

A Study on The Determination of Insect Fauna in Akdağ Natural National Park

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Abstract

Akdağ Natural National Park, settled on Sandıklı county in Afyon province and Çivril county in Denizli province, is a transition area between Central Anatolian and Aegian regions. Akdağ is approximately 2000 m in elevation and bears both forest and steppe characteristics. There is no previous work encountered related to the insect fauna of the study field. In the observations for the determination of insect fauna in Akdağ Natural National Park, 152 species that belong to 45 families have been determined.

Key Words

Akdağ Natural National
Park,
Insect,
Fauna,
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INTRODUCTION

Akdağ Natural National Park, settled on Sandıklı county in Afyon province and Çivril county in Denizli province, is a transition area between Central Anatolian and Aegian regions. Akdağ is approximately 2000 m in elevation and bears both forest and steppe characteristics. There is no previous work encountered related to the insect fauna of the study field. However, few species from the studies on Afyon, Kütahya and Denizli provinces, which was thought to be related with the

study field, are included in the insect faunistic list. Lodos et al. (1978) [1], Hüseyinoğlu (1999) [2] and "The Key to Anatolia-Afyon"-(Butterflies part) by Hüseyinoğlu (2004) [3] are the dealt studies in this concept.

MATERIAL AND METHOD

Insect samples were collected during April-September 2004. Insect net and light trap were used in collecting insects. The samples were processed with standard methods and added to the collection. The species which were collected by others from National park and its surroundings are given in the species list with 'Lit' abbreviation. The study which Afyon Governership have it made is so important for this research. In this study named The Key of

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Anatolia-Afyon (2004) [3], dear Ass. Prof. Yusuf Hüseyinoğlu made a research on butterflies and stated that Afyon is rich in species diversity and have over 120 butterfly species. The species of which the photographs were given in this study and also determined by us are given with the 'Lit' abbreviation referred to the mentioned study. The author was consulted for other species. The author, who collected butterflies but not published them, shared his identified butterfly material with us. Author material's species together with the ones we had identified are indicated by (*) sign. The species that we couldn't determine but stated before by Hüseyinoğlu are given without any special sign and with collecting place data.

Each group of those samples were identified by the specialists. Both the personal collections (Neşe Çağatay-Lygaeidae, Selim S. Çağlar-different families of Hemiptera) were examined and identified or they were asked to be identified. Besides, many sources [4-9] were searched thoroughly and common species were identified. The names of the specialists and the groups they identified are as follows: Bruchidae (Coleoptera) by Y. Orhan Mergen; Carabidae by Neslihan Kocatepe, Cerambycidae and Chrysomelidae by Hüseyin Özdikmen and Tuncay Türkeş, Apidae (Hymenoptera) by A. Murat Aytakin, Formicidae by E. Elif Aydın Dede, Megachilidae by Yasemin Güler, Lepidoptera, by Selma Seven Çalışkan, Odonata by Ali Demirsoy and Yusuf Durmuş, Orthoptera by Ali Demirsoy and Hasan Sevgili.

RESULTS AND DISCUSSION

In the Akdağ Natural National Park specimens in various groups of insects were collected. 152 different species in 45 families have been determined. The taxonomic conditions and ordo levels have been presented in Table 1.

At the end of this study, 152 species could have been identified. This study comprises a 30 days field trip and this short time period limited the determined species number. With a rough observation, it could be understood that most areas of the study field includes much higher number of species. Karanlık Stream, Tokalı Canyon, Karabel Hillsides and Akkale Hill could be counted as an example. Detailed exploration of these areas would undoubtedly enable a certain evaluation. According to IUCN [5] *Parnassius mnemosyne*, known as Clouded Apollo, from Karabel Hillsides and *Zerynthia cerisyi* from Tokalı Canyon, which are determined with this study, take place in the endangered species category. Besides, one of the species mentioned in the The Key of Anatolia-Afyon (2004) is *Parnassius apollo*, the Apollo butterfly. It was stated that this species is found on Sultan Mountains and also known as one of the endangered species in IUCN category. *Parnassius apollo* was not encountered in the National Park borders but there are suitable habitats having an elevation of 1500 m and higher that this species would have lived. The areas where these species found are important and need to be protected.

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Table 1. List of the Insect Species on Akdağ Natural National Park. Herein, given is the list of 152 insect species belonging to 45 families that could be identified and obtained from literature.

Scientific Name	Collecting Area	UTM Coordinates	Collector
Ordo: ODONATA			
Family: Aeshnidae			
<i>Aeshna affinis</i> Vander Linden, 1820	Çamoluk Ridge, 19.07.2004.	35 S 0760619 UTM 4247972	O. Sert
<i>Aeschna mixta</i> Lattreille, 1805	Çamsu Fountain, 19.07.2004.	36 S 0238406 UTM 4247892	O. Sert
<i>Anax imperator</i> Leach, 1815	Çamsu Fountain, 19.07.2004.	36 S 0238406 UTM 4247892	O. Sert
<i>Anax parthenope</i> (Selys, 1839)	Karabel hillside, 19.07.2004.	36 S 0240625 UTM 4253176	O. Sert
Family: Calopterygidae			
<i>Calopteryx splendens</i> Harris, 1782	Koca upland, 08.05.2004, Akdağ	38 T 0238086 UTM 4249914	O. Sert
Family: Cordulegastridae			
<i>Cordulegaster insignis</i> Schneider, 1845	Sığır Kuyruğu Road, 19.07.2004, Akdağ	36 S 0238439 UTM 4248068	O. Sert
Family: Libellulidae			
<i>Libellula depressa</i> Linnaeus, 1758	Karabel hillside, 05.06.2004, Akdağ	36 S 0240625 UTM 4253176	O. Sert
<i>Orthetrum anceps</i> (Schneider, 1845)	Karabel hillside, 19.07.2004	36 S 0240625 UTM 4253176	O. Sert
<i>Sympetrum meridionale</i> (Selys, 1841)	Karabel hillside, 19.07.2004	36 S 0240607 UTM 4251900	O. Sert
Ordo: ORTHOPTERA			
Family: Acrididae			
<i>Acrotylus</i> sp.	Uzun Alan, 04.07.2004	36 S 0237708 UTM 4239976	O. Sert
<i>Oedipoda miniata</i> (Pallas, 1771)	Karanlık Stream, 07.08.2004, 04.09.2004, Akdağ	35 S 0761654 UTM 4245946, 35 S 0761846 UTM 4245833	O. Sert
<i>Oedipoda caerulescens caerulescens</i> (Linnaeus, 1758)	Karanlık Stream, 04.09.2004, Akdağ	35 S 0761846 UTM 4245833	O. Sert
Family: Tetrigidae			
<i>Tetratetrix depressa</i> Brisouth, 1848	Tokalı Canyon Road. 05.06.2004; Koca upland Side road 06.06.2004; Koca upland, 08.05.2004, Akdağ	36 S 0273909 UTM 4285345; 35 S 0761395 UTM 4237536	O. Sert
Ordo: HEMIPTERA			
Family: Coreidae			
<i>Coreus marginatus</i> (Linnaeus, 1758)	Karanlık Stream, 29.08.2004, Akdağ	35 S 0761654 UTM 4245946	O. Sert
<i>Syromastus rhombeus</i> (Linnaeus, 1767)	Karabel Hillside 06.06.2004, Akdağ	35 S 0753476 UTM 4305112	O. Sert
<i>Corizus hyoscyami</i> (Linnaeus, 1758)	Uzun Alan, 17.07.2004; Sığır kuyruğu, 18.07.2004	35 S 0760264 UTM 4239942, 35 S 0761686 UTM 4247920	O. Sert
<i>Gonocerus</i> sp.	Uzun Alan, 08.05.2004;	36 S 0237708 UTM 4239976,	O. Sert
Family: Gerridae			
<i>Gerris</i> sp1.	Oktur upland surroundings, 17.04.2004	36 S 0240834 UTM 4245249	O. Sert
<i>Gerris</i> sp2.	Koca upland Fountain surroundings, 19.04.2004	36 S 0239906 UTM 4249110	O. Sert
Family: Pentatomidae			
<i>Carpocoris</i> sp.	Koca upland, Side road 06.06.2004, Akdağ	35 S 0761395 UTM 4237536	O. Sert
<i>Dolycoris baccarum</i> (Linnaeus, 1758)	Tokalı Canyon road. 05.06.2004; Koca upland, Side road 06.06.2004, Akdağ	36 S 0273909 UTM 4285345; 35 S 0761395 UTM 4237536	O. Sert
<i>Eurydema oleracea</i> (Linnaeus, 1758)	Sandıklı, 13.06.1972 'Lit'; Arıtış hillside, 08.05.2004.	-; 36 S 0237708 UTM 4239976	Lodos et. al., 1978; O. Sert
<i>Eurydema</i> sp.	Arıtış hillside, 08.05.2004	35 S 0757772 UTM 4249724	O. Sert

Table 1. continued.a

Scientific Name	Collecting Area	UTM Coordinates	Collector
Family: Lygaeidae			
<i>Lygaeus equestris</i> (Linnaeus, 1758)	Karabel hillside, 06.06.2004, Akdağ	36 S 0240644 UTM 4253140	O. Sert
<i>Tropidothorax leucopterus</i> Goeze, 1778	Karabel hillside, 05.09.2004, Akdağ	36 S 0240317 UTM 4251892	O. Sert
Family: Miridae			
<i>Calocoris annulus</i> Brulle, 1832	Sandıklı, 13.06.1972. 'Lit' Karabel hillside, 06.06.2004, Akdağ -;	36 S 0240644 UTM 4253140	Lodos et.al., 1978; O. Sert
<i>Dryophilocoris persimilis</i> (Puton, 1895)	Çivril, 11.05.1972. 'Lit'	-	Lodos et.al., 1978
<i>Exolygus rugulipennis</i> (Poppius, 1911)	Sandıklı, 13.06.1972. 'Lit'	-	Lodos et.al., 1978
<i>Psallus punctulatus</i> Puton, 1874	Çivril, 11.05.1972. 'Lit'	-	Lodos et.al., 1978
Family: Pyrrhocoridae			
<i>Pyrrhocoris apterus</i> (Linnaeus, 1758)	Karabel hillside, 06.06.2004, Akdağ	36 S 0240644 UTM 4253140	O. Sert
Family: Scutelleridae			
<i>Eurygaster maura</i> (Linnaeus, 1758)	Uzun Alan, 08.05.2004	36 S 0237603 UTM 4240033	O. Sert
<i>Graphosoma lineatum</i> (Linnaeus, 1758)	Uzun Alan, 08.05.2004	36 S 0237603 UTM 4240033	O. Sert
Ordo: COLEOPTERA			
SubOrdo: Adephaga			
Family: Carabidae			
<i>Cicindela campestris</i> Linnaeus, 1758	Oktur upland surroundings, 03.04.2004	36 S 0240596 UTM 4245851	O. Sert
<i>Amara</i> sp.	Akdağ	-	O. Sert
<i>Calathus fuscipes</i> (Goeze, 1777)	Eğirlik upland surroundings, 08.05.2004, Akdağ	36 S 0238429 UTM 4244988	O. Sert
<i>Harpalus</i> sp.	Koca upland, 19.04.2004, Akdağ	38 T 0238086 UTM 4249914	O. Sert
<i>Lebia cruxminor</i> (Linnaeus, 1758)	Akkale hillside, 04.07.2004, Akdağ	35 S 0762265 UTM 4238538	O. Sert
<i>Philochthus neresheimeri</i> (G. Müller, 1929)	Koca upland, 19.04.2004, Akdağ	38 T 0238086 UTM 4249914	O. Sert
SubOrdo: Polyphaga			
Family: Attelabidae			
<i>Rhynchites hungaricus</i> Herbst, 1784	Karabel hill West sides, 03.07.2004, Akdağ	36 S 0240241 UTM 4251597	O. Sert
Family: Bruchidae			
<i>Bruchus atomarius</i> (Linnaeus, 1761)	Uzun Alan, Akkale hillside, 04.07.2004	35 S 0760157 UTM 4240103	O. Sert
<i>Bruchus rufipes</i> Herbst, 1783	Uzun Alan, Akkale hillside, 04.07.2004	35 S 0760157 UTM 4240103	O. Sert
Family: Buprestidae			
<i>Anthaxia</i> sp.	Karabel Hill, 03.07. 2004; Karanlık Stream, 08.08.2004	36 S 0240595 UTM 4252991; 35 S 0761654 UTM 4245946	O. Sert
Family: Cantharidae			
<i>Malachius aeneus</i> (Linnaeus, 1758)	Tokalı Kanyonu, Akdağ. 05.06.2004	35 S 0760066 UTM 4311880	O. Sert
<i>Malachius bipustulatus</i> (Linnaeus, 1758)	Tokalı Canyon, Akdağ. 05.06.2004	35 S 0753257 UTM 4306525	O. Sert

Table 1. continued.b

Scientific Name	Collecting Area	UTM Coordinates	Collector
Family: Cerambycidae			
<i>Anastrangalia dubia</i> (Scopoli, 1763)	Karabel Hill SE edge, 08.08.2004, Akdağ, Oktur Upland road, 08.08.2004 Akdağ	36 S 0240151 UTM 4251454, 36 S 0240601 UTM 4247274	O. Sert
<i>Cerambyx miles</i> Bonelli, 1823	Akkale hillside, Akdağ. 07.08.2004	35 S 0762292 UTM 4238510	O. Sert
<i>Dorcadion dimidiatum</i> Motschulsky, 1838	Between Koca upland and Tokalı Canyon Road, 19.04.2004	36 S 0238413 UTM 4244996	O. Sert
<i>Dorcadion scabricolle</i> Dalman, 1817	Oktur upland surroundings, 19.04.2004 Akdağ	36 S 0238885 UTM 4248533, 36 S 0238844 UTM 424858	O. Sert
<i>Dorcadion</i> sp1.	Eğirlik hill surroundings, 08.05.2004, Akdağ.	36 S 0238429 UTM 4244988	O. Sert
<i>Dorcadion</i> sp2.	Çimek upland surroundings, 08.05.2004, Akdağ	35 S 0761605 UTM 4248006	O. Sert
<i>Phytoecia coerulescens</i> (Scopoli, 1763)	Uzun Alan sides, 08.05.2004	35 S 0760107 UTM 4239924	O. Sert
<i>Stenurella bifasciata</i> (Müller, 1776)	Karabel Hill, 03.07. 2004; Kuruelmalı Hill, 17.07.2004	36 S 0240595 UTM 4252991; 35 S 0762429 UTM 4240146	O. Sert
<i>Stenurella septempunctata</i> (Fabricius, 1792)	Karabel Hill SE edge, 07.08.2004	36 S 0240151 UTM 4251454	O. Sert
Family: Chrysomelidae			
<i>Chrysolina herbacea</i> (Duftschmid, 1825)	Karabel hillside, 19.07.2004; Karanlık Stream, 08.08.2004; Oktur upland, 08.08.2004, Akdağ	36 S 0240625 UTM 4253176; 36 S 0240151 UTM 4251454; 36 S 0240634 UTM 4247450	O. Sert
<i>Clytra novempunctata</i> Olivier, 1808	Karabel hillside, 19.07.2004; Akkale hillside, Akdağ. 07.08.2004	36 S 0240625 UTM 4253176; 35 S 0762292 UTM 4238510	O. Sert
<i>Cryptocephalus aureolus</i> Suffrian, 1847	Karabel hillside, 19.07.2004, Akdağ	36 S 0240625 UTM 4253176	O. Sert
<i>Cryptocephalus bipunctatus</i> (Linnaeus, 1758)	Akkale hillside, Akdağ. 07.08.2004	35 S 0762292 UTM 4238510	O. Sert
<i>Labidostomis kaszabi</i> Medvedev, 1962	Oktur upland 19.04.2004	36 S 0239106 UTM 42486613	O. Sert
Family: Cleridae			
<i>Trichodes</i> sp.	Uzun Alan, 17.07.2004, Akdağ	35 S 0760107 UTM 4239924	O. Sert
Family: Coccinellidae			
<i>Coccinella septempunctata</i> Linnaeus, 1758	Uzun Alan, 17.04.2004; Akkale hill surroundings, 08.05.2004; Oktur upland surroundings, 08.08.2004 Akdağ	35 S 0760314 UTM 4240121; 36 S 0237708 UTM 4239976; 36 S 0238885 UTM 4248533, 36 S 0240634 UTM 424745	O. Sert
<i>Coccinella sinuatomarginata</i> (Faldermann, 183)	Karabel hill West side, 03.07.2004, Akdağ	36 S 0240241 UTM 4251597	O. Sert
<i>Psyllobara vigintidyopunctata</i> (Linnaeus, 1758)	Uzun Alan, 08.05.2004	35 S 0760314 UTM 4240121	O. Sert
Family: Curculionidae			
<i>Anthonomus amygdali</i> Hustache, 1930	Çivril, 11.05.1972. 'Lit'	-	Lodos et.al., 1978
<i>Bangasternus orientalis</i> (Capiomont, 1873)	Karabel hillside, 13.06.2004, Akdağ	35 S 0753437 UTM 4303909	O. Sert
<i>Cionus schultzei</i> Reitter, 1904	Karabel hillside, 05.06.2004, Akdağ	35 S 0753437 UTM 4303909	O. Sert
<i>Cleonis piger</i> Scopoli, 1763	Tokalı Canyon, 05.06.2004, Akdağ	35 S 0760066 UTM 4311880	O. Sert
<i>Gymnetron asellus</i> Gravenhorst, 1812	Uzun Alan, 04.07.2004, Karabel hillside, 05.06.2004, Akdağ	35 S 0760157 UTM 4240103; 35 S 0753437 UTM 4303909	O. Sert
<i>Gymnetron tetrum</i> Fabricius, 1792	Karabel hillside, 05.06.2004, Akdağ	35 S 0753437 UTM 4303909	O. Sert

Table 1. continued.c

Scientific Name	Collecting Area	UTM Coordinates	Collector
Family: Curculionidae (continued)			
<i>Larinus minutus</i> Gyllenhal, 1837	Uzun Alan, 17.07.2004; Akkale hillside	35 S 0760157 UTM 4240103	O. Sert
<i>Larinus latus</i> Herbst, 1803	Uzun Alan, 04.07.2004; Akkale hillside, 04.07.2004, Akdağ	35 S 0760157 UTM 4240103; 35 S 0762265 UTM 4238538	O. Sert
<i>Lixus cardui</i> Olivier 1807	Uzun Alan sides, 08.05.2004, Akdağ	35 S 0760062 UTM 4240062	O. Sert
<i>Lixus elongatus</i> Goeze, 1777	Tokalı Canyon, 06.06.2004, Akdağ	36 S 0273942 UTM 4285521	O. Sert
<i>Lixus scolopax</i> Boheman, 1835	Çivril, 11.05.1972. 'Lit'	-	Lodos et.al., 1978
<i>Pachytychius hordei</i> (Brulle, 1832)	Çivril, 27.04.1972. 'Lit' -	-	Lodos et.al., 1978
<i>Polydrusus ponticus</i> Faust, 1888	Sandıklı, 13.06.1972, Çivril, 11.05.1972. 'Lit'	-	Lodos et.al., 1978
<i>Sitona crinitus</i> (Herbst, 1795)	Sandıklı, 13.06.1972. 'Lit' Tokalı Canyon, Akdağ. 05.06.2004 -; 5	S 0753307 UTM 4306705	Lodos et.al., 1978; O. Sert
<i>Sitona flavescens</i> Marshall, 1802	Çivril, 11.05.1972. 'Lit'	-	Lodos et.al., 1978
<i>Sitona flavescens</i> var. <i>cinnamomeus</i> (Allard, 1863)	Çivril, 11.05.1972. 'Lit'	-	Lodos et.al., 1978
<i>Sitona lineatus</i> (Linnaeus, 1758)	Sandıklı, 13.06.1972. 'Lit'	-	Lodos et.al., 1978
<i>Sitona sulcifrons</i> (Thunberg, 1798)	Sandıklı, 13.06.1972. 'Lit'	-	Lodos et.al., 1978
Family: Elateridae			
<i>Agriotes</i> sp.	Koca upland side road 06.06.2004, Akdağ	35 S 0761444 UTM 4237715	O. Sert
<i>Athous haemorrhoidalis</i> (Fabricius, 1801)	Koca upland side road 06.06.2004, Akdağ	35 S 0761444 UTM 4237715	O. Sert
<i>Dalopius marginatus</i> (Linnaeus, 1758)	Koca upland side road 06.06.2004, Akdağ	35 S 0761395 UTM 4237536	O. Sert
<i>Dicronychus equisetioides</i> Loshe, 1976	Tokalı Canyon Road, 05.06.2004, Akdağ	36 S 0273527 UTM 4284649	O. Sert
<i>Dicronychus incanus</i> (Erichson, 1840)	Koca upland side road 06.06.2004, Akdağ	35 S 0761444 UTM 4237715	O. Sert
<i>Dicronychus rubripes</i> (Germar, 1824)	Tokalı Canyon road, 05.06.2004, Akdağ	36 S 0273527 UTM 4284649	O. Sert
<i>Synaptus filiformis</i> (Fabricius, 1781)	Tokalı Canyon road, 05.06.2004, Akdağ	35 S 0753307 UTM 4306705	O. Sert
Family: Glaphyridae			
<i>Pygopleurus foina</i> (Reitter, 1890)	Sandıklı, 13.06.1972. 'Lit'	-	Lodos et.al., 1978
Family: Meloidae			
<i>Mylabris</i> sp1.	Karabel hillside, 03. 07.2004	36 S 0240208 UTM 4251420	O. Sert
<i>Mylabris</i> sp2.	Karabel hillside, 03. 07.2004	36 S 0240208 UTM 4251420	O. Sert
Family: Melyridae			
<i>Enicopus pilosus</i> Scopoli, 1763	Tokalı Canyon road, 05.06.2004, Akdağ	36 S 0273942 UTM 4285521	O. Sert
Family: Scarabaeidae			
<i>Cetonia</i> sp.	Akkale hillside, 07.08.2004, Akdağ	35 S 0762292 UTM 4238510	O. Sert
<i>Oxythyrea cinctella</i> (Schaum, 1841)	13.06.1972, Sandıklı 'Lit'; Akkale hillside, Akdağ. 07.08.2004. -	35 S 0762292 UTM 4238510	Lodos et.al., 1978; O. Sert

Table 1. continued.d

Scientific Name	Collecting Area	UTM Coordinates	Collector
Family: Tenebrionidae			
<i>Opatrum</i> sp.	Oktur upland 08.08.2004	36 S 0240644 UTM 4245743	O. Sert
<i>Pachyscelis quadricollis</i> Brulle, 1832	Karabel hillside, 19.07.2004	36 S 0240592 UTM 4253000	O. Sert
<i>Pimelia akbesiana</i> Fairmaire, 1884	Eğirlik hill surroundings, 08.05.2004, Akdağ	36 S 0238429 UTM 4244988	O. Sert
Ordo: HYMENOPTERA			
Family: Anthocopidae			
<i>Thyreus</i> sp.	Tokalı Canyon, 06.06.2004, Akdağ	36 S 0273942 UTM 4285521	O. Sert
Family: Apidae			
<i>Bombus</i> (Megabombus) <i>argillaceus</i> (Scopoli, 1763)	Karanlık Stream, 29.08.2004, Akdağ	35 S 0761654 UTM 4245946	O. Sert
<i>Bombus</i> (Thoracobombus) <i>pascuorum</i> (Scopoli, 1763)	Karanlık Stream, 29.08.2004, Akdağ	35 S 0761654 UTM 4245946	O. Sert
<i>Bombus</i> (s.str.) <i>terrestris</i> (Linnaeus, 1758)	Çamoluk sides, 08.05.2004, Akdağ	36 S 0238086 UTM 4249914	O. Sert
Family: Formicidae			
<i>Cataglyphis cursor</i> (Fonscolombe, 1846)	Tokalı Canyon Road, 05.06.2004, Akdağ	36 S 0273942 UTM 4285521	O. Sert
<i>Formica cinerea</i> Mayr, 1853	Koca upland side road, 06.06.2004, Akdağ; Karabel tepe etekleri, 03.07.2004	35 S 0761444 UTM 4237715; 36 S 0240208 UTM 4251420	O. Sert
<i>Formica truncorum</i> Fabricius, 1804	Koca upland side road, 06.06.2004, Akdağ; Karabel tepe etekleri, 03.07.2004	35 S 0761444 UTM 4237715; 36 S 0240208 UTM 4251420	O. Sert
<i>Lasius fuliginosus</i> (Latreille, 1798)	Tokalı Canyon Road, 05.06.2004; Karabel hillsides, 03.07.2004	36 S 0273942 UTM 4285521; 36 S 0240208 UTM 4251420	O. Sert
<i>Lasius niger</i> (Linnaeus, 1758)	Karabel hillsides, 03.07.2004	36 S 0240208 UTM 4251420	O. Sert
<i>Messor</i> sp.	Karabel hillsides, 03.07.2004, 19.07.2004.	36 S 0240208 UTM 4251420, 36 S 0240592 UTM 4253000	O. Sert
<i>Myrmica</i> sp.	Uzun Alan, 17.07.2004; Akkale hillsides.	35 S 0760157 UTM 4240103	O. Sert
Family: Megachilidae			
<i>Megachile lagopoda</i> (Linnaeus, 1761)	29.08.2004 Karanlık Stream, Akdağ	35 S 0761654 UTM 4245946	O. Sert
Family: Xylocopidae			
<i>Xylocopa violacea</i> (Linnaeus, 1758)	Uzun Alan sides, 08.05.2004, Akdağ	35 S 0760062 UTM 4240062	O. Sert
<i>Xylocopa valga</i> Gerstaecker, 1872	Uzun Alan sides, 08.05.2004, Akdağ	35 S 0760062 UTM 4240062	O. Sert
Ordo: LEPIDOPTERA			
Family: Nymphalidae			
<i>Anthocaris cardaminensis</i> (Linnaeus, 1758)	Arıtaş sides 08.05.2004, Karanlık Stream, 07.08.2004, Akdağ	36 S 0237741 UTM 4240152; 35 S 0761654 UTM 4245946	O. Sert
<i>Aporia crataegi</i> (Linnaeus, 1758)	Karabel hillsides, 03.07.2004, 19.07.2004	36 S 0240208 UTM 4251420; 36 S 0240592 UTM 4253000	O. Sert
<i>Argynnis aglaja</i> (Linnaeus, 1758)*	Karanlık Stream, 19.07.2004, Akdağ; (Afyon: Sandıklı, Akdağ, Oktur Upland, 1500 m. 22.07.2001, Y. Hüseyinoğlu material)	35 S 0761431 UTM 4245929	O. Sert Y. Hüseyinoğlu

Table 1. continued.e

Scientific Name	Collecting Area	UTM Coordinates	Collector
Family: Nymphalidae (continued)			
<i>Argynnis pandora</i> ([Dennis & Schiffermüller], 1775)*	Karanlık Stream, 19.07.2004, Akdağ; (Afyon: Sandıklı, Akdağ Karanlık Stream Locality (Canyon entrance), 1300m. 06.08.1999,-1700m. 21.07.2001 Y. Hüseyinoğlu material)	35 S 0761502 UTM 4245939	O. Sert Y. Hüseyinoğlu
<i>Chazara briseis</i> (Linnaeus, 1764)*	Karanlık Stream, 19.07.2004, Akdağ; (Afyon: Sandıklı, Akdağ Karanlık Stream Locality (Canyon entrance), 1300m. 06.08.1999, Koca upland (forest house), 1600m. 07.08.1999, Y. Hüseyinoğlu material)	35 S 0761502 UTM 4245939	O. Sert Y. Hüseyinoğlu
<i>Coenonympha</i> sp.	Karabel hillsides, 03. 07.2004	36 S 0240208 UTM 4251420	O. Sert
<i>Cynthia cardui</i> (Linnaeus, 1758)*	Tokalı Canyon 05.06.2004, Akkale Hillsides, 04.07.2004; 'Lit'; (Afyon: Sandıklı, Akdağ Karanlık Stream Locality (Canyon entrance), 1300m. 06.08.1999,-1700m. 21.07.2001, Y. Hüseyinoğlu material)	36 S 0238883 UTM 4243333; 36 S 0237675 UTM 4239376	O. Sert Y. Hüseyinoğlu
<i>Gonepteryx farinosa</i> (Zeller, 1847)*	Uzun Alan sides, 08.05.2004, Karanlık Stream, 07.08.2004, Akdağ; (Afyon: Sandıklı, Akdağ, Oktur Upland, 1500m. 22.07.2001, Y. Hüseyinoğlu material)	35 S 0760062 UTM 4240062; 35 S 0761654 UTM 4245946	O. Sert Y. Hüseyinoğlu
<i>Issoria lathonia</i> (Linnaeus, 1758)*	Karanlık Stream, 07.08.2004; (Afyon: Sandıklı, Akdağ Karanlık Stream Locality (Canyon entrance), 1300m. 06.08.1999, Oktur Upland, 1500m. 22.07.2001, Y. Hüseyinoğlu material)	35 S 0761654 UTM 4245946	O. Sert Y. Hüseyinoğlu
<i>Ipiclides podalirius</i> (Linnaeus, 1758)	Tokalı Canyon 05. 06.2004.	36 S 0238883 UTM 4243333	O. Sert
<i>Limnitis reducta</i> (Staudinger, 1901)	Karabel hillsides, 03. 07.2004, 19.07.2004; Akkale hillsides, 04.07.2004.	36 S 0240583 UTM 4252988; 36 S 0240592 UTM 4253000; 35 S 0762215 UTM 4238359	O. Sert
<i>Melanargia larissa</i> (Geyer, 1828)*	Uzun Alan, 04.07.2004, Akkale hillsides, 04.07.2004, Karabel hillsides, 19.07.2004; (Afyon Sandıklı: Akdağ, Oktur Upland, 1500m. 22.07.2001, Y. Hüseyinoğlu material)	35 S 0760643 UTM 4239475; 35 S 0762292 UTM 4238510; 36 S 0240625 UTM 4253176	O. Sert Y. Hüseyinoğlu
<i>Melitaea didymai</i> (Esper, 1778)*	Karabel hillsides, 06.06.2004; Afyon: Sandıklı; Akdağ, Koca upland (forest house), 1600m. 07.08.1999, Oktur Upland, 1500m. 22.07.2001, Y. Hüseyinoğlu material)	35 S 0753476 UTM4305112	O. Sert Y. Hüseyinoğlu
<i>Polygonia c-album</i> (Linnaeus, 1758)	Tokalı Canyon 05. 06.2004, Karanlık Stream, 07.08.2004, Akdağ	36 S 0238678 UTM 4242444; 35 S 0761654 UTM 4245946	O. Sert
Family: Lycaenidae			
<i>Lycaena phlaeas</i> (Linnaeus, 1761)	Karabel hillsides, 19.07.2004; Karanlık Stream, 08.08.2004	36 S 0240625 UTM 4253176; 35 S 0761654 UTM 4245946	O. Sert
<i>Lycaena</i> sp.	Karabel hillsides, 19.07.2004	36 S 0240625 UTM 4253176	O. Sert

Table 1. continued.f

Scientific Name	Collecting Area	UTM Coordinates	Collector
Family: Lycaenidae (continued)			
<i>Polyommatus anteros</i> (Freyer, [1838])	(Afyon: Sandıklı, Akdağ Karanlık Stream Locality (Canyon entrance), 1300m. 06.08.1999,- 1700m. 21.07.2001, Y. Hüseyinoğlu material)		Y. Hüseyinoğlu
<i>Polymmatu icarus</i> (Rottemburg,1775)	Karabel hillsides, 19.07.2004; Oktur upland, 08.08.2004, Menteşler upland, 08.08.2004, Akdağ.	36 S 0240625 UTM 4253176; 36 S 0240634 UTM 4247450; 36 S 0239956 UTM 4244841	O. Sert
<i>Polyommatus ossmar</i> (Gerhard, 1853)	(Afyon: Sandıklı, Akdağ Karanlık Stream Locality (Canyon entrance), 1300m. 06.08.1999, Kocaupland (forest house), 1600m. 07.08.1999, Y. Hüseyinoğlu material)		Y. Hüseyinoğlu
<i>Polyommatus</i> sp.	Karabel hillsides, 03.07.2004, 19.07.2004; Oktur upland, 08.08.2004, Menteşler upland, 08.08.2004, Akdağ	36 S 0240595 UTM 4252991; 36 S 0240625 UTM 4253176; 36 S 0240634 UTM 4247450; 36 S 0239956 UTM 4244841	O. Sert
Family: Papilionidae			
<i>Parnassius mnemosyne</i> (Linnaeus, 1758)	Karabel Hillside under bridge, 06.06.2004	35 S 0753476 UTM 4305112	O. Sert
<i>Zerynthia cerisyi</i> (Godart, 1822)	Tokalı Canyon 05. 06.2004	36 S 0240743 UTM 4310231	O. Sert
Family: Pieridae			
<i>Colias crocea</i> (Fourcroy, 1885)*	Karabel hillsides, 19.07.2004; Karanlık Stream, 07.08.2004, Oktur upland, 08.08.2004, Menteşler upland, 08.08.2004, (Afyon: Sandıklı, Akdağ Karanlık Stream Locality (Canyon entrance), 1300m. 06.08.1999, Koca upland (forest house), 1600m. 07.08.1999, Oktur Upland, 1500m. 22.07.2001, Y. Hüseyinoğlu material)	36 S 0240625 UTM 4253176; 35 S 0761654 UTM 4245946; 36 S 0240634 UTM 4247450; 36 S 0239956 UTM 4244841	O. Sert Y. Hüseyinoğlu
<i>Pieris brassicae</i> (Linnaeus, 1758)	Karabel Hillsides, 19.07.2004; Karanlık Stream, 07.08.2004	36 S 0240625 UTM 4253176; 35 S 0761654 UTM 4245946	O. Sert
<i>Pieris napi pseudorapae</i> Verity, 1908	(Afyon: Sandıklı, Akdağ Karanlık Stream Locality (Canyon entrance), 1300m. 06.08.1999,- 1700m. 21.07.2001, Y. Hüseyinoğlu material)		Y. Hüseyinoğlu
<i>Pieris rapae</i> (Linnaeus, 1758)	Uzun Alan, 04.07.2004, Akkale hillsides	35 S 0760643 UTM4239475	O. Sert
Family: Satyridae			
<i>Brintesia circe</i> (Fabricius, 1775)*	Karabel hillsides, 19.07.2004; Karanlık Stream, 07.08.2004; (Akdağ Karanlık Stream Locality (Canyon entrance), 1300m. 06.08.1999, Y. Hüseyinoğlu material)	36 S 0240625 UTM 4253176; 35 S 0761654 UTM 4245946	O. Sert Y. Hüseyinoğlu

Table 1. continued.g

Scientific Name	Collecting Area	UTM Coordinates	Collector
Family: Satyridae (continued)			
<i>Hipparchia pellucida</i> (Stauder, 1924)	Karabel hillsides, 19.07.2004; (Afyon: Sandıklı, Akdağ Karanlık Stream Locality (Canyon entrance), 1300m. 06.08.1999, Y. Hüseyinoğlu material)		Y. Hüseyinoğlu
<i>Hyponephele lycaon</i> (Kühn, 1774)	(Afyon: Sandıklı, Akdağ Karanlık Stream Locality (Canyon entrance), 1300m. 06.08.1999,- 1700m. 21.07.2001, Y. Hüseyinoğlu material)		Y. Hüseyinoğlu
<i>Hyponephele lupina</i> (Costa, 1836)	(Afyon: Sandıklı, Akdağ Karanlık Stream Locality (Canyon entrance), 1300m. 06.08.1999,- 1700m. 21.07.2001, Oktur Upland, 1500m. 22.07.2001, Y. Hüseyinoğlu material)		Y. Hüseyinoğlu
<i>Hyponephele</i> sp.	Karanlık Stream, 07.08.2004, Oktur upland, 08.08.2004	35 S 0761654 UTM 4245946; 36 S 0240634 UTM 4247450	O. Sert
<i>Neohipparchia statilinus</i> (Hufnagel, 1766)	(Afyon: Sandıklı, Akdağ Kocaupland (forest house), 1600m. 07.08.1999, Y. Hüseyinoğlu material)		Y. Hüseyinoğlu
<i>Parahipparchia algerica</i> Obth., 1876	(Afyon: Sandıklı, Akdağ Karanlık Stream Locality (Canyon entrance), 1300m. 06.08.1999,- 1700m. 21.07.2001, Oktur Upland, 1500m. 22.07.2001, Y. Hüseyinoğlu material)		Y. Hüseyinoğlu
<i>Pseudochazara</i> sp.	Akkale Hillsides, 04.07.2004, Karabel hillsides, 19.07.2004, Akdağ	35 S 0762215 UTM 4238359; 36 S 0240625 UTM 4253176	O. Sert
<i>Pseudochazara anthelea</i> (Hübner, 1824)	(Afyon: Sandıklı, Akdağ Karanlık Stream Locality (Canyon entrance), 1300m. 06.08.1999,-1700 m. 21.07.2001, Koca upland (forest house), 1600 m. 07.08.1999, Y. Hüseyinoğlu material)		Y. Hüseyinoğlu
<i>Pseudochazara lydia</i> (Staudinger, 1878)	(Afyon: Sandıklı, Akdağ Karanlık Stream Locality (Canyon entrance), 1300m. 06.08.1999,- 1700m. 21.07.2001, Oktur Upland, 1500m. 22.07.2001, Y. Hüseyinoğlu material)		Y. Hüseyinoğlu
<i>Satyrrium</i> sp.	Karabel hillsides, 19.07.2004	36 S 0240625 UTM 4253176	O. Sert
Family: Sphingidae			
<i>Celeris</i> sp.	Akkale hillsides, Akdağ. 04.07.2004	35 S 0762265 UTM 4238538	O. Sert
<i>Macroglossum</i> sp.	29.08.2004 Karanlık Stream, Akdağ	35 S 0761654 UTM 4245946	O. Sert
Family: Zygaenidae			
<i>Zygaena</i> sp1.	Karabel hillsides, 03.07.2004, Çimek upland, 03.07.2004	36 S 0240595 UTM 4252991; 35 S 0761605 UTM 4248006	O. Sert
<i>Zygaena</i> sp2.	Karabel hillsides, 19.07.2004; Karanlık Stream, 07.08.2004	36 S 0240625 UTM 4253176; 35 S 0761654 UTM 4245946	O. Sert
<i>Amata phegea</i> (Linnaeus, 1758)	Tokalı Canyon 05.06.2004, Menteşler upland, 08.08.2004, Akdağ	36 S 0240743 UTM 4310231; 36 S 0239956 UTM 4244841	O. Sert

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