Türk. entomol. derg., 1992, **16** (3) : 135-146
ISSN 1010-6960

Studies on the Thysanoptera of Antalya V. Phlaeothripidae Uzel with an overall account*

İrfan TUNÇ**

Summary

Eighteen species from Phlaeothripidae are dealt with, one being new for turkish fauna. An overall account regarding the abundance, the frequency, the diversity, the seasonal distribution, the biogeographical distribution of the species involved is presented.

Introduction

In this last part of the study data related to the species in Phlaeothripidae and an overall account of the species involved from various standpoints are given. Several accounts that were excluded here have already been presented elsewhere (Tunç, 1989a, 1989b, 1990a, 1990b) and a seperate one on the Thysanoptera composition on various agricultural crops will be provided later.

Phlaeothripidae

Apterygothrips priesneri zur Strassen .

Material examined: Adrasan, 2 females, ***Pinus brutia,*** 6.IV.1988.

Habitat: ***Pinus.***

Distribution: Mediterranean. New for Turkey.

Haplothrips aculeatus Fabricius

Material examined: Duraliler, 2 males, 3 females, ***Triticum aestivum,*** 11.IV.1988-Göynük, 1 male, ***Zea mays,*** 27.V.1988-Bekirler, 1 female, ***Zea mays,*** 9.VI.1988 - Akınlar, 1 female, ***Capsicum annuum,*** 23.VI.1988- Sarıabalı, 1 female, ***Zea mays,*** 23.VI.1988-Aşağıkocayatak, 1 male, 4 females, ***Zea mays,*** 21.VII.1988-

* The study was supported by Research Fund of Akdeniz University

** Plant Protection Dept. Faculty of Agriculture Akdeniz University, PK 126, Antalya Turkey.

Alınış (Received) : 10.9.1991

Tekirova, 1 female, *Zea mays,* 4.VIII.1988-Havaalanı, 1 female, *Solanum melongena,* 18.VIII.1988-Belek, 1 male, *Arachis hyrogaea,* 18.VIII.1988-Çenger, 1 female, *Zea mays,* 18.VIII.1988-İhsaniye, 1 male, 5 females, *Zea mays,* 8.IX.1988-Adrasan, 1 male, *Zea mays,* 15.IX.1988-Çeltikçi, 2 males, 1 female, *Zea mays,* 13.X.1988-Mahmutlar, 3 males, 2 females, *Zea mays,* 13.X.1988-Mahmutlar, 6 females, *Phaseolus vulgaris,* 13.X.1988-Mavikent, 2 males, 11 females, *Zea mays,* 27.X.1988-Tekirova, 5 females, *Zea mays,* 27.X.1988-Mahmutlar, 2 females, *Solanum nigrum,* 10.XI.1988-Kayaburma, 1 males, *Triticum aestivum* (ears), 7.IV. 1989-Serik, 1 female, *Holcus lanatus,* 27.IV.1989-Kale, 1 male, 4 females, *Zea mays,* 16.VI.1989-Finike, 2 males, 3 females, *Zea mays,* 22.VI.1989-Peri, 1 female, *Oryza sativa,* 6.VII.1989-Gedik, 1 female, *Sorghum vulgare* 27.VII.1989 Bereket, 2 males, 7 females, *Oryza sativa* 27.VII.1989-Hurma, 3 females, *Zea mays;* 1 female, *Panicum* sp, 10.VIII.1989-Koyunlar, 2 males, 2 females, *Paspalum* sp; 1 female, *Arachis hypogaea,* 17.VIII.1989-Varsak, 4 males, 4 females, *Zea mays,* 17.VIII.198-Yavrudoğan, 1 female, *Sorghum vulgare,* 17.VIII.1989-Koyunlar, 4 males, 4 females, *Sorghum vulgare,* 17.VIII.1989-Gazipaşa, 1 male, *Hibiscus esculentus;* 1 male, 5 females, *Zea mays;* 1 female, *Gossypium hirsitum,* all 7.IX.1989-Adrasan, 1 female, *salix* sp, 14.IX.1989-Çakırlar, 1 female, *Cupressus sempervirens;* 2 males, 6 females, *Panicum* sp, both 10.XI.1989-Bahtılı, 1 female, *Myrtus communis,* 7.XII.1989.

Habitat: Graminivorous.

Distribution: Palaearctic (except North Africa). Aegean, Black Sea and Mediterranean regions of Turkey.

Remarks: Only coastal areas, in the period of April-December.

Haplothrips alexandrinus Priesner

Material examined: Antalya, 1 male, 2 females, *Anthemis* sp, 20.IV.1988-Aksu, 1 female, *Citrus nobilis deliciosa* (flowers), 20.IV.1988.

Habitat: Flowers of Compositae.

Distribution: Mediterranean. Only from Ankara upto date.

Haplothrips andresi Priesner

Material examined: Maarif, 1 male, 2 females, *Phyllirea* sp, 13.IV.1988-Ye-nice, 1 female, *Quercus* sp (flowers), 13.IV.1988-Yenice, 1 female, *Spartium junceum* (flowers), 5.V.1988-Murtiç, 1 female, *Quercus* sp, 14.VII.1988-Akseki, 1 male, 9 females, *Amygdalus communis,* 14.VII.1988-Fersin, 1 female, *Vitis vinifera,* 14.VII.1988-Güzelbağ, 6 females, *Amygdalus communis,* 21.VII.1988-Sögütcuması, 2 males, 4 females, *Quercus* sp, 4.VIII.1988-Geyikbayırı, 1 male, *Amygdalus communis* (flowers); 1 female, *Calycotome villosa* (flowers), both 23.II.1989-Yenice, 1 female, *Pistacia* sp, 13.IV.1989-Sögütçük, 1 female, *Pyrus elaeagrifolia,* 13.IV.1989-Akyar, 3 females, *Amygdalus communis* (leaves), 4.V.1989-Yeşilbayır, 1 female, *Olea europaea,* 18.V.1989-Yukarıkaraman, 2 females, *Solanum tuberosum* (flowers), 25.V.1989-Yeşilöz, 2 males, 3 females, *Olea europaea,* 1.VI.1989--Düzlerçamı, 1 male, *Verbascum* sp, 16.VI.198-Yenice, 2 females, *Quercus* sp; 2 males, 2 females, *Phyllirea* sp, both 16.VI.1989-Yazır (korkuteli), 1 female, *Pyrus elaeagrifolia,* 16.VI.1989-Tatköy, 1 male, *Populus* sp, 16.VI.1989-Geriş, 1 female, *Amygdalus communis,* 29.VI.1989-Fersin, 1 female, *Prunus domestica,* 29.VI.1989-Korkuteli, 1 female, *Althea* sp, 11.VII.1989-Çobanisa, 1 female, *Prunus domestica* 31.VIII.1989-Beycik, 4 females, *Vitis vinifera;* 6 males, 8 females, bush; 3 males, 7 females, *Morus alba,* all 14.IX.1989-Ormana, 2 females,

Malus communis, 28.IX.1989-İbradı, 1 female, *Juglans regia;* 1 female, *Malus communis,* both 28.IX.1989.

Habitat: Deciduous trees.

Distribution: Mediterranean. Aegean, Mediterranean and Central anatolia regions of Turkey.

Remarks: In coastal areas in the period of February-June, in inland April-September.

Haplothrips anthemidinus Priesner

Material examined: Belen, 2 females, *Triticum aestivum;* 2 males, 5 females, *Anthemis* sp; 2 males, 8 females, *Anthemis* sp, 20.IV.1989.

Habitat: Flowers of *Anthemis.*

Distribution: Mediterranean. Only from İzmir upto now.

Haplothrips bolacophilus Priesner

Material examined: Bekirler, 1 female, *Cucumis melo;* 1 male, *Lycopersicon esculentum,* both 9.VI.198-Koyunlar, 1 female, *Prunus persica* (leaves), 23.VI.1988-Perakende, 1 male, 1 female, *Cucumis melo,* 23.VI.1988-Akseki, 1 female, *Amygdalus communis,* 14.VII.1988-Gündoğdu, 1 female, *Amygdalus communis,* 8.IX.1988-Turunçova, 1 female, *Musa paradisii,* 15.IX.1988-Çeltikçi, 1 female, *Ficus carica,* 13.X.1988-Gazipaşa, 1 male, *Lycopersicon esculentum,* 10.XI.1988- Kayaburma, 1 female, *Asphodelus* sp, 7.IV.1989-Beldibi, 1 female, *Citrus sinensis,* 13.IV.1989.

Habitat: Not known exactly.

Distribution: Cyprus, Turkey, Greece. Marmara, Aegean and Mediterranean regions of Turkey.

Remarks: Only in coastal areas in Antalya.

Haplothrips cerealis Priesner

Material examined: Yenice, 5 females, *Hordeum* sp, 5.V.1988.

Habitat: Graminivorous.

Distribution: Spain (Berzosa, 1983), Sinai, Syria, Turkey. Central and Southern Anatolia regions in Turkey.

Haplothrips distinguendus (Uzel)

Material examined: Turunçova, 1 female, *Citrus* sp (flowers), 6.IV.1988-Yenice, 1 female, *Olea europaea* (flowers); 1 female, *Hordeum* sp, both 5.V.1988-Kaş, 1 female, *Bougainvillea glabra* (flowers) 16.VI.1988-Turunçova, 1 female, *Hibiscus mutabilis,* 30.VI.1988-Kavak, 1 male, *Malus communis* (flowers); 2 females, *Anchusa* sp, 20.IV.1989-Çolaklı, 2 females, *Anthemis* sp, 27.IV.1989-Gençler, 1 females, *Pistacia* sp, 27.IV.1989-Gündoğmuş, 4 females, *Cercis siliquastrum,* 27.IV.1989.

Habitat: Flowers of Compositae.

Distribution: West Palaearctic. Marmara, Aegean, Mediterranean and Central Anatolia regions of Turkey.

Haplothrips flavicinctus (Karny)

Material examined: Kovanlık, 1 female, *Vitis vinifera,* 18.V.1989.

Habitat: Graminivorous.

Distribution: Mediterranean, Central Europe. Only from Ankara in Turkey.

Haplothrips gowdeyi (Franklin)

Material examined: Göynük, 1 female, *Calycotome villosa,* 9.I.1990-Kırcamisi, 1 female, *Mercurialis annua,* 25.I.1990.

Habitat: Graminivorous.

Distribution: Tropics and Subtropics. Known to occur in Turkey.

Haplothrips hispanicus Priesner

Material examined: Kepez, 1 female, *Citrus sinensis* (flowers), 5.V.1988-Campus, 4 males, 2 females, *Crepis* sp, 9.VI.1988.

Habitat: Flowers of Compositae.

Distribution: Mediteranean. Mediterranean region in Turkey.

Haplothrips niger Osborn

Material examined: Finike, 1 female, *Olea eurapaea,* 20.IV.1989-Kavak, 1 female, *Anthemis* sp, 20.IV.1989-Güneycik, 1 female, *Cotinus* sp, 27.IV.1989.

Habitat: Fabaceae.

Distribution: West Palaearctic. Marmara and Central Anatolia regions of Turkey.

Haplothrips reuteri (Karny)

Material examined: Korkuteli, 3 females, *Pyrus communis* (flowers); 1 female, *Prunus persica* (flowers), both 13.IV.1988-Yazır (Korkuteli), 1 female, *Prunus persica* (flowers), 13.IV.1988-Yenice, 3 females, *Anthemis* sp, 5.V.1988-Yazır (Korkuteli), 2 females, *Prunus avium* (flowers); 1 male, 5 females, *Cydonia vulgaris* (flowers); 2 females, *Malus communis* (flowers), all 5.V.1988-İmrahor, 5 females,*Malus communis* (flowers), 5.V.1988-Elmalı, female, *Cydonia vulgaris* (flowers); 2 females, *Juglans regia* (flowers), both 5.V.1988-Kuzuköy; 1 male, 4 females, *Malus communis* (flowers), 5.V.1988-Çobanisa, 4 females, *Malus communis* (flowers), 5.V.1988-Campus, 3 males, 2 females, *Anthemis* sp, 10.VI.1988-Düzlerçamı, 1 male, 3 females *Vitex agnus-castus,* 30.VI.1988-Turunçova, 1 female, *Hibiscus mutabilis,* 30.VI.1988-Altınyaka, 2 females, *Sesamum indicum,* 4.VIII.1988-Yenice, 1 female, *Laurus nobilis,* 13.IV.1989-Sögütçük, 2 males, 4 females, *Pyrus elaeagrifolia,* (flowers), 13.IV.1989-Yazır (Korkuteli), 1 male, *Prunus avium* (flowers); 1 male, 1 female, *Malus communis* (flowers); 2 male, 6 females, *Pyrus communis* (flowers), all 13.IV.1989-Korkuteli, 2 males, *Prunus persica* (flowers); 1 male, 2 females, *Malus communis* (flowers); 1 male, *Pyrus communis* (flowers); 2 females, *Prunus cerasus* (flowers); 1 female, *Ribes* sp; 3 males, 6 females, *Prunus avium* (flowers), all 13.IV.1989-Elmalı, 2 males, *Amygdalus communis* (leaves), 13.IV.1989-Akçay, 1 female, *Pyrus communis,* 13.V.1989-Elmalı, 1 female, *Malus communis,* 13.IV.1989-Gençler, 1 male, *Cistus* sp, 27.IV.1989-Gündoğmuş, 1 female, *Quercus* sp; 2 females, *Cercis siliquastrum,* both 27.IV.1989-Yazır (Korkuteli), 1 female, *Prunus cerasus* (lea-ves), 4.V.1989-Korkuteli, 2 females, *Prunus persica* (leaves), 4.V.1989-Kırkgözhan, 2

males, ***Salix*** sp, 18.V.1989-Gömbe, 1 female, ***Medicago sativa,*** 25.V.1989-Korkuteli, 1 female, ***Althea*** sp; 2 females, ***Prunus persica,*** both 16.VI.1989-Gölova, 1 male, 1 female, ***Vitis vinifera,*** 16.VI.1989-Geriş, 1 male, ***Helianthus annuus,*** 29.VI.1989-Ekşili, 1 female, ***Nerium oleander,*** 6.VII.1989-Oymapınar, 1 female, ***Helianthus annuus,*** 6.VII.1989-Mamatlar, 1 male, ***Solanum tuberosum;*** 1 male, ***Pyrus communis;*** 3 males, 5 females, ***Carthamus*** sp, 11.VII.1989-Bozova, 2 females, ***Helianthus annuus,*** 3.VIII.1989-Doyran, 1 male, ***Vitex agnus-castus, 10.VIII.1989***-Kuzköy, 1 female, ***Tagetes*** sp, 31.VIII.1989-Adrasan, 1 male, ***Menta*** sp, 14.IX.1989.

Habitat: Flowers of various plants particularly temperate fruit flowers.

Distribution: Turano-Mediterranean. Not recorded yet from eastern part but probably all over Turkey.

Remarks: In inland much more frequently, in the period of April-August, especially during flowering stage of fruit trees.

Haplothrips setiger Priesner

Material examined: Kayaburma, 4 males, 9 females, ***Tripleurosperma*** sp, 7.IV.1989.

Habitat: Flowers of Compositae.

Distribution: West Palaearctic. Only from Ankara in Turkey.

Haplothrips tritici Kurdjumov

Material examined: Yazır (Korkuteli), 13 females, ***Hordeum vulgare*** (ears), 5.V.1988-Elmalı, 2 males, 7 females, ***Triticum aestivum*** (pre-earing), 5.V.1988-Beyler, 1 female, ***Triticum aestivum*** (pre-earing), 5.V.1988-Kepez, 1 female, ***Olea europaea,*** (flowers), 5.V.1988-Korkuteli, 4 males, 22 females, ***Triticum aestivum,*** 16.VI.1988-Gölova, 1 female, ***Vitis vinifera,*** 16.VI.1988-Yenice, 2 males, 5 females, ***Triticum aestivum, 13.IV.1989-Korkuteli,*** 5 females, cereal; 1 female, ***Ribes*** sp; 1 female, ***Juglans regia*** (flowers); 1 female, ***Euphorbia*** sp, all 13.IV.1989-Eymir, 1 female, cereal, 13.IV.1989-Gündoğmuş, 5 males, 7 females, ***Triticum aestivum,*** 27.IV.1989-Yenice, 1 female, ***Hordeum vulgare,*** 4.V.1989-Söğütçük, 1 female, ***Pyrus elaeagrifolia*** (leaves); 8males, 9females, ***Triticum aestivum*** (ears), both 4.V.1989-Bayat, 2males, 2females, ***Pyrus communis*** (leaves); 2females, ***Cydonia vulgaris*** (leaves); 1female, ***Malus communis*** (leaves); 1male, 1female, ***Populus*** sp, all 4.V.1989-Yazır (Korkuteli), 1female, ***Prunus avium*** (leaves); 1female, ***Prunus armeniaca*** (leaves); 1female, ***Prunus cerasus*** (leaves); 1female, ***Prunus persica*** (leaves); 1male, 1female, ***Eleagnus*** sp; 1male, 2females, ***Salix*** sp (flowers); 2females, ***Juglans regia*** (flowers); all 4.V.1989-Korkuteli, 2females ***Prunus avium*** (leaves); 1female, ***Pyrus communis*** (leaves); 1female, ***Prunus persica*** (leaves); 2females ***Cydonia vulgaris*** (leaves), all 4.V.1989-Akyar, 1male, 2females, ***Prunus domestica*** (leaves), 4.V.1989-Bozova, 10females, cereal; 6males, 7females, ***Hordeum vulgare*** (ears); 2females, ***Eleagnus sp***; 1female, ***Amygdalus communis***, all 4.V.1989-Karaağaç, 1male, ***Triticum aestivum*** (ears), 11.V.1989-Tatköy, 1female, ***Malus communis*** (leaves), 25.V.1989-Çobanisa, 5males, 19females, ***Triticum aestivum*** (ears); 1female, ***Amygdalus communis*** (leaves), both 25.V.1989-Gömbe, 10females, ***Triticum aestivum*** (ears), 25.V.1989-Akçay, 3females, ***Hordeum vulgare*** (ears); 1male,

7females, ***Triticum aestivum***; 1female, ***Trifolium*** sp, all 25.V.1989-Eymir, 3males, 6females, ***Hordeum vulgare*** (ears), 25.V.1989-Gökpınar, 1female, ***Vitis vinifera***; 2males, 6females, ***Triticum aestivum*** (ears), both 25.V.1989-Yeşilköy, 1male, ***Thymus*** sp, 1.IV.1989-Öküzgözü, 2males, 10females ***Triticum aestivum*** (ears), 16.VI.1989-Karaköy, 8females, ***Triticum aestivum*** (ears), 16.VI.1989-Gölova, 4females, ***Triticum aestivum***, 16.VI.1989-Mamatlar, 3females, ***Triticum aestivum*** (ears), 11.VII.1989.

Habitat: Graminivorous. Pest of cereals.

Distribution: West Palaearctic. Presumably all over Turkey though not recorded yet from eastern part.

Karnyothrips flavipes Jones

Material examined: Taşağıl, 1female,cereal, 17.III.1989

Habitat: Predatory on mites, whiteflies, coccids, and psocids.

Distribution: Subtropics. It has been previously recorded from Turkey.

Neoheegeria dalmatica Schmutz

Material examined: Turunçova, 1male, ***Citrus*** sp (flowers), 6.IV.1988-Kuşlar, 1female, ***Pinus brutia***, 7.IV.1989-Güneycik, 4males, 5females, ***Phlomis armeniaca***, 27.IV.1989-Gündoğmuş, 2females, ***Ligustrum*** sp; 1female, ***Cercis siliquastrum***, 27.IV.1989-Düzlercamı, 1male, 1female, ***Verbascum*** sp, 16.VI.1989-Cevizli, 2females, ***Verbascum*** sp, 29.VI.1989-Geriş, 3females, ***Helianthus annuus***, 29.VI.1989.

Habitat: Labiatae; particularly, ***Phlomis, Stachys***,

Distribution: Turano-Mediterranean. Central Anatolia and Mediterranean regions.

Neoheegeria verbasci (Osborn)

Material examined: Korkuteli, 1female, ***Pyrus communis*** (flowers), 13.IV.1988-Düzlerçamı, 1male, 2females, ***Verbascum*** sp, 16.VI.1989-Cevizli, 7males, 3females, ***Verbascum*** sp, 29.VI.1989-Akseki, 1female, ***Picea*** sp, 29.VI.1989.

Habitat: ***Verbascum.***

Distribution: Europe, Marmara. Mediterranean and Central Anatolia regions in Turkey.

Abundance, Frequency and Diversity

According to the samples taken the most frequent, the most abundant and the most diversified spacies was ***Th. tabaci.*** It was found in 615 samples (48% of total) and represented with 2169 individuals (22% of total) on 130 different plant species (73% of total) (table 1). It was followed by ***Th. major*** which was present in 299 samples with 1676 individuals, on 88 plant species; ***F. intonsa*** in 175 samples with 760 individuals, on 71 plant species and ***Ta. meridionallis*** in 159 samples with 573 individuals, on 54 plant species.

Table 1. Thysanoptera species collected in Antalya, and their distribution, abundance, frequency and diversity

Thysanoptera	distribution i:inland c: coast	abundance[1]	frequency[2]	diversity[3]
Aelothripidae				
Aeolothrips collaris Priesner	ic	293	100	43
Aeolothrips ericae Bagnall	ic	16	12	10
Aeolothrips gloriosus Bagnall	i*c	87	51	30
Aeolothrips intermedius Bagnall	ic	228	94	49
Aeolothrips melaleucus Haliday	ic	13	6	5
Aeolothrips versicolor Uzel	ic	7	5	5
Ankothrips mavromoustakisi Priesner	s	1	1	1
Melanthrips fuscus Sulzer	i*c	193	61	35
Melanthrips pallidior Priesner	ic	23	14	13
Melanthrips trifasciatus Priesner	ic	15	4	4
Orothrips priesneri (Titschack)	i	3	2	2
Rhipidothrips brunneus Williams	i*c	49	11	4
Rhipidothrips flavus Tunç	ic	8	4	4
Rhipidothrips gratiosus Uzel	i*c	17	8	2
Thripidae				
Anaphothrips obscurus Müller	ic	22	13	5
Anaphothrips sudanensis Trybom	c	30	17	12
Aptinothrips rufus (Haliday)	ic	31	8	7
Aptinothrips rufus f.***styligera*** Priesner	c	1	1	1
Ceratothripoides nigriventris (Pelikan)	i	1	1	1
Ceratothrips anatolicus (Priesner)	ic	37	18	16
Ceratothrips croceicollis (Costa)	c	17	3	1
Ceratothrips discolor (Karny)	c	138	59	30
Ceratothrips ericae (Haliday)	c	5	2	2
Ceratothrips pallidivestis (Priesner)	ic	77	38	23
Chirothrips aculeatus Bagnall	c	3	3	3
Chirothrips kurdistanus zur Strassen	c	9	4	3
Chirothrips manicatus Haliday	ic	26	18	14

Table 1. (Continued)

Thysanoptera	distribution i:inland c: coast	abundance[1]	frequency[2]	diversity[3]
Chirothrips meridionalis Bagnall	c	25	6	6
Collembolothrips mediterraneus Priesner	i	27	3	1
Dendrothrips degeeri Uzel	i	2	2	2
Dendrothrips karnyi (Priesner)	ic	3	2	2
Dendrothrips phyllireae Bagnall	ic	91	35	18
Dendrothrips saltator Uzel	ic	14	14	11
Drepanothrips reuteri Uzel	ic	89	45	18
Euphysothrips minozzii Bagnall	ic	7	5	3
Frankliniella intonsa Trybom	ic	760	175	71
Frankliniella tenuicornis Uzel	ic	253	71	14
Isoneurothrips australis Bagnall	c	230	29	14
Kakothrips robustus (Uzel)	i	2	2	2
Limothrips angulicornis Jablonowski	i	1	1	1
Limothrips cerealium Haliday	i*c	118	38	14
Limothrips denticornis Haliday	i	3	2	1
Limothrips transcaucasicus Savenko	i	3	1	1
Microcephalothrips abdominalis (D.L.Crawford)	c	6	1	1
Neohydatothrips gracilicornis (Williams)	ic	25	16	13
Odontothrips confusus Priesner	i	3	2	2
Odontothrips karnyi Priesner	c	7	5	4
Odontothrips loti Haliday	i	2	1	1
Odontothrips meridionalis Priesner	c	72	7	5
Oxythrips ajugae Uzel	ic	229	59	32
Oxythrips priesneri Pelikan	c	2	1	1
Parascolothrips priesneri Mound	ic	74	12	7
Physothrips albidicornis (Knechtel)	ic	256	91	30
Physothrips salicis (O.M.Reuter)	ic	40	12	9
Rhopalandrothrips tschirkunae Jachontov	i	27	15	10
Rubiothrips vitalbae (Bagnall)	ic	9	5	4
Rubiothrips vitis (Priesner)	i	8	2	1
Scirtothrips canizoi Titshack	ic	32	7	4
Scirtothrips dignus zur-Strassen	c	3	1	1
Scirtothrips mangiferae Priesner	c	28	7	3
Scolothrips longicornis Priesner	ic	97	33	20
Sitothrips arabicus Priesner	ic	32	10	2
Stenothrips graminum Uzel	i	5	2	2
Taeniothrips annulatus Karny	i*c	248	52	31
Taeniothrips inconsequens (Uzel)	ic	209	52	21

Table 1. (Continued)

Thysanoptera	distribution i:inland c: coast	abundance[1]	frequency[2]	diversity[3]
Taeniothrips meridionalis Priesner	ic	573	159	54
Thermothrips mohelensis Pelikan	i	1	1	1
Thrips angusticeps Uzel	ic	251	67	46
Thrips armeniacus Pelikan	i	7	1	1
Thrips dubius Priesner	ic	12	2	1
Thrips major Uzel	ic	1676	299	88
Thrips mareoticus Priesner	c	3	1	1
Thrips minutissimus Linnaeus	ic	56	33	24
Thrips nigropilosus Uzel	ic	3	2	2
Thrips physapus Linnaeus	ic	2169	915	130
Thrips trehernei Priesner	ic	2	2	2
Phlaeothripidae				
Apterygothrips priesneri zur Strassen	c	2	1	1
Haplothrips aculeatus Fabricius	c	129	39	17
Haplothrips alexandrinus Priesner	c	4	2	2
Haplothrips andresi Priesner	ic	89	31	17
Haplothrips anthemidinus Priesner	c	19	3	2
Haplothrips bolacophilus Priesner	c	12	11	8
Haplothrips cerealis Priesner	i	5	1	1
Haplothrips distinguendus (Uzel)	ic	15	10	10
Haplothrips flavicinctus (Karny)	c	1	1	1
Haplothrips gowdeyi (Franklin)	c	2	2	2
Haplothrips hispanicus Priesner	c	7	2	2
Haplothrips niger Osborn	ic	3	3	3
Haplothrips reuteri (Karny)	ic	120	50	26
Haplothrips setiger Priesner	c	13	1	1
Haplothrips tritici Kurdjumov	ic*	245	52	21
Karnyothrips flavipes Jones	c	1	1	1
Neoheegeria dalmatica Schmutz	ic	21	8	7
Neoheegeria verbasci (Osborn)	ic	15	4	3
Total :95 species		9846 Individuals	1278 Samples	177 Plant species

* very rare

1 total number of individuals

2 total number of samples

3 total number of plant species

Tablo 2. Seasonal distribution of the most common Thysanoptera species in Antalya (+ coast; - inland)

	Months											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Aeolothrips collaris			+	±	±	±	±	±				
Aeolothrips gloriosus		+	+	+	+	+	+					
Aeolothrips intermedius		+	+	±	±	±	±	±	+			
Melanthrips fuscus	+	+	+	+								+
Rhipidothrips brunneus		+	+	+	+							
Anaphothrips obscurus	+	+	+	+	+							
Anaphothrips sudanensis	+						+	+	+	+	+	+
Ceratothrips discolor			+	+	+	+	+	+	+	+	+	
Ceratothrips pallidivestis			+	±	±	±	±	±	±	±	+	+
Drepanothrips reuteri					-	-	-	-	-			
Frankliniella intonsa		+	±	±	±	±	±	±	±	+	+	+
Frankliniella tenuicornis	+			±	±	±	±	±	+	+	+	+
Isoneurothrips australis	+	+	+	+	+						+	+
Limothrips cerealium		+	+	+	+	+						
Oxythrips ajugae		+	+	±	-							
Physothrips albidicornis			+	±	±	±	±	±	±	±	+	
Scolothirips longicornis						-	+	±	±	±	+	
Taeniothrips annulatus	+	+	+	+	+						+	+
Taeniothrips inconsequens		±	±	±	-							
Taeniothrips meridionalis	+	+	±	±	±	-	-				+	+
Thrips angusticeps	+	+	+	+	+	+				+	+	+
Thrips major	+	+	±	±	±	±	-	-	±	+	+	+
Thrips minutissimus		+	±	±	-	-						
Thrips tabaci	+	+	±	±	±	±	±	±	±	±	+	+
Haplothrips aculeatus			+	+	+	+	+	+	+	+	+	+
Haplothrips andresi		+	+	±	±	±	-	-	-			
Haplothrips reuteri				-	-	-	-	-				
Haplothrips tritici				-	-	-	-					

A second group consisted of those which were represented in 29-100 samples with 200-300 individuals and on 14-49 plant spesies; ***Ae. collaris, Ae.intermedius, Mel.fuscus, F.tenuicornis, I.australis, Ox.ajugae, Ph. albidicornis, Ta. annulatus, Ta.inconsequens, Th. angusticeps*** and ***H.tritici*** are such species. All of the members of this group, except ***I.australis, Ta annulatus*** and

H.tritici are encountered in both, in the coast and in the inland. A third group of species, each represented with 50-150 individuals, consisted of those of limited distribution in general that is they were present overwhelmingly either in the coast or in the inland. The last group of species with 1-40 individuals are considered as rare ones in Antalya.

Seasonal Distribution

In the coast ***Th.tabaci*** was present all year around (Table 2). It was followed by ***Ce. discolor, Ce. pallidivestis, F.intonsa, F. teunicornis, Ph. albidicornis, Th. angustisceps, Th. major*** and ***H. aculeatus*** in terms of wider seasonal distribution. These could be traced almost whole year except for 1-3 months.

A group of species persisted in autumn-spring or winter-spring period and disappeared in the summer in the coast. These were ***Mel. fuscus, I. australis, Ta. annulatus, Ta meridionalis, Th. angusticeps and Th. major.*** On the other hand there were species like ***Ce. discolor Ce. pallidivestis, F. intonsa, F.tenuicornis, Ph. albidicornis and H. aculeatus*** which disappeared for some winter months.

Ae. gloriosus, Rh. brunneus, An .obscurus, L. cerealium, Ox. ajugae, Ta. inconsequens, Th. minutissimus and H. andresi appeared only in spring. The species that existed through spring and summer were ***Ae. collaris*** and ***Ae. intermedius.***

In the inland where samples were taken between March and October ***Th. tabaci*** was present trough whole sampling period and was followed again by ***Ce. pallidivestis, F.intonsa, Ph. albidicornis*** and ***Th. major*** from the point of wider seasonal distribution. The other common species represented in conclusive numbers in the inland also showed the same seasonal distribution pattern as in the coast.

Relation of Biogeographical Distribution to the Distribution in Antalya

Biogeographical distribution patterns of the species found in Antalya may be summarized as follows: The number of Mediterranean species 25 (26%), Turano-Mediterranean 7, the other Mediterranean related 6, total 38 (40%).

Europe 8, West Palaearctic 12, Palaearctic 7, Euro -Siberian 8 the other Palaearctic related 5, total 40 (42%). Whit the addition of total Mediterranean and related species this figure rises to 72 (75%).

Tropical and Subtropical 5, Holarctic 7, Cosmopolitan 2, and Semi - Cosmopolitan 2 species were also involved.

The species found only or overwhelmingly in the coast were of Tropical, Subtropical and Mediterranean distribution (Table 1). ***Ae. gloriosus, An. sudanensis, Ce. croceicollis, Ch. kurdistanus, Ch. meridionalis, I. australis, Sci.***

mangiferae, Ta annulatus, H. bolacophilus are among such species. On the other hand some Mediterranean species like *Ce. anatolicus, Col. mediterraneus Sci. canizoi, H andresi* were found to spread beyond the coastal areas.

Some Palaearctic species like *Dr. reuteri, Rh. tschirkunae* and *H.tritici* were traced only or mainly in the inland while some of them like *Mel. pallidior, Mel. fuscus* and *H. aculeatus* were present only or mainly in the coast.

Holarctic, Cosmopolitan and Semi-Cosmopolitan species were found in both, in the coast and in the inland with the exception of *Rh. brunneus* and *L. cerealium* which were present mainly in the coast.

Özet

Antalya'nın Thysanoptera faunası üzerinde araştırmalar V. Phlaeothripidae Uzel ve genel değerlendirme

Phlaeothripidae'ye bağlı 18 türe ilişkin bilgiler ve daha önce yayınlananların dışında kalan genel değerlendirmeler bu son bölümde yeralmaktadır. *Apterygothrips priesneri* zur Strassen Türkiye için yeni bir türdür.

Antalya'da en yüksek sayıda (abundance), en sık (frequency) ve en fazla sayıda bitki türüne arız olan (diversity) tür *Thrips tabaci* Lindeman"dir (Tablo 1). Onu sırasıyla *Th. major* Uzel, *Frankliniella intonsa* Trybom ve *Taeniothrips meridionalis* Priesner izlemiştir.

Th.tabaci aynı zamanda Antalya sahil kesiminde yıl boyunca kesintisiz aktif olan bir türdür (Tablo 2). Onu sahilde yılın daha geniş periyodunda görülmek bakımından diğer bazı türler izlemektedir. Hem sahilde, hem de yaylada yaygın türler her iki kesimde de benzer mevsimsel dağılış paterni göstermişlerdir.

Antalya'da bulunan Thysanoptera türleri biyocoğrafik dağılış bakımından Akdeniz (%26) (bunlara Turan -Akdeniz, Hindistan-Akdeniz v.b. dağılış gösterinler de eklenince % 40) ve Palaearktik veya Palaearktik'in bir kısmına dağılmış olanlar (%42) en büyük grupları oluşturmaktadır. Yalnız sahil kesiminde rastlanan bazı türlerin tropik, subtropik ve Akdeniz orijinli olduğu dikkati çekmektedir.

Literature

Berzosa, J., 1983. Tisanoptderos de la Sierra de Guadarrama. IV. *Phlaeothripidae* Uzel, Graellsia, 29: 127-137.

Tunç, İ., 1989a, Thysanoptera in a coastal Mediterranean winter. Ak.Ü.Zir.Fak.Derg., 2 (1): 105-113.

Tunç, İ., 1989b. Thrips infesting temperate fruits. Ak.Ü.Zir.Fak.Derg., 2 (2): 133-139.

Tunç, İ., 1990a. A comparison of Thysanoptera compositon in two ecologically different areas. III. International Symposium on Thysanoptera. Poland, 11-16 June 1990, 77-82.

Tunç, İ., 1990b. Antalya'da bulunan avcı Thysanoptera türleri ve habitatları. Türkiye II. Biyolojik Mücadele Kongresi Bildirileri, Ankara, 26-29 Eylül 1990, Entomoloji Derneği Yayınları No. 4, 181-187.