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Gall midges (Diptera, Cecidomyiidae) of Greece

ABSTRACT

The present gall midge fauna comprises 167 species which were found at 67 localities in Greece during expeditions in 1994, 1995 and 1996. In the period 1880-1993 only 20 gall midge species were recorded from Greece; 149 are new records. An annotated list of gall midge species is given. It includes collection sites together with biological and zoogeographical data. The gall midge fauna is evaluated from the point of view of zoogeography and economic importance. From 2 to 21 species were found at individual localities. The average species number per locality determined from the whole territory of Greece (including Crete) is very low, only 9.3. 35 species were found in north-eastern, 78 in north-western and 80 in the middle part; 56 species in Peloponesos and 38 species in Crete. Horizontal occurrence: 52% species are very rare, 24% rare, 9% moderately frequent, 10% frequent and only 5% occur very frequently. *Dasineura turionum* causing galls on stems of *Asparagus acutifolius* is the most abundant species in Greece found at 30 localities. Vertical occurrence: the average number of species does not decrease significantly with increasing altitude. Gall midge species composition change significantly with changing plant communities from the coast near the sea level up to mountains following the altitudinal gradient. Of the Palaearctic species, 33% are European, 12% Euro-Siberian, 50% Mediterranean and sub-Mediterranean, and 5% are Holarctic species. Nine species occurred in the past as pests of cultivated plants of which *Odinadiplosis amygdali* is a serious pest of almond and peach up to the present. A list of host plant species attacked by gall midges is given. Distribution of several Mediterranen gall midge species is shown in maps.

Key words: faunistics, zoogeography, Mediterranean, Palearctic, European, Euro-Siberian, Holarctic, distribution, economic importance, pest.

INTRODUCTION

Up to 1993 only twenty gall midge species were known to occur in the large territory of Greece. Four of them were described on adults obtained from galls found at the type-localities in Greece, viz. *Apiomyia bergenstammi* (WACHTL, 1882), from woody galls on branches of *Pyrus communis*, at Corfu;

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Asphondylia phlomidis Trotter, 1901, from leaf bud galls on *Phlomis fruticosa* and *P. tuberosa*, at Volos; *Janetiella fortiana* Trotter, 1901, from stem galls on *Erysimum graecum*, at Corint; *Odinadiplosis amygdali* (ANAGNOSTOPOULOS, 1929), the serious pest of Almond and Peach, from woody galls on *Prunus dulcis* (*P. amygdalus*), at Athens.

Nearly nothing is known about the gall midge fauna of Greek islands. Only two gall midge species are known to occur at only one of isles, from Crete, viz. *Resseliella oleisuga* on olive (ARGYRIOU & MARAKIS, 1974) and *Asphondylia gennadii* on carob (ORPHANIDES, 1975).

In comparison with gall midge faunas of other countries situated in the Balcan Peninsula, the Greek fauna of this family seems to be very poor: 240 gall midge species were ascertained in Bulgaria (SKUHRAVÁ *et al*., 1991, and 287 species in the territory of the former Yugoslavia (SKUHRAVÁ & SKUHRAVY, 1964; SKUHRAVÁ *et al*., 1984).

The relatively low number of gall midge species known to occur in the territory of Greece led us to question what is the cause of this situation and resulted in our effort to see this country, to attempt to answer this question, to investigate the gall midge fauna and to try to improve the level of knowledge of gall midge fauna of this country.

For that reason we started our investigations in 1994 at 12 localities in the northern part of Peloponesos. In 1995 we continued at 19 localities in the middle part of Greece and in 1996 we finished our research by study of the gall midge fauna at 26 localities in the northern part of Greece and in 10 localities in Crete.

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HISTORY

About ten researchers contributed to the knowledge of gall midges in Greece. KARSCH (1880) as the first published report about the finding of a gall caused by larvae of an unknown gall midge species on *Smyrnium rotundifolium*. This first gall was found at Athos in the northern part of Greece in 1873. Subsequently this gall has been determined as a result of feeding activity of larvae of *Lasioptera carophila* (F. LÖW, 1874).

WACHTL (1882), TROTTER (1901) and, several years later, ANAGNOSTOPOULOS (1929) described new gall midge species based on specimens obtained from galls found in Greece.

Trotter, the excellent Italian entomologist, cecidologist and founder of the scientific journal "Marcellia" (which was devoted to the problems dealing with galls on plants), was the only worker to investigate systematically the occurrence of galls caused by various gall-makers in Greece. He collected galls of all gall-makers during his long scientific journey in 1900 across the Balcan Peninsula up to Asia Minor and found together about 180 galls of which 66 galls belonged to Cynipidae, 30 to various species of Homoptera, 24 galls to Eriophyidae and 60 to Cecidomyiidae. Eight of them were found in Greece, viz. *Asphondylia capparis*, *A. phlomidis*, *A. verbasci*, *Dasineura crataegi*, *D. oleae*, *Janetia cerris*, *Janetiella fortiana* and *Rhopalomyia baccarum* (TROTTER, 1901, 1903).

MÖHN (1968-1969) described the morphology of larvae of *Baldratia salicorniae*, *Lasioptera berlesiana* and *L. carophila* based on specimens found in Greece by various previous researchers.

Several authors reported damages produced by gall midges on cultivated plants in Greece. They are cited in the part devoted the economic importance of gall midges.

STUDY AREA

The territory of Greece includes 131,957 square kilometers and is spread on the most southern part of the Balcan Peninsula. It also involved more than 1400 islands. The surface of the continental part and also of the islands is very articulated. The large part, about 80% of the whole territory, is formed by mountain systems from which the most important are the Albanian-Greecian, the Thracian-Macedonian and the Aegean Mountain Systems, the last with the highest Grecian mount - Olympus, 2917 m a.s.l. Three relatively extensive lowlands are spread along the rivers, viz. the Macedonian Lowland in the north, the Thracian Lowland in the east and the Thessalian Lowland in the central part of Greece.

This country has a typical Mediterranean climate with moderately moist winters and hot dry summers, with average year temperature 14-16°C in the north, 16-18°C in the middle part and 18-20°C in the southern part and on islands. In July and August the maximum daily temperature may be about 30°C and the ground temperature in open places rises to about 70°C.

Precipitations are abundant in the western part and in the mountains - about 1000-1500 mm, in the eastern part and on islands only 350-500 mm annually. In the northern part of Greece most of the year's rainfall occurs during the summer, in the southern part it is concentrated in the winter season, from about October to April. The summer months are very dry, July and August are almost completely rainless.

From the biogeographical point of view, most of Greece belongs to the Province of Balcan Highlands and only a small part, including a narrow belt along the coast, the whole Peloponesos and all Grecian islands, belongs to the Mediterranean Sclerophyll Province (UDVARDY, 1975). The forest boundary is at about 2000 m a.s.l.

In Greece the following important plant communities may be distinguished: 1. rocky and sandy coastal communities, 2. shrub formations (maquis and garriques), 3. evergreen forest communities and 4. deciduous forest communities. Maquis and garriques mostly represent the stages in the process of degeneration during which the effects of air, fire and grazing transformed forests first into maquis and garriques, then into grassy pastures and finally into bare, stony ground.

The composition of vegetation change gradually in harmony with the changing climatic conditions, i.e. with the geographical latitude from south to north, and also with increasing altitude from the coast up to the mountains (RIKLI, 1943; NOIRFALISE, 1987).

MATERIAL AND METHODS

The occurrence and distribution of gall midge species have been assessed by means of a uniform method, by collecting galls on host plant species at each locality and by slowly walking through various biotopes in the course of several hours, searching and collecting galls on various plants, or plants inhabited by mites, aphids or coccids, or rusts and fungi in which gall midge larvae may develop. All findings at each locality were recorded, including the occurrence of the most common species. Also the non-occurrence of gall midge species, that is the absence of galls on host plants occurring in the locality under study, was registered. Results of such method are useful and comparable with results obtained in other European countries.

One part of each collection of plants with galls was placed between filter papers to make a herbarium collection (for determination of host plants by botanists), an other part of plants with galls which contained larvae or pupae was put into small glasses with 75% ethanol for determination and subsequent morphological studies and one part of plants with galls was placed into

small emergence cages to obtain adults. Larvae, pupae and adults were mounted on microscope slides using the conventional method of preparation including processing them from 75% ethanol into 95% ethanol, xylene to Canada-balsam.

Determination of galls is based on HOUARD (1908-1909), of larvae on MÖHN (1955), of adults on Rübsaamen-Hedicke (1925-1939), nomenclature of gall midge species is based on SKUHRAVÁ (1986, 1989).

Nomenclature of host plant species is according to TUTIN *et al.* (1964-1980).

Data gathered by these investigations were analysed from the zoogeographical point of view using methods described by SKUHRAVÁ (1987, 1994 a,b).

LOCALITIES EXAMINED

Localities examined are arranged into five groups according to geographical position, viz. in north-western and north-eastern parts of Greece, in the middle part, in Peloponesos and in Crete. The following data are given for each locality: the name of the locality, its altitude, the short ecological characteristic together with main plant community and important plant species, and date of our investigation (fig. 1).

NORTH-EASTERN PART

Drama, 114-250 m a.s.l.: pine forest on a hill-side, upper part with rocks and with poor shrubs; *Quercus coccifera*; 1.5.1996.

Gazaros, 260 m a.s.l.: border of fields, gardens and orchards; ravines in rocks with various shrubs; 30.4.1996.

Nikoforos, 300 m a.s.l.: pastures and hill-side with shrubs; *Prunus*, *Fraxinus ornus*, *Rubus*; 2.5.1996.

Paleokomi, 150 m a.s.l.: stony ground, infrequent shrubs on banks along the river Strimonas; 28.4.1996.

Paranesti, 450 m a.s.l.: deciduous forest with *Quercus pubescens* and *Carpinus betulus*; 2.5.1996. Riziana, 120 m a.s.l.: deciduous forest with *Quercus pubescens*, *Crataegus* and *Pyrus salicifolia*; 29.4.1996.

Serres, 160 m a.s.l.: pine forest on a hill-side, with *Pyrus communis*; 27.4.1996.

Stavroupoli, 400 m a.s.l.: deciduous trees on a hill-sides in the valley of the river Nestos; 3.5.1996.

Strimoniko, 280 m a.s.l.: shrubs growing in ravives of rocks; *Prunus spinosa*, *Crataegus*, *Ulmus*, *Juniperus oxycedrus*, *Paliurus spina-christi*; 29.4.1996.

Fig. 1. The territory of Greece with 67 localities (black circles) where the investigations of gall midge fauna were carried out in 1994, 1995 and 1996.

NORTH-WESTERN PART

Agios Pandeleimonas near Amindeo, 700 m a.s.l.: stony ground around a reservoir (a lake) Limni Vegoritida; sporadically *Artemisia*; 6.5.1996.
Agras near Edessa, 620 m a.s.l.: deciduous trees on a hill-side; *Quercus pubescens*, *Q. ilex*, *Q. cerris*, *Carpinus betulus*, *Juniperus oxycedrus*, *Paliurus spina-christi*; 6.5.1996.
Alona near Florina, 700 m a.s.l.: deciduous forest on hill-sides; *Quercus pubescens*, *Q. macedonica*, *Acer campestre*, *A. tataricum*; 12.5.1996.
Apsalos near Aridea, 506 m a.s.l.: deciduous forest; *Quercus pubescens*, *Carpinus betulus*, *Paliurus spina-christi*; 5.5.1996.

Emborio near Ptolemaida, 500 m a.s.l.: deciduous forest, *Castanea sativa*, *Juglans regia*, *Juniperus oxycedrus*; 10.5.1996.
Flamouria near Edessa, 460 m a.s.l.: deciduous forest (*Quercus pubescens*, *Q. frainetto*) and sclerophyllous shrubs (*Buxus sempervirens*, *Phillyrea media*); 9.5.1996.
Florina, 660-750 m a.s.l.: deciduous forest; *Quercus pubescens*, *Acer tataricum*, *Prunus*, *Rosa*, *Rubus*; 13.5.1996.
Kali Panagia near Veria, 680 m a.s.l.: sclerophyllous and deciduous trees; *Quercus coccifera*, *Carpinus betulus*, *Juniperus oxycedrus*; 7.5.1996.
Kastania nar Veria, 900 m a.s.l.: deciduous forest; *Fagus sylvatica*, *Quercus pubescens*, *Castanea sativa*; 7.5.1996.
Kozani, 200 m a.s.l.: trees in town gardens; 14.5.1996.
Laka near Mandalo, 450 m a.s.l.: sclerophyllous plant communities; *Quercus coccifera*, *Phillyrea media*, *Crataegus*, *Pyrus salicifolia*; 8.5.1996.
Mirsina, 400 m a.s.l.: deciduous forest; *Quercus pubescens*, *Q. macedonica*, *Carpinus betulus*, *Acer campestre*; 11.5.1996.
Prespa-Lake, 850 m a.s.l.: deciduous forest; *Fagus sylvatica*, *Quercus pubescens*; 13.5.1996.
Rizario near Skydra, 300 m a.s.l.: deciduous forest on a hill-side; *Quercus pubescens*, *Carpinus betulus*, *Cercis siliquastrum*, *Fraxinus ornus*, *Cornus mas*, *Juniperus oxycedrus*; 4.5.1996.
Servia, 380 m a.s.l.: calcareous rocks sporadically with *Quercus coccifera*; deciduous trees in a valley; 15.5.1996.
Skydra, 200 m a.s.l.: trees and vegetation in gardens; 4.5.1996.
Vathilakos, 280 m a.s.l.: xerotherm vegetation on a hill-side and on a border of pastures; 14.5.1996.

Middle part

Agios Georgios near Karpenisi, 900 m a.s.l., deciduous forest along the river-side and on the hill-side; *Platanus orientalis*, *Juniperus oxycedrus*, *Alnus*, *Cercis*, *Ficus*; 29.4.1995.
Agios Nikolaos near Karpenisi, 700 m a.s.l., deciduous forest in the frost hollow and on hill-sides; *Quercus pubescens*, *Platanus orientalis*, *Juniperus oxycedrus*; 30.4.1995.
Agios Nikolaos near Frangista, 700 m a.s.l., sclerophyllous shrubs on hill-sides over the water-reservoir on the river Aheloos, about 60 km from the town Agrinio; macquis with *Quercus coccifera*, *Pistacia*, *Calicotome*, *Coronilla* and *Erica arborea*; 2.5.1995.

Amfissa - Agios Georgios, 250 m a.s.l., sclerophyllous shrub formations; olive groves; 21.4.1995.

Arachova, 950 m a.s.l., calcareous rocky mountains, sporadically with deciduous shrubs; 19.4.1995.

Chrisso, 340 m a.s.l., calcareous rocks with garriques; olive groves; 16.4.1996.

Delfi, 560 m a.s.l., calcareous rocks with garriques and maquis; *Quercus coccifera*, *Ficus carica*, *Cercis siliquastrum*; 15.4.1995.

Domokos, 300 m a.s.l., upland on a fertile ground, with poor vegetation on rocky hills; 26.4.1995

Galaxidi, 0-100 m a.s.l., rocky and sandy coastal communities; forest with *Pinus halepensis* and *Cupressus*-trees; 18.5.1995

Itea, 50-70 m a.s.l., small hill covered with macquis and garrigues; *Quercus coccifera*, *Calicotome*; 22.4.1995

Kalesmeno, 600-1000 m a.s.l., lower part of hill-side covered with deciduous forest (*Carpinus betulus*, *Acer monspessulanum*, *Prunus*, *Quercus pubescens*, *Ulmus*); upper part of hill-side with sclerophyllous shrubs (*Quercus coccifera*, *Juniperus oxycedrus*, *Phillyrea media*); 1.5.1995.

Karpenisi, 960-1100 m a.s.l., forest stands on rocky hill-sides of the mountains Tymphristos; hill-sides exposed to the south with poor vegetation, mainly with *Spartium junceum* and *Phlomis fruticosa*; hill-sides exposed to the north covered with coniferous forests; 28.4.1995.

Kirra near Itea, 0-50 m a.s.l., rocky and sandy coastal communities; macquis and garriques; 20.4.1995.

Lamia, 100-150 m a.s.l., pine forest on a small hill near the town; *Pinus halepensis*, *Cupressus orientalis*, many shrubs of *Spartium junceum*; 23.4.1995.

Meteora, 613 m a.s.l., complex of rocky towers and rocky walls formed by the tertiary conglomerates with scanty vegetation; in the lower part with deciduous trees and shrubs; 25.4.1995.

Perachora, 250-350 m a.s.l., stands on bare rocks; *Quercus coccifera*; 22.5.1994.

Raches, 0-20 m a.s.l., rocky and sandy coastal communities with very poor vegetation; 27.4.1995.

Sernikaki, 150 m a.s.l., calcareous rocks with poor vegetation; *Cupressus*, *Calicotome*, *Quercus coccifera*; olive groves; 17.4.1995.

Thermopyly, 20-50 m a.s.l., sclerophyllous communities on hill-sides not far from the monument of the battle in 480 A.C.; calcareous rocks with *Quercus coccifera*, *Phillyrea media*, *Calicotome*; 24.4.1995.

Vitoli, 400 m a.s.l., sclerophyllous and deciduous shrubs and trees on the hill-side with *Quercus coccifera*, *Pistacia*, *Ulmus*, *Pyrus salicifolia* and *Carpinus betulus*; 3.5.1995.

PELOPONESOS

Akrokorint, 100-250 m a.s.l., rocky communities sporadically with shrubs; olive and citrus groves; 17.5.1994.
Achlamydokampos, 700 m a.s.l., sclerophyllous communities; *Quercus coccifera*, *Calicotome*, *Acer monspessulanum*; olive groves and fields; 21.5.1994.
Athikia, 50 m a.s.l., calcareous rocks with maquis; *Calicotome*, *Erica arborea*; olive groves; 18.5.1994.
Chiliomodion, 50 m a.s.l., stands along the path between the fields; 19.5.1994.
Kalavruta, 750 m a.s.l., deciduous forest; 23.5.1994.
Lykoporia, 50 m a.s.l., xerotherm plant composition; 25.5.1994.
Miloi (Myloi) near Argos, 0-50 m a.s.l., dry bare hill and orange groves; 21.5.1994.
Nemea, 550 m a.s.l., maquis on the hill; 24.5.1994.
Solomos, 200 m a.s.l., small hill not far from Akrokorint; 24.5.1994.
Sophikon, 20-50 m a.s.l., a small hill about 30 km from Korint; very dry forest; 26.5.1994.
Xylokastron, 150 m a.s.l., the stands along the river in mountains; 20.5.1994.

CRETE

Amnissos, 0-50 m a.s.l.: sandy coastal vegetation; *Salicornia*, *Atriplex halimus*; 26.4.1996.
Armeni near Rethimnion, 150 m a.s.l.: sclerophyllous communities on hilly country; *Quercus coccifera*, *Calicotome*, *Genista*, *Phlomis*; *Quercus macrocarpa*; 23.4.1996.
Avdou, 550 m a.s.l.: sparse sclerophyllous vegetation on hill-sides of mountains, in the lower part vineyars; *Quercus coccifera*, *Calicotome*; 24.4.1996.
Bali, 0-100 m a.s.l.: rocky and sandy coastal communities along a seaside and along a path into hills; *Quercus coccifera*, *Calicotome*, *Pterospartium*, *Pistacia*, *Phlomis*; 20.4.1996.
Heracleion, 0-20 m a.s.l.: shrub stands mainly with *Atriplex halimus* on the walls of fortification of the town; 20.4.1996.
Kera, 700-800 m a.s.l.: pine forest on northern hill-side of the high moun-

tains; *Pinus halepensis*, *Ficus*, *Pistacia*, *Fraxinus ornus*, *Erica*; 19.4.1996.
Knossos, 50 m a.s.l.: sporadic shrubs on calcareous rocks, border of pastures and olive groves; sclerophyllous community; *Quercus coccifera*, *Calicotome*; *Genista*; 22.4.1996.
Krouson, 400 m a.s.l.: rocks, stony ground, sporadic shrubs and plants, olive groves; *Pyrus*, *Genista*; 22.4.1996.
Psychro on Lassithi Plateau, 800 m a.s.l.: upland plateau in the middle of high mountains with meadows and fertile fields; on hill-sides sclerophyllous communities; *Quercus coccifera*, *Calicotome*; 25.4.1996.
Zaros, 370 m a.s.l.: hill-sides of mountains with burned trees and shrubs (after a large fire); olive groves and vineyards; *Quercus coccifera*, *Calicotome*, *Salvia*, *Phlomis*; 21.4.1996.

RESULTS

During our three expeditions in 1994, 1995 and 1996 we found at 67 localities, spread throughout Greece and in the island Crete and situated at various altitudes, a total of 167 species of which 149 are new for the gall midge fauna of Greece.
At individual localities we found from 2 up to 21 gall midge species. The richest gall midge species composition, 21 species, was at Apsalos near Aridea, 506 m a.s.l., in the north-western part of Greece, in deciduous forest community. In general, the number of gall midge species found at one locality changes with changing plant communities from sea level to mountains: in rocky and sandy plant communities there is not possible to find any, in shrub formations, maquis and garriques, only two to four gall midge species, in evergreen communities about five species and the richest gall midge fauna occurs in deciduous forest communities with various trees, shrubs and herbaceous plants which may be host plants of gall midge species.
The average number of species per locality determined from all records from Greece (including Crete) is 9.3. It is the lowest average number per country found in Europe where such evaluation of faunal investigations has been made. For example, in Bulgaria, it was 14 (Skuhravá *et al.*, 1991) and in Switzerland 16.7 (Skuhravá & Skuhravy, 1997). The very low average number of gall midge species is doubtless connected with the geographical position of Greece situated in the most southern part of Europe with dry hot summers, with relatively poor species composition of plant communities which may be host plants for gall midges and with processes of exploitation and agricultural activities such as clearing, stubble burning, grazing, which result in degrada-

tion of plant communities and in deforestation of landscape throughout Greece.

The following three aspects are very important for the zoogeographical evaluation of a particular region as a part of a larger territory: (1) the number of species found at several localities inside a smaller area; (2) the average number of species of such an area; (3) the locality and its altitude where the richest gall midge species composition, that is the highest number of species, has been found. We report the summarization of results in five parts of Greece where we carried out our investigations.

In the north-eastern part of Greece where 9 localities situated at altitudes between 100-450 m a.s.l. were examined, 35 gall midge species were found and the average species number per locality was 8.2. Paranesti, 450 m a.s.l., with deciduous forest communities, was the locality with the highest number of species (16).

In the north-western part of Greece where 17 localities situated at altitudes from 200 to 900 m a.s.l. were studied, 78 gall midge species were recorded and the average species number per locality was 9.5. Apsalos, 506 m a.s.l. with 21 gall midge species was the richest locality not only in the north-western part but in the whole of Greece.

In the middle part of Greece where 20 localities, situated from altitudes of several meters above sea level along the coast up to 1000 m a.s.l. in hill-sides of high mountains, were examined, 80 gall midge species were found and the average species number per locality was 10.8. Kalesmeno, 900 m a.s.l. with deciduous forest communities was the richest locality where 18 gall midge species were found.

In the northern part of Peloponesos where investigations were carried out at 11 localities situated at altitudes from several meters at the seaside up to 800 m a.s.l. in mountains, 56 gall midge species were recorded and the average species number per locality was 8.9. The highest situated locality, Kalavruta, 800 m a.s.l. with deciduous forest communities was also the richest locality where 15 gall midge species were found.

In Crete we studied the gall midge fauna at 10 localities situated from the seaside up to 800 m a.s.l. in the mountains. We found here 38 gall midge species. The average species number per locality was 9.2. Knososs, 50 m a.s.l., with mainly sclerophyllous plant communities, was the locality with the richest gall midge fauna including 13 species.

ANNOTATED LIST OF SPECIES

For each species the following data are given: the biology and the host plant or animal species, data of occurrence according to earlier researchers, all localities where the species was found during our investigations 1994-1996, arranged according to five parts of investigated territory, character of distribution in the Palaearctic region, the frequency in the territory of Greece expressed by verbal denomination and altitudinal range which each species occupies in Greece. An asterisk (*) before the species name indicates a new record for the fauna of Greece.

Aphidoletes aphidimyza (Rondani, 1847)

Larvae feed predaciously on various species of Aphidae; used for biological control.
NW Greece: Vathilakos (aphids on *Calendula officinalis* L.).
Crete: Bali (aphids on *Atriplex*).
Distribution: Holarctic, cosmopolitan. In Greece scarce.
Altitudinal range: 100-280 m a.s.l.

Apiomyia bergenstammi (Wachtl, 1882)

Larvae cause woody, plurilocular galls on twigs of *Pyrus communis* L. and P. *salicifolia* Lois. WACHTL (1882) described all stages of this species obtained from galls collected by Bergenstamm at Corfu. ISAAKIDES (1936a) found galls at Xylokastron Peloponesos.
NE Greece: Serres.
NW Greece: Apsalos.
Middle Greece: Agios Georgios near Karpenisi, Agios Nikolaos near Frangista, Domokos, Karpenisi, Raches, Vitoli.
Peloponesos: Chiliomodion, Nemea.
Crete: Bali, Kera, Knosos, Krouzon.
Distribution: sub-Mediterranean. In Greece frequent. Altitudinal range: 500-1000 m a.s.l.

Arceuthomyia valerii (Tavares, 1904)

Larvae cause large galls, up to 12 mm long, on branches of *Juniperus oxycedrus* L.
NE Greece: Paleokomi, Riziana, Stavroupoli, Strimoniko.

NW Greece: Agios Pandeleomonas, Agras, Apsalos, Emborio near Ptolemaida, Kali Panagia near Veria, Rizario.
Middle Greece: Agios Georgios near Karpenisi, Agios Nikolaos near Frangista.
Peloponesos: Kalavruta.
Distribution: Mediterranean, in Greece frequent. Altitudinal range: 120-800 m a.s.l.

Arthrocnodax sp.

Very slender predacious gall midge larvae attack small eriophyid mites *Eriophyes schmardai* (Nalepa) causing terminal leaf and flower bud galls on stems of *Campanula* sp.
Peloponesos: Kalavruta, 800 m a.s.l.
Distribution: Mediterranean. Single record for Greece.

Arthrocnodax sp.

Larvae feed predaciously on mites of *Eriophyes barroisi* Fockeau in galls on *Plantago albicans* L.
Peloponesos: Lycoporia, Perachora, Solomos.
Distribution: Mediterranean, in Greece scarce. Altitudinal range: 50-250 m a.s.l.

Aschistonyx carpinicolus Rübsaamen, 1917

Larvae live in irregularly curled and folded young leaves of *Carpinus betulus* L.
Middle Greece: Kalesmeno.
Distribution: European. Single record for Greece at an altitude of 900 m a.s.l.

Asphondylia calycotomae Kieffer in Houard, 1912

A solitary larva develops in swollen leaf bud (hibernating generation) or in swollen fruit (summer generation) of *Calicotome villosa* (Poiret) Link.
Middle Greece: Raches, Sernikaki, Thermopyly.
Peloponesos: Achlamydokampos, Athikia, Lykoporia, Nemea, Solomos, Xylokastron.
Crete: Armeni, Avdou, Bali, Kera, Knosos.
Distribution: Mediterranean, in Greece frequent. Altitudinal range: 20-800 m a.s.l. see fig.6.

Asphondylia capparis Rübsaamen, 1893

Larvae cause bud galls on *Capparis spinosa* L. Original material probably from Italy.
Middle Greece: Volos, Larissa (TROTTER, 1903).
Distribution: Mediterranean, in Greece scarce.

****Asphondylia conglomerata*** Stefani, 1900

Larvae cause large galls, up to several centimeters long, on stems of *Atriplex halimus* L. Each gall includes several chambers, in each chamber only one larva.
Peloponesos: Lykoporia.
Crete: Amnissos, Heracleion.
Distribution: Mediterranean, in Greece scarce. Altitudinal range: 20-50 m a.s.l.

****Asphondylia coronillae*** (Vallot, 1829)

Larvae develop in leaf buds and in pods of *Coronilla emerus* L. and *C. scorpioides* (L.) (or *C. juncea* L.).
NE Greece: Gazaros, Stavroupoli.
NW Greece: Agios Pandeleimonas, Apsalos.
Middle Greece: Arachova, Perachora.
Distribution: Mediterranean, in Greece medium frequent.
Altitudinal range: 260-950 m a.s.l.

****Asphondylia cytisi*** Frauenfeld, 1873

Larvae develop in leaf buds of *Cytisus* sp.
NE Greece: Paranesti.
NW Greece: Apsalos.
Distribution: Euro-Siberian, in Greece scarce. Altitudinal range: 450-506 m a.s.l.

****Asphondylia dorycnii*** (Müller, 1870)

Larvae cause small pointed galls on stems of *Dorycnium* sp. Crete: Zaros.
Distribution: Mediterranean. Single record for Greece at an altitude of 370 m a.s.l.

Asphondylia sp. (near ***genistae*** Loew, 1850)

A single larva induces a gall in thorns or leaf buds of *Genista* sp.
Crete: Amnissos, Armeni, Knosos, Krouzon.
Distribution: Mediterranean. In Greece medium frequent. Altitudinal range: 50-400 m a.s.l.

Asphondylia gennadii (Marchal, 1904)

Larvae produce galls on pods of *Ceratonia siliqua* L. BARNES (1949); ORPHALIDES (1975), HARRIS (1975).
Crete: Avdou.
Distribution: Mediterranean. ISAAKIDES (1936b) and ORPHALIDES (1975) reported this species as a pest in Crete. In 1996 we found damaged pods only at one locality in Crete.

****Asphondylia massalongoi*** Rübsaamen, 1893

A solitary larva develops inside a swollen flower bud of *Ajuga chamaepytis* Schreb.
NW Greece: Vathilakos.
Distribution: Mediterranean. Single record for Greece at an altitude of 280 m a.s.l.

****Asphondylia ononidis*** F. Löw, 1873

A solitary larva changes the leaf bud of *Ononis natrix* L. into a gall.
Peloponesos: Akrokorint.
Distribution: sub-Mediterranean. Single record for Greece at an altitude of 500 m a.s.l.

Asphondylia phlomidis Trotter, 1901

Larvae cause large leaf bud galls on *Phlomis fruticosa* L. and *P. cretica* C. Presl. This species has been described based on material obtained from Volos. TROTTER (1903) recorded galls of this species from Volos, Akrokorint and Korfu, HOUARD (1918) from Pylos and Palneo.
Middle Greece: Amfissa - Agios Georgios.
Crete: Bali, Krouzon.
Distribution: Mediterranean. In Greece scarce. Altitudinal range: 100-400 m a.s.l. See fig. 2a.

Asphondylia pterosparti Tavares, 1902

Larvae develop inside flower buds of *Spartium junceum* L.
Middle Greece: Amfissa - Agios Georgois, Lamia, Thermopyli.
Peloponesos: Lykoporia.
Distribution: Mediterranean. In Greece medium frequent. Altitudinal range: 20-250 m a.s.l.

Asphondylia punica Marchal, 1897

Small rosette galls including stunted leaves on stem of *Atriplex halimus* L.
Crete: Herakleion.
Distribution: Mediterranean. Single record for Greece at an altitude of 20 m a.s.l.

Asphondylia sp. (near ***ruebsaameni*** Kertész, 1898)

Solitary larva develops inside swollen fruits of *Ferula communis* L.
Middle Greece: Chrisso, Kirra, Sernikaki.
Distribution: Mediterranean. In Greece scarce. Altitudinal range: 50-340 m a.s.l.

Asphondylia sarothamni Loew, 1850

A solitary larva develops inside swollen leaf bud of *Sarothamnus* sp.
NE Greece: Paranesti.
Distribution: Euro-Siberian. Single record for Greece at an altitude of 450 m a.s.l.

Asphondylia scrophulariae Schiner, 1856

A solitary larva develops inside swollen flower bud of *Scrophularia canina* L.
NW Greece: Apsalos.
Middle Greece: Amfissa - Agios Georgios, Karpenisi.
Peloponesos: Achlamydokampos, Chiliomodion, Kalavruta, Nemea, Solomos.
Distribution: sub-Mediterranean. In Greece frequent. Altitudinal range: 250-1000 m a.s.l. See fig. 2b.

Asphondylia sp. (near ***serpylli*** Kieffer, 1898)

Last year's galls on *Thymus* sp. (*Corydothymus*?). Leaf clustered on the tip of the stem, forming gall 8-10 mm long. Inside swollen flower buds with ope-

nings after the emergence of adult.
Middle Greece: Galaxidi.
Distribution: Mediterranean. Single record for Greece at an altitude of 50 m a.s.l.

Asphondylia verbasci (Vallot, 1827)

A single larva produces a flower bud gall on various species of *Verbascum sinuatum* L. TROTTER (1903) found galls of this species at Gasturi on Korfu.
NE Greece: Drama, Gazaros, Nikoforos, Paleokomi, Riziana, Serres, Stavroupoli.
NW Greece: Agios Pandeleimonas, Alona, Apsalos, Florina, Kali Panagia, Laka, Prespa Lake, Servia, Vathilakos.
Middle Greece: Arachova, Galaxidi, Karpenisi, Kirra, Raches.
Peloponesos: Chiliomodion, Nemea, Sophikon.
Crete: Armeni, Krouzon, Psychro on Lassithi Plateau, Zaros.
Distribution: Sub-Mediterranean, Mediterranean (SKUHRAVÁ, 1987).
In Greece abundant. Altitudinal range: 50-1000 m a.s.l. - Adults emerged 21-24.5.1996 from last year's galls which remained on stems during winter. See fig. 2 c.

****Asphondylia*** sp.

Swollen flower buds of *Nonea* sp.
Peloponesos: Chiliomodion.
Distribution: Mediterranean. Single record for Greece at an altitude of 50 m a.s.l.

****Asphondylia*** sp.

Flat leaf galls on leaves of *Phillyrea media* L. the lower side of which is black-purple coloured.
NW Greece: Flamouria.
Distribution: Mediterranean. Single record for Greece at an altitude of 460 m a.s.l.

Baldratia salicorniae Kieffer, 1897

Larvae produce galls on stems of *Arthrocnemum* (*Salicornia*) *fruticosa* (L.) and other species and genera of Chenopodiaceae. Attacked internodes are swollen. MÖHN (1969) mentioned galls at S. Topali, collected in November 1936.
Middle Grece: Kirra.

Distribution: Mediterranean (distribution area see SKUHRAVÁ, 1987). In Greece it occurs scarcely.

Bayeriola thymicola (Kieffer, 1888)

Larvae produce rosette leaf galls on *Thymus* sp. Leaves forming the gall are densely covered with white hairs.
NE Greece: Gazaros, Paleokomi, Paranesti, Stavroupoli.
NW Greece: Agras, Alona, Apsalos, Emborio, Ptolemaida, Flamouria, Florina, Kali Panagia, Kastania, Mirsina, Rizario, Servia.
Middle Greece: Agios Georgios near Karpenisi, Agios Nikolaos near Frangista, Domokos.
Peloponesos: Nemea.
Distribution: European, with large area spread up to Africa. In Greece frequent.
Altitudinal range: 150-900 m a.s.l.

Blastodiplosis artemisiae (Kieffer, 1901)

Larvae cause small flower bud galls in inflorescences of *Artemisia vulgaris* L.
NE Greece: Serres.
Distribution: European, with tendency to south. Single record for Greece at an altitude of 160 m a.s.l.

Braueriella phillyreae (F. Löw, 1877)

Larvae cause pustule galls on leaves of *Phillyrea media* L.
NW Greece: Agios Pandaleimonas, Apsalos, Flamouria, Laka, Rizario.
Middle Greece: Agios Georgios near Karpenisi, Agios Nikolaos near Frangista, Kalesmeno, Meteora, Raches, Thermopyli.
Distribution: Mediterranean. In Greece frequent. Altitudinal range: 50-900 m a.s.l. See fig. 2d.

Bubriella rubicola Stelter, 1960

Larvae cause pustule galls on leaves of *Rubus* sp.
Middle Greece: Agios Georgios near Karpenisi.
Distribution: European. Single record for Greece at an altitude of 700 m a.s.l.

Contarinia acerplicans (Kieffer, 1889)

Larvae cause leaf fold galls on *Acer monspessulanum* L. The leaf fold gall

is arched upwards and has an opening on the lower side of the leaf.
Middle Greece: Kalesmeno.
Peloponesos: Kalavruta.
Distribution: European. In Greece scarce. Altitudinal range: 800-900 m a.s.l.

Contarinia anthobia (F. Löw, 1877)

Larvae develop in unopened swollen flower buds of *Crataegus oxyacantha* L.
NW Greece: Servia.
Distribution: European. Single record for Greece at an altitude of 380 m a.s.l.

Contarinia ballotae Kieffer, 1898

Yellow larvae live among leaves of the vegetative tip of *Ballota nigra* L.
Peloponesos: Miloi.
Distribution: Mediterranean. Single record for Greece at an altitude of 50 m a.s.l.

Contarinia carpini Kieffer, 1897

Larvae cause leaf fold galls on *Carpinus betulus* L. The part between two lateral veins is arched upwards and has an opening on the lower side.
NW Greece: Kali Panagia.
Middle Greece: Kalesmeno.
Peloponesos: Kalavruta (*Ostrya carpinifolia* Scop.).
Distribution: European. In Greece scarce. Altitudinal range: 680-900 m a.s.l.

Contarinia coccifera (Tavares, 1902)

Larvae develop in cone-shaped leaf bud galls of *Quercus coccifera* L.
NE Greece: Drama, Stavroupoli.
NW Greece: Agras, Laka.
Middle Greece: Amfissa - Agios Georgios, Delfi, Kalesmeno, Perachora, Raches, Sernikaki, Thermopyli, Vitoli.
Peloponesos: Achlamydokampos, Athikia, Chiliomodion, Kalavruta, Nemea, Xylokastron.
Crete: Psychro on Lassithi-Plateau.
Distribution: Mediterranean. In Greece abundant. Altitudinal range: 20-900 m a.s.l. See fig. 3a.

Contarinia craccae Kieffer, 1897

Larvae develop in swollen unopened flower buds of *Vicia cracca* L.
Peloponesos: Athikia.
Distribution: Euro-Siberian. Single record for Greece at an altitude of 50 m a.s.l.

Contarinia sp. (near ***craccae*** Kieffer, 1897)

Flower bud gall on *Vicia lutea* L.
Crete: Knosos. Single record for Greece in an altitude of 50 m a.s.l.

Contarinia dactylidis (H. Loew, 1851)

Larvae develop in inflorescences of *Dactylis* sp.
Middle Greece: Raches.
Distribution: European. Single record for Greece at an altitude of 50 m a.s.l.

Contarinia sp. (near ***florum*** Rübsaamen, 1917)

Dried swollen unopened flower buds of *Asparagus aphyllus* L.
Middle Greece: Raches.
Distribution: Mediterranean. Single record for Greece at an altitude of 50 m a.s.l.

Contarinia galii Kieffer, 1909

Bright orange coloured, jumping larvae cause terminal galls on *Galium lucidum* All.
NW Greece: Serbia.
Distribution: Mediterranean. Single record for Greece at an altitude of 380 m a.s.l.

Contarinia gei Kieffer, 1909

Larvae develop among deformed leaves of *Geum* sp.
NW Greece: Florina.
Distribution: European. Single record for Greece at an altitude of 750 m a.s.l.

Contarinia ilicis Kieffer, 1898

Small galls on leaves of *Quercus ilex* L.

NW Greece: Agras.
Distribution: Mediterranean sp. Single record for Greece at an altitude of 620 m a.s.l.

Contarinia sp [near ***kiefferi*** (Schlechtendal, 1891)]

Larvae develop in unopened flower buds of *Sisymbrium orientale* L.
NW Greece: Vathilakos.
Distribution: Mediterranean. Single record for Greece at an altitude of 280 m a.s.l.

Contarinia medicaginis Kieffer, 1895

Larvae cause flower bud galls on *Medicago sativa* L. STAVRAKIS and LAMBRAKOPOULOS (1971) studied population dynamics of this species in the Sperchias area. We did not find galls during our investigations 1994-1996.
Distribution: Euro-Siberian. It seems that this species occurs in Greece at present sporadically.

Contarinia pyrivora (Riley, 1886)

Larvae develop inside fruits of *Pyrus communis* L. and *P. salicifolia* L. which are blackened and hollowed out.
NE Greece: Serres.
NW Greece: Apsalos, Laka, Mirsina, Vathilakos.
Middle Greece: Agios Nikolaos near Frangista, Karpenisi, Lamia, Raches, Vitoli.
Crete: Avdou, Knosos, Krouzon.
Distribution: Holarctic, cosmopolitan; pest. In Greece frequent. Altitudinal range: 50-1000 m a.s.l.

Contarinia quercicola (Rübsaamen, 1899)

Larvae live in enlarged leaf buds of *Quercus cerris* L.
NW Greece: Agras.
Distribution: Mediterranean. Single record for Greece at an altitude of 620 m a.s.l.

Contarinia quercina (Rübsaamen, 1890)

Larvae develop among small young leaves of the terminal leaf bud of *Quercus pubescens* Willd.

NE Greece: Paranesti.
NW Greece: Apsalos, Flamouria, Mirsina, Rizario.
Middle Greece: Agios Georgios near Karpenisi, Agios Nikolaos near Frangista, Kalesmeno, Meteora, Raches, Thermopyli, Vitoli.
Peloponesos: Xylokastron.
Crete: Kera.
Distribution: European, in Greece frequent. Altitudinal range: 50-900 m a.s.l.

Contarinia scoparii (Rübsaamen, 1889)

Globular galls at the tip of the young shoot of *Sarothamnus* sp.
NE Greece: Paranesti.
Middle Greece: Arachova.
Distribution: European - sub-Atlantic. In Greece scarce.
Altitudinal range: 450-950 m a.s.l.

Contarinia sp.

Leaf margin of *Acer monspessulanum* L. bent downwards, inside with large, not jumping white larva.
Middle Greece: Kalesmeno.
Distribution: Mediterranean. Single record for Greece at an altitude of 900 m a.s.l.

Contarinia sp.

Orange larvae in swollen flower buds of *Erysimum graecum* Boiss. et Heldr., probably gall making, together with larvae of *Dasineura* sp. which are probably inquilines.
Middle Greece: Chrisso, Itea, Kirra, Thermopyli, Perachora.
Peloponesos: Akrokorint, Chiliomodion, Sophikon.
Distribution: South-European. In Greece frequent. Altitudinal range: 50-500 m a.s.l.

Contarinia sp.

Cream coloured larvae develop inside pod-like folded leaflets of *Rosa* sp. which were similar to galls caused by *Wachtliella rosarum* (Hardy). Only larvae of *Contarinia* sp. were found by analysis of these galls. Larvae entered the sand in the emergence cage but no adults emerged.
NW Greece: Rizario.

Distribution: Mediterranean. Single record for Greece at an altitude of 300 m a.s.l.

Contarinia sp.

Axillar leaf galls on *Sisymbrium orientale* L. Inside one gall several small yellow larvae.
NW Greece: Vathilakos.
Distribution: Mediterranean. Single record for Greece at an altitude of 280 m a.s.l.

Contarinia sp.

Large orange coloured larvae inside flower buds of *Spartium junceum* L. Attacked buds do not differ from unattacked.
Peloponesos: Lykoporia.
Distribution: Mediterranean. Single record for Greece at an altitude of 50 m a.s.l.

Cystiphora sanguinea (Bremi, 1847)

Larvae cause pustule galls on leaves of *Hieracium* sp.
NW Greece: Alona.
Distribution: European. Single record for Greece at an altitude of 700 m a.s.l.

Cystiphora schmidti (Rübsaamen, 1914)

Larvae cause pustule galls on leaves and stems of *Chondrilla juncea* L. Caresche and Wapshere (1975) recorded galls at many localities in southern Greece and in north-western part of Peloponesos.
NW Greece: Flamouria, Apsalos.
Distribution: European with tendency to south. This species has been introduced to Australia for biological control. In Greece it occurs at present sporadically at altitudes of 460-506 m a.s.l.

Cystiphora sonchi (Bremi, 1847)

Larvae cause pustule galls on leaves of *Sonchus* sp.
NW Greece: Apsalos.
Peloponesos: Sophikon.
Distribution: European. In Greece scarce, at altitudes from 50 to 500 m a.s.l.

Dasineura acrophila (Winnertz, 1853)

Larvae cause pod-like galls on leaflets of *Fraxinus ornus* L.
NW Greece: Rizario.
Distribution: European and sub-Mediterranean. Single record for Greece at an altitude of 300 m a.s.l.

Dasineura affinis (Kieffer, 1886)

Larvae live in rolled leaf margins of *Viola* sp.
NW Greece: Kastania, Skydra.
Distribution: European, spread up to north Africa. In Greece scarce at altitudes from 200 up to 900 m a.s.l.

Dasineura aparines (Kieffer, 1889)

Larvae live inside large terminal galls on the shoots of *Galium aparine* L.
NE Greece: Gazaros, Paleokomi.
NW Greece: Apsalos, Kali Panagia, Kozani, Laka, Servia, Skydra, Vathilakos.
Middle Greece: Chrisso, Itea, Lamia, Raches, Sernikaki, Thermopyli, Vitoli.
Peloponesos: Chiliomodion.
Crete: Amnisos, Armeni, Avdou, Bali, Knosos, Krouzon.
Distribution: European, spread up to north Africa. In Greece abundant. Altitudinal range: 50-680 m a.s.l.

Dasineura crataegi (Winnertz, 1853)

Larvae produce a rosette leaf galls on branches of *Crataegus oxyacantha* L.
Trotter (1903) recorded galls of this species at Volos.
Middle Greece: Vitoli.
Distribution: European. Single record for Greece at an altitude of 400 m a.s.l.

Dasineura hyperici (Bremi, 1847)

Larvae cause terminal leaf bud galls on stems of *Hypericum triquetrifolium* Turra and other species of *Hypericum*.
NW Greece: Flamouria.
Middle Greece: Kirra.
Peloponesos: Lykoporia, Solomos, Xylokastron.
Crete: Avdou, Krouzon.

Distribution: European. In Greece medium frequent. Altitudinal range: 50-550 m a.s.l.

***Dasineura lupulinae** (Kieffer, 1891)

Onion-shaped galls in axils of stems of *Medicago polymorpha* L. and *M. orbicularis* (L.) Bartel.
Middle Greece: Kirra, Sernikaki.
Distribution: European. In Greece scarce at altitudes of 10-150 m a.s.l.

***Dasineura mali** (Kieffer, 1904)

Larvae live in rolled leaf margins of *Malus sylvestris* Mill. (*Pyrus malus* L.).
Crete: Psychro on the Lassithi-Plateau.
Distribution: European, secondarily Holarctic; pest. Single record for Greece at altitude of 800 m a.s.l.

***Dasineura oleae** (F. Löw, 1885)

Larvae cause slight, indefinite, elongate swellings on the leaves of *Olea europaea* L. TROTTER (1903) recorded galls at Volos and Corfu, FÉRON and D'AGUILLAR (1962) at Mytiline, Euboea and Crete.
NE Greece: Serres.
Middle Greece: Amfissa-Agios Georgios, Chrisso, Domokos, Raches, Sernikaki.
Peloponesos: Athikia, Lykoporia, Nemea.
Crete: Amnissos, Avdou, Bali, Kera, Knososs, Krouzon, Zaros.
Distribution: Mediterranean. In Greece frequent. Altitudinal range: 50-800 m a.s.l. See fig. 3b.

***Dasineura papaveris** (Winnertz, 1853)

Larvae live in large numbers in seed capsules of *Papaver rhoeas* L.
Middle Greece: Kirra, Lamia.
Peloponesos: Akrokorint, Chiliomodion.
Distribution: European - sub-Mediterraean. In Greece medium frequent. Altitudinal range: 50-500 m a.s.l.

***Dasineura plicatrix** (Loew, 1850)

Larvae cause galls formed by contorted and twisted young leaves of *Rubus caesius* L. and other species.

NW Greece: Alona, Florina, Kali Panagia, Rizario, Skydra.
Middle Greece: Amfissa - Agios Georgios, Itea, Kirra, Lamia, Raches, Vitoli.
Peloponesos: Achlamydokampos, Athikia, Chiliomodion, Kalavruta, Lykoporia, Solomos, Xylokastron.
Crete: Bali.
Distribution: European up to north Africa. In Greece abundant. Altitudinal range: 50-800 m a.s.l.

***Dasineura pyri** (Bouché, 1847)

Larvae develop inside rolled leaf margins of *Pyrus communis* L., *P. pyraster* L. and *P. salicifolia* Lois.
NE Greece: Serres.
NW Greece: Apsalos, Mirsina, Servia, Vathilakos.
Middle Greece: Lamia, Meteora, Raches, Vitoli.
Peloponesos: Lykoporia.
Crete: Avdou, Krouzon.
Distribution: Euro-Siberian, secondarily Holarctic; pest. In Greece frequent. Altitudinal range: 50-613 m a.s.l.

***Dasineura rubella** (Kieffer, 1896)

Larvae live in wrincled, curled young leaves of *Acer campestre* L.
NW Greece: Alona (on *Acer campestre* L. and *A. tataricum* L.), Florina (*Acer tataricum* L.), Rizario (*Acer campestre* L.).
Distribution: European. In Greece scarce. Altitudinal range: 300-750 m a.s.l.

***Dasineura rufescens** (Stefani, 1898)

Larvae cause swellings on branches of *Phillyrea media* L. TROTTER (1903) recorded galls of this species in Corfu.
NW Greece: Apsalos, Flamouria, Laka.
Middle Greece: Kalesmeno, Thermopyli, Vitoli.
Peloponesos: Athikia.
Distribution: Mediterranean. In Greece medium frequent. Altitudinal range: 50-900 m a.s.l.

***Dasineura thomasiana** (Kieffer, 1888)

Larvae develop among small young leaves of bursting leaf buds of *Tilia tomentosa* Moench (=*T. argentea* DC).

NW Greece: Agras.
Distribution: European. Single record for Greece at an altitude of 620 m a.s.l.

Dasineura tiliae** (Schrank, 1803) (D. tiliamvolvens** Rübs., 1889)

Orange red larvae develop in rolled leaf margins of *Tilia tomentosa* Moench.
NW Greece: Florina.
Distribution: Euro-Siberian. Single record for Greece at an altitude of 750 m a.s.l.

***Dasineura tortrix** (F. Löw, 1877)

White larvae live in terminal leaves of *Prunus spinosa* L. and other species. Leaves are massed together and leaf margins are loosely rolled.
NE Greece: Gazaros, Nikoforos, Paranesti, Stavroupoli, Strimoniko.
NW Greece: Agras, Alona, Apsalos, Florina, Kali Panagia, Kastania, Mirsina, Rizario.
Middle Greece: Agios Georgios near Karpenisi, Chrisso [(*Prunus webbii* (Spach) Vierh.], Delfi, Domokos, Kalesmeno, Kirra, Lamia, Vitoli.
Peloponesos: Kalavruta, Xylokastron.
Distribution: European. In Greece abundant. Altitudinal range: 50-900 m a.s.l.

***Dasineura tubicola** (Kiefffer, 1889)

Tubular galls in axils of *Sarothamnus* sp.
NE Greece: Paranesti.
Distribution: European. Single record for Greece at an altitude of 450 m a.s.l.

***Dasineura tubularis** (Kieffer, 1909)

Larvae cause galls on leaves of *Quercus cerris* L. Each gall is hemispherical on the upper side and tubular on the lower side.
NW Greece: Agras.
Distribution: Mediterranean. Single record for Greece at an altitude of 620 m a.s.l.

***Dasineura turionum** (Kieffer et Trotter, 1904)

Larvae live under the scale-shaped and swollen young leaves on very young just growing shoots of *Asparagus aphyllus* L. Attacked plants are later

irregularly deformed forming a cluster.
NE Greece: Drama, Gazaros, Paleokomi, Paranesti, Riziana, Serres, Strimoniko.
NW Greece: Agios Pandeleimonas, Apsalos, Flamouria, Kali Panagia, Laka, Rizario.
Middle Greece: Delfi, Galaxidi, Itea, Kalesmeno, Kirra, Raches, Sernikaki, Perachora.
Peloponesos: Akrokorint, Athikia, Chiliomodion.
Crete: Amnisos, Armeni, Bali, Krouzon, Psychro on Lassithi Plateau, Zaros.
Distribution: Mediterranean. In Greece abundant. Altitudinal range: 50-800 m a.s.l. See fig. 4.

***Dasineura tympani** (Kieffer, 1909)

Small circular galls on leaves of *Acer campestre* L.
NW Greece: Florina.
Distribution: European. Single record for Greece at an altitude of 750 m a.s.l.

***Dasineura urticae** (Perris, 1840)

Larvae cause nipple-shaped galls on leaves of *Urtica dioica* L.
Peloponesos: Kalavruta.
Distribution: Euro-Siberian. Single record for Greece at an altitude of 800 m a.s.l.

***Dasineura vagans** (Kieffer, 1909)

Unopened flower bud of *Erica arborea* L.; inside a chamber with a single larva. This species has been originally described from galls on *Erica vagans* L.
Middle Greece: Agios Nikolaos near Frangista.
Distribution: Mediterranean. Single record for Greece at an altitude of 700 m a.s.l.

***Dasineura viciae** (Kieffer, 1888)

Larvae cause pod-like galls on leaflets of *Vicia lutea* L.
NE Greece: Stavroupoli.
NW Greece: Alona, Apsalos, Florina, Mirsina.
Middle Greece: Agios Georgios near Karpenisi, Arachova, Delfi, Galaxidi, Sernikaki.

Peloponesos: Xylokastron.
Distribution: Euro-Siberian. In Greece frequent. Altitudinal range: 50-950 m a.s.l.

Dasineura sp.

Swollen flower bud of *Acer campestre* L. Up to eight small, pink coloured larvae live inside one damaged bud among swollen stamens.
NW Greece: Alona.
Distribution: Mediterranean. Single record for Greece at an altitude of 700 m a.s.l.

Dasineura sp.

Fruits of *Asparagus aphyllus* L. changed into spongy mass.
Peloponesos: Chiliomodion.
Distribution: Mediterranean. Single record for Greece at an altitude of 50 m a.s.l.

Dasineura sp.

Orange coloured larvae cause flower bud galls on *Aurinia petraea* (Ard.) Schur. They left galls on 28.4.1995 and entered the soil. Adults emerged 8.5.-11.5.1995.
Middle Greece: Meteora.
Distribution: Mediterranean. Single record for Greece at an altitude of 613 m a.s.l.

Dasineura sp.

Terminal stem gall on *Clematis flammula* L. The gall is formed by a pair of small, densely haired leaves, containing the shortened shoot.
Peloponesos: Xylokastron.
Distribution: Mediterranean. Single record for Greece at an altitude of 100 m a.s.l.

Dasineura sp.

Orange larvae live in swollen flower buds of *Erysimum graecum* Boiss. et Heldr., probably as inquilines, together with larvae of *Contarinia* sp. which are probably the causers of galls.

Middle Greece: Itea.
Distribution: Mediterranean. Single record for Greece at an altitude of 50 m a.s.l.

Dasineura sp.

Leaf bud gall on *Onosma frutescens* L. Larvae develop inside a globular gall where also pupate. Adults reared 18.4.1995.
Middle Greece: Amfissa - Agios Georgios, Arachova, Chrisso, Delfi.
Distribution: Mediterranean. In Greece medium frequent.
Altitudinal range: 340-950 m a.s.l.

Dasineura sp.

Larvae cause flat pustule galls on *Phlomis fruticosa* L. Galls have irregular form. Each gall contains two up to four small yellow larvae which pupate in galls. Adults emerged 19.4.-1.5.1995.
Middle Greece: Amfissa - Agios Georgios, Chrisso, Delfi, Galaxidi, Itea, Kalesmeno, Karpenisi, Kirra, Sernikaki.
Peloponesos: Kalavruta.
Crete: Amnissos, Armeni, Bali, Knososs, Krouzon, Zaros.
Distribution: Mediterranean, in Greece frequent. Altitudinal range: 50-1000 m a.s.l. see fig.2a.
Note. - Houard (1918: 107) gave a description of this gall and a figure of this pustule gall on the leaf of *Phlomis fruticosa* but incorrectly designated it as *Asphondylia phlomidis* Trotter.

Dasineura sp.

Stem gall on *Sherardia arvensis* L. Inside a gall one yellow larva.
Middle Greece: Delfi.
Distribution: Mediterranean. Single record for Greece at an altitude of 560 m a.s.l.

Didymomyia tiliacea (Bremi, 1847) (=***D. reaumuriana*** F. Löw, 1878)

A single larva develops inside a hard, woody gall on leaves of *Tilia tomentosa* Moench.
NW Greece: Flamouria, Florina, Kali Panagia.
Distribution: Euro-Siberian. In Greece scarce. Altitudinal range: 460-750 m a.s.l.

Drisina glutinosa Giard, 1893

Small circular depressions on leaves forming round brown spot 5 mm in diameter on the leaf of *Acer monspessulanum* L. Only spots on dry last year's leaves were found. It is not possible to eliminate that this kind of gall on *A. monspessulanum* is caused by another causer.
Peloponesos: Achlamydokampos.
Distribution: European. Single record for Greece at an altitude of 700 m a.s.l.

Dryomyia circinans (Giraud, 1861)

Larvae cause galls on leaves of *Quercus cerris* L. Each gall has a densely haired disc on the lower side and a round opening on the upper side of the leaf.
NW Greece: Agras.
Corfu: Eriba (on *Quercus macrolepis* Kot., leg. E. Kwast).
Distribution: Mediterranean. Single record for Greece at an altitude of 620 m a.s.l.

Geocrypta galii (Loew, 1850)

Larvae develop in swellings on stems of *Galium aparine* L.
Middle Greece: Agios Georgios near Karpenisi, Chrisso, Lamia, Raches, Sernikaki, Thermopyli.
Peloponesos: Chiliomodion, Kalavruta, Miloi.
Distribution: Euro-Siberian. In Greece frequent. Altitudinal range: 50-900 m a.s.l.

Giraudiella inclusa (Frauenfeld, 1862)

Larvae cause corn-like woody galls inside stems of *Phragmites australis* (Cav.) Trin. (=*P. communis* Trin.).
Middle Greece: Kirra, Thermopyli.
Distribution: European, spread up to Iraq. In Greece scarce.
Altitudinal range: 20-50 m a.s.l.

Hartigiola annulipes (Hartig, 1839)

Larvae produce cylindrical usually densely haired galls on leaves of *Fagus sylvatica* L.
NW Greece: Kastania.
Distribution: European. Single record for Greece at an altitude of 900 m a.s.l.

Jaapiella bryoniae (Bouché, 1847)

Larvae develop in deformed, swollen and clustered young leaves of the growing tip of *Bryonia alba* L.
NW Greece: Florina.
Distribution: European up to North Africa. Single record for Greece at an altitude of 750 m a.s.l.

Jaapiella floriperda (F. Löw, 1888)

Larvae develop in swollen unopened flower buds of *Silene vulgaris* (Moench) Garcke.
Peloponesos: Chiliomodion.
Distribution: European. Single record for Greece at an altitude of 50 m a.s.l.

Jaapiella hedickei Rübsaamen, 1921

Orange-pink larvae develop in leaf-sheaths of *Pimpinella magna* L. among deformed young leaves.
Peloponesos: Chiliomodion.
Distribution: European. Single record for Greece at an altitude of 50 m a.s.l.

Jaapiella sp. (near ***hedickei*** Rübsaamen, 1921)

Swollen leaf-sheaths of *Ferula communis* L. At the time of collecting (middle of April) only last year's galls were present.
NE Greece: Drama.
Middle Greece: Chrisso, Kirra, Sernikaki.
Peloponesos: Lykoporia, Xylokastron.
Crete: Kera.
Distribution: Mediterranean. In Greece medium frequent.
Altitudinal range: 50-800 m a.s.l.

Jaapiella medicaginis (Rübsaamen, 1912)

Pink larvae develop in folded leaflets of *Medicago* sp.
Peloponesos: Miloi.
Distribution: Euro-Siberian. Single record for Greece at an altitude of 50 m a.s.l.

Jaapiella veronicae (Vallot, 1827)

Orange larvae live in galls on vegetative tip of *Veronica chamaedrys* L.
NW Greece: Florina (one gall only).
Distribution: European. Single record for Greece at an altitude of 750 m a.s.l.

Janetia cerris (Kollar, 1850)

Larvae cause small galls on leaves of *Quercus cerris* L. Trotter (1903) found galls on *Quercus aegilops* L. at Lappa.
NW Greece: Agras.
Corfu: Eriba (on *Quercus aegilops* Kot., leg. E. Kwast).
Middle Greece: Agios Nikolaos near Karpenisi, Galaxidi.
Distribution: Mediterranean. In Greece scarce. Altitudinal range: 100-700 m a.s.l.

Janetia homocera (F. Löw, 1877)

Larvae cause small galls on leaves of *Quercus cerris* L.
NW Greece: Agras.
Distribution: Mediterranean. Single record for Greece at an altitude of 620 m a.s.l.

Janetia plicans (Kieffer, 1909)

Crowded young leaf of *Quercus cerris* L.; inside a white larva.
NW Greece: Agras, Flamouria.
Distribution: Mediterranean. In Greece scarce. Altitudinal range: 460-620 m a.s.l.

Janetia pustularis (Kieffer, 1909)

Small pustule galls on leaves of *Quercus cerris* L.
Middle Greece: Agios Nikolaos near Karpenisi.
Distribution: Mediterranean. Single record for Greece at an altitude of 700 m a.s.l.

Janetia szepligetii Kieffer, 1896

Small pustule galls on leaves of *Quercus cerris* L.
NW Greece: Agras.

Middle Greece: Agios Georgios near Karpenisi.
Distribution: Mediterranean. In Greece scarce. Altitudinal range: 150-700 m a.s.l.

Janetia* (*Arnoldiola*) *tympanifex (Kieffer, 1909)

Small pustule galls on leaves of *Quercus ilex* L.
Crete: Armeni.
Distribution: Mediterranean. Single record for Greece at an altitude of 150 m a.s.l.

Janetiella euphorbiae Stefani, 1908

Gall on the vegetative top of *Euphorbia wulfenii* Hoppe ex Koch (=*E. characias* L.).
Crete: Bali.
Distribution: Mediterranean. Single record for Greece at an altitude of 100 m a.s.l.

Janetiella fortiana Trotter, 1901

Larvae cause a large swelling of the stem of *Erysimum graecum* Boiss. et Heldr. Inside one gall many chambers, each with only one larva. Trotter (1901) found galls at Akrokorint, reared adults and described this species.
NW Greece: Flamouria.
Middle Greece: Itea, Perachora.
Peloponesos: Akrokorint (galls of this species occur till present at the type locality), Korint, Sophikon.
Distribution: Mediterranean, in Greece medium frequent.
Altitudinal range: 50-500 m a.s.l.

Janetiella lemeei (Kieffer, 1904)

Short tubular galls on veins of lower side of leaves of *Ulmus minor* Mill.
NW Greece: Servia.
Distribution: European, spread up to Turkey. Single record for Greece at an altitude of 380 m a.s.l.

Janetiella oenophila (Haimhoffen, 1875)

Larvae cause small pustule galls on the leaves of *Vitis vinifera* L. Galls are visible on both leaf sides. Barnes (1948, 1949) recorded this species only

"Greece" without detailed data about locality.
Distribution: Euro-Siberian, spread up to Lebanon. This species seems to be extinct in Greece, probably as a result of using insecticides in vineyards.

Janetiella thymi (Kieffer, 1888)

Leaf bud galls at growing tips of the shoot of *Thymus serpyllum* L.
Middle Greece: Agios Nikolaos, Karpenisi.
Distribution: European - sub-Mediterranean. In Greece scarce.
Altitudinal range: 700-900 m a.s.l.

Kiefferia pericarpiicola (Bremi, 1847)

Large swollen fruits of various species and genera of the family Apiaceae.
Crete: Armeni, Kera, Knosos.
Distribution: Euro-Siberian. In Greece scarce. Altitudinal range: 50-800 m a.s.l.

Lasioptera arundinis Schiner, 1854

Larvae develop in thickened and shortened lateral shoots of *Phragmites australis* (Cav.) Trin.
Peloponesos: Miloi.
Crete: Amnissos.
Distribution: European. In Greece scarce at altitudes of 50 m a.s.l.

Lasioptera berlesiana Paoli, 1907

Larvae live as inquilines in fruits of *Olea europaea* L., damaged by the fly *Bactrocera* (*Dacus*) *oleae* (Gmelin) (Diptera, Tephritidae). Larvae are mycophagous and feed on the mycelium of the fungus *Macrophoma* sp. (Koronéos, 1939). Barnes (1948) recorded galls in Corfu, Möhn (1969) at Athens.
Distribution: Mediterranean. In Greece scarce.

Lasioptera carophila F. Löw, 1874

Larvae develop inside unilocular swellings at bases of umbellules in inflorescences of various species of the family Apiaceae. Trotter (1903) found galls on *Bunium creticum* Urv., Karsch (1880) and Rübsaamen (1899) on *Smyrnium rotundifolium* Mill. Möhn (1969) mentioned galls on *Smyrnium orphanidis* Boiss. and *Physospermum commutatum* Spreng. (=*P. aquilegifolium* Koch).

NE Greece: Drama *(Ferula communis* L.).
Middle Greece: Agios Nikolaos (*Ferula communis* L.), Chrisso (*Ferula communis* L.; *Tordylium apulum* L.), Domokos, Kalesmeno, Kirra, Sernikaki (*Ferula communis* L.).
Peloponesos: Akrokorint, Sophikon [*Pimpinella major* (L.) Huds.].
Crete: Armeni, Kera, Knosos, Psychro on Lassithi Plateau (*Ferula communis* L.).
Distribution: European - Mediterranean. In Greece frequent.
Altitudinal range: 50-800 m a.s.l.

Lasioptera donacis Coutin, 1981

Larvae cause galls on *Arundo donax* L. This species has been described by COUTIN et FAIVRE-AMIOT (1981) from southern France.
Middle Greece: Kirra.
Distribution: Mediterranean. Single record for Greece at an altitude of 50 m a.s.l.

Lasioptera eryngii (Vallot, 1829)

Larvae cause plurilocular swellings on stems of *Eryngium campestre* L.
NW Greece: Mirsina (one attacked plant).
Middle Greece: Chrisso, Kirra.
Peloponesos: Akrokorint.
Distribution: Sub-Mediterranean. In Greece medium frequent.
Altitudinal range: 50-500 m a.s.l.

Lasioptera hungarica Möhn, 1968

Larvae develop inside black mass of mycelium inside stems of *Phragmites australis* (Cav.) Trin.
NE Greece: Serres (*Phragmites australis*).
Middle Greece: Kirra (*Arundo donax* L.).
Distribution: European. In Greece scarce. Altitudinal range: 50-160 m a.s.l.

Lasioptera rubi (Schrank, 1803)

Orange larvae cause hard woody swellings and malformations on stems of *Rubus* sp.
NW Greece: Agras.
Middle Greece: Kalesmeno, Karpenisi.

Peloponesos: Kalavruta.
Distribution: Euro-Siberian. In Greece medium frequent.
Altitudinal range: 620-1000 m a.s.l.

Lasioptera thapsiae Kieffer, 1898

Larvae produce multilocular swellings at the point of insertion of the umbellules of *Thapsia garganica* L. Each larva in one chamber.
Middle Greece: Sernikaki.
Distribution: Mediterranean. Single record for Greece at an altitude of 150 m a.s.l.

Lestodiplosis sp.

A single larva was found to prey on coccids living on leaves of *Cistus* sp.
Middle Greece: Delfi.
Distribution: Mediterranean, a single record for Greece at an altitude of 560 m a.s.l.

Macrodiplosis dryobia (F. Löw, 1877)

Larvae cause galls on leaves of *Quercus pubescens* Willd., *Q. frainetto* Ten. and *Q. robur* L. The marginal leaf lobe is folded downwards.
NE Greece: Paranesti, Stavroupoli.
NW Greece: Flamouria.
Middle Greece: Agios Nikolaos, Kalesmeno, Meteora, Vitoli.
Peloponesos: Xylokastron.
Distribution: European, up to Caucasus. In Greece frequent.
Altitudinal range: 150-900 m a.s.l.

Macrodiplosis volvens Kieffer, 1895

Larvae cause galls on *Quercus pubescens* Willd., *Q. frainetto* Ten and *Q. robur* L. The gall is formed by a rolled leaf segment, situated between two lobes.
NW Greece: Apsalos, Flamouria, Rizario.
Middle Greece: Agios Nikolaos, Kalesmeno, Meteora, Thermopyli, Vitoli.
Peloponesos: Xylokastron.
Distribution: European, up to Turkey. In Greece frequent.
Altitudinal range: 50-900 m a.s.l.

Macrolabis lamii Rübsaamen, 1915

Larvae develop among small young leaves at the stem tip of *Lamium* sp.
Peloponesos: Kalavruta.
Distribution: European. Single record for Greece at an altitude of 800 m a.s.l.

Macrolabis luceti Kieffer, 1899

White larvae inquilines in galls of *Wachtliella rosarum* (Hardy) on *Rosa* sp.
NW Greece: Laka.
Distribution: European. Single record for Greece at an altitude of 450 m a.s.l.

Macrolabis lutea Rübsaamen, 1914

White larvae inquilines in galls of *Spurgia capitigena* (Bremi). Larvae, in contrast to *S. capitigena*, leave galls and enter the soil.
NW Greece: Florina.
Distribution: European. Single record for Greece at an altitude of 700 m a.s.l.

Macrolabis sp.

Terminal leaf gall on *Silene behen* L. The spindle gall is formed by several rolled leaves. Inside one gall many larvae.
Larvae left galls on 22.4.1996 and entered the soil. Adults emerged 2.-5.5.1996.
Crete: Knososs.
Distribution: Mediterranean. Single record for Greece at an altitude of 50 m a.s.l.

Macrolabis sp.

Small white larvae inquilines in galls of *Dasineura tiliae* (Schrank) on *Tilia tomentosa* Moench.
NW Greece: Florina.
Distribution: Mediterranean. Single record for Greece at an altitude of 700 m a.s.l.

Mayetiola destructor (Say, 1817)

Larvae cause swellings on the lower part of stems of *Triticum vulgare* L.,

Hordeum sativum L. and other cereals. CAVADAS (1930) reported that wheat and barley were severely attacked in Thessalia in 1930.
Distribution: Holarctic, cosmopolitan; pest. In Greece no records about damage at present.

Mayetiola sp.

Larvae live under the leaf sheaths of the shortened and broadened terminal part of the stem of *Hyparrhenia hirta* (L.) Stapf.
Middle Greece: Galaxidi.
Distribution: European. Single record for Greece at an altitude of 100 m a.s.l.

Mikiola fagi (Hartig, 1839)

Pointed woody galls on the upper surface of the leaves of *Fagus sylvatica* L.
NW Greece: Kastania.
Distribution: European. Single record for Greece at an altitude of 900 m a.s.l.

Monarthropalpus flavus (Schrank, 1776)

Blister-like galls on leaves of *Buxus sempervirens* L.
NW Greece: Flamouria, Kozani.
Middle Greece: Karpenisi.
Distribution: Holarctic; pest. In Greece scarce. Altitudinal range: 200-1000 m a.s.l.

Mycodiplosis gymnosporangii Kieffer, 1904

Red larvae develop in deformities caused by the rust *Gymnosporangium* sp. on the branches of *Juniperus phoenicea* L.
Middle Greece: Delfi, Sernikaki.
Distribution: European. In Greece scarce. Altitudinal range: 150-560 m a.s.l.

Myricomyia mediterranea (F. Löw, 1885)

Small rosette galls on twigs of *Erica arborea* L. In the middle of each gall is a small chamber including one larva.
Middle Greece: Agios Nikolaos near Frangista.
Peloponesos: Athikia, Nemea, Sophikon.
Crete: Armeni, Bali, Kera (*Erica manipulifera* Salisb.) Distribution:

Mediterranean. In Greece medium frequent.
Altitudinal range: 50-800 m a.s.l. See fig. 3.

Odinadiplosis amygdali (Anagnostopoulos, 1929)

Larvae cause abnormal multiplication of buds of *Prunus dulcis* (Miller) D.A. Webb (=*Prunus amygdalus* Batsch., *Amygdalus communis* L.) and *Prunus persica* (L.) Batsch (*Amygdalus persica* L.). Flowers and fruits do not develop. Attacks result in death of trees (Nijveldt, Talhouk, 1976). Anagnostopoulos (1929) found damaged branches at Athens.
Middle Greece: Amfissa- Agios Georgios, Delfi, Raches, Sernikaki.
Peloponesos: Xylokastron.
Crete: Armeni, Avdou, Kera, Knosos, Zaros.
Distribution: Mediterranean. In Greece frequent. Altitudinal range: 50-800 m a.s.l. See fig. 3d.

****Oligotrophus juniperinus*** (Linné, 1758)

Larvae cause slender galls on twigs of *Juniperus communis* L. and *J. oxycedrus* L.
NW Greece: Emborio.
Middle Greece: Agios Nikolaos near Karpenisi.
Distribution: European. In Greece scarce. Altitudinal range: 500-700 m a.s.l.

****Oligotrophus panteli*** Kieffer, 1898

Larvae cause small galls on twigs of *Juniperus oxycedrus* L.
NE Greece: Nikoforos, Paleokomi, Paranesti, Riziana, Stavroupoli, Strimoniko.
NW Greece: Agios Pandeleimonas, Agras, Alona, Apsalos, Emborio, Flamouria, Kali Panagia, Rizario.
Middle Greece: Agios Georgios near Karpenisi, Agios Nikolaos near Frangista, Kalesmeno, Karpenisi, Vitoli.
Distribution: European, spread up to North Africa. In Greece abundant. Altitudinal range: 120-1000 m a.s.l.

****Ozirhincus longicollis*** Rondani, 1840

A single larva develops inside a chamber of a swollen achene in the inflorescence of *Chrysanthemum coronarium* L.
Crete: Knososs.

Distribution: Mediterranean. Single record for Greece at an altitude of 50 m a.s.l.

Ozirhincus millefolii (Wachtl, 1884)

A single larva develops inside a chamber of a swollen achene of *Achillea millefolium* L.
NW Greece: Kastania.
Distribution: Euro-Siberian. Single record for Greece at an altitude of 900 m a.s.l.

Ozirhincus tanaceti (Kieffer, 1889)

A single larva develops inside a chamber of a swollen achene of *Tanacetum vulgare* L.
NW Greece: Alona.
Distribution: European. Single record for Greece at an altitude of 700 m a.s.l.

Physemocecis hartigi (Liebel, 1892)

Larvae cause small parenchymous galls on the leaves of *Tilia tomentosa* Moench.
NW Greece: Florina.
Distribution: European, spread up to Turkey. Single record for Greece at an altitude of 750 m a.s.l.

Physemocecis ulmi (Kieffer, 1902)

Larvae cause small parenchymous galls on leaves of *Ulmus minor* Mill.
Middle Greece: Kalesmeno.
Distribution: European. Single record for Greece at an altitude of 900 m a.s.l.

Polystepha malpighii (Kieffer, 1909)

Small ovoid pustule on the leaf of *Quercus* sp.
NE Greece: Paranesti, Riziana.
Crete: Kera.
Distribution: European. In Greece scarce. Altitudinal range: 120-800 m a.s.l.

Probruggmanniella phillyreae (Tavares, 1907)

Small bud gall on the twig of *Phillyrea media* L.
NW Greece: Rizario.
Distribution: Mediterranean. Single record for Greece at an altitude of 300 m a.s.l.

Psectrosema tamaricis Stefani, 1902

Swellings on branches of *Tamarix* sp. (? *parviflora* DC).
Middle Greece: Thermopyli.
Peloponesos: Lykoporia.
Crete: Amnissos.
Distribution: Mediterranean. In Greece scarcely at altitudes about 50 m a.s.l.

Putoniella pruni (Kaltenbach, 1872)

Larvae cause pouch or pocket-shaped swellings on *Prunus spinosa* L. and other species of *Prunus*. Galls are formed usually along the mid vein.
NE Greece: Nikoforos, Stavroupoli, Strimoniko.
NW Greece: Alona, Florina, Mirsina, Vathilakos.
Middle Greece: Domokos.
Distribution: European. In Greece frequent. Altitudinal range: 280-750 m a.s.l.

Rabdophaga marginemtorquens (Bremi, 1847)

Larvae develop in rolled leaf margins of *Salix* sp.
Peloponesos: Kalavruta.
Distribution: Euro-Siberian. Single record for Greece at an altitude of 800 m a.s.l.

Rabdophaga rosaria (Loew, 1850)

Large rosette-like leaf gall on terminal shoots of *Salix alba* L. Each gall contains a single larva in the centre.
NE Greece: Stavroupoli.
NW Greece: Alona, Prespa-Lake.
Distribution: Euro-Siberian. In Greece scarce. Altitudinal range: 400-850 m a.s.l.

Rabdophaga saliciperda (Dufour, 1841)

Larvae develop under the bark of twigs of *Salix alba* L.
Damaged part is swollen.
NW Greece: Alona.
Distribution: Euro-Siberian. Single record for Greece at an altitude of 700 m a.s.l.

Rabdophaga terminalis (Loew, 1850)

Gregarious larvae cause spindle terminal leaf bud galls on branches of *Salix alba* L.
NW Greece: Alona, Mirsina, Prespa-Lake.
Peloponesos: Kalavruta.
Distribution: Euro-Siberian. In Greece medium frequent.
Altitudinal range: 400-850 m a.s.l.

Resseliella oleisuga (Targioni-Tozzetti, 1886)

Larvae damage tissues under the bark of twigs of *Olea europaea* L. ARGYRIOU and MARAKIS (1973) recorded twigs damaged by this species in Crete.
NE Greece: Serres.
Middle Greece: Sernikaki.
Peloponesos: Athikia, Solomos, Knososs.
Distribution: Mediterranean. In Greece medium frequent.
Altitudinal range: 50-200 m a.s.l.

Rhopalomyia artemisiae (Bouché, 1834)

Large, round or ovoid galls at the top or in the axils of stem on *Artemisia campestris* L.
NE Greece: Paranesti, Stavroupoli.
NW Greece: Agios Pandeleimonas.
Distribution: Euro-Siberian - sub-Mediterranean. In Greece scarce.
Altitudinal range: 400-450 m a.s.l.

Rhopalomyia baccarum (Wachtl, 1883)

Orange coloured larvae develop in berry-shaped fleshy axillary galls of *Artemisia vulgaris* L., *A. campestris* L. and *A. scoparia* W.& K. TROTTER (1903) collected galls at Larissa.

NE Greece: Serres, Stavroupoli.
Distribution: European. In Greece scarce. Altitudinal range: 160-400 m a.s.l.

Rhopalomyia tanaceticola (Karsch, 1879)

A single larva causes a large gall in the leaf axil or in the inflorescence of *Tanacetum vulgare* L.
NW Greece: Florina.
Distribution: European. Single record for Greece at an altitude of 750 m a.s.l.

Rhopalomyia tubifex (Bouché, 1847)

A single larva causes a tubular gall at the growing tip or in leaf axils of *Artemisia campestris* L.
NE Greece: Paranesti.
NW Greece: Agios Pandeleimonas.
Distribution: sub-Mediterranean. In Greece scarce. Altitudinal range: 400-450 m a.s.l.

Rhopalomyia sp.

Large gall, up to 20 mm in diameter, densely white haired, on last year's stem of *Artemisia* sp.
NE Greece: Stavroupoli.
Peloponesos: Miloi.
Distribution: European. In Greece scarce at altitudes about 50 m a.s.l.

Semudobia betulae (Winnertz, 1853)

A single larva changes the fruit of *Betula pendula* Roth. into a gall.
NE Greece: Paranesti.
Distribution: Euro-Siberian, Holarctic. Single record for Greece at an altitude of 450 m a.s.l.

Semudobia skubravae Roskam, 1977

A single larva lives in a small gall on the spindle of a catkin of *Betula pendula* Roth.
NE Greece: Paranesti.
Distribution: Euro-Siberian. Single record for Greece at an altitude of 450 m a.s.l.

Silvestriola asphodeli Barnes, 1934

Larvae live in inflorescences of *Asphodelus* sp.
Middle Greece: Chrisso, Galaxidi.
Distribution: Mediterranean. In Greece scarce. Altitudinal range: 100-340 m a.s.l.

Spurgia capitigena (Bremi, 1847)

Globular galls, formed by many shortened leaves, on the vegetative top of the stem of *Euphorbia cyparissias* L.
NW Greece: Alona, Florina.
Distribution: European. In Greece scarce. Altitudinal range: 700-750 m a.s.l.

Stefaniella atriplicis Kieffer, 1898

Small spindle-shaped swellings of stems of *Atriplex halimus* L.
Crete: Amnissos, Heracleion.
Distribution: Mediterranean. In Greece scarce at altitudes about 50 m a.s.l.

Stefaniella trinacriae Stefani, 1900

Large spindle-shaped swellings on stems of *Atriplex halimus* L.
Crete: Amnissos, Heracleion.
Distribution: Mediterranean. In Greece scarce at altitudes about 50 m a.s.l.

Thecodiplosis brachyntera (Schwägrichen, 1835)

Larvae develop in a small chamber formed at the base of a pair of needles of *Pinus halepensis* Mill.
Middle Greece: Delfi.
Distribution: Euro-Siberian. Single record for Greece at an altitude of 560 m a.s.l.

Trotteria sp.

Pink larvae live as inquilines in galls of *Asphondylia verbasci* (Vallot).
Peloponesos: Sophikon.
Distribution: Mediterranean. Single record for Greece at an altitude of 50 m a.s.l.

Wachtliella ericina (F. Löw, 1885)

Large rosette galls on branches of *Erica arborea* L. Each gall is 10 mm long and is formed by many scale-shaped leaves. In the central chamber only one larva develops.
Middle Greece: Agios Nikolaos near Frangista.
Crete: Bali.
Distribution: Mediterranean. In Greece scarce. Altitudinal range: 100-700 m a.s.l.

Wachtliella niebleri Rübsaamen, 1915

Pod-like folded leaves, densely haired, on *Cytisus* sp.
NW Greece: Apsalos.
Distribution: Euro-Siberian. Single record for Greece at an altitude of 506 m a.s.l.

Wachtliella rosarum (Hardy, 1850)

Gregarious orange coloured larvae live in pod-like folded leaflets of *Rosa* sp.
NE Greece: Paleokomi.
NW Greece: Apsalos, Flamouria, Laka, Rizario.
Middle Greece: Meteora.
Distribution: Euro-Siberian. In Greece medium frequent.
Altitudinal range: 150-613 m a.s.l.

NUMBER OF SPECIES FORMING THE PRESENT FAUNA

The present fauna of gall midges of Greece includes 167 species. The majority of them are phytophagous species larvae of which cause galls on various host plants. Larvae of only six species, viz. *Aphidoletes aphidimyza*, two species of *Arthrocnodax* sp., *Lestodiplosis* sp., *Trotteria* sp. and *Mycodiplosis gymnosporangii*, belong to other biological groups. Larvae of the genera *Lestodiplosis*, *Aphidoletes*, *Arthrocnodax* and *Trotteria* are zoophagous, larvae of the genus *Mycodiplosis* are mycophagous (Skuhravá *et al.*, 1984). Predominance of phytophagous species is influenced by the method used, that is collecting gall midge galls. Certainly many gall midges of other groups, e.g. zoophagous and mycophagous, will be found in the future by using other collecting methods as, for example, yellow Möricke dishes or traps of various types.

Gall midges occurring in Greece are associated with about 110 host plant species of which less than a half are trees and shrubs and the remainder are herbaceous plants (see a List of host plant species attacked by gall midges).
In comparison with the fauna of adjacent countries, the gall midge fauna of Greece, despite intensive investigations, seems to be much more poor than that of Bulgaria which includes 240 species (SKUHRAVÁ *et al*., 1991), of the former Yugoslavia with 290 species (SKUHRAVÁ & SKUHRAVY, 1964) and of Italy with 324 species (SKUHRAVÁ & SKUHRAVY, 1994). The composition of gall midge fauna of Albania and Turkey is not known because it has not yet been investigated.
About 20 gall midges were determined to the genus level only. All are undescribed species. In several cases we were successful in rearing adults and descriptions of these species will be published in an independent article.

HORIZONTAL DISTRIBUTION

The horizontal distribution of gall midge species is analyzed according to their overall occurrence throughout Greece. The basis for such an analysis is the number of localities at which a particular species was found, without considering the local abundance of species. We divided all gall midge species found in Greece into five frequency groups using a logarithmic scale adapted to the total number of collection sites (SKUHRAVÁ, 1994a).
About 90 gall midge species (52%) found at only one locality are considered to be very rare. From the gall midges associated with tree and shrubs, *Mikiola fagi* and *Hartigiola annulipes* on *Fagus sylvatica*, *Drisina glutinosa* on *Acer monspessulanum* and *Dasineura crataegi* on *Crataegus oxyacantha*, all occurring abundantly in middle Europe, were found in Greece at only one locality each.
About 40 species (24%) found at 2-3 localities occur scarcely. From gall midges associated with tree, *Didymomyia tiliacea* on *Tilia platyphyllos* and *T. cordata*, the most common species in Slovenia (SIMOVA-TOŠIČ *et al*., 1996), and *Rabdophaga rosaria* on *Salix* spp., abundantly occurring in the Czech Republic (SKUHRAVÁ, 1994a, b), was found in Greece scarcely.
Fifteen gall midge species (9%) found at four to seven localities may be evaluated as medium frequent. From gall midges associated with tree and shrubs, *Rabdophaga terminalis* on *Salix fragilis* and *S. alba*, and *Lasioptera rubi* on *Rubus idaeus*, abundantly occurring in the Czech Republic, are medium frequent in the territory of Greece.
Eighteen gall midge species (10%) found from 8 to 16 localities may be

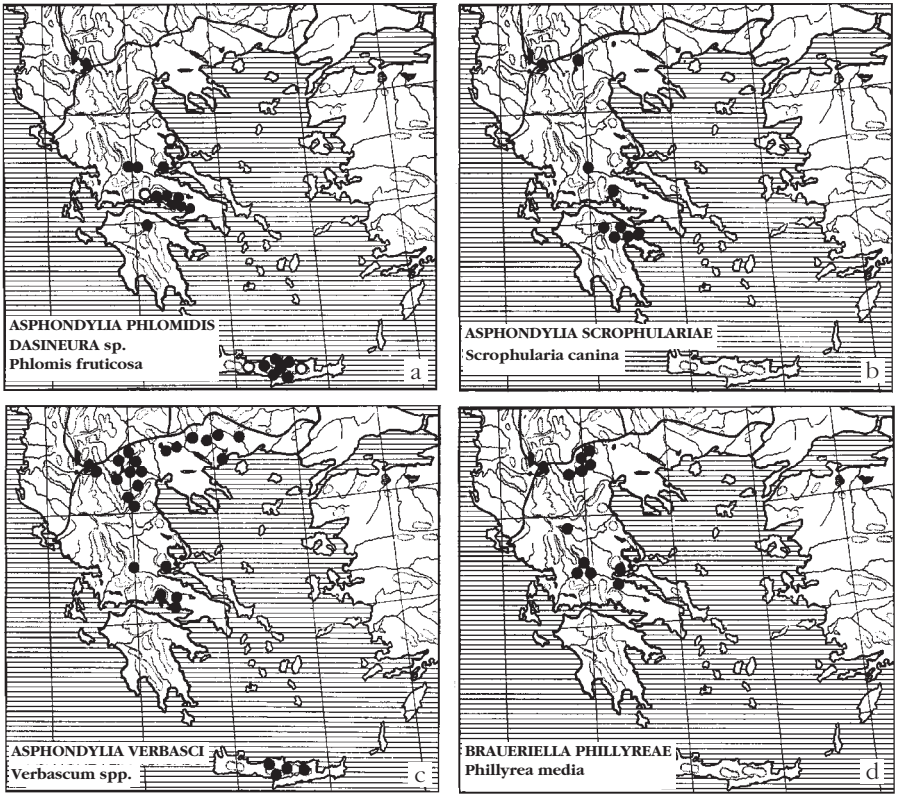

Fig. 2 - The horizontal distribution of gall midge species in Greece: a - *Asphondylia phlomidis* (white circles) and *Dasineura* sp. (black circles); both species cause galls on *Phlomis fruticosa*; b - *Asphondylia scrophulariae* on *Scrophularia nodosa*; c - *Asphondylia verbasci* on *Verbascum sinuatum*; d - *Braueriella phillyreae* on *Phillyrea media*.

designated as frequent. *Braueriella phillyreae* on leaves of *Phillyrea* spp. (fig. 2d), *Dasineura oleae* on *Olea europea* (fig. 3b) and *Odinadiplosis amygdali* on almond tree (fig. 3d) occur frequently mainly in southern and most southern parts of Greece.

Only 8 gall midge species (5%) galls of which were found at 17 to 33 localities may be considered to be very frequent: *Bayeriola thymicola* on *Thymus* spp., *Contarinia cocciferae* on *Quercus coccifera*, (fig. 3a), *Dasineura plicatrix* on *Rubus* spp. and *Oligotrophus panteli* on *Juniperus oxycedrus*, each of them has been found at 19 localities; *Dasineura aparines* on *Galium* sp. and *D. tortrix* on *Prunus* sp., found at 23 localities; *Asphondylia verbasci* on *Verbascum* spp. (fig. 2c) were found at 28 localities. The most abundant gall

midge species in Greece is *Dasineura turionum* larvae of which cause galls on stems of *Asparagus acutifolius*. Galls of this species have been found at 30 localities (fig. 4).

VERTICAL DISTRIBUTION

The vertical distribution of gall midge species in Greece was analysed by altitudinal zones. All localities examined were arranged according to their altitude in belts of 100 meters. Then the average number of gall midges occurring in localities situated in such belts were determined (see fig. 5).

The average gall midge species number in Greece does not decrease significantly with increasing altitude, as it does, for example, in the Czech and Slovak Republics (SKUHRAVÁ, 1991, 1994a, b) and in Switzerland (SKUHRAVÁ & SKUHRAVY, 1997). It has nearly the same value oscillating around the average number of 10 species per one altitudinal belt.

This fact is probably a result of the composition of plant communities in Greece where the rocky and sandy coastal communities and sclerophyllous communities are composed of few plant species and do not provide as suitable conditions for the development of gall midges as the deciduous forest communities of higher altitudinal zones with large numbers of plant species.

Whereas the gall midge species number seems in general to be nearly equal, in reality the gall midge species composition changes significantly with changing plant communities from the coast near the sea level up to mountains (altitudinal gradient) and from the most southern part of Greece, including the island Crete, in the northerly direction following the latitudinal gradient.

GALL MIDGES AS MEMBER OF PLANT COMMUNITIES

In the following part we note typical gall midges inhabiting different plant communities in Greece.

For coastal communities, *Baldratia salicorniae* on *Arthrocnemum fruticosum* is the most typical representative of gall midges. It occurs in a very narrow belt of host plants growing only several meters from the sea. In rocky and sandy coastal communities, the galls of the following species may be found, viz. *Asphondylia conglomerata* and *Stefaniella trinacriae* on *Atriplex halimus*, *Asphondylia phlomidis* on *Phlomis fruticosa* (fig. 2a), *Dasineura turiorum* on *Asparagus acutifolius* (fig. 4) and *Asphondylia verbasci* on *Verbascum* (fig. 2c).

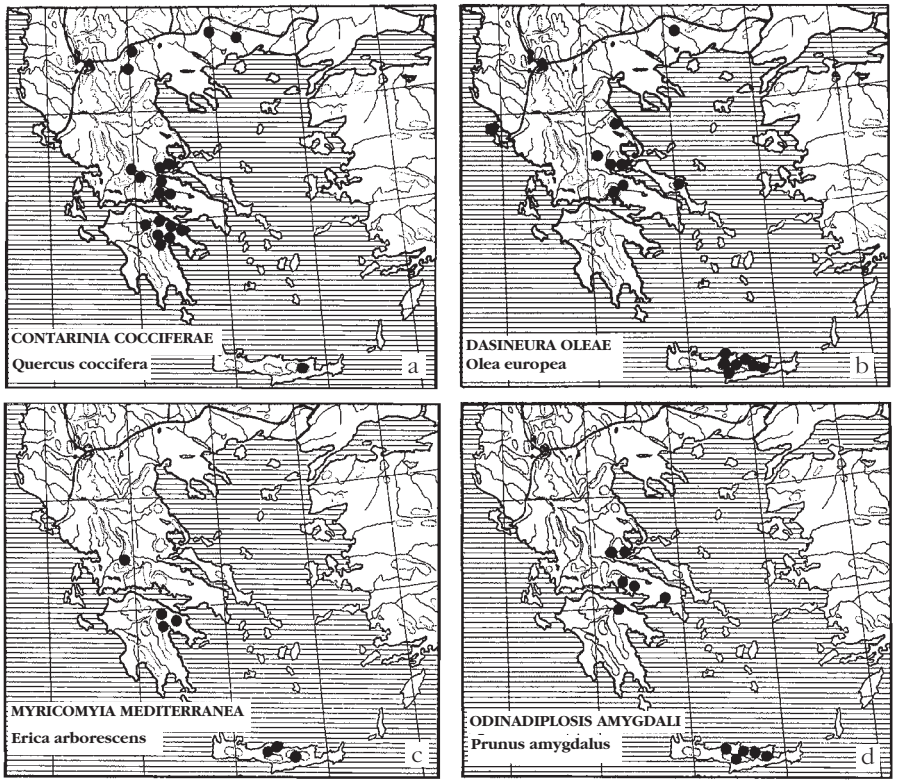

Fig. 3 - The horizontal distribution of gall midge species in Greece: a - *Contarinia cocciferae* on *Quercus coccifera*; b - *Dasineura oleae* on *Olea europaea*; c - *Myricomyia mediterranea* on *Erica arborea*; d - *Odinadiplosis amygdali* on *Prunus amygdalus*.

In the shrub formations, maquis and garriques, the most typical gall midge species is *Asphondylia calycotomae* larvae of which change pods of *Calicotome spinosa* into galls (fig. 6).

In evergreen forest communities the most typical representatives are: *Contarinia cocciferae* on *Quercus coccifera* (fig. 3a), *Dasineura oleae* on *Olea europaea* (fig. 3b), *Monarthropalpus flavus* on *Buxus sempervirens*, *Myricomyia mediterranea* on *Erica arborea* (fig. 3c), and *Braueriella phillyreae* and *Dasineura rufescens* on *Phillyrea media* (fig. 2d).

For deciduous forest communities, the most typical representatives are *Macrodiplosis dryobia* and *M. volvens* on *Quercus pubescens*, *Dasineura plicatrix* on *Rubus* spp. and *Wachtliella rosarum* on *Rosa* spp.

GALL MIDGES AS MEMBERS OF ZOOGEOGRAPHICAL UNITS IN THE PALAEARCTIC REGION

Gall midge species occurring in Greece, similarly as in other countries, may be divided, according to their distribution throughout Europe, the Palaearctic Region or other regions, into five groups, viz. European, Euro-Siberian, Mediterranean, sub-Mediterranean and Holarctic species. Sometimes it is difficult to determine the true character of gall midge species, mainly between Mediterranean and sub-Mediterranean species (SKUHRAVÁ, 1997).

About 60 gall midge species (33%) are European species which have centres of occurrence in Europe. Their distribution areas may be very small to large. Distribution areas of several European gall midge species reach up to the northern part of Greece, as for example *Mikiola fagi* and *Hartigiola annulipes* associated with *Fagus sylvatica*, and *Macrodiplosis dryobia* and *M. volvens* associated with *Quercus robur* and *Q. petraea* in Europe and with *Quercus pubescens* and its relatives in the territory of Greece.

About 20 gall midge species (12%) are Euro-Siberian species. They occur abundantly in Europe, reach to northern Greece and are eastwards to western, middle Siberia and some of them to the Far East. *Lasioptera rubi* on *Rubus idaeus* occurring abundantly in middle Europe occupies a large distribution area extending to the Far East and Japan. Galls of this species occur in northern Greece extending up to the mountainous part of northern Peloponesos. *Dasineura tiliae* on *Tilia*, *Rabdophaga rosaria*, *R. terminalis* and *R. saliciperda* associated with various species of *Salix* occur abundantly in middle Europe but very rarely in Greece, and that only in the most northern mountainous part.

More than 80 gall midge species (50%) are Mediterranean or sub-Mediterranean species. They have centres of origin in southern Europe. As true Mediterranean may be considered gall midges which are associated with Mediterranean host plants: *Asphondylia calycotomae* (*Calicotome spinosa*) (fig. 6), *Contarinia cocciferae* (*Quercus coccifera*), *Dasineura oleae* (*Olea europea*), *Braueriella phillyreae* (*Phillyrea media*), *Myricomyia mediterranea* (*Erica arborea*), *Odinadiplosis amygdali* (*Prunus dulcis*), *Dasineura turiorum* (*Asparagus acutifolius*) (fig. 4) and *Asphondylia scrophulariae* (*Scrophularia canina*).

Gall midge species which occur in Greece and reach up to middle Europe are usually, and more true to nature, designated as sub-Mediterranean. Some of them reach together with their host plant species up to nearby middle Europe in the territory of Hungary, southern Slovakia and the most southern part of the Czech Republic. Typical representatives are *Asphondylia verbasci*

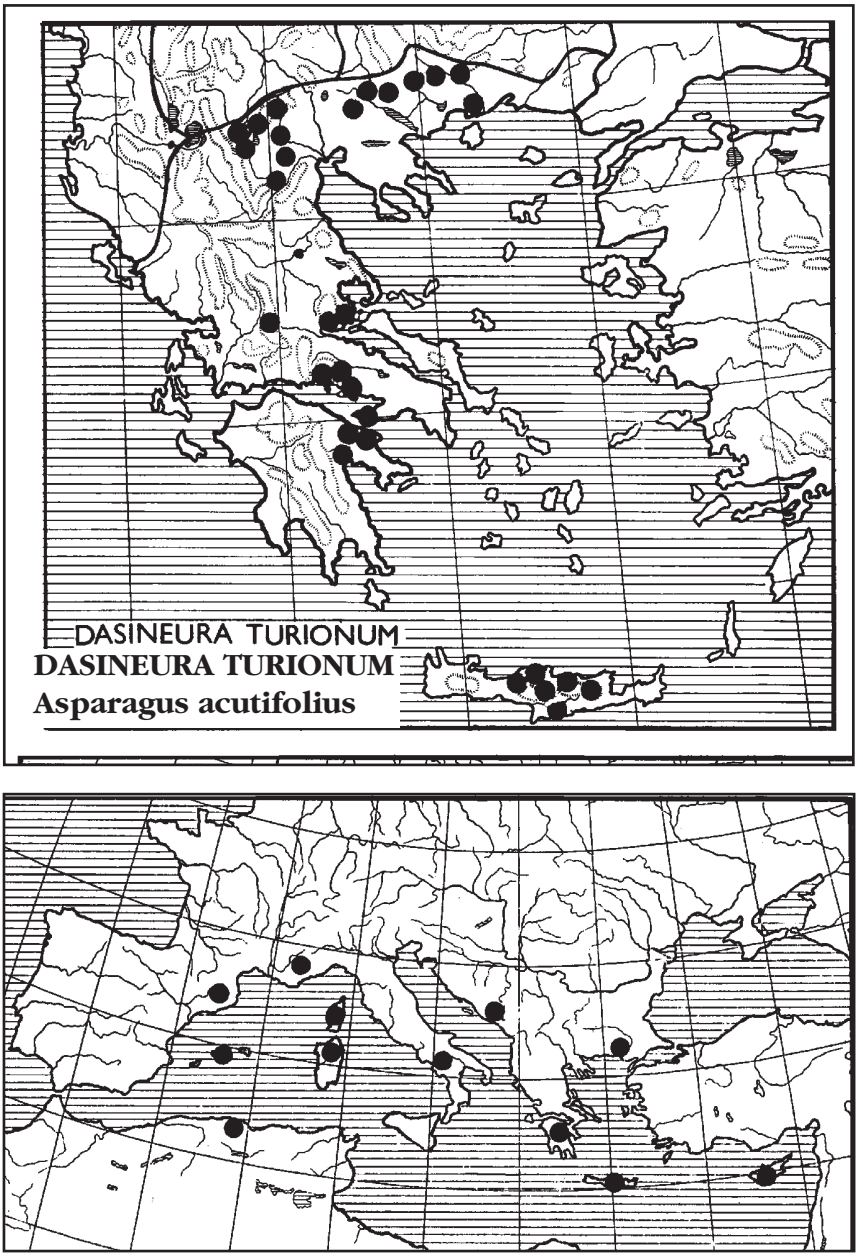

Fig. 4 - The horizontal distribution of *Dasineura turionum* causing galls on stems of *Asparagus acutifolius*; it is the most abundant gall midge species in Greece (above) and the typical representative of the Mediterranean fauna (below).

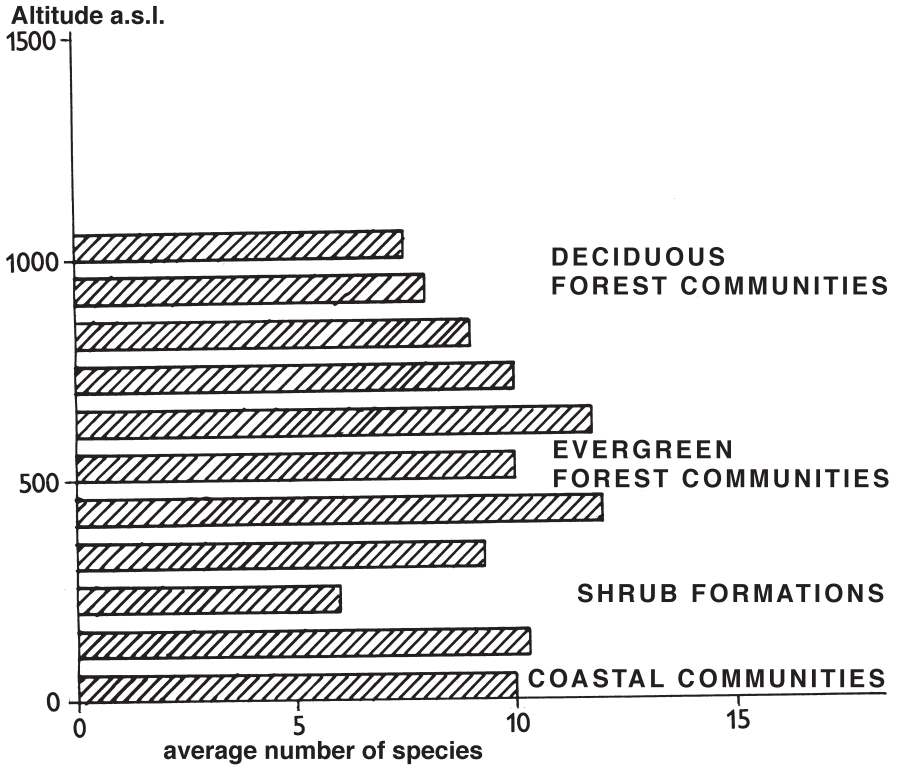

Fig. 5. The vertical distribution of gall midges shown as average number of species in belts of 100 meters in altitudinal zones of Greece and in relation to the main plant communities.

(*Verbascum* spp.), *Lasioptera eryngii* (*Eryngium campestre* and relatives), *Apiomyia bergenstammi* (*Pyrus communis*) and *Wachtliella ericina* (*Erica* spp.).

Only eight gall midge species (5%) have Holarctic distribution. They are probably primarily the European or Euro-Siberian species according to their origin, but secondarily they have been transferred to North America, probably with seed as *Ozirhincus millefolii* and *Semudobia betulae*, with cereals as *Mayetiola destructor*, or with seedling materials as *Monarthropalpus flavus*. Also *Contarinia pyrivora*, *Dasineura pyri* and *Dasineura mali*, all damaging

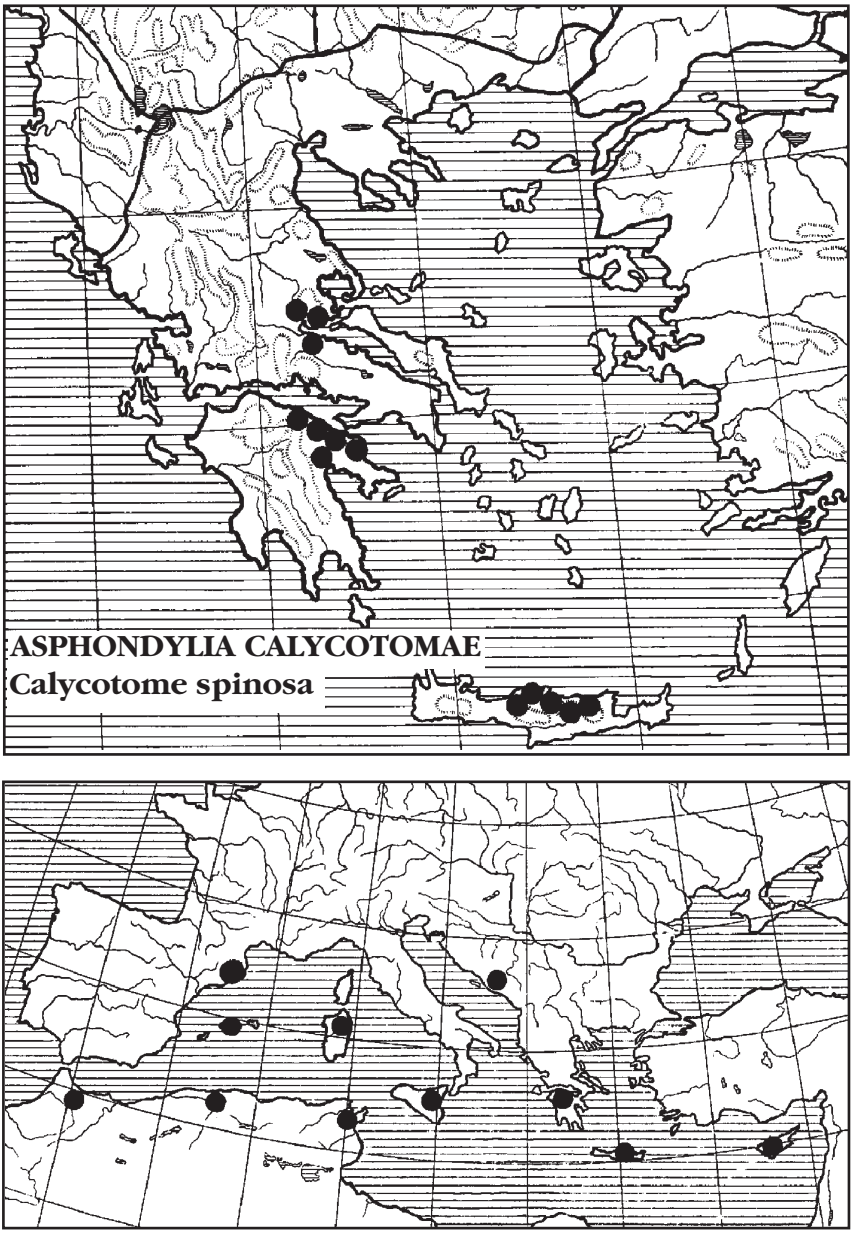

Fig. 6 - The horizontal distribution of the typical representative of the Mediterranean fauna, *Asphondylia calycotomae* causing galls on *Calicotome villosa*, in Greece (above) and in the Mediterranean area (below).

fruit trees, have Holarctic distribution, as does only one useful gall midge species, *Aphidoletes aphidimyza*, larvae of which attack aphids and which is therefore used in biological control.

The Mediterranean and sub-Mediterranean gall midge species form a substantial part of the gall midge fauna of Greece. Similar relations of zoogeographical elements, as they have been found in the composition of gall midge fauna of Greece, were found in gall midge fauna of Hungary. Such relations differ significantly from those found in gall midge faunas of the Czech and Slovak Republics (SKUHRAVÁ, 1997).

Relation between the European (together with Euro-Siberian) and Mediterranean gall midge species changes significantly when we analysed the faunal composition of Greece from the north part to the most southern part - to the island Crete. In the north-eastern part of Greece the Mediterranean gall midge species form only 34%, in north-western part 40%, in the middle part (southern areas) 59%, in Peloponesos (northern areas) 55% and in Crete the mediterranean species form nearly 70% of all species found.

ECONOMIC IMPORTANCE

Nine gall midge species were mentioned as pests of cultivated plants in Greece in the past. The most important pest was and remains *Odinadiplosis amygdali* on almond tree, *Prunus dulcis* (*Prunus amygdalus*), and peach tree, *Prunus persica*. Larvae cause abnormal multiplication of buds on almond and peach. Flowers and fruits do not develop and attack results in death of the trees (BARNES, 1936, 1948). ANAGNOSTOPOULOS (1929) described this species from the type locality at Athens.

ISAAKIDES (1936a) listed *Apiomyia bergenstammi* as a pest of pear which occurred at Xylokastron. Larvae cause woody, plurilocular galls on terminal parts of twigs on pear (*Pyrus communis* and *P. salicifolia*).

Dasineura oleae, *Lasioptera berlesiana* and *Resseliella oleisuga* associated with olive trees (*Olea europaea*) may cause damage when occurring in large quantity. KORONÉOS (1939) described the life cycle of *Lasioptera berlesiana* larvae of which inhabit the olive fruits damaged by *Bactrocera oleae*. FÉRON and D'AGUILAR (1962) reported the possibility of control of populations of *Dasineura oleae*, causing galls on olive leaves, by polyvalent insecticides. ARGYRIOU and MARAKIS (1974) studied the biology of *Resseliella oleisuga* which injures young olive trees and trees cut for renewal on the trunk in Crete.

BARNES (1948, 1949) gave a description of *Janetiella oenophila*, a pest of vine (*Vitis vinifera*), with remarks about its occurrence in Greece. Larvae

cause round or oval galls on leaves of *Vitis vinifera*, extending to both surfaces, with hard walls. It is stated to be quite unimportant as a pest.

STAVRAKIS and LAMPBAKOPOULOS (1971) studied the biology and parasites of *Contarinia medicaginis* in Sperchias area, in the middle part of Greece. Larvae of *C. medicaginis* change flower buds into galls. This species seriously damaged alfalfa, grown for seed in the Sperchias area. Estimated yield losses reached up at that time as high as 80% in some years.

CAVADAS (1930) reported that the cereals, wheat and barley, were severely attacked by *Mayetiola destructor* in Thessalia in the spring months of 1930.

PELEKASSIS (1962) and MOURIKIS *et al.* (1975) listed above mentioned gall midge species among the most important pests observed on cultivated plants in Greece. ARGYRIOU *et al.* (1976) gave a review of parasitoids reared from five gall midge species which damaged cultural plants.

Asphondylia gennadii, larvae of which change pods of carob tree (*Ceratonia siliqua*) into galls, seems to be a serious pest. Attacked pods are deformed, remain small, undeveloped, and become prematurely brown in colour. ORPHANIDES (1975) mentioned that this species is and remains a pest of carob trees in Crete.

LIST OF HOST PLANT SPECIES ATTACKED BY GALL MIDGES

Acer campestre L.
Dasineura rubella (Kieffer)
Dasineura tympani (Kieffer)
Dasineura sp.

Acer monspessulanum L.
Contarinia acerplicans (Kieffer)
Drisina glutinosa Giard
Contarinia sp.

Achillea millefolium L.
Ozirhincus millefolii (Wachtl)

Ajuga chamaepytis Schreb.
Asphondylia massalongoi Rübs.

Apiaceae, various species
Kiefferia pericarpiicola (Bremi)
Lasioptera carophila F. Löw

Artemisia campestris L.
Rhopalomyia artemisiae (Bouché)
Rhopalomyia tubifex (Bouché)

Artemisia vulgaris L.
Blastodiplosis artemisiae (Kffr.)
Rhopalomyia baccarum (Wachtl)

Artemisia sp.
Rhopalomyia sp.

Arthrocnemum fruticosum (L.)
Baldratia salicorniae Kieffer

Arundo donax L.
Lasioptera donacis Coutin

Asparagus aphyllus L.
Contarinia (near *florum* Rübs.)
Dasineura turionum (Kffr.+Trotter)
Dasineura sp.

Asphodelus sp.
Silvestriola asphodeli Barnes

Atriplex halimus L.
Asphondylia conglomerata Stefani
Asphondylia punica Marchal
Stefaniella atriplicis Kieffer
Stefaniella trinacriae Stefani

Atriplex sp.
Aphidoletes aphidimyza (Rondani)

Aurinia petraea (Ard.) Schur.
Dasineura sp.

Ballota nigra L.
Contarinia ballotae Kieffer

Betula pendula Roth.
Semudobia betulae (Winnertz)
Semudobia skuhravae Roskam

Bryonia alba L.
Jaapiella bryoniae (Bouché)

Buxus sempervirens L.
Monarthropalpus flavus (Schrank)

Calendula officinalis L.
Aphidoletes aphidimyza Rondani

Calicotome villosa (Poir.) Link
Asphondylia calycotomae Kieffer

Campanula sp.
Arthrocnodax sp.

Capparis spinosa L.
Asphondylia capparis Rübs.

Carpinus betulus L.
Aschistonyx carpinicolus Rübs.
Contarinia carpini Kieffer
Ceratonia siliqua L.
Asphondylia gennadii (Marchal)

Chondrilla juncea L.
Cystiphora schmidti (Rübs.)

Chrysanthemum coronarium L.
Ozirhincus longicollis Rondani

Cistus sp.
Lestodiplosis sp. on Coccidae

Clematis flammula L.
Dasineura sp.

Coronilla emerus L. and Coronilla scorpioides (L.) Koch
Asphondylia coronillae (Vallot)

Crataegus oxyacantha L.
Contarinia anthobia (F. Löw)
Dasineura crataegi (Winnertz)

Cytisus sp.
Asphondylia cytisi Frfld.
Wachtliella niebleri Rübs.

Dactylis sp.
Contarinia dactylidis (H. Loew, 1851)

Dorycnium sp.
Asphondylia dorycnii (Müller)

Erica arborea L.
Myricomyia mediterranea (F. Löw)
Wachtliella ericina (F. Löw)
Dasineura vagans (Kieffer)

Erica manipuliflora Salisb.
Myricomyia mediterranea (F. Löw)

Eryngium campestre L.
Lasioptera eryngii (Vallot)

Erysimum graecum Boiss. et Heldr.
Janetiella fortiana Trotter
Contarinia sp.
Dasineura sp.

Euphorbia cyparissias L.
Spurgia capitigena (Bremi)
Macrolabis lutea Rübsaamen

Euphorbia wulfenii Hoppe ex Koch (E. characias L.)
Janetiella euphorbiae Stefani

Fagus sylvatica L.
Hartigiola annulipes (Hartig)
Mikiola fagi (Hartig)

Ferula communis L.
Asphondylia (near *ruebsaameni* Kertész)
Jaapiella sp. (near *hedickei* Rübs.)
Lasioptera carophila F. Löw

Fraxinus ornus L.
Dasineura acrophila (Winnertz)

Galium aparine L.
Dasineura aparines (Kieffer)
Geocrypta galii (Loew)

Galium lucidum All.
Contarinia galii Kieffer

Genista sp.
Asphondylia sp. (near *genistae*)

Geum sp.
Contarinia gei Kieffer

Hieracium sp.
Cystiphora sanguinea (Bremi)

Hypericum triquetrifolium
Dasineura hyperici (Bremi)

Hyparrhenia hirta (L.) Stapf.
Mayetiola sp.

Juniperus phoenicea L.
Mycodiplosis gymnosporangii Kffr.

Juniperus oxycedrus L.
Arceuthomyia valerii (Tavares)
Oligotrophus juniperinus (L.)
Oligotrophus panteli Kieffer

Lamium sp.
Macrolabis lamii Rübsaamen

Malus sylvestris Mill. (=Pyrus malus L.)
Dasineura mali (Kieffer)

Medicago polymorpha L. and Medicago orbicularis (L.) Bartel
Dasineura lupulinae (Kieffer)

Medicago sativa L.
Contarinia medicaginis Kieffer

Medicago sp.
Jaapiella medicaginis (Rübs.)

Nonea sp.
Asphondylia sp.

Olea europaea L.
Dasineura oleae (F. Löw)
Lasioptera berlesiana Paoli
Resseliella oleisuga (Targ.-Tozz.)

Ononis natrix L.
Asphondylia ononidis F. Löw

Onosma frutescens Lam.
Dasineura sp.

Papaver rhoeas L.
Dasineura papaveris (Winnertz)

Phillyrea media L.
Braueriella phillyreae (F. Löw)
Dasineura rufescens (Stefani)
Probruggmanniella phillyreae (Tav.)
Asphondylia sp.

Phlomis fruticosa L.
Asphondylia phlomidis Trotter
Dasineura sp.

Phragmites australis (Cav.) Trin.
Giraudiella inclusa (Frfld.)
Lasioptera arundinis Schiner
Lasioptera hungarica Möhn

Pimpinella major (L.) Huds.
Jaapiella hedickei Rübs.
Lasioptera carophila F. Löw

Pinus halepensis Mill.
Thecodiplosis brachyntera (Schwägr.)

Plantago albicans L.
Arthrocnodax sp. on *Eriophyes barroisi*

Prunus dulcis (Miller) D.A. Webb (P. amygdalus Batsch.)
Odinadiplosis amygdali (Anagn.)

Prunus spinosa L.
P. webbii (Spach) Vierh.
Dasineura tortrix (F. Löw)

Prunus sp.
Putoniella pruni (Kaltenbach)

Pyrus communis L.
Apiomyia bergenstammi (Wachtl)

Pyrus pyraster L.
Contarinia pyrivora (Riley)

Pyrus salicifolia Lois.
Dasineura pyri (Bouché)

Quercus cerris L.
Contarinia quercicola (Rübs.)
Dasineura tubularis (Kieffer)
Dryomyia circinans (Giraud)
Janetia cerris (Kollar)
Janetia homocera (F. Löw)
Janetia plicans (Kieffer)
Janetia pustularis (Kieffer)
Janetia szepligetii Kieffer

Quercus coccifera L.
Contarinia cocciferae (Tavares)

Quercus ilex L.
Contarinia ilicis Kieffer
Janetia tympanifex (Kieffer)

Quercus pubescens Willd.
Contarinia quercina (Rübsaamen)

Quercus frainetto Ten.
Macrodiplosis dryobia (F. Löw)

Quercus robur L.
Macrodiplosis volvens Kieffer
Polystepha malpighii (Kieffer)

Rosa sp.
Wachtliella rosarum (Hardy)
Macrolabis luceti Kffr., inquiline

Rubus sp.
Buhriella rubicola Stelter
Lasioptera rubi (Schrank)

Rubus caesius L.
Dasineura plicatrix (Loew)

Salix sp.
Rabdophaga marginemtorquens (Bremi)

Salix alba L.
Rabdophaga rosaria (Loew)
Rabdophaga saliciperda (Dufour)
Rabdophaga terminalis (Loew)

Sarothamnus sp.
Asphondylia sarothamni H. Loew
Contarinia scoparii (Rübsaamen)
Dasineura tubicola (Kieffer)

Scrophularia canina L.
Asphondylia scrophulariae Schiner

Sherardia arvensis L.
Dasineura sp.

Silene vulgaris (Moench) Gar.
Jaapiella floriperda (F.Löw)

Silene behen L.
Macrolabis sp.

Sisymbrium orientale L.
Contarinia sp. (near *kiefferi* Schl.)
Contarinia sp. (axillar gall)

Sonchus sp.
Cystiphora sonchi (Bremi)

Spartium junceum L.
Asphondylia pterosparti Tavares
Dasineura sp. (flower buds)

Tamarix sp.
Psectrosema tamaricis Stefani

Tanacetum vulgare L.
Ozirhincus tanaceti (Kieffer)
Rhopalomyia tanaceticola (Karsch)

Thapsia garganica L.
Lasioptera thapsiae Kieffer

Thymus serpyllum L.
Bayeriola thymicola (Kieffer)
Janetiella thymi (Kieffer)

Thymus vulgaris L.
Asphondylia sp. (near *serpyli* Kieffer)

Tilia tomentosa Moench (=T. argentea DC)
Dasineura thomasiana (Kieffer)
Dasineura tiliae (Schrank)
Macrolabis sp. (inquiline)
Didymomyia tiliacea (Bremi)
Physemocecis hartigi (Liebel)

Triticum vulgare L.
Mayetiola destructor (Say)

Ulmus minor Mill.
Janetiella lemeei (Kieffer)
Physemocecis ulmi (Kieffer)

Urtica dioica L.
Dasineura urticae (Perris)

Verbascum sinuatum L.
Asphondylia verbasci (Vallot)
Trotteria sp. (inquiline)

Veronica chamaedrys L.
Jaapiella veronicae (Vallot)

Vicia cracca L.
Contarinia craccae Kieffer

Vicia spp.
Dasineura viciae (Kieffer)

Viola sp.
Dasineura affinis (Kieffer)

Vitis vinifera L.
Janetiella oenophila (Haim.)

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RIASSUNTO

I Cecidomiidi (Diptera: Cecidomyiidae) della Grecia

I Cecidomiidi della fauna greca sono rappresentati attualmente da 167 specie note, trovate in 67 località, in occasione di spedizioni effettuate negli anni 1994, 1995 e 1996. Solamente 20 specie di cecidomiidi erano state segnalate per la Grecia dal 1880 al 1993; 149 risultano nuove segnalazioni. Viene fornito un elenco di specie con annotazioni riguardanti luoghi di raccolta, dati biologici e zoogeografici. Viene anche data una valutazione sull'importanza zoogeografica ed economica dei reperti. Delle specie paleartiche raccolte, il 33% risultano europee, il 12% euro-siberiane, il 50% mediterranee e sub-mediterranee e il 5% olartiche. Nove specie venivano considerate dannose in passato a piante coltivate, e una specie (*Odinadiplosis amygdali*) è tuttora molto dannosa al mandorlo e al pesco. Viene anche riportato un elenco delle piante ospiti dei cecidomiidi trattati. La distribuzione geografica di varie specie mediterranee è illustrata con apposite mappe.

Parole chiave: faunistica, zoogeografia, mediterraneo, paleartico, europeo, euro-siberiano, oloartico, distribuzione, importanza economica, danni.

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