

STUDY ON THE PSOCOPTERA FAUNA OF CORFU (KERKYRA) ISLAND, GREECE

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Abstract

The study was carried out between 26.7.2018 and 1.8.2018, at the north part of the island where 13 localities (including two caves) were surveyed. This first study on the Psocoptera fauna of the Corfu Island revealed a total of 88 specimens from 27 species and 12 families. All species were new records for the area of the island, and three species were new records for Greece: *Ectopsocus petersi*, *Trichopsocus clarus*, *Blaste quadrimaculata*.

Keywords: Ionian islands, Greece, Insecta, species, diversity.

Introduction

The barklice (Insecta: Psocoptera) of Greece were mostly studied in its southern and central regions, both mainland and the islands. There are only a few publications about the northern parts of the country (Lienhard, 1998; Lienhard & Smithers, 2002; Lienhard, 2006; Hollier et al., 2011; Sziráki, 2013; Georgiev, 2017). There is no information on the species diversity of this insect group from the north-west part of the country near the Albanian border.

Corfu (Κέρκυρα, Kerkyra) is the second largest of the Ionian Islands, and, including its small satellite islands, forms the northwesternmost part of Greece. With the island's area estimated at 592.9 square kilometres, it runs approximately 64 km long, with greatest breadth at around 32 km. Corfu's coastline spans 217 kilometers, including the capes. The whole island is composed by various limestone formations, and presents a great diversity of surface. Its highest point is the Pantokrator Peak (905 m a.s.l.). The human population on the island and the tourism is constantly growing and threatens its nature (ELSTAT 2009-2010).

Material and Methods

The study was carried out during a short vacation, between 26.7.2018 and 1.8.2018 on Corfu Island (Tab. 1, Fig. 1, 2). The barklice were collected by following methods: 1. Actively searched in proper

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habitats or around light during night, and collected by wet brush; 2. Sieving with 1 mm mesh width sieve of detritus or crushed tree bark particles above white plastic container; 3. Beating the vegetation above white plastic container; 4. Checking for dead individuals in spider webs or pools, and various tanks full with water; 5. Sweep netting of vegetation; 6. Trapping by white plastic containers full with soap water placed below lamps. Specimens were then stored in ethanol and after processing, deposited in the collection of the first author. After identification they were preserved in a mixture of ethanol, acetic acid and glycerin. All specimens were determined by D. Georgiev with an exception of an atypical specimen of *Valenzuela flavidus*, which was kindly identified by Dr. Charles Lienhard. Species identifications are based on Lienhard (1998), taxonomical order and nomenclature follow Lienhard & Smithers (2002). As a supporting source, Saville (2008) was also used.

Table 1. Localities on Corfu where samples were taken (altitude in m a.s.l.)

No	Date	Locality	Coordinates	Alt.
1.	26.07.2018	<i>Olea europaea</i> plantation with various bush and tree species, N of Agios Georgios Beach	N 39°43'29.0" E 19°39'57.9"	16
2.	27.07.2018	Near a small stream with <i>Arundo donax</i> and <i>Olea europaea</i> , close to Agios Georgios Beach	N 39°43'05.9" E 19°40'55.7"	7
3.	27.07.2018	Hill S of Agios Georgios Beach, <i>O. europaea</i> plantation and maquis	N 39°42'55.3" E 19°41'10.5"	41
4.	27.07.2018	N side of Kalamaki Beach sandy area with various shrubs and tall grass	N 39°48' 00.7" E 19°52'54.0"	0
5.	28.7 - 1.8.2018	Terrace of hotel Kalamaki, at Kalamaki Beach	N 39°47'55.1" E 19°53' 03.4"	7
6.	28.07.2018	Hill near N side of Kalamaki Beach with <i>Olea europaea</i> plantation	N 39°47'50.4" E 19°52'58.3"	55
7.	28.07.2018	Anthropograva Cave, near village of Klimatia, in and around the cave	N 39°44'35.3" E 19°47'12.7"	261
8.	28.07.2018	Near Kato vrisi Spring, at the village of Klimatia	N 39°44'28.4" E 19°46'52.0"	191
9.	29 - 30.07.2018	Small vegetable garden with <i>Juglans regia</i> near Kalamaki Beach	N 39°47'42.6" E 19°53'12.0"	6
10.	29.07.2018	Hill near the middle side of Kalamaki Beach with <i>Olea europaea</i> plantation	N 39°47'36.8" E 19°53'24.0"	34
11.	31.07.2018	Mount Pantokrator, at the Pantokrator Peak, the yard of the monastery	N 39°44'53.3" E 19°52'19.6"	905
12.	31.07.2018	Mount Pantokrator, near a dirt road below Pantokrator Peak, rocks with low vegetation and scattered trees	N 39°45'32.4" E 19°53'9.5"	577
13.	01.08.2018	Loutsjes Cave, near village of Loutsjes, in and around the cave	N 39°46'39.9" E 19°53'26.2"	428

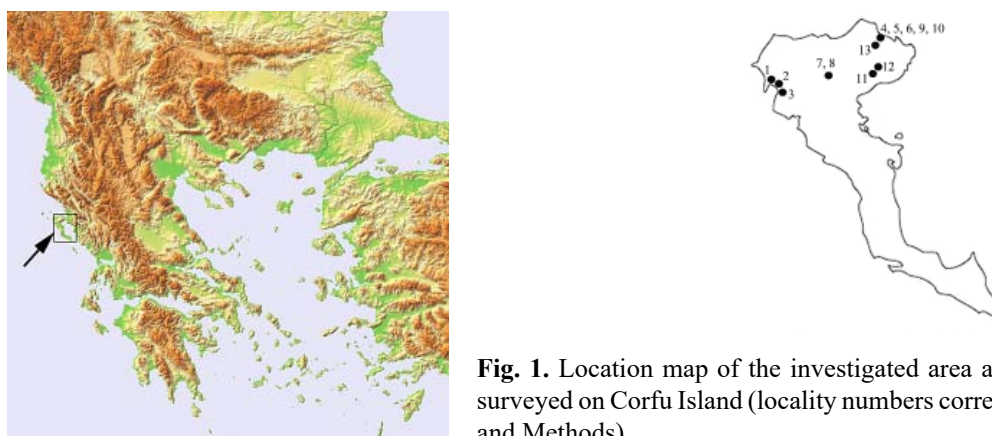


Fig. 1. Location map of the investigated area and position of the localities surveyed on Corfu Island (locality numbers correspond with those in Material and Methods).



Fig. 2. Habitat types of some of the localities surveyed: A - N side of Kalamaki Beach, sandy area (nr. 4), B - Small vegetable garden with *Juglans regia* near Kalimaki Beach, and the barrels full with water (nr. 9), C - Terrace of hotel Kalamaki, at Kalamaki Beach, collector with soap water under a lamp (nr. 5), D - Anthropograva Cave, near village of Klimatia (nr. 7), E - Hill near the middle side of Kalimaki Beach, the web of araneid spider from which *B. conspurcata* was collected (nr. 10), F - Near a small stream with *Arundo donax* and *Olea europaea*, close to Agios Georgios Beach (nr. 2), G - Hill S of Agios Georgios Beach, *O. europaea* plantation and maquis (nr. 3), H - Mount Pantokrator, at the Pantokrator Peak, the yard of the monastery (nr. 11).

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Results

Our survey showed a comparatively rich Psocoptera fauna on the Corfu Island. A total of 88 specimens from 27 species and 12 families were identified, as follows:

Trogiidae

Trogium pulsatorium (Linnaeus, 1758)

Material examined: locality nr. 4, 1♀, collected by beating the vegetation, from *Yucca* sp.

Cerobasis guestfalica (Kolbe, 1880)

Material examined: locality nr. 1, 2♀, 1n, collected by beating the vegetation, from dry branches with leaflets of *Cupressus sempervirens*; locality nr. 4, 1♀, collected by beating the vegetation, from *Quercus* sp.; locality nr. 7, 1♀, collected by hand with a wet brush, by beating the vegetation, from *Cupressus sempervirens*; locality nr. 9 (29.7.2018), 1♀, collected drown in a barrel full with water; locality nr. 12, 1♀, collected by beating the vegetation, from various shrubs and trees.

Lepinotus reticulatus Enderlein, 1905

Material examined: locality nr. 10, 1♀, 1 nymph, collected by sieving of detritus below *Quercus coccifera*.

Psyllipsocidae

Psyllipsocus ramburii Selys-Longchamps, 1872

Material examined: locality nr. 13, 1♀, collected by wet brush, from under stone, inside the cave.

Prionoglarididae

Prionoglaris sp.

Material examined: locality nr. 7, 2 nymphs, collected by hand with a wet brush, from the cave walls, near the cave entrance, inside the cave; locality nr. 13, 1 nymph, collected by wet brush, from under stone, inside the cave.

Liposcelididae

Liposcelis bostrychophila Badonnel, 1931

Material examined: locality nr. 1, 1♀, collected by sieving, from a dry brunch lying on the ground; locality nr. 4, 1♀, collected by beating the vegetation, from *Yucca* sp.; locality nr. 5 (28.7.2018), 6♀, collected by hand with a wet brush, from inside a lamp full of dead, dry insects;

Liposcelis decolor (Pearman, 1925)

Material examined: locality nr. 5 (28.7.2018), 2♀, collected by hand with a wet brush, from inside a lamp full of dead, dry insects; locality nr. 6, 2♂, collected by sieving, from a dry brunch lying on the ground.

Liposcelis pearmani Lienhard, 1990

Material examined: locality nr. 11, 1♀, collected by a fine mesh, drown and floating on the surface of a small pool in a garden with bushes, trees, and short grass.

Epipsocidae

Bertkauia lucifuga (Rambur, 1842)

Material examined: locality nr. 7, 2♀, 2 nymphs, collected by hand with a wet brush, from the cave walls, near the cave entrance, inside the cave.

Caeciliusidae

Valenzuela flavidus (Stephens, 1836)

Material examined: locality nr. 8, 1♂, collected by sweep netting, from *Punica granatum*.

Valenzuela burmeisteri (Brauer, 1876)

Material examined: locality nr. 4, 1♂, collected by beating the vegetation, from unidentified evergreen bush.

Stenocaecilius caboverdensis (Meinander, 1966)

Material examined: locality nr. 2, 1♂, collected by sweep netting, from *Arundo donax*.

Stenopsocidae

Graphopsocus cruciatus (Linnaeus, 1768)

Material examined: locality nr. 1, 1♂, collected by beating the vegetation, from *Pistacia* sp.; locality nr. 6, 1♂, collected by sweep netting, from *Olea europaea*; locality nr. 10, 1♀, collected by brush, from an unidentified small spider's web among shrubs; locality nr. 13, 1♀, collected by beating the vegetation, from *Quercus* sp. near the cave entrance.

Lachesiliidae

Lachesilla pedicularia (Linnaeus, 1758)

Material examined: locality nr. 1, 2♂, collected by beating the vegetation, from dry brunches with leafs of *Cupressus sempervirens*.

Lachesilla dimorpha Lienhard, 1981

Material examined: locality nr. 2, 1♂, collected by sweep netting, from *Arundo donax*.

Lachesilla bernardi Badonnel, 1938

Material examined: locality nr. 3, 1♂, collected by sweep netting, from high grass vegetation.

Lachesilla quercus (Kolbe, 1880)

Material examined: locality nr. 1, 1♀, collected by beating the vegetation, from dry brunches with leafs of *Cupressus sempervirens*; locality nr. 3, 1♂, collected by sweep netting, from high grass vegetation; locality nr. 11, 1♀, collected by a fine mesh, drown and floating on the surface of a small pool in a garden with bushes, trees, and short grass.

Ectopsocidae

Ectopsocopsis xerophylla Vishnyakova, 1970

Material examined: locality nr. 11, 5♀, 1♂, collected by a fine mesh, drown and floating on the surface of a small pool in a garden with bushes, trees, and short grass.

Ectopsocus briggsi McLachlan, 1899

Material examined: locality nr. 1, 1♀, 4♂, collected by sweep netting, from *Olea europaea*, and 1♀, collected by beating the vegetation, from dry brunches with leafs of *Cupressus sempervirens*; locality nr. 2, 2♀, 1♂, collected by sweep netting, from *Arundo donax*; locality nr. 3, 1♂, collected by sweep netting, from high grass vegetation and 1♀, from *Olea europaea*; locality nr. 5, 1♂ (29.7.2018), collected by hand with a wet brush, from around a lamp during the night, and 3♂ (1.8.2018), collected by traps with soap water below lamps; locality nr. 7, 1♀, collected by hand with a wet brush, from by beating the vegetation, from *Quercus coccifera*; locality nr. 9 (30.7.2018), 1♂, collected drown

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in a barrel full with water; locality nr. 12, 1♂, collected by sweep netting and beating the vegetation, from various shrubs and trees.

Ectopsocus meridionalis Ribaga, 1904

Material examined: locality nr. 6, 1♀, collected by sweep netting, from *Olea europaea*; locality nr. 9 (29.7.2018), 1♀, collected drown in a barrel full with water.

Ectopsocus petersi Smithers, 1978



Fig. 3. *Ectopsocus petersi* - general view of a male specimen from Corfu Island (loc. nr. 9, found drown in a barrel full with water). The characteristic rounded patch of black tubercles is shown by an arrow.

Material examined: locality nr. 1, 1♀, collected by sweep netting, from *Olea europaea*; locality nr. 9 (30.7.2018), 1♂, collected drown in a barrel full with water; locality nr. 11, 1♀, collected by a fine mesh, drown and floating on the surface of a small pool in a garden with bushes, trees, and short grass; locality nr. 12, 4♀, 1♂, collected by sweep netting and beating the vegetation, from various shrubs and trees. **New record for Greece (Fig. 3).**

Peripsocidae

Peripsocus alboguttatus (Dalman, 1823)

Material examined: locality nr. 3, 1♂, collected by sweep netting, from high grass vegetation.

Trichopsocidae

Trichopsocus dalii (McLachlan, 1867)

Material examined: locality nr. 1, 1♂, collected by sweep netting, from *Olea europaea*, and 2♀, collected by beating the vegetation, from *Pistacia* sp.; locality nr. 2, 1♀, collected by sweep netting, from *Arundo donax*; locality nr. 7, 1♀, collected by hand with a wet brush, from by beating the vegetation, from *Quercus coccifera*; locality nr. 9, 1♀ (29.7.2018), 1♀ (30.7.2018), collected drown in a barrel full with water.

Trichopsocus clarus (Banks, 1908)

Material examined: locality nr. 1, 1♀, collected by sweep netting, from *Olea europaea*, and 1♀, collected by beating the vegetation, from *Pistacia* sp.

New record for Greece.

Psocidae

Blaste quadrimaculata (Latreille, 1794)

Material examined: locality nr. 3, 1♂, collected by sweep netting, from *Olea europaea*.

New record for Greece.

Blaste conspurcata (Rambur, 1842)

Material examined: locality nr. 10, 1♂, collected by wet brush, still live caught in a spider (Araneidae) web, near *Daphne* sp.

Neopsocus rhenanus Kolbe, 1882

Material examined: locality nr. 5 (30.7.2018), 1♂, collected by hand with a wet brush, from around a lamp during the night.

Three species were new records for Greece. The locality of *Ectopsocus petersi* is particularly interesting because this widely distributed species is known from Australia and New Zealand (Smithers, 2003) and from North America and Western and Northern Europe: Belgium, Denmark, France, Germany, Great Britain, Ireland, Luxembourg, Netherlands, Norway, Spain, Sweden (Lienhard, 1998; Svensson & Hall, 2010; Schneider, 2010; Schneider et al., 2012; Franken & Berg, 2016; Lock, 2017). A human transportation of this species can be supposed. For example from Great Britain where *E. petersi* is common and widely distributed (Saville, 2008), as people from this country predominate among tourists and there are few thousand British families currently living on the island (ELSTAT 2009-2010).

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