

LECH BOROWIEC<sup>1</sup> , SEBASTIAN SALATA<sup>2</sup> 

## Notes on ants (Hymenoptera: Formicidae) of Thassos Island, Greece

<http://doi.org/10.5281/zenodo.6123287>

<sup>1,2</sup> University of Wrocław, Department of Biodiversity and Evolutionary Taxonomy, Myrmecological Laboratory,  
Przybyszewskiego 65, 51-148 Wrocław, Poland,

e-mail: <sup>1</sup>lech.borowiec@uwr.edu.pl, ORCID 0000-0001-5668-6855; <sup>2</sup>sebastian.salata@uwr.edu.pl,  
ORCID 0000-0003-0811-2309

**Abstract:** A list of 52 ant species and 6 morphospecies collected recently from 36 sampling sites on Thassos island is given. *Aphaenogaster festae* EMERY, *Aphaenogaster subterraneoides* EMERY, and *Myrmoxenus gordiagini* RUSKY are recorded from Greek Macedonia for the first time.

**Key words:** ants, Greece, Macedonia, Thassos, faunistics.

### INTRODUCTION

This paper is a continuation of the faunistic review of ants from Greek islands. So far, faunistic reviews were published for Cephalonia (BOROWIEC & SALATA 2014), Corfu (BOROWIEC & SALATA 2021), Crete (SALATA *et al.* 2020), Dodecanese (BOROWIEC *et al.* 2021), Euboea (BOROWIEC & SALATA 2018c), Samos (BOROWIEC & SALATA 2018a), and Zakynthos (BOROWIEC & SALATA 2018b). This paper is based mainly on the new material collected by Lech Borowiec and was additionally supplemented with samples preserved in the Upper Silesian Museum, Bytom (Poland) and a private collection of Petr Werner, Prague (Czech Republic).

### STUDY AREA

Thassos (Greek: Θάσος) is a Greek island and geographically belongs to the North Aegean islands, but administratively constitute a separate regional unit. In the former administrative division of Greece, which based mostly on traditional geographical division, Thassos was placed in the Macedonia province. But the most recent administrative division of this country, implemented in 2011, Thassos was assigned to the East Macedonia and Thrace province. Thassos is the northernmost major Greek island and overall the 12<sup>th</sup> largest island for this country (380.097 km<sup>2</sup>). The island has a permanent population of 13 770, but tens of thousands of visitors explore the island during the tourist season. Thassos island is known from ancient times for its thermal springs making it a climatic and balneoclimateric resort area.

Thassos island is located in the northern Aegean Sea, approximately 7 km from the northern mainland and 20 kilometres south-east of Kavala, the largest city in this area. It is of generally rounded shape of 20x20 kilometers, without deep bays or significant peninsulas. The terrain is mountainous but not particularly rugged, rising gradually from coast to centre. The highest peak is Ypsario (Ipsario), at 1,205 metres a.s.l., somewhat east of centre. The island is formed mainly by gneisses, schists and marbles. In the 20<sup>th</sup> century, most of the island's surface was covered with pine forests, but numerous fires meant reduced their range mainly to the north-eastern and partly central parts of the island. In the northern and northeastern parts, plane trees have survived along the stream valleys. The post-fire areas are gradually overgrown with Mediterranean shrubs or young pine trees. Agricultural habitats are limited mostly to the western coastal area. The main agricultural products on the island are honey, almonds, walnuts, olives (famously Throuba olives), and olive oil, as well as wine, sheep, goat herding, and fishing (CHISHOLM 1911).

## MATERIAL AND METHODS

The main method, applied at all sites, was direct sampling (hand collecting). Nests and individual specimens were collected on the ground, in leaf litter, under stones, in dead wood, on tree trunks and twigs. Ants were brushed off to the sweep net on the roadsides and forest. Nests were searched in rocks cracks and searched on cracked rocks using a chisel. All specimens were preserved in pure 96% ethanol.

Distribution in Greece refers to BOROWIEC (2014), SALATA and BOROWIEC (2018), and unpublished data from the Database and Collection of Greek Ants (DCGA), preserved at the University of Wrocław. Geographical coordinates are given in a decimal system. Materials are deposited in the following institutions:

MNHW-DBET—Museum of Natural History, University of Wrocław, in temporary deposit by Department of Biodiversity and Evolutionary Taxonomy, University of Wrocław, Poland – former coll. L. Borowiec,

USMB—Upper Silesian Museum, Bytom, Poland,

PWC—private collection of Petr Werner, Prague, Czech Republic.

## LIST OF LOCALITIES (Fig. 1)

### MNHW-DBET collection (leg. L. Borowiec)

- 1 (THA\_044) – Potos, Hotel Alexandra Beach, 40.614618 / 24.603003, 15 m, 21 IX 2021, garden area.
- 2 (THA\_045) – Aliko, 40.601566 / 24.739264, 6-10 m, 21 IX 2021, pine forest on rocky ground.
- 3 (THA\_046) – Theologos, 40.651666 / 24.682346, 227 m, 21 IX 2021, a rocky pasture inside a low-tree forest of Mediterranean oaks.
- 4 (THA\_047) – road Potos-Theologos, 40.63275 / 24.664792, 127 m, 21 IX 2021, pine forest.
- 5 (THA\_048) – 1 km SW of Mikros Prinos, 40.716157 / 24.60596, 595 m, 22 IX 2021, open area after fires with rocks and stones.
- 6 (THA\_049) – ad Iera Moni Agiou Panteleionos, 40.705764 / 24.599946, 734 m, 22 IX 2021, pine forest.
- 7 (THA\_050) – Sotiras, 40.716342 / 24.569973, 242 m, 22 IX 2021, pine forest.

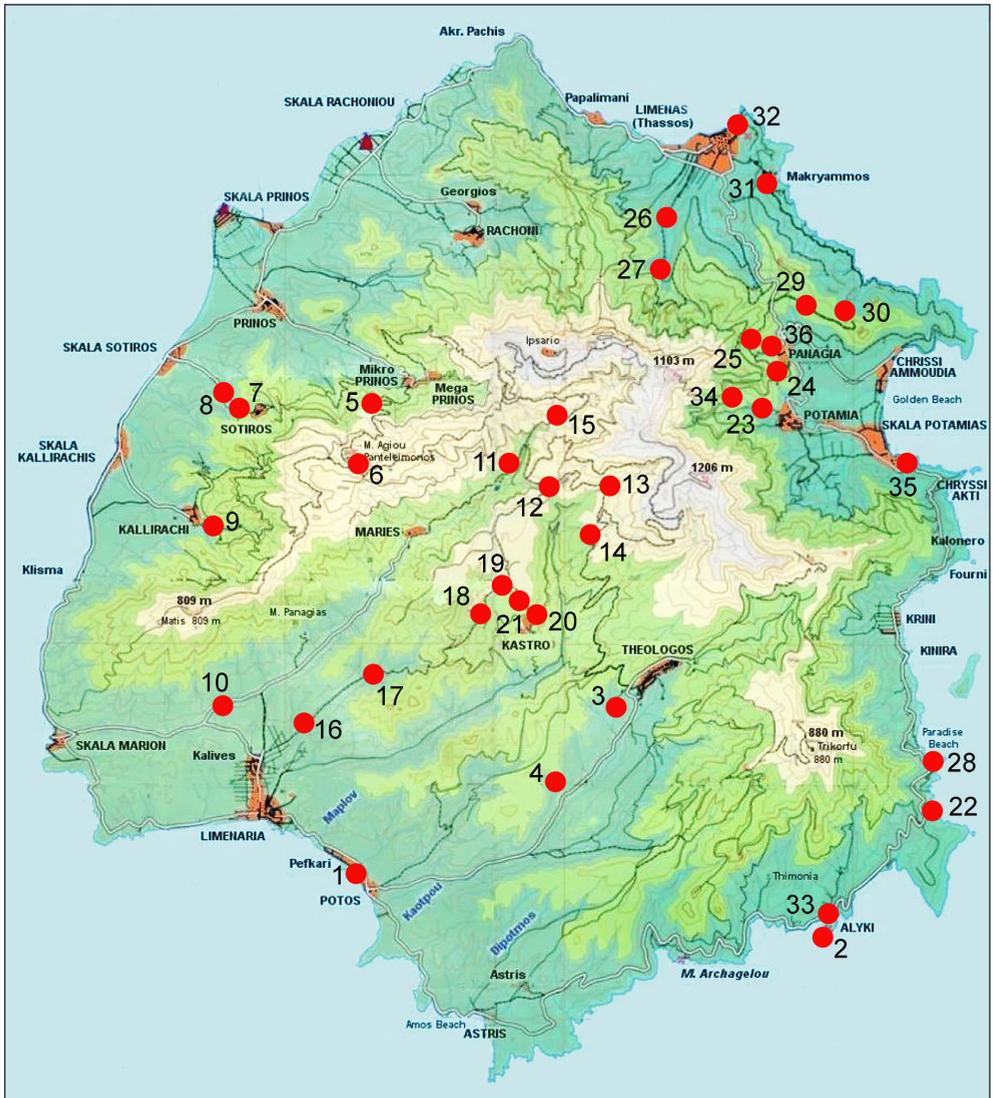


Fig. 1. Sampling localities according to the numbering given in the text (source map © 2022 Copyright: Newbcreations).

- 8 (THA\_051) – road Sotiras-Skala Sotiros, 40.717429 / 24.564779, 185 m, 22 IX 2021, pine forest.
- 9 (THA\_052) – Kallirachi, 40.690958 / 24.558973, 182 m, 22 IX 2021, roadsides in agricultural area.
- 10 (THA\_053) – road Skala Marion-Maries, 40.650799 / 24.562835, 64 m, 23 IX 2021, stream valley with plane trees.
- 11 (THA\_054) – ad Waterfall Maries, 40.705392 / 24.651598, 480 m, 23 IV 2021, pine forest.
- 12 (THA\_055) – crossroad to Kastro Ypsarion, 40.698462 / 24.65967, 615 m, 23 IV 2021, rocky terrain in a pine forest.

- 13 (THA\_056) – southern road to Mt. Ypsarion loc. 1, 40.700896 / 24.677566, 580 m, 23 IV 2021, pine forest.
- 14 (THA\_057) – southern road to Mt. Ypsarion loc. 2, 40.689772 / 24.67167, 565 m, pine forest.
- 15 (THA\_058) – 4.5 km NE of Maries, 40.715205 / 24.664885, 608 m, 23 IV 2021, pine forest.
- 16 (THA\_059) – Kalivia-Kastro rd. loc. 1, 40.649809 / 24.5911662, 95 m, 24 IX 2012, rocky terrain in a mediterranean shrubs.
- 17 (THA\_060) – Kalivia-Kastro rd. loc. 2, 40.658601 / 24.606662, 135 m, 24 IX 2012, stream valley with pine and olive trees.
- 18 (THA\_061) – Kalivia-Kastro rd. loc. 3, 40.672491 / 24.640622, 535 m, 24 IX 2012, pine forest.
- 19 (THA\_062) – Kalivia-Kastro rd. loc. 4, 40.677597 / 24.645984, 562 m, 24 IX 2012, pine forest with large stones.
- 20 (THA\_063) – Kastro, 40.670234 / 24.655335, 497 m, 24 IX 2012, rocky road in the village.
- 21 (THA\_064) – ad Kastro, 40.676609 / 24.649313, 557 m, 24 IX 2012, mediterranean oak forest with stones.
- 22 (THA\_065) – 3.4 km NE of Alikí, 40.626708 / 24.768602, 130 m, 25 IX 2012, pine forest with slate rocks.
- 23 (THA\_066) – ad Potamia, 40.718678 / 24.719430, 212 m, 25 IX 2012, stream valley with plane trees.
- 24 (THA\_067) – Panagia, 40.72903 / 24.725579, 298 m, 25 IX 2012, pine forest.
- 25 (THA\_068) – 600 m W of Panagia, 40.733599 / 24.719676, 335 m, 25 IX 2012, pine forest.
- 26 (THA\_069) – 1.8 km S of Thassos, 40.757901 / 24.694271, 100 m, 25 IX 2021, stream valley with plane trees.
- 27 (THA\_070) – 3 km S of Thassos, 40.744567 / 24.6975, 272 m, 25 IX 2021, stream valley with plane trees.
- 28 (THA\_071) – Makriammos Theologou, 40.638083 / 24.770359, 117 m, 26 IX 2021, pine forest.
- 29 (THA\_072) – road to Marble Beach loc. 1, 40.740471 / 24.736089, 300 m, 26 IX 2021, pine forest.
- 30 (THA\_073) – road to Marble Beach loc. 2, 40.739932 / 24.747117, 262 m, 26 IX 2021, pine forest.
- 31 (THA\_074) – Makriamos, 40.772073 / 24.721429, 68 m, 26 IX 2021, slate rock in pine forest.
- 32 (THA\_075) – Thassos city, 40.779472 / 24.713188, 3 m, 26 IX 2021, ancient agora archeological site.

**USMB collection** (leg. W. Żyła)

- 33 – Alikí, 40.604 / 24.742, 10 m, 29 VII 2012, xerothermic meadow.
- 34 – 1 km W of Potamia, 40.719 / 24.717, 250 m, 27-28 VII 2012, roadsides with plane trees.

35 – Skala Potamia, 40.706 / 24.762, 35 m, 25-30 VII 2012, olive plantation, creek bed and roadsides.

**PWC collection** (leg. V. Vohralík)

36 – Panagia, 2 V 1995.

## LIST OF SPECIES

### *Aphaenogaster epirotes* (EMERY, 1895)

**Localities:** 7, 17, 25.

**Note:** *Aphaenogaster epirotes* is a common species, recorded from the Eastern Aegean Islands, the Ionian Islands, Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

### *Aphaenogaster festae* EMERY, 1915

**Locality:** 7.

**Note:** In Greece, it is an eastern species, recorded from Thrace, the Aegean Islands, Cyclades and the Dodecanese. First record from Macedonia. Locality from Thassos is the westernmost for this species.

### *Aphaenogaster subterranea* (LATREILLE, 1798)

**Localities:** 23, 24, 25, 26, 27, 30.

**Note:** It is a very common species so far noted from all Greek provinces (except Crete).

### *Aphaenogaster subterraneoides* EMERY, 1881

**Locality:** 21.

**Note:** It is an uncommon species, recorded from the Aegean Islands (Chios), Crete, Cyclades (Christiani and Naxos), the Dodecanese and the Ionian Islands (Corfu and Zakynthos). First record from Greek Macedonia.

### *Camponotus aegaeus* EMERY, 1915

**Localities:** 17, 33, 35.

**Note:** It is an eastern species, recorded from the Aegean Islands, the Dodecanese, Macedonia and Thrace.

### *Camponotus aethiops* (LATREILLE, 1798)

**Localities:** 4, 8, 12, 14, 21, 22, 25, 28, 35.

**Note:** It is a common species, recorded from all Greek provinces.

### *Camponotus atricolor* (NYLANDER, 1849)

**Localities:** 32, 34, 35.

**Note:** It is a northern species recorded from Epirus, Macedonia, northern Thessaly and Thrace.

### *Camponotus dalmaticus* (NYLANDER, 1849)

**Localities:** 4, 7, 14, 18, 23, 25, 27, 28, 31.

**Note:** It is a northern and western species in Greece, known from all mainland provinces, and Aegean and Ionian islands.

*Camponotus ionius* EMERY, 1920

**Localities:** 1, 8, 9, 17, 22, 29.

**Note:** It is a common species known from all Greek provinces except Crete.

*Camponotus lateralis* (OLIVIER, 1792)

**Localities:** 2, 5, 6, 11, 12, 13, 14, 15, 23, 24.

**Note:** It is one of the commonest Greek ants, recorded from all provinces.

*Camponotus oertzeni* FOREL, 1889

**Localities:** 4, 6, 10, 13, 14, 18, 19, 21, 22.

**Note:** It is a common species, known from all Greek provinces.

*Camponotus piceus* (LEACH, 1825)

**Localities:** 9, 11, 13, 14, 18, 21, 25.

**Note:** It is a common species, known from all Greek provinces.

*Camponotus samius* FOREL, 1889

**Localities:** 11, 12, 13, 24.

**Note:** It is an uncommon southern and eastern species, recorded from the Aegean Islands, Cyclades, the Dodecanese, Macedonia, the Peloponnese, Sterea Ellas and Thrace.

*Cardiocondyla bulgarica* FOREL, 1892

**Locality:** 35.

**Note:** It is a rare species, recorded from the Aegean Islands, the Dodecanese, Macedonia and Thrace.

*Cataglyphis nodus* (BRULLÉ, 1833)

**Localities:** 3, 34, 35.

**Note:** It is a common species, known from all Greek provinces except Cyclades and a single record from Crete which has been recently questioned (SALATA *et al.* 2020).

*Chalepoxenus muellerianus* (FINZI, 1922)

**Locality:** 22.

**Note:** It is a social parasite, on Thassos found in nests of *Temnothorax recedens*. Widely spread in Greece, recorded from most regions except the Aegean Islands, Cyclades, the Dodecanese, and Thrace.

*Colobopsis truncata* (SPINOLA, 1808)

**Locality:** 35.

**Note:** It is a common species, recorded from all Greek provinces except Cyclades.

*Crematogaster schmidti* (MAYR, 1853)

**Localities:** 1, 2, 4, 5, 12, 15, 21, 23, 25, 27, 34, 35.

**Note:** It is a common species, known from all Greek Provinces.

*Crematogaster sordidula* (NYLANDER, 1849)

**Locality:** 24.

**Note:** It is a common species, known from all Greek provinces.

*Dolichoderus quadripunctatus* (LINNAEUS, 1771)

**Localities:** 23, 25, 32, 34, 35.

**Note:** It is an uncommon species although known from almost all Greek provinces except Cyclades.

*Formica clara* FOREL, 1886

**Locality:** 35.

**Note:** It is an uncommon species, recorded from the East Aegean Islands, Macedonia, the Peloponnese, Thessaly and Thrace.

*Formica cunicularia* LATREILLE, 1798

**Locality:** 34.

**Note:** It is common in northern mainland provinces, moderately common in southern mainland, on islands noted only from the Aegean Islands and Crete.

*Formica gagates* LATREILLE, 1798

**Localities:** 24, 26, 34.

**Note:** Common in mainland Greece, on islands noted only from the Aegean Islands and Ionian Islands.

*Hypoponera eduardi* (FOREL, 1894)

**Locality:** 23.

**Note:** It is a tramp species, in Greece noted from both natural and anthropogenic habitats. Recorded from the four island provinces, and from Epirus, Macedonia and the Peloponnese.

*Lasius bombycina* SEIFERT & GALKOWSKI, 2016

**Localities:** 34, 35.

**Note:** It is a recently described species, common in mainland Greece, recorded also from the Aegean Islands and Ionian Islands.

*Lasius flavus* (FABRICIUS, 1782)

**Locality:** 6.

**Note:** In Greece, it is a rare species but known from all mainland provinces, also from the Aegean Islands and Ionian Islands.

*Lasius illyricus* ZIMMERMANN, 1935

**Localities:** 23, 27, 34, 35.

**Note:** It is species common in northern Greece and the Ionian Islands, rare in Crete and the southern Aegean islands.

*Lasius lasioides* (EMERY, 1869)

**Locality:** 17.

**Note:** It is a common species, known from all Greek provinces.

*Lepisiota frauenfeldi* morph. 1

**Localities:** 1, 2, 3, 5, 7, 8, 9, 18, 21, 28, 29, 34, 35.

**Note:** It is a common species recorded from all Greek provinces except Cyclades. In Greek Macedonia occur two morphotypes of unclear status. Morphotype 1 is dark coloured, with mesosoma partly black or at least with pronotum darkened dorsally and with all legs mostly or completely brown to dark brown.

*Lepisiota frauenfeldi* morph. 2

**Localities:** 13, 14, 19, 32.

**Note:** see note for *Lepisiota frauenfeldi* morph. 1. Morphotype 2 is pale coloured, with mesosoma uniformly red and legs completely or partly reddish. This morphotype was recorded from northern and central Greece.

*Messor hellenius* AGOSTI & COLLINGWOOD, 1996

**Localities:** 13, 17, 34, 35.

**Note:** Known from almost all Greek provinces except the Ionian Islands, common in mainland, rare on islands.

*Messor ibericus* SANTSCHI, 1931

**Localities:** 2, 3, 5, 7, 9, 16, 27, 35.

**Note:** It is a common species but still unrecorded from the Aegean Islands, Cyclades and Sterea Ellas.

*Messor mcarthuri* STEINER *et al.*, 2018

**Locality:** 32, 35.

**Note:** It is a recently described species previously confused with other species of the *Messor structor* species group (STEINER *et al.* 2018). Confirmed records are from the Aegean Islands, Crete, the Dodecanese, Macedonia, the Peloponnese, Thessaly and Thrace.

*Messor wasmanni* KRAUSSE, 1910

**Localities:** 2, 3, 4, 20, 21, 28.

**Note:** One of the commonest Greek ants, recorded from all provinces.

*Myrmecina graminicola* (LATREILLE, 1802)

**Localities:** 25, 27.

**Note:** It is an uncommon species but recorded from almost all the Greek provinces except the Aegean Islands.

*Myrmica scabrinodis* NYLANDER, 1846

**Locality:** 36.

**Note:** It is an uncommon species, recorded from all mainland provinces and the Ionian Islands.

*Myrmoxenus gordiagini* RUZSKY, 1902

**Locality:** 11.

**Note:** It is a social parasite on various *Temnothorax* species, recorded only from Sterea

Ellas and Thessaly. New to Macedonia. On Thassos observed in the nest of *Temnothorax lichtensteini*.

*Pheidole* cf. *pallidula*

**Localities:** 3, 4, 5, 7, 8, 9, 10, 12, 13, 14, 16, 17, 18, 19, 21, 22, 24, 28, 29, 32, 33, 34, 35.

**Note:** It is one of the commonest Greek ants. Mediterranean populations of the taxon named *Pheidole pallidula* (NYLANDER, 1849) have recently been divided into four species, three of them recorded in Greece (SEIFERT 2016), but this revision is still under discussion owing to the great local variability of this very common Mediterranean ant. From Greek Macedonia was recorded mostly *Pheidole balcanica* SEIFERT, 2016.

*Plagiolepis pallescens* FOREL, 1889

**Localities:** 7, 19, 28, 29.

**Note:** It is a common species, recorded from all Greek provinces except Epirus.

*Plagiolepis pygmaea* (LATREILLE, 1798)

**Localities:** 1, 2, 6, 7, 8, 11, 13, 15, 17, 18, 19, 22, 23, 24, 25, 28, 29, 31, 32.

**Note:** It is the most common and ubiquitous species of the genus *Plagiolepis*, known from all Greek provinces.

*Plagiolepis xene* STÄRCKE, 1936

**Locality:** 15.

**Note:** It is a social parasite of other *Plagiolepis* species missing worker caste. Recorded from the Aegean Islands, Epirus, the Ionian Islands and Macedonia. In Thassos observed in nest of *Plagiolepis pygmaea*.

*Ponera coarctata* (LATREILLE, 1802)

**Localities:** 6, 7.

**Note:** It is a common species in mainland Greece, in islands noted only from the Aegean Islands and Ionian Islands.

*Prenolepis nitens* (MAYR, 1853)

**Localities:** 11, 12, 18, 23, 24, 25, 29, 30.

**Note:** It is an uncommon species, known from all mainland provinces, the Aegean Islands and Ionian Islands.

*Solenopsis fugax* LATREILLE, 1798

**Locality:** 32.

**Note:** In Greece it is a rare species, confirmed localities are from Macedonia and Thrace.

*Solenopsis* cf. *lusitanica*

**Localities:** 7, 8, 15.

**Note:** The status of most European species of the genus *Solenopsis* requires extensive revision. GALKOWSKI *et al.* (2010) redescribed *Solenopsis fugax* and suggested that four distinct species groups occur in Europe and the Mediterranean region. Our samples from Thassos, characterized by short and sparse hairs on the mesosoma and small gynes belong to the *Solenopsis lusitanica* group as proposed by GALKOWSKI *et al.* (2010).

*Tapinoma* cf. *erraticum*\_BALC

**Localities:** 1, 14, 23, 27, 35.

**Note:** According to B. Seifert's note in WAGNER *et al.* (2018), populations of *Tapinoma erraticum* in south-eastern Europe consist of a complex of two similar species easily separated by the morphology of male genitalia. They suggested that the true *T. erraticum* is common only in northern parts of the Balkan Peninsula. In the Greek material, we found only morphospecies identified by WAGNER *et al.* (2018) as *Tapinoma* cf. *erraticum*\_BALC. Examined specimens come from Crete, the Cyclades, the Dodecanese, the East Aegean Islands, Epirus, the Ionian Islands, Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

*Temnothorax bulgaricus* (FOREL, 1892)

**Localities:** 7, 12, 14, 15, 18, 19, 25, 31.

**Note:** It is a common species although not recorded from Crete and Cyclades.

*Temnothorax* cf. *exilis*

**Localities:** 7, 11, 21, 22, 31.

**Note:** The *Temnothorax exilis* complex from Greece needs extensive revision. There are at least 7 morphospecies of unclear taxonomic status collected in this country. Specimens from Thessaly belong to the morphospecies with dark head and gaster and pale mesosoma. Until the revision of the whole group their status remains unclear. Various morphospecies of the whole *Temnothorax exilis* species-group were recorded from all Greek provinces.

*Temnothorax flavicornis* (EMERY, 1870)

**Locality:** 22.

**Note:** It is a rare species recorded from the Ionian Islands, Macedonia, the Peloponnese and Thessaly.

*Temnothorax helenae* CSÓSZ, HEINZE & MIKÓ, 2015

**Locality:** 30.

**Note:** It is a recently described species, widespread in Greece, noted from all mainland provinces except Epirus, recorded also from Crete and Cyclades.

*Temnothorax lichtensteini* (BONDROIT, 1918)

**Localities:** 6, 7, 11, 13, 15, 23, 27, 30.

**Note:** It is a northern species recorded from Epirus, the Ionian Islands, Macedonia, Sterea Ellas, Thessaly and Thrace.

*Temnothorax recedens* (NYLANDER, 1856)

**Localities:** 4, 7, 11, 12, 14, 17, 18, 19, 21, 22, 30, 31.

**Note:** It is a widely distributed species, recorded from all Greek provinces. Populations from Thassos belong to the palest morphotype with mesosoma uniformly yellow or with indistinct dark patches and head yellowish to yellowish brown.

*Temnothorax semiruber* (ANDRÉ, 1881)

**Localities:** 5, 6, 13, 22.

**Note:** It is an uncommon species although recorded from all Greek provinces except the Ionian Islands.

*Temnothorax tauricus* (RUZSKY, 1902)

**Localities:** 23, 27, 30.

**Note:** Status of this species is still under discussion (BOROWIEC & SALATA 2019), it is either good species or a dark form of *T. turcicus* (SANTSCHI, 1934). It was noted from the Ionian Islands, Macedonia, and the Peloponnese.

*Tetramorium* cf. *caespitum*

**Localities:** 34, 35.

**Note:** *Tetramorium caespitum*-species group was revised recently (WAGNER *et al.* 2017). Identification of species from this group requires complex morphometric techniques and long series of specimens from nest samples. Our material from Thassos is too sparse to be properly analyzed. However, we can exclude the subcosmopolitan species *T. immigrans* SANTSCHI, 1927, which often occurs in areas with high intensity of tourism, and *T. impurum* (FÖRSTER, 1850) known from Greece mainly from mountainous regions. The Thassos specimens most likely belong to *T. caespitum* or *T. indocile*.

*Tetramorium diomedeam* EMERY, 1908

**Localities:** 21, 35.

**Note:** It is an uncommon species although noted from most Greek provinces except Cyclades, Sterea Ellas and Thrace.

*Tetramorium kephalosi* SALATA & BOROWIEC, 2017

**Localities:** 2, 3, 5, 10, 12, 21, 24, 25, 28.

**Note:** It is a recently described species confused with *Tetramorium semilaeve* ANDRÉ, 1883. In Greece appears to be a very common species, known from all Greek provinces.

*Trichomyrmex perplexus* (RADCHENKO, 1997)

**Locality:** 3.

**Note:** It is an uncommon species known from most Greek provinces except Epirus and Thrace.

## DISCUSSION

Thassos belongs to the group of moderately sized Greek islands with area between 390-592 km<sup>2</sup>. Four of them were investigated recently for ant fauna: Corfu (area 592 km<sup>2</sup>), Samos (476 km<sup>2</sup>), Zakynthos (406 km<sup>2</sup>) and Thassos (390 km<sup>2</sup>). Altogether 116 species were recorded from these islands (BOROWIEC & SALATA 2018a, 2018b, 2021 and present paper), however, only 16 species are shared between these four islands (Table 1). Corfu is the largest island from this group and has the highest number of recorded species or morphospecies: 65 (BOROWIEC & SALATA 2021). Thassos, although the smallest island of this group, hosts 58 taxa and appears more species rich than Samos with 54 taxa (BOROWIEC & SALATA 2018 a), and Zakynthos for which 46 taxa were identified (BOROWIEC & SALATA 2018 b).

## ACKNOWLEDGEMENTS

Thanks to Roland Dobosz (USMB, Poland) and Petr Werner (PWC, Czech Republic) for sharing the ant material preserved in these collections. Lech Borowiec thanks Jolanta Świętojańska (University of Wrocław) for her assistance during field trips.

## REFERENCES

- BOROWIEC L., SALATA S. 2014a. Redescription of *Camponotus nitidescens* FOREL, 1889, new status and notes on ants from Kefalonia, Greece (Hymenoptera: Formicidae). *Genus* 25: 499–517.
- BOROWIEC L., SALATA S., 2018a. Notes on ants (Hymenoptera: Formicidae) of Samos Island, Greece. *Annals of the Upper Silesian Museum Bytom, Entomology* 27(online003): 1–13.
- BOROWIEC L., SALATA S. 2018b. Notes on ants (Hymenoptera: Formicidae) of Zakynthos Island, Greece. *Annals of the Upper Silesian Museum, Entomology* 27(online 004): 1–13.
- BOROWIEC L., SALATA S. 2018c. Notes on ants (Hymenoptera: Formicidae) of the Euboea Island, Greece. *Annals of the Upper Silesian Museum, Entomology* 27(online 005): 1–15.
- SALATA S., BOROWIEC L. 2019. Preliminary division of not socially parasitic Greek *Temnothorax* MAYR, 1861 (Hymenoptera, Formicidae) with a description of three new species. *ZooKeys* 877: 81–131.
- BOROWIEC L., SALATA S. 2021. Notes on ants (Hymenoptera: Formicidae) of Corfu Island, Greece. *Annals of the Upper Silesian Museum, Entomology* 30(online 002): 1–19.
- BOROWIEC L., WIECZOREK K., SALATA S. 2021b. Review of ants (Hymenoptera: Formicidae) of the Dodecanese Archipelago, Greece. *Annals of the Upper Silesian Museum, Entomology* 30(online 006): 1–33.
- CHISHOLM H. (Ed.) 1911. *Encyclopaedia Britannica*, 26 (11<sup>th</sup> ed.). Cambridge University Press, pp. 727–728.
- GALKOWSKI C., CASEVITZ-WEULERSEE J., CAGNIANT H. 2010. Redescription of *Solenopsis fugax* (LATREILLE, 1798) et notes sur les *Solenopsis* de France (Hymenoptera, Formicidae). *Revue Française d'Entomologie* 32(3): 151–163.
- SALATA S., BOROWIEC L., TRICHAS A., 2020. Review of ants (Hymenoptera: Formicidae) of Crete, with keys to species determination and zoogeographical remarks. *Monographs of the Upper Silesian Museum* 12: 5–296.
- SEIFERT B. 2016. Inconvenient hyperdiversity – the traditional concept of “*Pheidole pallidula*” includes four cryptic species (Hymenoptera: Formicidae). *Soil Organisms* 88(1): 1–17.
- STEINER F.M., CSÓSZ S., MARKÓ B., GAMISCH A., RINNHOFFER L., FOLTERBAUER C., HAMMERLE S., STAUFFER C., ARTHOFER W., SCHLICK-STEINER B. C. 2018. Turning one into five: Integrative taxonomy uncovers complex evolution of cryptic species in the harvester ant *Messor “structor”*. *Molecular Phylogenetics and Evolution* 127: 387–404.
- WAGNER H.C., ARTHOFER W., SEIFERT B., MUSTER C., STEINER F.M., SCHLICK-STEINER B.C. 2017. Light at the end of the tunnel: Integrative taxonomy delimits cryptic species in the *Tetramorium caespitum* complex (Hymenoptera: Formicidae). *Myrmecological News* 25: 95–129.
- WAGNER H.C., SEIFERT B., BOROVSKY R., PAILL W. 2018. First insight into the ant diversity of the Vjosa valley, Albania (Hymenoptera: Formicidae). *Acta ZooBot Austria* 155: 315–321.

Tab. 1. Ant species collected recently on four moderately sized Greek islands: COR – Corfu (May 2013, September 2020), SAM – Samos (June 2015), THA – Thassos (September 2021), ZAK – Zakynthos (May 2018), \* – probably undescribed species or morphospecies of unclear status; species recorded from all four islands in bold).

Species	Island			
	COR 592 km <sup>2</sup>	SAM 476 km <sup>2</sup>	ZAK 406 km <sup>2</sup>	THA 390 km <sup>2</sup>
<i>Aenictus rhodiensis</i>	-	+	-	-
<i>Aphaenogaster balcanica</i>	+	+	+	-
<i>Aphaenogaster epirotes</i>	+	-	+	+
<i>Aphaenogaster festae</i>	-	+	-	+
<i>Aphaenogaster muelleriana</i>	+	-	+	-
<i>Aphaenogaster sporadis</i>	-	+	-	-
<i>Aphaenogaster subcostata</i>	-	+	-	-
<i>Aphaenogaster subterranea</i>	+	-	-	+
<i>Aphaenogaster</i> cf. <i>subterranea</i> _COR*	+	-	-	-
<i>Aphaenogaster subterraneoides</i>	+	-	-	+
<i>Bothriomyrmex communista</i>	+	+	+	-
<i>Camponotus aegeus</i>	-	+	-	+

Species	Island			
	COR 592 km <sup>2</sup>	SAM 476 km <sup>2</sup>	ZAK 406 km <sup>2</sup>	THA 390 km <sup>2</sup>
<b><i>Camponotus aethiops</i></b>	+	+	+	+
<i>Camponotus atricolor</i>	-	-	-	+
<i>Camponotus baldaccii</i>	-	+	-	-
<i>Camponotus boghossiani</i>	-	+	-	-
<i>Camponotus candiotes</i>	-	+	-	-
<b><i>Camponotus dalmaticus</i></b>	+	+	+	+
<i>Camponotus fallax</i>	+	-	-	-
<i>Camponotus gestroi</i>	+	-	+	-
<i>Camponotus heidrunvogtae</i>	+	-	-	-
<b><i>Camponotus ionius</i></b>	+	+	+	+
<i>Camponotus kiesenwetteri</i>	-	+	+	-
<b><i>Camponotus lateralis</i></b>	+	+	+	+
<i>Camponotus oertzeni</i>	-	+	+	+
<i>Camponotus piceus</i>	+	-	-	+
<i>Camponotus samius</i>	-	+	-	+
<i>Camponotus vagus</i>	+	-	-	-
<i>Cardiocondyla bulgarica</i>	-	-	-	+
<i>Cardiocondyla dalmatica</i>	+	-	-	-
<b><i>Cataglyphis nodus</i></b>	+	+	+	+
<i>Cataglyphis viaticoides</i>	-	+	-	-
<i>Chalepoxenus curtisetosus</i>	-	+	-	-
<i>Chalepoxenus muellerianus</i>	+	-	+	+
<b><i>Colobopsis truncata</i></b>	+	+	+	+
<i>Crematogaster erectepilosa</i>	-	+	-	-
<i>Crematogaster ionia</i>	-	-	+	-
<b><i>Crematogaster schmidti</i></b>	+	+	+	+
<b><i>Crematogaster sordidula</i></b>	+	+	+	+
<i>Dolichoderus quadripunctatus</i>	+	+	-	+
<i>Formica clara</i>	-	-	-	+
<i>Formica cunicularia</i>	-	-	-	+
<i>Formica gagates</i>	+	-	-	+
<i>Hypoponera eduardi</i>	+	+	-	+
<i>Lasius alienus</i>	+	+	+	-
<i>Lasius bombycina</i>	+	-	-	+
<i>Lasius brunneus</i>	+	-	-	-
<i>Lasius flavus</i>	-	-	-	+
<i>Lasius illyricus</i>	+	-	-	+
<b><i>Lasius lasioides</i></b>	+	+	+	+
<i>Lasius turcicus</i>	-	+	-	-
<i>Lepisiota frauenfeldi</i> morph. 1*	+	+	+	+

Species	Island			
	COR 592 km <sup>2</sup>	SAM 476 km <sup>2</sup>	ZAK 406 km <sup>2</sup>	THA 390 km <sup>2</sup>
<i>Lepisiota frauenfeldi</i> morph. 2*	-	-	-	+
<i>Lepisiota melas</i>	+	-	+	-
<i>Lepisiota nigra</i>	+	-	-	-
<i>Linepithema humile</i>	+	-	-	-
<i>Liometopum microcephalum</i>	+	-	-	-
<i>Messor hellenius</i>	-	-	-	+
<i>Messor ibericus</i>	+	-	+	+
<i>Messor mcarthuri</i>	-	+	-	+
<b><i>Messor wasmanni</i></b>	+	+	+	+
<i>Monomorium monomorium</i>	+	+	+	-
<i>Myrmecina graminicola</i>	+	-	+	+
<i>Myrmica hellenica</i>	+	-	-	-
<i>Myrmica scabrinodis</i>	-	-	-	+
<i>Myrmoxenus gordiagini</i>	-	-	-	+
<i>Nylanderia jaegerskioeldi</i>	-	-	+	-
<b><i>Pheidole</i> cf. <i>pallidula</i></b>	+	+	+	+
<i>Plagiolepis pallelescens</i>	-	+	-	+
<i>Plagiolepis perperamus</i>	+	-	+	-
<b><i>Plagiolepis pygmaea</i></b>	+	+	+	+
<i>Plagiolepis xene</i>	+	-	-	+
<i>Ponera coarctata</i>	+	-	-	+
<i>Ponera testacea</i>	-	+	-	-
<b><i>Prenolepis nitens</i></b>	+	+	+	+
<i>Solenopsis fugax</i>	-	-	-	+
<i>Solenopsis</i> cf. <i>lusitanica</i>	+	-	+	+
<i>Stigmatomma denticulatum</i>	+	+	+	-
<i>Strongylognathus dalmaticus</i>	+	-	-	-
<i>Tapinoma</i> cf. <i>erraticum</i> _BALC*	+	-	+	+
<i>Tapinoma simrothi</i>	-	-	+	-
<i>Temnothorax aeolius</i>	-	+	-	-
<i>Temnothorax affinis</i>	+	-	-	-
<i>Temnothorax angustifrons</i>	-	+	-	-
<i>Temnothorax antigoni</i>	-	+	-	-
<i>Temnothorax brackoi</i>	+	-	+	-
<i>Temnothorax bulgaricus</i>	-	+	+	+
<i>Temnothorax clypeatus</i>	+	-	-	-
<b><i>Temnothorax</i> cf. <i>exilis</i>*</b>	+	+	+	+
<i>Temnothorax flavicornis</i>	-	+	-	+
<i>Temnothorax helenae</i>	-	-	-	+
<i>Temnothorax graecus</i>	-	-	+	-

Species	Island			
	COR 592 km <sup>2</sup>	SAM 476 km <sup>2</sup>	ZAK 406 km <sup>2</sup>	THA 390 km <sup>2</sup>
<i>Temnothorax</i> cf. <i>graecus</i> _SAM*	-	+	-	-
<i>Temnothorax italicus</i>	+	-	-	-
<i>Temnothorax</i> cf. <i>kemali</i> *	+	-	+	-
<i>Temnothorax laconicus</i>	+	-	-	-
<i>Temnothorax lichtensteini</i>	-	-	-	+
<i>Temnothorax messiniaensis</i>	-	-	+	-
<i>Temnothorax morea</i>	+	-	-	-
<i>Temnothorax</i> cf. <i>nigriceps</i> _ION*	+	-	-	-
<i>Temnothorax recedens</i>	-	-	-	+
<i>Temnothorax rogeri</i>	+	-	+	-
<i>Temnothorax semiruber</i>	-	-	-	+
<i>Temnothorax smyrnensis</i>	-	+	-	-
<i>Temnothorax</i> cf. <i>smyrnensis</i> _SAM*	-	+	-	-
<i>Temnothorax tauricus</i>	-	-	-	+
<i>Tetramorium</i> cf. <i>caespitum</i> *	-	-	-	+
<b><i>Tetramorium diomedea</i></b>	+	+	+	+
<i>Tetramorium galaticum</i>	-	+	-	-
<i>Tetramoeium hippocratis</i>	-	+	-	-
<i>Tetramorium immigrans</i>	+	-	+	-
<i>Tetramorium impurum</i>	+	-	+	-
<b><i>Tetramorium kephalosi</i></b>	+	+	+	+
<i>Tetramorium</i> cf. <i>punctatum</i> sp. 1*	+	-	+	-
<i>Tetramorium</i> cf. <i>punctatum</i> sp. 2*	-	+	-	-
<i>Trichomyrmex perplexus</i>	-	+	-	+
Number of species: Total <b>116</b>	<b>65</b>	<b>54</b>	<b>46</b>	<b>58</b>

Accepted: 21 January 2022; published: 17 February 2022

Licensed under a Creative Commons Attribution License <http://creativecommons.org/licenses/by/4.0/>