

Gall midges (Diptera: Cecidomyiidae) of three Greek islands: Lefkada, Rhodos and Zakynthos

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Abstract. During investigations of three Greek islands, 50 species of the family Cecidomyiidae were found. Gall midges are associated with 40 host plant species belonging to 20 plant families. 32 gall midge species were found in Lefkada, 33 species in Rhodos and 14 species in Zakynthos. 11 species are new records for Greece: *Asphondylia coridothymi* Skuhrová, 2011 on *Coridothymus capitatus*, *Jaapiella clematidicola* Skuhrová, 2011 on *Clematis flamma*, *Janetiella onosmae* Skuhrová, 2011 on *Onosma frutescens*, *Phlomidomyia pustularis* Skuhrová, 2011 on *Phlomis fruticosa*, *Contarinia jacobaeae* (Loew, 1850) on *Senecio jacobaeae*, *Contarinia tragopogonis* Kieffer, 1909 on *Tragopogon* sp., *Dasineura ericaescopariae* (Dufour, 1837) on *Erica arborea*, *Dryomyia cocciferae* (Marchal, 1897) on *Quercus coccifera*, and three species identified to the genus level, viz. *Asphondylia* sp. on *Laburnum anagyroides*, *Contarinia* sp. on *Quercus ilex* and *Dasineura* sp. on *Quercus coccifera*. The present fauna of Greece consists of 223 species. *Dasineura oleae* (Angelini, 1831) causing leaf galls on *Olea europaea*, *Dasineura turionum* (Kieffer et Trotter, 1904) causing stem galls on *Asparagus acutifolius* and *D. plicatrix* (Loew, 1850) causing leaf galls on *Rubus* sp. are the most abundant gall midge species. Zoogeographical analysis: 64% of gall midge species are Mediterranean, 24% European, 6% Eurosiberian and 6% Holarctic. The average species number at one locality is 7 for Rhodos and 9 for Lefkada. Annotated lists of gall midge species and a list of host plants attacked by gall midges are given.

Key words. Distribution, zoogeography, Cecidomyiidae, Diptera, Greece, Lefkada, Rhodos, Zakynthos, Mediterranean, Palaearctic region, plant-insect interactions.

INTRODUCTION

In this paper we extend knowledge of the gall midges of the Greek islands. We carried out investigations on Lefkada, Rhodos and Zakynthos, with the aim of comparing the new data with our older data obtained in other Greek islands – Corfu, Samos and Crete – and with the island of Cyprus situated in the eastern part of the Mediterranean Sea. We made all these investigations ourselves and by using the same method and, therefore, it is possible to compare results obtained from different parts of Greece.

In Europe more than 1800 species of the family Cecidomyiidae are known. More than 1200 species of them cause galls (Skuhravá & Skuhrový 2010). Greece is situated in the most south-eastern part of Europe, in the most southern part of the Balkan Peninsula and in the Mediterranean. Greece amounting to 132,000 km² consists of the mainland and about 1400 islands of various size. Greece is a mountainous country with the highest point – Olympos, 2907 m a. s. l. situated in the middle of the country.

Up to 1993 only a small number – 20 gall midge species – were known to occur in the whole territory of Greece. We decided therefore to carry out systematic investigations of gall midges occurring in this country. Our aim was to bring Greece to the European level of knowledge from the point of view of gall midges. We divided Greece in several parts and gradually investigated

them. During three years (1994, 1995, 1996) we examined 67 localities in the north-eastern, north-western and middle part, at Peloponesos and in Crete and discovered 149 gall midge species which were new records for Greece (Skuhrová & Skuhrový 1997). In 2004 we continued our investigations in the island of Corfu (Kerkyra) at 8 localities, in 2005 in the island of Samos at 7 localities and in 2007 at 10 localities in the Olympos Mountains (Skuhrová & Skuhrový 2006, 2009). After these investigations, the gall midge fauna of Greece included 211 species and may be evaluated as a country of medium known fauna and the level of knowledge is comparable with gall midge faunas of Switzerland, Spain, and Bulgaria (Skuhrová & Skuhrový 2010).

Nobody had previously collected cecidomyiid galls on these three islands. Only one gall midge species – *Lasioptera thapsiae* Kieffer, 1898 – was known from Rhodos, the gall of which was reported by Mimeur (1949).

MATERIAL AND METHODS

The investigations of occurrence and distribution of gall midges have been done by means of a uniform method, by collecting galls on host plants at each locality by the time/area collecting method. This method is described in detail in Skuhrová & Skuhrový (1997). In brief: two researchers carefully search for galls slowly walking in natural habitats over a distance of about one kilometer in the course of two or three hours.

Identification of gall midge galls is based on the 50-years knowledge of gall midge galls gathered by the authors and also the use of old identification keys of Houard (1909) and Buhr (1965). Identification of larvae is based on Möhn (1955), of adults on Skuhrová (1997a), nomenclature of gall midge species is based on Skuhrová (1986, 1989) and Gagné (2004, 2010). Nomenclature of host plants is based on Tutin et al. (1964–1980). Data about gall midges gathered during these investigations were analysed and evaluated from the zoogeographical point of view using methods described by Skuhrová (1987, 1994a, b, 1997b).

Gall midge galls (voucher specimens), larvae, pupae and adults are deposited in the collection of Marcela Skuhrová in Praha, Czech Republic.

STUDY AREA

In 2009 and 2010 we investigated gall midge faunas of three other Greek islands: Lefkada and Zakynthos situated in the Ionian Sea in the western part of Greece and of Rhodos which is situated in the most south-eastern part of Greece, very near to Turkey.

From the biogeographical point of view, according to Udvardy (1975), all islands belong to the Mediterranean Sclerophyll Province. According to Noirfalise (1987), Lefkada and Zakynthos belong to the eastern humid thermo-Mediterranean province, Rhodos to the province with dominant trees of *Pinus brutia* and *Cupressus sempervirens*.

Lefkada occupies an area of 336 km². The highest point is Staurotas, 1182 m a. s. l. The island is covered with forests. The main trees are *Pinus halepensis* and *Cupressus sempervirens* which are accompanied by various other trees and shrubs: *Pistacia*, *Rubus*, *Phillyrea*, *Crataegus* and *Olea europaea*. It has a typical Mediterranean climate with hot summers and cooler winters. In 2009 we investigated nine localities situated along the eastern coast of the island (Fig. 1 A):

Kollivata, 600 m a. s. l.: forest stands near the village Agios Georgiou and along the road; stands with various trees and shrubs: *Pinus halepensis*, *Pistacia*, *Laurus nobilis*, *Phillyrea media*, *Myrtus*, *Crataegus*, *Olea europaea*; 9 June 2009 (4) (Fig. 3).

Lefkada (fortification), 2–5 m a. s. l.: stands at the margin of the town and around the fortification, salt marshes along the seaside, with *Salsola* and *Arthrocnemum*, *Inula*, *Asparagus acutifolius*, *Sonchus*, *Spartium junceum*, *Gleditchia triacanthos*, *Robinia pseudoacacia*; 10 June 2009 (1) (Fig. 4).

Ligia, 40–60 m a. s. l.: stands along a small road with *Rubus*, *Cupressus*, *Phlomis*, *Olea europaea*, *Spartium junceum*, *Quercus coccifera*; 6 June 2009 (2).

Neochori, 450 m a. s. l.: stands round a small village with *Olea europaea*, *Rubus*, *Spartium junceum*, *Phlomis fruticosa*, *Pinus halepensis*, *Pistacia*, *Cupressus*; 8 June 2009 (8) (Fig. 2).

Nidri, 5–50 m a. s. l.: stands along the path between gardens and fallow ground, margins of olive orchards, *Citrus*, *Ficus*; 3 June 2009 (5).

Nikiana, 50–80 m a. s. l.: cemetery, *Pistacia*, *Olea*, *Eryngium campestre*, *Calycotome*, *Rubus*; 5 June 2009 (3).

Perigiali, 50–70 m a. s. l.: stands along the path with *Olea europaea*, *Platanus*, *Eucalyptus*, *Rubus*, *Asparagus aphyllus*, *Sonchus oleraceus*; 11 June 2009 (6).

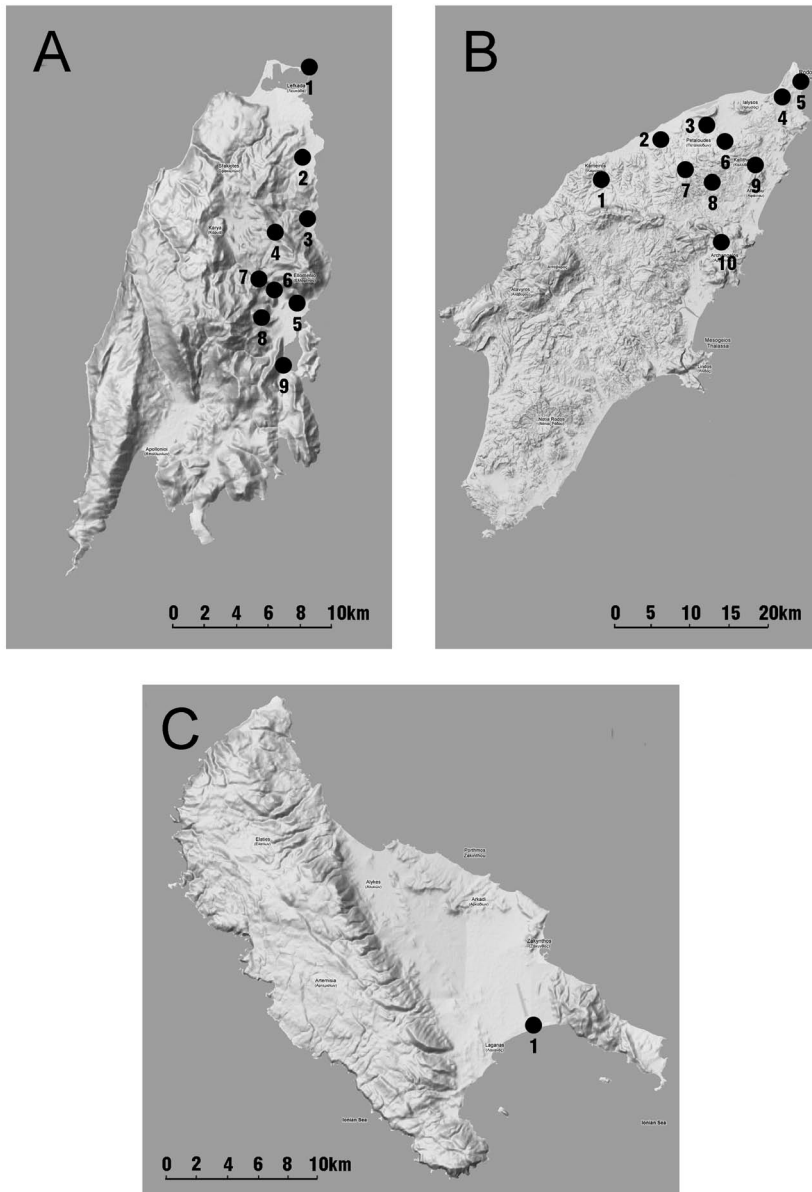


Fig. 1A–C. Three Greek islands with localities where investigations of the family Cecidomyiidae were carried out by the present authors in 2009 and 2010: A – The island Lefkada: 1 – Lefkada; 2 – Ligia; 3 – Nikiana; 4 – Kollivata; 5 – Nidri; 6 – Perigiali; 7 – Water Falls; 8 – Neochori; 9 – Vlichio. B – The island Rhodos with localities where investigations of the family Cecidomyiidae were carried out in 2010: 1 – Kamiros; 2 – Soroni; 3 – Damatria; 4 – Rhodos – Monte Smith; 5 – Rhodos – parks; 6 – Maritsa; 7 – Petaloudes; 8 – Psinthos; 9 – Kalithies; 10 – Epta Piges. C – The island Zakynthos where investigations were carried out along the seaside and in the surroundings of Kalamaki village in July 2010.



Figs. 2–7. Localities on Lefkada and Rhodos where investigations have been carried out. 2 – Neochori on Lefkada, 450 m a. s. l., where galls of seven gall midge species were found. 3 – Kollivata on Lefkada, 600 m a. s. l., where galls of eleven gall midge species were found. 4 – the locality near the town of Lefkada with salt marshes along the seaside where galls of *Baldratia salicorniae* Kieffer, 1897 were found. 5 – Kamiros, 100 m a. s. l., archeological site on Rhodos where galls of nine gall midge species were found. 6 – Monte Smith Hill on Rhodos, 110 m a. s. l., where bud galls of *Asphondylia* sp. on *Laburnum anagyroides* were discovered. 7 – the authors on the excursion to the fortification of Rhodos castle, 17 May, 2010.

Vlichos, 5–50 m a. s. l.: stands along the path around the bay and on the hill with *Pinus halepensis*, *Laurus nobilis*, *Quercus coccifera*, *Ulmus*, *Erica arborea*, *Quercus pubescens*, *Verbascum sinuatum*, *Coronilla emerus*; 4 June 2009 (9).

Water Falls near Nidri, 280 m a. s. l.: deep valley with a system of springs supplying Loutanis river under Mount Paliomilos, with old large trees of *Platanus occidentalis*, *Alnus*, *Ulmus*, *Fraxinus ornus*, *Ostrya carpinifolia*, *Quercus coccifera*, *Q. ilex*; 7 June 2009 (7).

Rhodos (Rhodes) is situated in the eastern Aegean Sea, 363 km east-south from Greece mainland and 18 km south-west of Turkey. It is closer to Asia Minor than to the Greek mainland (Davis et al. 1965–2001). It occupies an area of 1400 km². The interior of the island is mountainous, sparsely inhabited and covered with forests of *Pinus brutia* and *Cupressus sempervirens*. The highest point is Mount Attavyros, 1,216 m a. s. l. The island has arable strips of land where citrus fruit, wine grapes, vegetables, olives and other Mediterranean crops are grown. In 2010 we investigated ten localities situated in the northern part of the island (Fig. 1 B).

Damatrìa, 55 m a. s. l.: stands around a hill with *Pistacia*, *Calycotome*, *Quercus coccifera*, *Asparagus*, *Olea*, *Pyrus piraster*; 14 May 2010 (3).

Epta Piges (Valley of the Seven Springs), 200–300 m a. s. l.: A system of springs that supply the river Loutanis, with forest and dense vegetation; *Pinus brutia*, *Platanus orientalis*, *Quercus coccifera*, *Nerium oleander*, *Vitex agnus-castus*, *Pistacia terebinthus* and *P. lentiscus*; 13 May 2010 (10).

Kalithies, 65 m a. s. l.: Stands along a path round the hill, between Kalithries and Faliraki, with *Pistacia*, *Erica*, *Arundo donax*, *Calycotome*, *Olea europaea*; 14 May 2010 (9).

Kamìros, 50 – 100 m a. s. l.: forest stands on the hill near the ancient ruins and archaeological site with rich vegetation: *Pistacia*, *Phillyrea*, *Calycotome*, *Vitis vinifera*, *Asparagus*, *Papaver rhoeas*, *Sisymbrium*; 12 May 2010 (1) (Fig. 5).

Maritsa, 350 m a. s. l.: forest stands on a small hill with *Olea europaea*, *Pistacia*, *Pinus halepensis*, *Quercus coccifera*, *Rhamnus alaternus*, *Echium vulgare*, *Calycotome*, *Pyrus pyraster*, *Echium*, *Papaver rhoeas*; 15 May 2010 (6).

Petaloudes (Valley of the Butterflies), about 300 m a. s. l.: a way round the valley, with *Pinus halepensis*, and other trees and shrubs, such as *Pyrus pyraster*, *Quercus coccifera*; 15 May 2010 (7).

Psinthos, 280 m a. s. l.: stands on the hill side with *Pistacia terebinthus*, *Genista*, *Calycotome*, *Cissus*, *Quercus ilex*, *Olea europaea*; 14 May 2010 (8).

Rhodos: Monte Smith Hill, 110 m a. s. l.: hill above the town, covered mainly with *Pistacia terebinthus*, *P. lentiscus*, *Laurus nobilis*, *Pinus halepensis*; 16 May 2010 (4) (Fig. 6).

Rhodos: 30 m a. s. l.: parks in and around the fortifications and on archeological sites with *Pinus halepensis*, *Pistacia terebinthus*, *Olea europaea*, *Robinia pseudoacacia*, *Laurus nobilis*; 17 May 2010 (5) (Fig. 7).

Soroni, 25 m a. s. l.: stands along the dried river, around olive grove and on a small hill with *Pinus halepensis*; 15 May 2010 (2).

Zakynthos is the third largest of the Ionian Islands. It covers an area of 410 km². The highest point is the hill Vrachionas, 758 m a. s. l. Zakynthos has a varied terrain, with fertile plains in the south-eastern part and mountainous terrain with steep cliffs along the coasts on the west. The island is covered with dense vegetation. In July 2010 we investigated shrubs and trees in the surroundings of the village of Kalamaki situated in the eastern part of the island and dried vegetation on rocks along the seaside (Fig. 1 C).

RESULTS

Annotated list of gall midge species

The following data are given for each species: species name, author and date of description, synonyms (if any), short description of the biology (if known), shape of the gall, host plant species and family, data of occurrence in Lefkada, Rhodos and Zakynthos, and character of distribution in the Palaearctic region. An asterisk (*) before the species name indicates a new record for Greece.

Aphidoletes aphidimyza (Rondani, 1847)

Larvae feed predaciously on various species of aphids. They are used in biological control.

OCCURRENCE. **Rhodos**: Maritsa (larvae feed on aphids on *Spartium junceum*).

DISTRIBUTION. Holarctic.

Apiomyia bergenstammi (Wachtl, 1882)

Larvae cause woody, plurilocular galls on twigs of *Pyrus communis* L. (Rosaceae) (Fig. 8). Wachtl (1882) described this species based on material collected by Bergenstamm at Corfu.

OCCURRENCE. **Lefkada**: Kollivata, Nidri, Nikiana, Perigiali. – **Rhodos**: Damatria, Maritsa, Petaloudes, Rhodos town, Soroni.

DISTRIBUTION. Mediterranean. The species is distributed mostly in the eastern Mediterranean, mainly in Greece, where the species develops on *Pyrus communis*, but also on its probable original host plant *Pyrus pyrastrer*.

Arthrocnodax vitis Rübsaamen, 1895

Larvae feed predaciously on eriophyoid mites on leaves of *Vitis vinifera* L. (Vitaceae).

OCCURRENCE. **Lefkada**: Nidri.

DISTRIBUTION. Mediterranean.

Aschistonyx carpinicolus Rübsaamen, 1917

Larvae live in irregularly curled young leaves of *Carpinus betulus* L. (Corylaceae).

OCCURRENCE. **Lefkada**: Kollivata.

DISTRIBUTION. European.

Asphondylia calycotomae Kieffer, 1912

A solitary larva develops in swollen leaf bud (hibernation generation) or in swollen fruit (summer generation) of *Calicotome villosa* (Poiret) Link (Fabaceae).

OCCURRENCE. **Lefkada**: Ligia, Neochori, Nikiana, Vlichos, Water Falls. – **Rhodos**: Damatria, Kalithies, Kamiros, Maritsa, Soroni. – **Zakynthos**: Kalamaki.

DISTRIBUTION. Mediterranean.

Asphondylia capparidis Rübsaamen, 1894

Larvae cause flower bud galls on *Capparis spinosa* L. (Capparidaceae) (Fig. 9).

OCCURRENCE. **Rhodos**: Rhodos (parks). – **Zakynthos**: Kalamaki.

DISTRIBUTION. Mediterranean.

****Asphondylia coridothymi*** Skuhrová, 2011

Larvae cause flower bud galls on *Coridothymus capitatus* (L.) Reichb. Fil. (Lamiaceae).

OCCURRENCE. **Lefkada**: Kolyvata. – **Rhodos**: Maritsa. This species has been recently discovered in Samos (Skuhrová 2011a).

DISTRIBUTION. Mediterranean.

Asphondylia coronillae (Vallot, 1829)

Larvae cause leaf bud galls and pod galls on *Coronilla emerus* L. (Fabaceae).

OCCURRENCE. **Lefkada**: Lygia, Nikiana, Vlichos, Water Falls. – **Rhodos**: Kamiros.

DISTRIBUTION. Mediterranean.

Asphondylia dorycnii (Müller, 1870)

Asphondylia dorycnii Löw, 1880

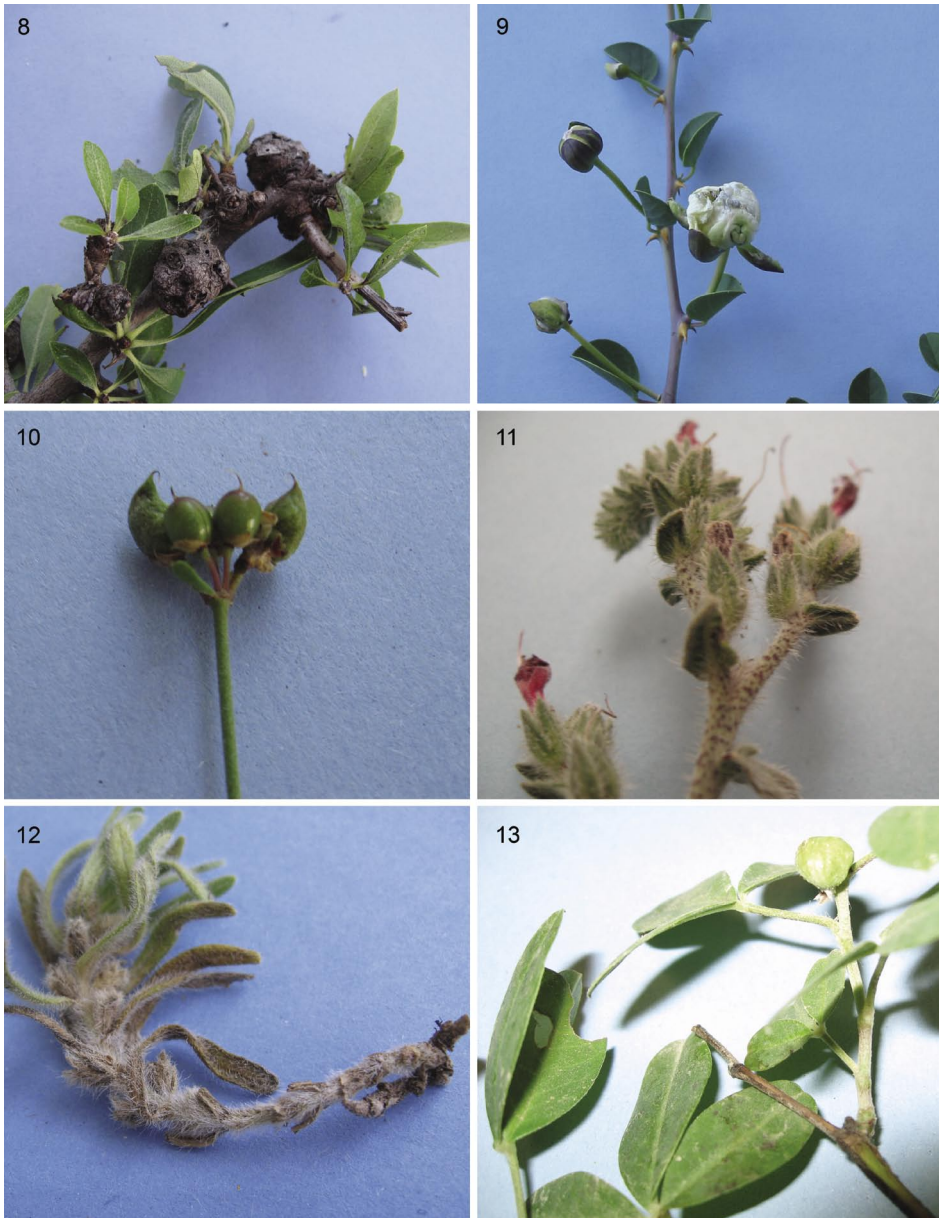
Larvae cause galls on vegetative tips or in inflorescences of *Dorycnium herbaceum* Scop. (Fabaceae) (Fig. 10).

OCCURRENCE. **Lefkada**: Vlichos.

DISTRIBUTION. Mediterranean.

Asphondylia echii Loew, 1850

Larvae produce galls on flower buds of *Echium* sp. (Boraginaceae) (Fig. 11).



Figs. 8–13. Galls of gall midges. 8 – heavily damaged and dwarf pear tree (*Pyrus pyraeaster*) as a result of many years of attack by *Apiomyia bergenstammi* (Wachtl, 1882), Lefkada: Nikiana, 5 June 2009. 9 – flower bud of *Capparis spinosa* changed into a gall by larvae of *Asphondylia capparidis* Rübsaamen, 1894, Zakynthos, Kalamaki, July 2010. 10 – four fruits of *Dorycnium* sp. of which the two outer ones are change into galls by *Asphondylia dorycnii* (Müller, 1870), Lefkada: Vlichos, 4 June 2009. 11 – swollen flower bud of *Echium* sp. caused by larvae of *Asphondylia echii* Loew, 1850. 12 – swollen flower buds of *Ajuga chamaeptytis* caused by larvae of *Asphondylia massalongoi* Rübsaamen, 1893. 13 – bud gall caused by *Asphondylia* sp. on *Laburnum anagyroides*.

OCCURRENCE. **Lefkada**: Vlichos. – **Rhodos**: Maritsa. – **Zakynthos**: Kalamaki.
DISTRIBUTION. Mediterranean.

Asphondylia massalongoi Rübtsaamen, 1893

Larvae cause galls on flower buds of *Ajuga chamaeepytis* Schreb. (Lamiaceae) (Fig. 12).

OCCURRENCE. **Rhodos**: Petaloudes.

DISTRIBUTION. Mediterranean.

Asphondylia scrophulariae (Schiner, 1856)

A solitary larva develops inside swollen flower bud of *Scrophularia canina* L. (Scrophulariaceae).

OCCURRENCE. **Lefkada**: Kollivata.

DISTRIBUTION. Mediterranean.

Asphondylia stefanii Kieffer, 1898

A solitary larva develops in swollen, strongly shortened siliques of *Diplotaxis tenuifolia* (L.) DC (Brassicaceae).

OCCURRENCE. **Rhodos**: Rhodos town.

DISTRIBUTION. Mediterranean.

Asphondylia verbasci (Vallot, 1827)

Larvae produce galls (swollen flower buds) of *Verbascum sinuatum* L. (Scrophulariaceae).

OCCURRENCE. **Lefkada**: Vlichos. – **Rhodos**: Rhodos (Monte Smith Hill), Soroni. – **Zakynthos**: Kalamaki.

DISTRIBUTION. Mediterranean. It is a submediterranean and European species.

**Asphondylia* sp.

Swollen bud of *Laburnum anagyroides* Med. (Fabaceae), inside with a chamber the walls of which are covered with black mycelium (Fig. 13). At the time of collection the galls were empty.

OCCURRENCE. **Rhodos**: Monte Smith Hill.

DISTRIBUTION. Mediterranean.

Baldratia salicorniae Kieffer, 1897

Larvae cause galls on stems of *Salicornia fruticosa* L. (Chenopodiaceae).

OCCURRENCE. **Lefkada**: Lefkada (fortification).

DISTRIBUTION. Mediterranean.

Braueriella phillyreae (Löw, 1877)

Larvae cause pustule galls on leaves of *Phillyrea media* L. (Oleaceae).

OCCURRENCE. **Lefkada**: Water Falls.

DISTRIBUTION. Mediterranean.

Contarinia coronillae Janežič, 1978

Larvae develop in pod-like swollen leaflets of *Coronilla emerus* L. (Fabaceae).

OCCURRENCE. **Rhodos**: Kamiros.

DISTRIBUTION. Mediterranean.

**Contarinia jacobaeae* (Loew, 1850)

Larvae cause stem galls or live in the inflorescences of *Senecio jacobaeae* L. (Asteraceae).

OCCURRENCE. **Lefkada**: Nidri.

DISTRIBUTION. European.

Contarinia nasturtii (Kieffer, 1888)

Larvae live in swollen flower buds of an undetermined species of the family Brassicaceae.

OCCURRENCE. **Lefkada**: Ligia, Nidri. – **Rhodos**: Kamiros.

DISTRIBUTION. European.

Contarinia pyrivora (Riley, 1886)

Larvae develop inside deformed fruits of *Pyrus communis* L. (Rosaceae) (Fig. 14).

OCCURRENCE. **Lefkada**: Nidri, Perigiali.

DISTRIBUTION. Holarctic.

Contarinia quercina (Rübsaamen, 1890)

Larvae develop among small young leaves of terminal leaf bud of *Quercus pubescens* Willd. (Fagaceae). OCCURRENCE. **Lefkada**: Vlichos.

DISTRIBUTION. European.

****Contarinia tragopogonis*** Kieffer, 1909

Larvae develop in flower heads of *Tragopogon* sp. (Asteraceae).

OCCURRENCE. **Rhodos**: Kamiros, Maritsa.

DISTRIBUTION: Mediterranean.

****Contarinia* sp.**

White larvae develop inside small leaves forming a gall at the branch tip of *Quercus ilex* L. (Fagaceae).

OCCURRENCE. **Lefkada**: Water Falls.

DISTRIBUTION. Mediterranean.

Cystiphora sonchi (Vallot, 1827)

Cecidomyia sonchi Bremi, 1847

Cecidomyia sonchi F. Löw, 1875

Larvae cause pustule galls on leaves of *Sonchus* sp. (Asteraceae) (Fig. 15). This species is used in biological control of weeds in Canada.

OCCURRENCE. **Lefkada**: Lefkada (fortification), Ligia, Nidri, Perigiali. – **Rhodos**: Rhodos (parks), Soroni.

DISTRIBUTION. Eurosiberian.

Dasineura bayeri (Rübsaamen, 1914)

Larvae produce densely haired galls at the vegetative tips of *Sisymbrium loeselii* L. (Brassicaceae).

OCCURRENCE. **Lefkada**: Lefkada (fortification), Water Falls. – **Rhodos**: Kamiros.

DISTRIBUTION. European.

****Dasineura ericaescopariae*** (Dufour, 1837)

Larvae cause large galls at tips of shoots of *Erica arborea* L. (Ericaceae) (Fig. 16).

OCCURRENCE. **Rhodos**: Damatria, Kalithies, Maritsa. – **Zakynthos**: Kalamaki.

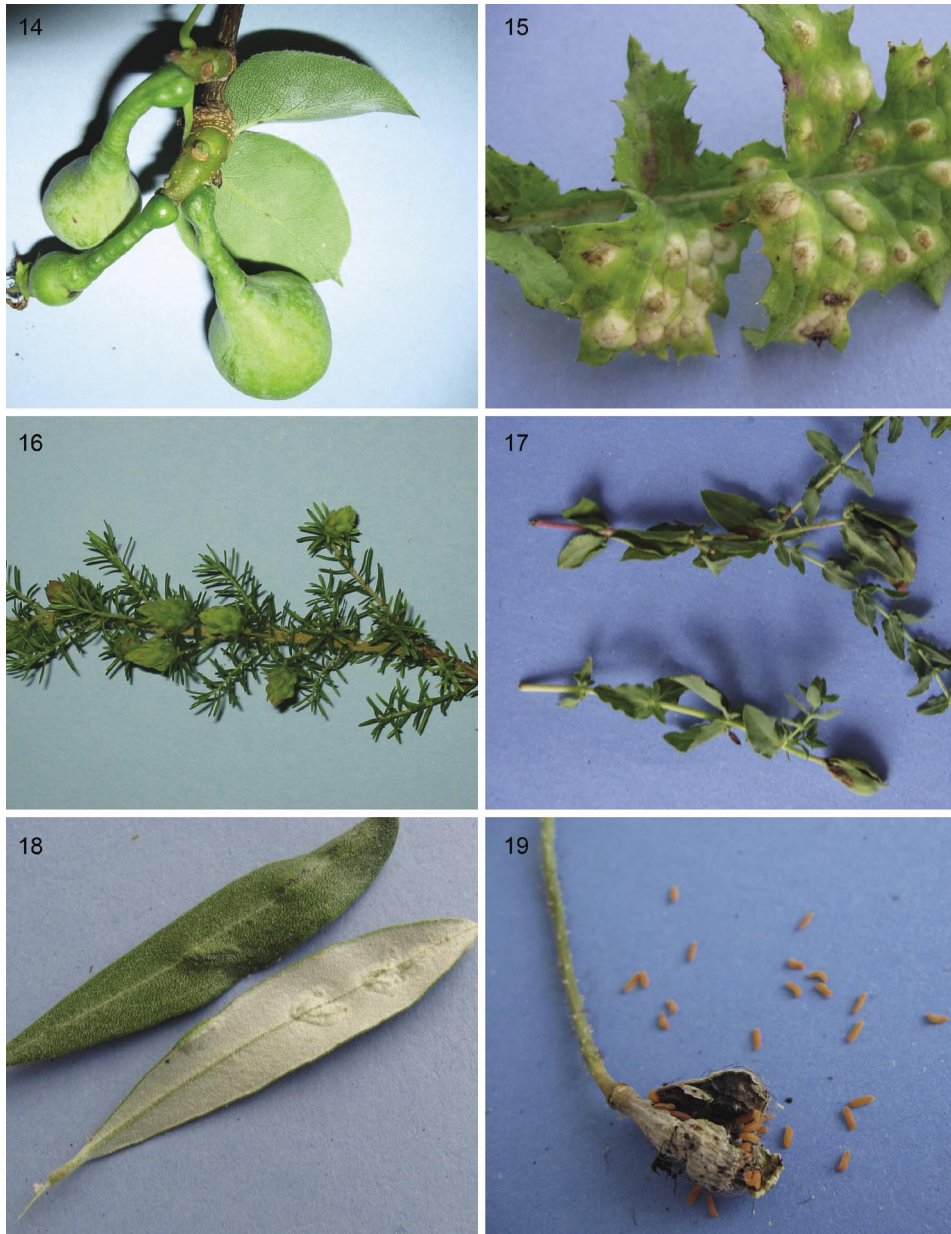
DISTRIBUTION. Mediterranean.

Dasineura fraxinea Kieffer, 1907

Larvae cause flat pustule galls on leaflets of *Fraxinus ornus* L. (Oleaceae).

OCCURRENCE. **Lefkada**: Kollivata.

DISTRIBUTION. European.



Figs. 14–19. Galls of gall midges. 14 – pear fruit heavily damaged by larvae of *Contarinia pyrivora* (Riley, 1886). 15 – leaf of *Sonchus* sp. covered with galls of *Cystiphora sonchi* (Vallot, 1827). 16 – Branch of *Erica arborea* with several galls of *Dasineura ericaescopariae* (Dufour, 1837). 17 – galls of *Dasineura hyperici* (Bremi, 1847) at vegetative tip of *Hypericum* sp. 18 – elongate swellings caused by larvae of *Dasineura oleae* (Angelini, 1831) on young leaves of *Olea europaea*, shown from both leaf sides. 19 – larvae of *Dasineura papaveris* (Winnertz, 1853) leaving seed capsule of *Papaver rhoeas* where they developed.

Dasineura hyperici (Brems, 1847)

Larvae cause terminal leaf bud gall on stems of *Hypericum* sp. (Hypericaceae) (Fig. 17).

OCCURRENCE. **Rhodos:** Rhodos (parks), Rhodos (Monte Smith Hill).

DISTRIBUTION. European.

Dasineura oleae (Angelini, 1831)

Cecidomyia oleae F. Löw, 1885

Larvae cause slight, indefinite, elongate swellings on the leaves of *Olea europaea* L. (Oleaceae) (Fig. 18).

OCCURRENCE. **Lefkada:** Kollivata, Ligia, Neochori, Nidri, Nikiana, Perigiali, Vlichos, Water Falls. – **Rhodos:** Damatria, Epta Piges, Kalithies, Kamiros, Maritsa, Psinthos, Rhodos (parks), Rhodos (Monte Smith Hill), Soroni. – **Zakynthos:** Kalamaki.

DISTRIBUTION. Mediterranean. It is one of the three most frequent species in these three islands.

Dasineura papaveris (Winnertz, 1853)

Larvae live in large numbers in seed capsules of *Papaver rhoeas* L. (Papaveraceae) (Fig. 19).

OCCURRENCE. **Rhodos:** Kamiros, Maritsa.

DISTRIBUTION. European.

Dasineura plicatrix (Loew, 1850)

Larvae cause galls formed by contorted and twisted young leaves of *Rubus caesius* L. and related species (Rosaceae).

OCCURRENCE. **Lefkada:** Kollivata, Ligia, Neochori, Nidri, Nikiana, Perigiali, Vlichos, Water Falls. – **Rhodos:** Maritsa, Rhodos (Monte Smith Hill). – **Zakynthos:** Kalamaki.

DISTRIBUTION. European. It is one of the three most frequent species in these three islands.

Dasineura pyri (Bouché, 1847)

Larvae develop in rolled leaf margins of *Pyrus communis* L. (Rosaceae).

OCCURRENCE. **Rhodos:** Soroni.

DISTRIBUTION. Holarctic.

Dasineura turionum (Kieffer et Trotter, 1904)

Larvae live under the scale-shaped and swollen young leaves on very young just developing shoots of *Asparagus acutifolius* L. (Liliaceae). Attacked plants are later irregularly deformed forming a cluster (Fig. 20).

OCCURRENCE. **Lefkada:** Kollivata, Lefkada (fortification), Ligia, Neochori, Nidri, Nikiana, Perigiali, Water Falls. – **Rhodos:** Damatria, Kalithies, Kamiros, Psinthos, Rhodos (Monte Smith Hill). – **Zakynthos:** Kalamaki.

DISTRIBUTION. Mediterranean. It is one of the three most frequent species in these three islands and the most abundant species in Greece.

Dasineura viciae (Kieffer, 1888)

White larvae live gregariously in pod-like folded and hypertrophied leaflets of *Vicia* sp. (Fabaceae).

OCCURRENCE. **Rhodos:** Maritsa.

DISTRIBUTION. Eurosiberian.

****Dasineura*** sp.

Larvae cause small galls on the leaf margin of *Quercus coccifera* L. (Fagaceae). The margin is rolled upwards and reddish coloured.

OCCURRENCE. **Rhodos**: Damatria, Maritsa.

DISTRIBUTION. Mediterranean.

**Dryomyia cocciferae* (Marchal, 1897)

Larvae cause galls on leaves of *Quercus coccifera* L. (Fagaceae).

OCCURRENCE. **Rhodos**: Damatria, Epta Piges.

DISTRIBUTION. Mediterranean.

**Jaapiella clematidicola* Skuhrová, 2011

Larvae cause galls in swollen leaf buds of *Clematis flammula* L. (Ranunculaceae) (Fig. 21).

OCCURRENCE. **Lefkada**: Ligia, Nikiana.

DISTRIBUTION. Mediterranean. This species has been recently discovered in Greece (Skuhrová 2011b).

**Janetiella onosmae* Skuhrová, 2011

Larvae cause rosette leaf galls on *Onosma frutescens* Lam. (Boraginaceae).

OCCURRENCE. **Lefkada**: Nikiana.

DISTRIBUTION. Mediterranean. This species has been recently discovered in Greece (Skuhrová 2011b).

Kiefferia pericarpüicola (Bremer, 1847)

Cecidomyia pimpinellae LOEW, 1850

Asphondylia pimpinellae Löw, 1874

Asphondylia umbellatarum F. Löw, 1877

Larvae develop inside swollen fruits of *Foeniculum vulgare* Mill. (Apiaceae).

OCCURRENCE. **Rhodos**: Maritsa. – **Zakynthos**: Kalamaki.

DISTRIBUTION. Eurosiberian.

Lasioptera arundinis Schiner, 1854

Larvae live gregariously in swollen lateral shoots of *Phragmites australis* (Cav.) Steudel (*Phragmites communis* Trin.) (Poaceae).

OCCURRENCE. **Rhodos**: Maritsa.

DISTRIBUTION. European.

Lasioptera carophila Löw, 1874

Solitary larva develops in swelling in flower stalk at base of primary or secondary umbel of various species and genera of Apiaceae (Fig. 22).

OCCURRENCE. **Lefkada**: Kollivata, Ligia, Neochori, Nidri, Nikiana, Vlichos, Water Falls. – **Rhodos**: Maritsa, Rhodos (Monte Smith Hill). – **Zakynthos**: Kalamaki.

DISTRIBUTION. European.

Lasioptera eryngii (Vallot, 1829)

Larvae cause plurilocular swellings of stems and leaf petioles of *Eryngium campestre* L. and *E. maritimum* L. (Apiaceae) (Fig. 22).

OCCURRENCE. **Lefkada**: Nikiana. – **Zakynthos**: Kalamaki.

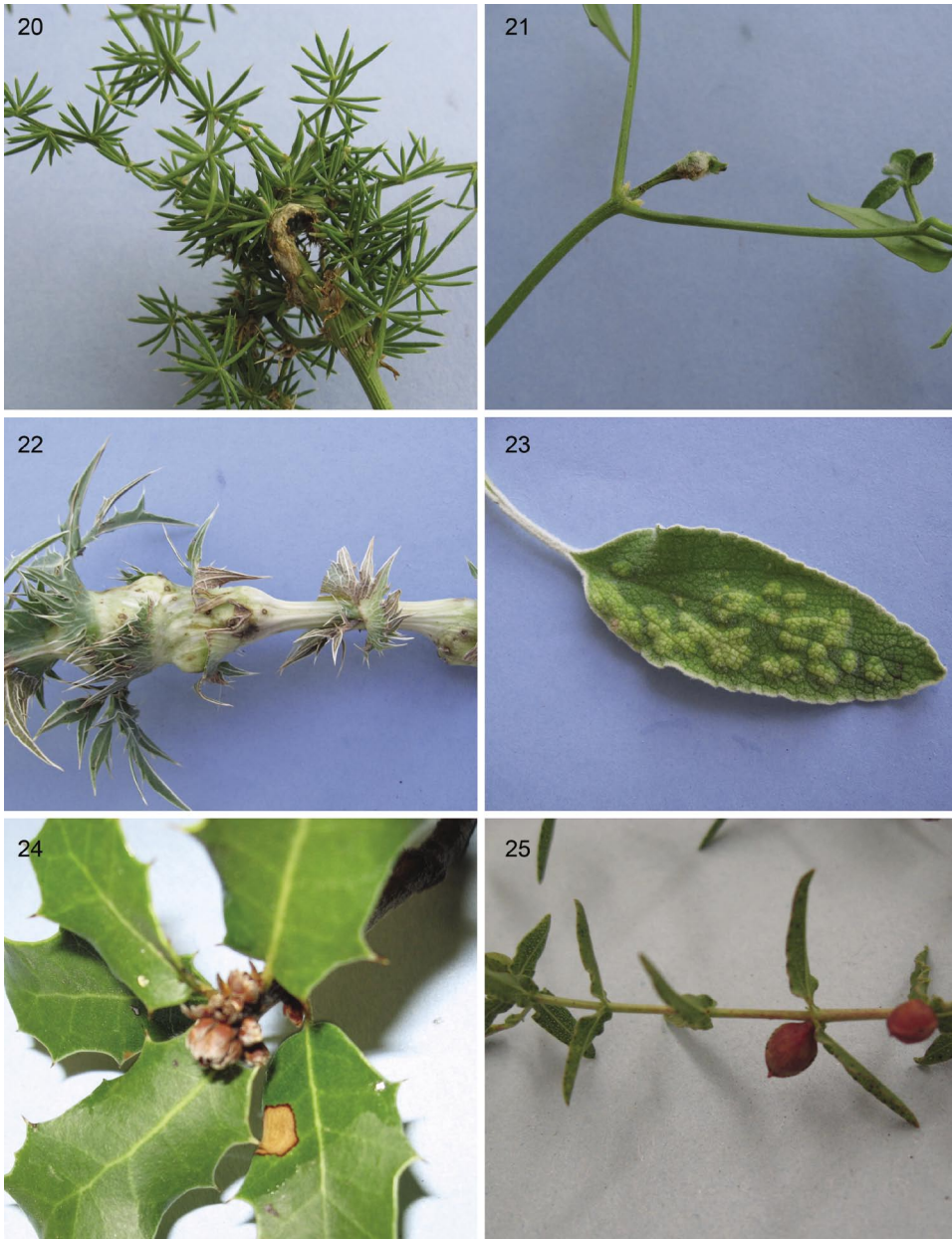
DISTRIBUTION. Mediterranean.

Lasioptera thapsiae Kieffer, 1898

Larvae cause large plurilocular swellings of stems of *Thapsia* sp. (Apiaceae).

OCCURRENCE. **Rhodos** (Mimeur 1949).

DISTRIBUTION. Mediterranean.



Figs. 20–25. Galls of gall midges. 20 – heavily damaged stem of *Asparagus acutifolius* caused by larvae of *Dasineura turionum* (Kieffer et Trotter, 1904). 21 – swollen leaf bud caused by larvae of *Jaapiella clematidicola* Skuhravá, 2011 on *Clematis flammula*. 22 – stem galls on *Eryngium campestre* caused by larvae of *Lasioptera eryngii* (Vallot, 1829). 23 – pustule galls caused by larvae of *Phlomidomyia pustularis* Skuhravá, 2011 on the leaf of *Phlomis fruticosa*. 24 – bud galls caused by larvae of *Phyllocladiplosis cocciferae* (Tavares, 1902) on *Quercus coccifera*. 25 – bud galls on stem of *Hypericum* sp. caused by larvae of *Zeuxidiplosis giardi* (Kieffer, 1896).

Myricomyia mediterranea (Löw, 1885)

Larvae cause small rosette galls on twigs of *Erica arborea* L. (Ericaceae). In the middle of each gall is a small chamber containing one larva.

OCCURRENCE. **Lefkada**: Vlichos. – **Rhodos**: Damatria, Epta Piges. – **Zakynthos**: Kalamaki.

DISTRIBUTION. Mediterranean.

****Phlomidiomyia pustularis*** Skuhrová, 2011

Larvae cause flat parenchymatous galls on *Phlomis fruticosa* L. (Lamiaceae) (Fig. 23).

OCCURRENCE. **Lefkada**: Kollivata, Ligia, Neochori, Nidri, Nikiana, Water Falls. – **Zakynthos**: Kalamaki. DISTRIBUTION. Mediterranean. This species has been recently discovered in Greece (Skuhrová 2011b).

Phyllodiplosis cocciferae (Tavares, 1902)

Contarinia cocciferae Tavares, 1902

Larvae develop in cone-shaped leaf bud galls of *Quercus coccifera* L. (Fagaceae) (Fig. 24).

OCCURRENCE. **Lefkada**: Ligia, Water Falls. – **Rhodos**: Damatria, Epta Piges, Maritsa, Petaloudes, Psinthos, Rhodos (Monte Smith Hill).

DISTRIBUTION. Mediterranean.

Piranea spartii Janezic, 1990

Orange coloured larvae live in dry flower buds of *Spartium junceum* L. (Fabaceae).

OCCURRENCE. **Lefkada**: Kollivata, Lefkada (fortification), Ligia, Neochori. – **Zakynthos**: Kalamaki.

DISTRIBUTION. Mediterranean. This species was described recently, and at the present time it is common in south-eastern Europe.

Wachtliella ericina (Löw, 1885)

Larvae cause large rosette galls on branches of *Erica arborea* L. (Ericaceae). Only one larva develops in the central chamber.

OCCURRENCE. **Lefkada**: Vlichos.

DISTRIBUTION. Submediterranean, Subatlantic.

Zeuxidiplosis giardi (Kieffer, 1896)

Larvae cause leaf bud galls on *Hypericum perforatum* L. (Hypericaceae). Inside large chamber only one larva develops (Fig. 25).

OCCURRENCE. **Rhodos**: Rhodos (parks), Rhodos (Monte Smith Hill), Soroni.

DISTRIBUTION. Primary Eurosiberian, with disjunct area. It has been imported to North America and New Zealand for biological control of *Hypericum perforatum*.

EVALUATION OF RESULTS

In the course of our investigations in Lefkada carried out from 2–12 June 2009 we found 32 gall midge species at nine localities situated from sea level up to 600 m a. s. l. at Kollivata. At individual localities five to eleven species were found, with an average of 9 species per locality.

During investigations in Rhodos from 11–18 May 2010 we found 33 gall midge species at ten localities situated from sea level up to 350 m a. s. l. at Maritsa. The occurrence of gall midge galls at individual localities was low, usually only three or four species were found. The highest number – galls of sixteen species – we found at Maritsa on Rhodos. The average species number at one locality is 7 for Rhodos and 9 for Lefkada.

During investigations in Zakynthos in July 2010 we found 14 gall midge species.

Altogether at the three Greek islands we found 50 gall midge species of which eleven species are new records for Greece (four of which are new to science), viz. *Asphondylia coridothymi* on *Coridothymus capitatus*, *Jaapiella clematicicola* on *Clematis flammea*, *Janetiella onosmae* on *Onosma frutescens*, *Phlomidiomyia pustularis* on *Phlomis fruticosa*, *Contarinia jacobaeae* on *Senecio jacobaeae*, *Contarinia tragopogonis* on *Tragopogon* sp., *Dasineura ericaescopariae* on *Erica arborea*, *Dryomyia cocciferae* on *Quercus coccifera*, and three species identified to the genus level, viz. *Asphondylia* sp. on *Laburnum anagyroides*, *Contarinia* sp. on *Quercus ilex* and *Dasineura* sp. on *Quercus coccifera*. The description of four species new to science is in press (Skuhrová 2011a, b).

The gall midge fauna of Lefkada and Rhodos may be evaluated as not too rich. If we compare the gall midge species richness of twelve islands in the Mediterranean Sea where we have done investigations, Sicily with 89 species is at the first position (Skuhrová et al. 2007), Corsica with 63 species at the second position (Skuhrová & Skuhrový 2011), Corfu with 49 species at the third position followed by Sardinia with 44 species (Skuhrová & Skuhrový 2002, 2006b), Crete with 38 species (Skuhrová & Skuhrový 1997), Malta with 36 species (Skuhrová et al. 2002), Samos with 34 species, Mallorca with 33 species (Skuhrová & Skuhrový 2004b), and Cyprus with 30 species (Skuhrová & Skuhrový 2004a). The gall midge fauna of Zakynthos with only 14 species may be evaluated as poor.

On the whole, gall midges occur rarely in the Mediterranean area, usually forming only small islands in natural habitats, sometimes they are restricted even to one host plant specimen, to one tree, shrub or herbaceous plant. The gall midge fauna of the Mediterranean is significantly poorer in comparison with the gall midge fauna of Central Europe (Skuhrová & Skuhrový 2010). Only a short spring time with enough rainfall is suitable for development of gall midge populations. Limiting factors for their development may result from the very long summer period without rainfall and with high temperatures, causing drying off and withering of host plants. It may result in mortality of most specimens of gall midge populations developing inside galls on host plants or in the soil where larvae may survive a part of their developmental cycle.

Zoogeographical analysis

The gall midge fauna of the three Greek islands, taken together, may be divided on the basis of zoogeographical analysis, according to the occurrence of species in the Palaearctic region, into four groups. It is formed mainly of Mediterranean and Submediterranean elements (64%) and only smaller parts belong to European (24%), Eurosiberian (6%) and Holarctic (6%) elements.

Mediterranean species are associated with Mediterranean host plants that have centres of their origin in the Mediterranean area. In this group belong all eleven species of the genus *Asphondylia*; *Dasineura oleae* associated with olive trees; *Dasineura ericaescopariae*, *Myricomyia mediterranea* and *Wachtliella ericina* causing galls on *Erica arborea*; *Dasineura turionum* larvae of which cause galls on *Asparagus acutifolius*. European species are associated with European host plant species that have centres of origin in Europe. *Dasineura plicatrix* is a typical representative of a European species. It occupies a large distribution area from Britain and Portugal in western Europe to Greece in eastern Europe and to Algeria in northern Africa. Eurosiberian species occur abundantly in Europe and extend at least to Western Siberia, some of them to central Siberia and only a few species reach to the Far East, China and Japan. Only three Eurosiberian species occur in the fauna of the three Greek islands, viz. *Dasineura viciae* causing galls on leaflets of various *Vicia* spp., *Cystiphora sonchi* inducing parenchymatous leaf galls on *Sonchus* and *Kiefferia pericarpicola* causing fruit galls on various species and genera of Apiaceae. *Aphidoletes aphidimyza*, *Contarinia pyrivora* and *Dasineura pyri* are Holarctic species. According to their origin, they are

probably Eurosiberian species and have been accidentally transferred to North America and later to other regions of the world with their host plants or with soil.

Associations with host plants

Gall midges occurring on the three Greek islands are associated with 40 host plant species belonging to 20 plant families (Table 1). About one third are trees and shrubs and two thirds are herbaceous plants. Most are associated with Fabaceae (8 species) and Fagaceae (5 species). Each of the families Apiaceae and Rosaceae hosts four gall midge species; Asteraceae, Brassicaceae, Ericaceae, Lamiaceae and Oleaceae hosts three species; Boraginaceae, Hypericaceae and Scrophulariaceae three species and the remaining eight plant families each hosts only one gall midge species. Five gall midge species are associated with three species of *Quercus*, typical trees of the Mediterranean: *Dryomyia cocciferae*, *Phyllodiplosis cocciferae* and as yet undescribed species of the genus *Dasineura* on *Quercus coccifera*, *Contarinia quercina* on *Quercus pubescens* and as yet undescribed species causing damage on young leaves on *Quercus ilex*. Three gall midge species are associated with other typical trees of the Mediterranean: *Dasineura ericaescopariae*, *Myriocomyia mediterranea* and *Wachtliella ericina* with *Erica arborea*, and another three gall midges, *Apiomyia bergestammi*, *Contarinia pyrivora* and *Dasineura pyri* with *Pyrus communis*.

Frequency

Twenty one gall midge species (42%) found on the three Greek islands were found only once, i.e. at only one locality and may be considered to be very rare. Eleven species (22%) of which each was found only twice, i. e., at two localities, may be considered to be rare. Ten species (20%), each found from three to six localities, may be classed as moderately frequent.

Four species (8%), viz. *Phlomidomyia pustularis*, *Phyllodiplosis cocciferae*, *Apiomyia bergestammi* and *Lasioptera carophila*, found from seven to ten localities, are classed as frequent; three species (6%), viz. *Asphondylia calycotomae* and *Dasineura plicatrix*, found at 11 localities, and *Dasineura turionum*, found at 14 localities, as very frequent. *Dasineura oleae* causing galls on leaves of *Olea europaea*, found at 18 localities is the most frequent gall midge species on the three Greek islands.

We obtained similar data on gall midge frequency also in other Mediterranean islands where we carried out investigations (Table 2). We arranged islands according to their position in the Mediterranean Sea from the west (Corfu, Lefkada, Zakynthos) to the east (Samos, Rhodos) and south (Crete), and for comparison we added also the island of Cyprus situated in the most eastern part of the Mediterranean. We investigated gall midges at 57 localities on mainland Greece and at 63 localities on seven islands of which 17 localities are in Cyprus.

Three gall midge species, viz. *Dasineura oleae*, *Dasineura turionum* and *Asphondylia calycotomae* are the most frequent species at all islands under study. In contrast, *Phyllodiplosis cocciferae*, frequently occurring on Samos and Rhodos in the eastern part, is rare in Crete and absent in Cyprus. *Asphondylia coronillae*, abundant in Corfu and Lefkada in the western part, is absent in eastern and southern parts. In contrast *Asphondylia verbasci* occurring relatively abundantly in Rhodos, Crete and Cyprus, is absent in Corfu.

Interesting results were obtained from the comparison of results of our investigations in mainland Greece and the Greek islands (Table 3).

Galls of *Bayeriola thymicola* were found at 20 localities in mainland Greece but they have not been found in any Greek island. Similarly galls of *Oligotrophus panteli* were found at 19 localities but not on islands. Galls of *Dasineura tortrix* were found at 23 localities in mainland Greece and only once in the island Cyprus. Galls of *Geocrypta galii* were found at nine localities in mainland Greece but none on islands. Galls of *Macrodiplosis roboris* were found at nine localities in mainland Greece but only on one island (Corfu).

Table 1. Host plants and associated gall midges

host plant species	gall midge species
<i>Ajuga chamaepytis</i>	<i>Asphondylia massalongoi</i>
<i>Asparagus aphyllus</i>	<i>Dasineura turionum</i>
Brassicaceae sp.	<i>Contarinia nasturtii</i>
<i>Calicotome villosa</i>	<i>Asphondylia calycotomae</i>
<i>Capparis spinosa</i>	<i>Asphondylia capparis</i>
<i>Carpinus betulus</i>	<i>Aschistonyx carpnicolus</i>
<i>Clematis flammula</i>	<i>Jaapiella clematidicola</i>
<i>Coridothymus capitatus</i>	<i>Asphondylia coridothymi</i>
<i>Coronilla emerus</i>	<i>Asphondylia coronillae</i>
	<i>Contarinia coronillae</i>
<i>Diplotaxis tenuifolia</i>	<i>Asphondylia stefanii</i>
<i>Dorycnium herbaceum</i>	<i>Asphondylia dorycnii</i>
<i>Echium</i> sp.	<i>Asphondylia echii</i>
<i>Erica arborea</i>	<i>Dasineura ericaescopariae</i>
	<i>Myricomyia mediterranea</i>
	<i>Wachtliella ericina</i>
<i>Eryngium campestre</i>	<i>Lasioptera eryngii</i>
<i>Foeniculum vulgare</i>	<i>Kiefferia pericarpicola</i>
	<i>Lasioptera carophila</i>
<i>Fraxinus ornus</i>	<i>Dasineura fraxinea</i>
<i>Hypericum</i> sp.	<i>Dasineura hyperici</i>
	<i>Zeuxidiplosis giardi</i>
<i>Laburnum anagyroides</i>	<i>Asphondylia</i> sp.
<i>Olea europaea</i>	<i>Dasineura oleae</i>
<i>Onosma frutescens</i>	<i>Janetiella onosmae</i>
<i>Papaver rhoeas</i>	<i>Dasineura papaveris</i>
<i>Phillyrea media</i>	<i>Braueriella phillyreae</i>
<i>Phlomis fruticosa</i>	<i>Phlomidomyia pustularis</i>
<i>Phragmites australis</i>	<i>Lasioptera arundinis</i>
<i>Pyrus communis</i>	<i>Apiomyia bergenstammi</i>
	<i>Contarinia pyrivora</i>
<i>Quercus coccifera</i>	<i>Dasineura pyri</i>
	<i>Dryomyia cocciferae</i>
	<i>Dasineura</i> sp.
	<i>Phyllodiplosis cocciferae</i>
<i>Quercus ilex</i>	<i>Contarinia</i> sp.
<i>Quercus pubescens</i>	<i>Contarinia quercina</i>
<i>Rubus</i> sp.	<i>Dasineura plicatrix</i>
<i>Salicornia fruticosa</i>	<i>Baldratia salicorniae</i>
<i>Scrophularia canina</i>	<i>Asphondylia scrophulariae</i>
<i>Senecio jacobaea</i>	<i>Contarinia jacobaeae</i>
<i>Sisymbrium loeselii</i>	<i>Dasineura bayeri</i>
<i>Sonchus</i> sp.	<i>Cystiphora sonchi</i>
<i>Spartium junceum</i>	<i>Piranea spartii</i>
	<i>Aphidoletes aphidimyza</i> , aphidophagous
<i>Thapsia garganica</i>	<i>Lasioptera thapsiae</i>
<i>Tragopogon</i> sp.	<i>Contarinia tragopogonis</i>
<i>Verbascum sinuatum</i>	<i>Asphondylia verbasci</i>
<i>Vicia</i> sp.	<i>Dasineura viciae</i>
<i>Vitis vinifera</i>	<i>Arthrocnodax vitis</i> , zoophagous

In contrast, galls of *Dasineura oleae* were found at only 9 localities in mainland Greece but very abundantly in all islands. Galls of *Asphondylia calycotomae* were found scarcely in mainland

Table 2. Occurrence of the ten most frequent gall midge species in Greek islands and in Cyprus, expressed in number of localities where they were found; NIL – number of island localities; in parentheses – number of localities examined

gall midge species	NIL (63)	Corfu (8)	Lefkada (9)	Zakynthos (1)	Samos (8)	Rhodos (10)	Crete (10)	Cyprus (17)
<i>Dasineura oleae</i>	40	7	8	1	4	9	7	4
<i>Dasineura turionum</i>	31	2	8	1	5	5	6	4
<i>Asphondylia calycotomae</i>	28	3	5	1	4	5	5	5
<i>Lasioptera carophila</i>	26	4	7	1	3	2	4	5
<i>Dasineura plicatrix</i>	25	7	8	1	1	2	1	5
<i>Apiomyia bergenstammi</i>	15	1	4	0	1	5	4	0
<i>Phyllodiplosis cocciferae</i>	15	2	2	0	4	6	1	0
<i>Asphondylia verbasci</i>	13	0	1	1	0	2	4	5
<i>Contarinia pyrivora</i>	11	5	2	0	1	0	3	0
<i>Asphondylia coronillae</i>	9	4	4	0	0	1	0	0

Greece – at only 9 localities – but abundantly in all islands, similarly for the galls of *Lasioptera carophila*. Galls of *Apiomyia bergenstammi* occur scarcely in mainland Greece and are abundant in the islands.

Contribution to the gall midge fauna of Greece

During investigations in 2009 and 2010 we found 50 gall midge species at three Greek islands of them 11 species are new records for Greece. Together with results of our earlier investigations in mainland Greece and in Crete (Skuhravá & Skuhravý 1997) and at Corfu, Samos and Olympos (Skuhravá & Skuhravý 2006, 2008) and with nine species of the subfamily Lestremiinae given by Jaschhof (1998), the present cecidomyiid fauna of Greece consists of 223 species.

Table 3. Comparison of abundant gall midge species in mainland Greece with their occurrence in islands given as number of localities where galls were found; in parentheses – number of localities examined; ZAK = Zakynthos

gall midge species	mainland (57)	islands (63)	Corfu (8)	Lefkada (9)	ZAK (1)	Samos (8)	Rhodos (10)	Crete (10)	Cyprus (17)
<i>Dasineura turionum</i>	30	40	7	8	1	4	9	7	4
<i>Asphondylia verbasci</i>	28	13	0	1	1	0	2	4	5
<i>Dasineura tortrix</i>	23	1	0	0	0	0	0	0	1
<i>Dasineura aparines</i>	23	8	2	0	0	0	0	6	0
<i>Bayeriola thymicola</i>	20	0	0	0	0	0	0	0	0
<i>Oligotrophus panteli</i>	19	0	0	0	0	0	0	0	0
<i>Dasineura plicatrix</i>	19	25	7	8	1	1	2	1	5
<i>Phyllodiplosis cocciferae</i>	19	15	2	2	0	4	6	1	0
<i>Phlomidomyia pustularis</i>	16	16	4	6	0	0	0	6	0
<i>Contarinia quercina</i>	14	6	2	1	0	1	0	1	1
<i>Dasineura viciae</i>	11	2	1	0	0	0	1	0	0
<i>Contarinia pyrivora</i>	10	11	5	2	0	1	0	3	0
<i>Apiomyia bergenstammi</i>	10	15	1	4	0	1	5	4	0
<i>Dasineura oleae</i>	9	40	7	8	1	4	9	7	4
<i>Macrodiplosis roboris</i>	9	1	1	0	0	0	0	0	0
<i>Geocrypta galii</i>	9	0	0	0	0	0	0	0	0
<i>Asphondylia calycotomae</i>	9	28	3	5	1	4	5	5	5
<i>Lasioptera carophila</i>	9	26	4	7	1	3	2	4	5

In 1993 only twenty gall midge species were known from the whole territory of Greece (Skuhřavá & Skuhřavý 1997). In the course of 16 years we undertook several expeditions and investigated 103 localities on the Greek mainland and on six Greek islands and added 194 species to the gall midge fauna of which ten are new to science (Skuhřavá 2011a, b).

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