avidov and Harpaz, 1969) and *Pistacia vera* (Mangin, 1958).

***Sinoxylon sexdentatum* Olivier, 1790**

Material examined: Germencik 17.08.2000, 20.09.2000, 27.09.2000, 27.04.2001, 15.05.2001; İncirliova 27.09.2000, 27.04.2001, 30.03.2001; Buharkent 09.03.2000, 17.08.2000, 28.09.2000, 30.03.2001; Nazilli 28.09.2000, 30.03.2001; Bozdoğan 17.08.2000; Sultanhisar 03.04.2002 (180 specimens).

Host plants: *Vitis vinifera*, *Ficus carica*, *Ceratonia siliqua*, *Pyrus comminis*, *Malus communis*, *Cerasus* sp., *Prunus persica*, *Morus alba*, *Oleae europaea*, *Quercus* sp., *Acer nigrum*, *Pistacia* sp., *Robina* sp., *Acacia* sp., *Ficus sycomorus* and *Citrus* spp. (İyriboz, 1940; Blunck, 1954; Avidov and Harpaz, 1969).

****Xyloperthella picea* Olivier, 1790**

Material examined: Germencik 20.03.2000, 20.09.2000; Buharkent 11.05.2000; Bozdoğan 11.07.2000; Nazilli 28.09.2000 (30 specimens).

Distribution: Angola (Danielson, 2003), South Africa, Egypt, Madagascar, Mediterranean region, Palestine, Sardinia, Seychelles, Syria, Cameroon, Sicily (Caillol, 1954), Italy, Sardinia (Taglianti, 2003). This species is a new record for Turkish fauna.

Host plants: *Acacia* sp., *Adansonia* sp., *Quercus* sp. and *Hevea brasiliensis* (Blunck, 1954; Caillol, 1954).

Schistocerus bimaculatus Ol., 1790

Material examined: Nazilli 30.03.2001 (1 specimen).

Host plants: This species is polyphagous. *Acacia* sp., *Vitis vinifera*, *Ficus carica*, *Malus communis*, *Cerasus* sp., *Prunus amygdalus*, *Citrus* sp., *Punica granatum* and *Tamarix* sp. (Balachowsky, 1962; Lodos, 1998).

Family: Scolytidae

Hypoborus ficus Erichson, 1836

Material examined: Bozdoğan 11.05.2000, 25.05.2000, 08.06.2000, 20.07.2000, 17.08.2000, 20.09.2000, 12.10.2000; Buharkent 11.05.2000, 25.05.2000, 17.08.2000, 27.09.2000, 28.09.2000, 30.03.2001, 04.05.2001; Germencik 20.03.2000, 11.05.2000, 25.05.2000, 08.06.2000, 13.05.2000, 04.07.2000, 17.08.2000, 20.09.2000, 27.09.2000, 28.09.2000, 20.03.2001, 15.05.2001; İncirliova 11.05.2000, 13.05.2000, 20.09.2000, 27.09.2000, 15.01.2001, 20.03.2001, 27.04.2001; Köşk 18.10.2000; Nazilli 28.09.2000, 30.03.2001 (thousands of adults).

Host plants: *Ficus carica* (İyriboz, 1940), *Morus alba* and *Vitis vinifera* (Avidov and Harpaz, 1969).

***Hypothenemus eruditus** Westwood, 1836

Material examined: Bozdoğan 11.07.2000; Buharkent 11.05.2000; Germencik 27.09.2000; İncirliova 04.08.2000 (58 specimens).

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Host plants: This is considered one of the most polyphagous of all Scolytidae, having been found in a very wide range of hosts; tea (Schedl, 1959), *Ficus* sp., *Citrus* sp., *Vitis vinifera*, *Acacia* sp. (Blunck, 1954) and *Eucalyptus camaldulensis* (İU, 2003).

Family: Curculionidae

Choerorrhinus squalidus Fairmaire, 1857

Material examined: Germencik 27.09.2000, Bozdoğan 11.05.2000, 08.05.2000; Buharkent 11.05.2000, 28.09.2000 (47 specimens).

Host plants: *Quercus suber*, *Q. sessiliflora*, *Juglans regia*, *Acer nigrum* and *Ficus carica* (Caillol, 1954).

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