ANNALS OF THE UPPER SILESIAN MUSEUM IN BYTOM
ENTOMOLOGY
Vol. **27 (online 005)**: 1–15 ISSN 0867-1966, eISSN 2544-039X (online) Bytom, 13.11.2018

LECH BOROWIEC[1], SEBASTIAN SALATA[1,2]

Notes on ants (Hymenoptera: Formicidae) of the Euboea Island, Central Greece

http://doi.org/10.5281/zenodo.1485235

[1] Department of Biodiversity and Evolutionary Taxonomy, University of Wrocław, Przybyszewskiego 65, 51-148 Wrocław, Poland

e-mail: [1] lech.borowiec@uwr.edu.pl, [2] sdsalata@gmail.com

Abstract: Notes on ants (Hymenoptera: Formicidae) of the Euboea Island, Central Greece. Seventy-one ant species are recorded from the Euboea Island, Central Greece (Sterea Ellas), mostly based on material collected in 2018, including eight not attributed to any formally described taxon. *Proceratium numidicum* SANTSCHI, 1912 is new to Greece, 29 species or morphospecies are recorded from Sterea Ellas for the first time.

Key words: ants, Central Greece, Euboea, faunistics.

INTRODUCTION

Euboea or Evia (Greek: Εύβοια) is the second-largest Greek island in area (3684 square kilometers) and population (198,130 at the 2001 census). The narrow Euripus Strait (only 160 m wide in the narrowest part) separates it from Boeotiain mainland Greece. In general outline it is a long and narrow island, 180 kilometers km long, and from 50 to 6 kilometers wide. Its geographic orientation is from northwest to southeast, and it is traversed throughout its length by a mountain range, which forms part of the chain that bounds Thessaly on the east, and is continued south of Euboea in the lofty islands of Andros, Tinos and Mykonos. It forms most of the regional unit of Euboea (which also includes Skyros island and a small area of the Greek mainland) belonging to the administrative region of Central Greece (Sterea Ellas) (THE EDITORS OF ENCYCLOPAEDIA BRITANNICA 2018).

Geography and nature divide the island itself into three distinct parts: the fertile and forested north, the mountainous centre, with agriculture limited to the coastal valleys, and the barren south. The main mountains include Dirfi (1743 m), Pyxaria (1341 m) in the northeast and Ochi in the south (1394 m). Compared with other large Greek islands, Euboea is characterized by poor tourist infrastructure, heavily farmed agriculture in coastal areas and intensive pastoralism in mountainous regions, which resulted in significant deforestation of the highest mountains. The largest forests, located in the north, are intensively explored economically and its large part includes chestnut plantations. Poor network of paved roads in the mountains impede exploration of these areas. Because the highest mountain ranges

stretch along the east coast the microclimate of the island divers from dry west coast to damp eastern slopes of the mountains. For this reason, the plant cover is diverse and is a mix of Mediterranean, steppe and mountain habitats (The Editors of Encyclopaedia Britannica 2018).

Despite the large area, the location close to the scientific centers of Greece and permanent connection with the mainland, Euboea remains one of the least-known myrmecologically regions in Greece. So far less than 20 species have been recorded from the island (Legakis 1984, 2011). For comparison, the fauna of twice larger, rather homogenic in habitats and more distant from the continent Crete lists 100 species (Salata & Borowiec in prep.). On the other hand, Euboea is the locus typicus for one Greek endemic species *Lasius myrmidon* Mei, 1998, now known also from Peloponnese and Thessaly (Borowiec & Salata 2017b, 2018b). Here we present a list of ants of Euboea Island, most of them collected in 2018.

MATERIAL AND METHODS

In June 2018, we performed a field trip to Euboea Island. As the area for sampling, we chose the central part of the island, where the largest number of different habitats occur. Ants were collected from 30 localities. Data for two species, collected in central and southwestern Euboea, respectively, came from Muséum d'Histoire Naturelle, Geneve (MHNG) collections. The main method, applied at all sites, was direct sampling (hand collecting), sweep nets and collapsible beating trays. Ant nests and individual specimens were collected on the ground, in leaf litter, under stones, in dead wood, on tree trunks and twigs. Nests were searched in rocks cracks using chisel to crack rocks. Additionally, we used sweep net to sample ants from the vegetation on the banks of roads and forest edges. All specimens were preserved in 75% ethanol. Images of ant specimens were taken using a Nikon SMZ 1500 and Nikon SMZ 18 stereomicroscopes, Nikon D5200 photo camera and Helicon Focus software.

Taxa in list of collected species are arranged alphabetically. Distribution in Greece follows Borowiec (2014), later updates (Borowiec & Salata 2014, 2017a, 2017b, 2018a, 2018b, 2018c, Bračko *et al*., 2016, Salata *et al.* 2018) and unpublished data from the Database and Collection of Greek Ants (DCGA), preserved at the University of Wrocław. A division into the geographical regions of Greece was adopted after Legakis (2011), which is slightly different from the current division into administrative units. In both divisions Euboea belongs to the same unit, i.e. Central Greece (Sterea Ellas). Geographical coordinates are given in decimal system. The numbers of localities refer to the position in the coding system used in the DCGA preserved at the University of Wrocław. Localities are arranged chronologically. Ant material is deposited in the Department of Biodiversity and Evolutionary Taxonomy, University of Wrocław.

LIST OF LOCALITIES

Sampling in 2018:

EUB_511 –Amarynthos, 8 m, 8 VI 2918, 38.39366 N / 23.88288 E, urban area;

EUB_512 – 3.8 km N of Gimno, 400 m, 9 VI 2918, 38.47484 N/23.89673 E, stream valley with Platanus forest;

EUB_513 – 650 m NE of Seta, 725 m, 9 VI 2918, 38.53777 N/23.92516 E, stream valley with Platanus forest;

EUB_514 – 1.6 km NW of Kato Seta, 765 m, 9 VI 2918, 38.55105 N/23.92852 E, coniferous forest;

EUB_515 – Agia Triada, 875 m, 9 VI 2918, 38.5594 N/23.93304 E, stream valley with Platanus forest;

EUB_516 – 1.4 km N of Agia Triada, 890 m, 9 VI 2918, 38.57225 N/23.93041 E, coniferous forest;

EUB_517 – 3.7 km SW of Metochi, 1145 m, 9 VI 2918, 38.5964 N/23.92527 E, mountain pastures;

EUB_518 – 700 m N of Agia Triada, 810 m, 9 VI 2918, 38.56562 N/23.93159 E, stream valley with Platanus forest;

EUB_519 – 1.2 km NW of Gerontas, 405 m, 10 VI 2918, 38.45885 N/23.8080 E, Mediterranean shrubs along roadsides;

EUB_520 – 1 km NE of Amfithea, 200 m, 10 VI 2918, 38.5519 N/23.79546 E, stream valley with Platanus forest;

EUB_521 – Steni Dirfyos, 480 m, 10 VI 2918, 38.58703 N/23.84533 E, stream valley with Platanus forest;

EUB_522 – 3 km NE of Steni, 955 m, 10 VI 2918, 38.59785 N/23.86556 E, mixed forest;

EUB_523 – 3.3 km NE of Steni, 1075 m, 10 VI 2918, 38.60557 N/23.86239 E, mountain pastures;

EUB_524 – 2.4 km SW of Stropones, 1025 m, 10 VI 2918, 38.60327 N/23.87 E, coniferous forest;

EUB_525 – 2.3 km S of Stropones, 860 m, 10 VI 2918, 38.9933 N/23.87807 E, mixed forest;

EUB_526 – 570 m NW of Drosia, 140 m, 11 VI 2918, 38.61705 N/23.59089 E, stream valley with mixed forest;

EUB_527 – 300 m NW of Agios, 600 m, 11 VI 2918, 38.65856 N/23.55525 E, pine forest with Mediterranean shrubs;

EUB_528 – 1.4 km W of Neo Pagontas, 260 m, 11 VI 2918, 38.6755 N/23.53914 E, stream valley with Platanus forest;

EUB_529 – 4.4 km SE of Prokopi, 110 m, 11 VI 2918, 38.69994 N/23.51707 E, stream valley with Platanus forest;

EUB_530 – S of Kalivia, 95 m, 12 VI 2918, 38.73739 N/23.43933 E, stream valley Platanus forest;

EUB_531 – 1.1 km E of Ag. Athanasios, 280 m, 12 VI 2918, 38.60952 N/23.79659 E, gorge with Platanus forest;

EUB_532 – 600 m N of Ag. Athanasios, 240 m, 12 VI 2918, 38.61159 N/23.78166 E, pine forest;

EUB_533 – 2.1 km N of Ag. Athanasios, 360 m, 12 VI 2918, 38.62406 N/23.78894 E, mixed shrubs;

EUB_534 – 2.6 km SW of Glifada, 650 m, 12 VI 2918, 38.6366 N/23.79593 E, mountain pastures;

EUB_535 – 3.6 km SW of Glifada, 980 m, 12 VI 2918, 38.64283 N/23.80736 E, mountain pastures;

EUB_536 – 2.1 km S of Glifada, 910 m, 12 VI 2918, 38.63619 N/23.81488 E, coniferous forest;

EUB_537 – 2.9 km S of Stropones, 880 m, 13 VI 2918, 38.59133 N/23.88562 E, coniferous forest;

EUB_538 – 2.2 km SE of Stropones, 735 m, 13 VI 2918, 38.5997 N/23.9001 E, coniferous forest;

EUB_539 – 2.7 km SE of Stropones, 855 m, 13 VI 2918, 38.59851 N/23.9085 E, coniferous forest;

EUB_540 – 1.5 km SW of Koutourla, 695 m, 13 VI 2918, 38.62838 N/23.92772 E, mixed forest;

EUB_541 – 3.7 km SW of Metochi, 830 m, 13 VI 2918, 38.60402 N/23.91683 E, coniferous forest;

MHNG collection:

EUB_542 – SW Evia, SE of Karistos, 30 III 1983, leg. S. Vit, at the foot of the oleanders;

EUB_543 – C Evia, road Nea Artaki-Mantoudion, 1 km after Prokopi, 50m, 1 V 1987, leg. B. Hauser, rotten wood.

LIST OF SPECIES

(species new to Sterea Ellas are marked with an asterisk)

1. ***Aphaenogaster balcanica*** (Emery, 1898)

Localities: 511, 519, 526.

Note: Recorded from Cyclades, Dodecanese, the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese and Sterea Ellas.

2. ***Aphaenogaster epirotes*** (Emery, 1895)

Locality: 534.

Note: Recorded from the East Aegean Is., the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

3. ***Aphaenogaster subterranea*** (Latreille, 1798)

Localities: 513, 514, 515, 516, 518, 521, 522, 526, 528, 538, 539, 540, 541.

Note: Recorded from the Cyclades, the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace. We classified all samples with large size, stout head, a partly pale body and reduced microreticulation on the top of the head as *A. subterranea*. This morphospecies is common in very humid to mesic deciduous forests. However, its conspecificity with the true *A. subterranea* is under study. Molecular and biometric data suggest that populations of *A. subterranea* auct. from Europe represent at least eight taxa, seven of them occurring in Greece (our unpublished data).

4. ***Aphaenogaster*** cf. ***subterranea*** sp. 1*

Localities: 518, 539.

Note: This is a morphospecies characterized by small body size, slim head, dark body, and upper half of head without microreticulation. It is associated with very humid habitats in deciduous and mixed forests, nesting always close to streams. At first glance it is the most similar to *Aphaenogaster lesbica* Forel, 1913, described from Lesbos, but our material suggests that at least two cryptic morphospecies of similar characters occur in Greece. We collected this morphospecies also in Epirus, Macedonia, the Peloponnese, Thessaly and Thrace. New to Sterea Ellas.

5. ***Aphaenogaster*** cf. ***subterranea*** sp. 2*

Localities: 536, 541.

Note: This is a morphospecies characterized by large size, stout head, pale body, and whole surface of head distinctly microreticulate. It is associated with dry habitats in mountain coniferous forest. We collected this morphospecies also in the Peloponnese and Thessaly. New to Sterea Ellas.

6. ***Bothriomyrmex communistus*** Santschi, 1919

Locality: 534.

Note: Recorded from the Dodecanese, the Eastern Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

7. ***Camponotus aethiops*** (Latreille, 1798)

Localities: 513, 515, 517, 519, 525, 527, 532, 533, 534, 535, 536, 538, 539.

Note: Common species, recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

8. ***Camponotus dalmaticus*** (Nylander, 1849)

Localities: 512, 518, 519, 521, 526, 527, 528, 531, 538.

Note: Recorded from the East Aegean Is., the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

9. ***Camponotus fallax*** (Nylander, 1856)*

Localities: 522, 541.

Note: Recorded from the East Aegean Is., the Ionian Is., Macedonia, Peloponnese, Thessaly and Thrace. New to Sterea Ellas.

10. ***Camponotus gestroi*** Emery, 1878*

Locality: 519.

Note: Recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., the Ionian Is., Macedonia, the Peloponnese, Thessaly and Thrace. New to Sterea Ellas.

11. ***Camponotus ionius*** Emery, 1920

Localities: 511, 526, 531.

Note: Recorded from the Cyclades, the Dodecanese, the East Aegean Is., the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

12. ***Camponotus kiesenwetteri*** (Roger, 1859)

Locality: 519.

Note: Common Greek species recorded from most regions, except Epirus and Thessaly.

13. ***Camponotus laconicus*** Emery, 1920

Localities: 519, 531, 532, 533.

Note: Endemic to Greece, known only from the Peloponnese and Sterea Ellas.

14. ***Camponotus lateralis*** (Olivier, 1792)

Localities: 511, 512, 514, 519, 520, 521, 526, 529, 530, 531.

Note: Common species, recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

15. ***Camponotus oertzeni*** Forel, 1889*

Localities: 514, 517, 522, 523, 531, 532, 539.

Note: Often confused with *C. aethiops*. Our data suggests that it is common species in Greece. Recorded from the Dodecanese, the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Thessaly and Thrace. New to Sterea Ellas

16. ***Camponotus piceus*** (Leach, 1825)

Localities: 514, 517, 519, 523, 525, 526, 535, 536, 537.

Note: Recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

17. ***Camponotus vagus*** (Scopoli, 1763)

Localities: 513, 515, 518, 522, 525, 526, 528, 530, 536, 537, 541.

Note: Recorded from the East Aegean Is., Epirus, the Ionian Is., Macedonia, Peloponnese, Sterea Ellas, Thessaly and Thrace.

18. ***Carebara oertzeni*** Forel, 1886*

Locality: 542.

Note: Very rare species known only from Greece and Turkey. Described from the Peloponnese, new to Sterea Ellas.

19. ***Cataglyphis aenescens*** (Nylander, 1849)

Localities: 511, 514, 519.

Note: Recorded from the Cyclades, the East Aegean Is., Macedonia, the Peloponnese, Sterea Ellas and Thessaly.

20. ***Cataglyphis nodus*** (Brullé, 1833)

Localities: 511, 520, 525, 526, 527, 528, 530, 531.

Note: Recorded from Crete (probably erroneously), the Dodecanese, the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

21. ***Chalepoxenus muellerianus*** (Finzi, 1922)

Locality: 528.

Note: A social parasite or various *Temnothorax* species. In Greece recorded from Crete, Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas and Thessaly. In locality 528 it was found in the nest of *Temnothorax recedens* (Nylander).

22. ***Crematogaster ionia*** (Forel, 1911)

Localities: 519, 526, 527, 528, 529.

Note: Common species, recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

23. ***Crematogaster lorteti*** (Forel, 1910)

Locality: 530.

Note: A rare species, recorded from the East Aegean Is., Macedonia, Sterea Ellas, Thessaly and Thrace.

24. ***Crematogaster schmidti*** (Mayr, 1853)

Localities: 511, 512, 513, 514, 519, 520, 526, 531, 532, 533, 534.

Note: Very common species, recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

25. ***Crematogaster sordidula*** (Nylander, 1849)

Locality: 532.

Note: Recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

26. ***Dolichoderus quadripunctatus*** (Linnaeus, 1771)

Localities: 513, 518, 527, 528, 529, 530.

Note: Recorded from the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

27. ***Formica fusca*** Linnaeus, 1758*

Localities: 516, 522, 523, 524, 525, 527, 538, 539, 540.

Note: Recorded from Epirus, the Ionian Is., Macedonia, the Peloponnese, Thessaly and Thrace. New to Sterea Ellas.

28. ***Formica gagates*** Latreille, 1798

Locality: 521.

Note: Recorded from Epirus, the Ionian Is., Macedonia, the Peloponnese a, Sterea Ellas, Thessaly and Thrace.

29. ***Formica sanguinea*** Latreille, 1798*

Localities: 523, 524.

Note: Recorded from Macedonia, the Peloponnese, Thessaly and Thrace. New to Sterea Ellas.

30. ***Lasius alienus*** (Förster, 1850)

Localities: 513, 514, 516, 517, 518, 524, 525, 535, 536, 538, 539, 540.

Note: Recorded from the Cyclades, the East Aegean Is., Epirus, Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

31. ***Lasius bombycina*** Seifert & Galkowski, 2016*

Locality: 515.

Note: Recorded from Crete, the Dodecanese, the East Aegean Is., the Ionian Is., Macedonia, the Peloponnese, Thessaly and Thrace. New to Sterea Ellas.

32. ***Lasius brunneus*** (Latreille, 1798)

Localities: 521, 537, 540.

Note: Recorded from the East Aegean Is., the Ionian Is., Macedonia, Sterea Ellas, Thessaly, the Peloponnese and Thrace.

33. ***Lasius distinguendus*** (Emery, 1916)*

Locality: 539.

Note: Rare species recorded from Macedonia, the Peloponnese and Thrace. New to Sterea Ellas.

34. ***Lasius flavus*** (Fabricius, 1782)

Localities: 516, 522, 525, 536, 537, 538.

Note: Recorded from the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

35. ***Lasius illyricus*** Zimmermann, 1935

Localities: 513, 521, 522, 524, 536, 538, 540, 541.

Note: Recorded from Crete, Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace

36. ***Lasius lasioides*** (Emery, 1869)

Localities: 511, 513, 518, 527, 528, 529, 530, 531.

Note: Recorded from the Cyclades, the Dodecanese, the East Aegean Is., the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

37. ***Lepisiota frauenfeldi*** (Mayr, 1855)

Localities: 511, 513, 526, 527, 531, 534.

Note: Recorded from Crete, the Dodecanese, the East Aegean Is., the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

38. ***Messor hellenius*** Agosti & Collingwood, 1987

Localities: 511, 514, 515, 526, 533.

Note: Recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

39. ***Messor structor*** (Latreille, 1798)*

Localities: 517, 523, 524, 535.

Note: *Messor structor* complex was revised recently (Steiner *et al.* 2018). The revision showed that most records of *Messor structor* from Greece concern *Messor ibericus* Santschi, 1931. In our Greek material, we have true *M. structor* from Epirus, the Peloponnese and Thessaly. New to Sterea Ellas.

40. ***Messor wasmanni*** Krausse, 1910

Localities: 511, 533.

Note: Recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

41. ***Myrmica pelops*** Seifert, 2003* (Figs 1–4)

Locality: 536.

Note: A very rare species endemic to Greece. Described from the Peloponnese, new to Sterea Ellas.

42. ***Myrmica scabrinodis*** Nylander, 1846*

Locality: 537.

Note: Recorded from the Ionian Is., Macedonia, the Peloponnese, Thessaly and Thrace. New to Sterea Ellas.

43. ***Myrmoxenus ravouxi*** (André, 1896)*

Locality: 528.

Note: A social parasite of various *Temnothorax* species, recorded from Macedonia, the Peloponnese and Thessaly. New to Sterea Ellas. In locality 528 it was found in the nest of *Temnothorax recedens* (Nylander).

44. ***Nylanderia jaegerskioeldi*** (Mayr, 1904)

Locality: 511.

Note: Tramp species, in Greece known only from tourist resorts. Recorded from Crete, the Ionian Is., the Peloponnese and Sterea Ellas.

45. ***Pheidole*** cf. ***pallidula***

Localities: 511, 512, 513, 517, 519, 520, 521, 525, 527, 529, 530, 531, 532, 533, 534, 535, 536, 538, 540.

Note: Recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace. 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 species status of these taxa is still being debated.

46. ***Plagiolepis pallescens*** sensu Radchenko, 1996

Localities: 511, 514, 515.

Note: Recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace. The name *Plagiolepis pallescens* sensu Radchenko is tentative, because Radchenko (1996) misinterpreted this taxon in his review of *Plagiolepis* from the Central and Southern Palearctic. This problem was discussed by Bračko *et al.* (2016); at the moment this species has no formal name.

47. ***Plagiolepis pygmaea*** (Latreille, 1798).

Localities: 511, 512, 513, 518, 519, 520, 521, 528, 529, 531, 532, 534, 540

Note: Recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

48. ***Plagiolepis taurica*** Santschi, 1920

Localities: 514, 522, 523, 540.

Note: Recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., the Ionian Is., Macedonia, the Peloponnese, Thessaly and Thrace.

49. ***Ponera coarctata*** (Latreille, 1802)

Localities: 513, 516, 536, 538.

Note: Recorded from Epirus, the Ionian Is., Macedonia, Sterea Ellas, the Peloponnese, Thessaly and Thrace.

50. ***Proceratium numidicum*** Santchi, 1912*

Locality: 543.

Note: Rare species, recorded from Albania, Algeria, Bulgaria, Cyprus, Tunisia and Turkey. New to Greece and Sterea Ellas.

51. ***Solenopsis wolfi*** Emery, 1915*

Locality: 535.

Note: Sample from locality 535 well agree with type of *Solenopsis wolfi* Emery. This species is a member of the *Solenopsis lusitanica* group as proposed by Galkowski *et al.* (2010). The status of most European species of the genus *Solenopsis*, including members of the *S. lusitanica* group, requires extensive revision. The morphospecies with characters of *S. wolfi* we collected also in Thessaly. New to Sterea Ellas.

52. ***Tapinoma erraticum*** (Latreille, 1798)

Localities: 517, 518, 519, 530, 534, 535, 539.

Note: Recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

53. ***Temnothorax affinis*** (Mayr, 1855)*

Locality: 518.

Note: Recorded from the Aegean Islands, the Cyclades, the Ionian Is., Macedonia, Sterea Ellas and Thrace, but a recent study of *Temnothorax* from Greece suggests that most records are probably misidentifications. We have confirmed records only from the Ionian Islands and Thessaly. New to Sterea Ellas.

54. ***Temnothorax*** cf. ***aveli****

Localities: 519, 525, 526, 527.

Note: An undescribed species, very distinct from all other Greek taxa. In our collection we have specimens of this morphospecies collected from Epirus, the Ionian Islands, the Peloponnese and Thessaly. Its description is in preparation. New to Sterea Ellas.

55. ***Temnothorax bulgaricus*** (Forel, 1892)*

Localities: 520, 526, 529.

Note: Recorded from the Dodecanese, the East Aegean Is., the Ionian Is., Macedonia, the Peloponnese, Thessaly and Thrace. New to Sterea Ellas.

56. ***Temnothorax crasecundus*** Seifert & Csősz, 2015*

Localities: 516, 524, 525, 541.

Note: Recently described species, recorded from Macedonia, the Peloponnese, Thessaly and Thrace. New to Sterea Ellas.

57. ***Temnothorax graecus*** (Forel, 1911)*

Localities: 512, 519, 521.

Note: A member of the *Temnothorax graecus* group which needs extensive revision. Several taxa of this group, including undescribed one, were collected in Greece. Confirmed records of true *T. graecus* are from the Ionian Island and the Peloponnese (Borowiec & Salata 2012, 2018b). New to Sterea Ellas.

58. ***Temnothorax helenae*** Csősz, Heinze & Mikó, 2015

Localities: 513, 514, 516, 517, 521, 523, 525, 528, 536, 537,538, 539, 540, 541.

Note: Recently described species, recorded from the Cyclades, Macedonia, Sterea Ellas, the Peloponnese, Thessaly and Thrace.

59. ***Temnothorax*** cf. ***kemali****

Localities: 517, 519, 533, 535, 536.

Note: This is a new species belonging to taxa of the *Temnothorax graecus* group. Its description is in preparation. Previously recorded as *Temnothorax graecus* or *Temnothorax* cf. *graeus* from the Ionian Islands and Thessaly by Borowiec & Salata (2012, 2018b), and as *Temnothorax* cf. *bulgaricus* from Peloponnese (Borowiec & Salata 2017b). New to Sterea Ellas.

60. ***Temnothorax lichtensteini*** (Bondroit, 1918)

Localities: 517, 527, 540.

Note: Recorded from Epirus, the Ionian Islands, Macedonia, Sterea Ellas, Thessaly and Thrace.

61. ***Temnothorax*** cf. ***nylanderi****

Localities: 524, 525, 537, 539, 540, 541.

Note: This is a new species from the *Temnothorax nylanderi* group, probably endemic to mountains of Eubeoa. Its description is in preparation. New to Sterea Ellas.

62. ***Temnothorax parvulus*** (Schenck, 1852)*

Locality: 527.

Note: Rare species in Greece, recorded from Epirus, the Ionian Islands, Macedonia, the Peloponnese and Thrace. New to Sterea Ellas.

63. ***Temnothorax recedens*** (Nylander, 1856)

Localities: 519, 520, 527, 528.

Note: Recorded from Crete, the Dodecanese, the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

64. ***Temnothorax semiruber*** (André, 1881)

Localities: 517, 535, 536.

Note: Recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

65. ***Temnothorax*** cf. ***turcicus***

Locality: 520.

Note: A member of *Temnothorax unifasciatus* group. The Greek taxa belonging to the *Temnothorax tuberum-unifasciatus* complex require revision based on detailed morphometric studies. New to Sterea Ellas

66. ***Temnothorax unifasciatus*** (Latreille, 1798)*

Localities: 513, 514, 515, 517, 518, 521, 522, 524, 525, 527, 528, 536, 537, 538, 539, 540, 541.

Note: According to the literature, *T. unifasciatus* has been recorded from the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Thessaly and Greek Thrace. However, those samples probably represent at least two cryptic taxa. Samples from Euboea well agree with typical populations of *T. unifasciatus* from Central Europe. New to Sterea Ellas.

67. ***Tetramorium flavidulum*** Emery, 1924*

Localities: 522, 536.

Note: Recorded from the East Aegean Is., the Dodecanese, the Peloponnese, Thessaly and Thrace. New to Sterea Ellas.

68. ***Tetramorium immigrans*** Santschi, 1927*

Locality: 511.

Note: Recently redescribed species (Wagner *et al.* 2017). The authors of the revision noted this species from Crete and Thassos Island (Macedonia), but our material showed that this species occurs in almost all Greek provinces (unpublished data). New to Sterea Ellas. This species prefers anthropogenic habitats and probably is a tramp species but its region of origin remains unknown.

69. ***Tetramorium impurum*** (Förster, 1850)*

Localities: 517, 522, 523, 524.

Note: In Greece known from Epirus, the Ionian Islands, Macedonia, the Peloponnese, Thessaly and Thrace. New to Sterea Ellas.

70. ***Tetramorium kephalosi*** Salata & Borowiec, 2017

Localities: 511, 512, 533, 534.

Note: A species recently described from Greece, formerly confused with *Tetramorium semilaeve* André, 1883. Based on new data, true *T. semilaeve* is distributed only in the western Mediterranean Basin. Recorded from Crete, the Cyclades, the Dodecanese, the East Aegean Is., Epirus, the Ionian Is., Macedonia, the Peloponnese, Sterea Ellas, Thessaly and Thrace.

71. ***Tetramorium*** cf. ***punicum****

Localities: 522, 538.

Note: This morphospecies, probably new to science, is similar to *Tetramorium punicum* (Smith, 1861) described from Israel. We have samples from the East Aegean Is., the Ionian Is., the Peloponnese and Thessaly. New to Sterea Ellas.

DISCUSSION

Altogether 76 ant species are known from Euboea, considering literature data (Legakis 1984, 2011), our samples from 2018 and material from MHNG collection. This number represents 25.0 % of species known from Greece and 84.4 % of all species known from Sterea Ellas Province. Among large Greek islands only Crete, with 100, and Rhodes, with 91 recorded species, have richer fauna (our unpublished data). In comparison with ant fauna of neighbouring areas (Thessaly and continental Sterea Ellas) we can expect additional 20-25 species on Euboea. Ants of Euboea reflect its geographical situation and phytogeographic composition. Its ant fauna is a mixture of northern elements (i.e. *C. fallax*, *Formica fusc*a, *F. sanguinea*, *Lasius brunneus*, *L. flavus*, *Messor structor*, *Myrmica scabrinodis*, *Temnothorax affinis*), strictly Mediterranean species (i.e. *Aphaenogaster balcanica*, *Camponotus gestroi*,

C. oertzeni, *Crematogaster ionia*, *C. lorteti*, *Lasius lasioides*, *Lepisiota frauenfeldi*, *Messor wasmanni*, *Temnothorax recedens*, *Tetramorium kephalosi*) and mountain taxa (i.e. *Myrmica pelops*, *Myrmoxenus ravouxi*, *Temnothorax* cf. *nylanderi*, *T. semiruber*, *Tetramorium flavidulum*). Essential component are also eastern Mediterranean elements or Greek endemics (i.e. *Camponotus ionius*, *C. kiesenwetteri*, *C. laconicus*, *Carebara oertzeni*, *Lasius illyricus*, *Messor hellenius*, *Temnothorax bulgaricus*, *T. graecus*, *T. helenae*).

ACKNOWLEDGEMENTS

We would like to thank Dr Bernard Landry (Genève, Switzerland) for providing access to the collection of ants preserved in Muséum d'Histoire Naturelle, Geneve (MHNG). Lech Borowiec thanks Jolanta Świętojańska (University of Wrocław) for her assistance during Lech Borowiec's field trips.

REFERENCES

Borowiec L. 2014. Catalogue of ants of Europe, the Mediterranean Basin and adjacent regions (Hymenoptera: Formicidae). *Genus* (Special issue – Monograph) 25: 1–340.

Borowiec L., Salata S. 2012. Ants of Greece – checklist, comments and new faunistic data (Hymenoptera: Formicidae). *Genus* 23(4): 461–563.

Borowiec L, Salata S. 2014. 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 2017a. New records of ants (Hymenoptera: Formicidae) from Sterea Ellas, Greece. *Acta entomologica silesiana* 25(020): 143–145. DOI: http://doi.org./10.5281/zenodo.834219.

Borowiec L., Salata S. 2017b. Ants of the Peloponnese, Greece (Hymenoptera: Formicidae). *Polish Journal of Entomology* 86: 193–235.

Borowiec L, Salata S. 2018a. New records of ants (Hymenoptera: Formicidae) from Epirus, Greece. *Acta entomologica silesiana* 26(001): 1–22 [online]. DOI: http://doi.org./10.5281/zenodo.1169150.

Borowiec L., Salata S. 2018b. Ants from Thessaly, Greece (Hymenoptera: Formicidae). *Polish Journal of Entomology* 87: 217–248.

Borowiec L., Salata S. 2018c. Notes on ants (Hymenoptera: Formicidae) of Zakynthos Island, Greece. *Annals of the Upper Silesian Museum in Bytom*, *Entomology* 27(004): 1–13 [online]. DOI: http://doi.org./10.5281/zenodo.1481794.

Bračko G., Kiran K., Karaman C., Salata S., Borowiec L. 2016. Survey of the ants (Hymenoptera: Formicidae) of the Greek Thrace. *Biodiversity Data Journal* 4: e7945.

Galkowski C., Casevitz-Weulersee J., Cagniant H. 2010. Redescription de *Solenopsis fugax* (Latreille, 1798) et notes sur les *Solenopsis* de France (Hymenoptera, Formicidae). *Revue Française d'Entomologie* 32(3): 151–163.

Legakis A. 1984. The Zoological Museum of the University of Athens. 2. The collectionof ants from Greece. *Biologica Gallo-Hellenica* 11(1): 85–87.

Legakis A. 2011. Annotated list of the ants (Hymenoptera, Formicidae) of Greece. *Hellenic Zoological Archives* 7: 1–55.

Radchenko A.G. 1996. Ants of the genus *Plagiolepis* Mayr (Hymenoptera, Formicidae) of the central and southern Palearctic. *Entomologicheskoe Obozrenie* 75: 178–187.

Salata S., Georgiadis C., Borowiec L. 2018. Invasive ant species (Hymenoptera: Formicidae) of Greece and Cyprus. *North-Western Journal of Zoology* (2018): e171204.

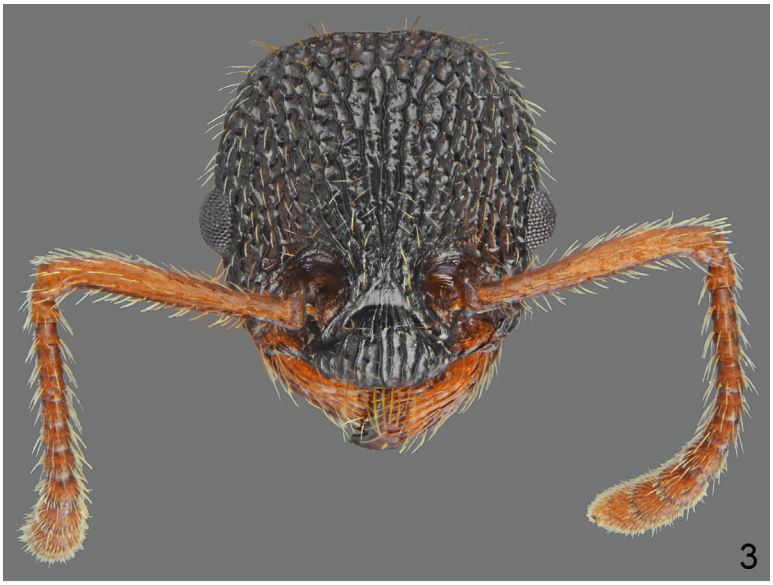
Seifert B. 2016. Inconvenient hyperdiversity – the traditional concept of "*Pheidole pallidula*" includes four cryptic species (Hymenoptera: Formicidae). *Soil Organisms* 88(1): 1–17.

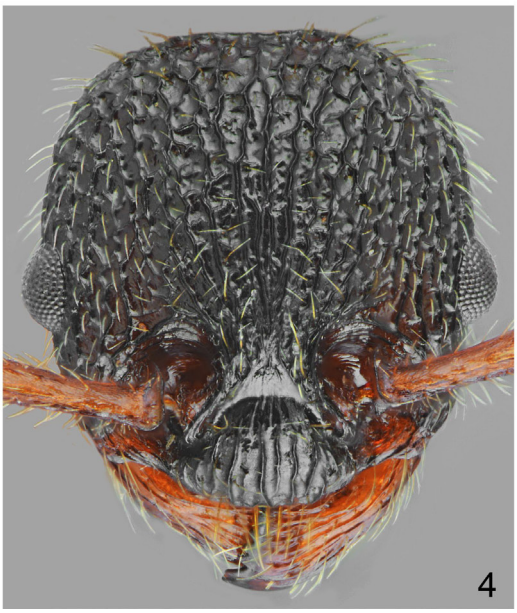
Steiner F.M., Csősz S., Markó B., Gamisch A., Rinnhofer L., Folterbauer C., Hammerle S, Stauffer C., Arthofer W., Schlick-Steiner B.C. 2018. Turning one into five: integrative taxonomy uncovers complex evolution of cryptic species in the harvester ant *Messor* "*structor*". *Molecular Phylogenetics and Evolution* 127: 387–404.

The Editors of Encyclopaedia Britannica. 2018. Euboea. In Encyclopaedia Britannica Online. Retrieved from https://www.britannica.com/ (access: 2018-10-05)

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.

Figs 1–2. Worker of *Myrmica pelops* Seifert; (1) Dorsal, (2) Lateral (photo L. Borowiec).





Figs 3–4. Worker of *Myrmica pelops* Seifert; (3) Head and antennae, (4) Head sculpture (photo L. Borowiec).

Accepted: 22 October 2018; published: 13 November 2018