

Genus	Vol. 25(3): 519-525	Wrocław, 30 IX 2014
-------	---------------------	---------------------

Tetramorium exasperatum EMERY, 1891 in Iberian Peninsula (Hymenoptera: Formicidae)

LECH BOROWIEC¹ & SEBASTIAN SALATA²

Department of Biodiversity and Evolutionary Taxonomy, University of Wrocław, Przybyszewskiego,
63/77, 51-148 Wrocław, Poland, e-mail: ¹cassidae@biol.uni.wroc.pl, ²rubisco198@gmail.com

ABSTRACT. *Tetramorium exasperatum* EMERY, 1891 described from Tunisia is recorded from Spain (S Andalusia) for the first time. *Tetramorium parvioculum* GUILLEM & BENSUSAN, 2009 described from Gibraltar and *Tetramorium exasperatum acutiseta* SANTSCHI, 1921 described from Morocco are synonymized with *Tetramorium exasperatum* EMERY, 1891.

Key words: entomology, taxonomy, faunistics, new synonyms, Hymenoptera, Formicidae, *Tetramorium*, Spain, North Africa.

INTRODUCTION

Tetramorium exasperatum EMERY, 1891 was described from mountain region Khroumire in northwestern Tunisia, near village Aïn Draham (now Ayn Darahim) close to Algerian border. SANTSCHI (1921) described a new variety *Tetramorium exasperatum* var. *acutiseta* from two localities in coastal part of Morocco: Larache (El Araich) and Mogador Island (now Essaouira). Two years later SANTSCHI (1923 a) recorded it from Casablanca. In the same year SANTSCHI (1923 b) described *Tetramorium zahrae* from Tanger in northern Morocco close to southern border of Spain and Gibraltar. CAGNIANT (1997) in his review of Moroccan species of *Tetramorium* synonymized *Tetramorium zahrae* SANTSCHI, 1923 with *Tetramorium exasperatum* EMERY, 1891 and noted that this species is wide distributed in Morocco from coastal regions to mountains up to 2600 m a.s.l. in Haut Atlas but does not mention the name *Tetramorium exasperatum* var. *acutiseta* SANTSCHI, 1921. He recorded *Tetramorium exasperatum* also from Kabylie region and Aurès Mts. in northern Algeria which indicates that this species is widely distributed in the north-western Africa. GUILLEM & BENSUSAN (2009) described from

Gibraltar a new species *Tetramorium parvioculum* and noted that it is a member of the *simillimum*-group but with no close relatives within the group.

During an entomological trip to the southern Andalusia in Spain the senior author collected nest samples of a small *Tetramorium* species with characters of *Tetramorium parvioculum* GUILLEM & BENSUSAN, 2009 in two localities. After studying photographs of types of *Tetramorium exasperatum*, *Tetramorium exasperatum* var. *acutiseta*, *Tetramorium zahrae* and *Tetramorium parvioculum* available on AntWeb, we came to the conclusion that all represent the same taxon with the oldest name *Tetramorium exasperatum* EMERY, 1891. Because the original description of *Tetramorium parvioculum* by GUILLEM & BENSUSAN (2009) is adequate, we do not give a full redescription but only supplement it by observations of variation in Spanish populations and present high quality photographs.

MATERIAL AND METHODS

ABBREVIATIONS

Terminology:

- CI – cephalic index; HW/HL x 100;
- EL – eye length; measured along the maximum diameter of the eye;
- EI – ocular index: EL/HW x 100;
- HL – head length; measured in a straight line from the mid-point of anterior clypeal margin to mid-point of occipital margin in full face view;
- HW – head width; measured below the eyes in full-face view;
- ML – mesosoma length; measured as diagonal length from the anterior end of the pronotal collar to the posterior margin of the propodeal lobe;
- PW – pronotum width; maximum width of pronotum in dorsal view;
- SI – scape index 1; SL/HW x 100;
- SL – maximum straight-line length of scape;

Explanation of measurement section: HW: 0.465 ± 0.033 (0.474-0.489) mean HW: average: 0.465 ± standard deviation: 0.033 (minimum value: 0.474 - maximum value: 0.489).

Photos were prepared using a Nikon SMZ 1500 stereomicroscope and Helicon Focus software.

Material is preserved in senior author's collection (LBC), Clifornia Academy of Sciences (CAS), and Christophe Galkowski collection (CG).

RESULTS

***Tetramorium exasperatum* EMERY, 1891**

Tetramorium caespitum f. *exasperatum* EMERY, 1891: 3 (syntype worker, AntWeb image examined, available from: <http://www.antweb.org/specimenImages.do?name=casent0904829&project=allantwebants>).

Tetramorium exasperatum EMERY: DALLA TORRE 1893: 133, EMERY 1909: 705.

Tetramorium exasperatum var. *acutiseta* SANTSCHI, 1921: 72, 1923 a: 334 (syntype worker, AntWeb image examined, available from: <http://www.antweb.org/specimenImages.do?name=casent0915008&project=allantwebants>), **new synonymy**.

Tetramorium zahrae SANTSCHI, 1923 b: 135 (syntype worker, AntWeb image examined, available from: <http://www.antweb.org/specimenImages.do?name=casent0915096&project=allantwebants>); CAGNIANT 1997: 92 (as syn. of *exasperatum*).

Tetramorium parvioculum GUILLEM & BENSUSAN, 2009: 158 (paratype worker, AntWeb image examined, available from: <http://www.antweb.org/specimenImages.do?name=casent0901053&project=allantwebants>), **new synonymy**.



1, 2. *Tetramorium exasperatum* EMERY, worker: 1 – dorsal, 2 – lateral (scale bar 0.5 mm)

MATERIAL

SPAIN, Andalucia, Cádiz, El Tiradero (36.17109 N/ 5.58123 W), 222 m, 9 V 2014, 1 gyne and 23 workers, leg. L. Borowiec; SPAIN, Andalucia, Cádiz, El Bujeo loc. 2 (36,07034 N/ 5,55291 W), 334 m, 2 workers, leg. L. Borowiec (material preserved in LBC, CAS, CG). Species new to the fauna of Spain.

ADDITIONAL MORPHOLOGICAL DATA

Measurements:

Workers: HL: 0.538 ± 0.01 (0.52-0.538); HW: 0.465 ± 0.033 (0.474-0.489); SL: 0.38 ± 0.009 (0.369-0.397); EL: 0.066 ± 0.007 (0.056-0.078); ML: 0.573 ± 0.038



3, 4. *Tetramorium exasperatum* EMERY, gyne: 3 – dorsal, 4 – lateral (scale bar 0.5 mm)



5, 6. *Tetramorium exasperatum* EMERY, head: 5 – worker, 6 – gyne (scale bar 0.5 mm)

(0.527-0.659); PW: 0.32 ± 0.008 (0.312-0.335); CI: 86.4 ± 2.1 (82.3-89.4); SI: 81.9 ± 2.3 (77.9-84.8); EI: 14.3 ± 1.5 (12.5-16.3);

Gyne: HL: 0.648; HW: 0.581; SL: 0.446; EL: 0.145; ML: 0.911; PW: 0.536; CI: 89.6; SI: 76.8 ; EI: 24.95.

In comparison with measurements noted by GUILLEM & BENSUSAN (2009) our specimens appear slightly smaller but the analysis of the measurements table shows that GUILLEM & BENSUSAN (2009) had committed some measurement errors or swapped positions in the table e.g. TL (total length) correctly for gynes is greater than for workers but AL (alitrunk length) is given smaller for queens than for workers but should be larger. Indices measuring both Spanish and Gibraltar populations are similar and only CI (cephalic index) for specimens from Spain shows a slightly higher value (i.e. the head would be relatively broader) but in a comparison of photographs of the head in the original description and our work no significant difference can be discerned.

COMPARATIVE NOTES

The genus *Tetramorium* MAYR is less speciose in the western part of the Mediterranean Basin than in eastern part of this area (BOROWIEC 2014). From Spain, eight named and three unnamed species belonging to the *T. caespitum* group have been recorded (<http://www.hormigas.org/xEspecies/especies.htm>). Three of them: *Tetramorium bicarinatum* (NYLANDER), *T. caldarium* (ROGER) and *T. languinosum* MAYR are tramp species and belonging to the group of species (*T. simillimum* group sensu BOLTON 1977, 1979, 1980) well distinguished from all native European taxa by very strong sculpture and head with frontal carinae extended backwards as longitudinal ridges almost to occipital margin. GUILLEM & BENSUSAN (2009) in description of *Tetramorium parvioculum* suggested that it is a member of the *simillimum*-group but with no close relatives within the group but this species is similar to the three tramp species listed above only by strong body sculpture and distinctly differs in head with “normal” short frontal carinae not extending to the occipital area. The other eight Spanish species differ in less sculptured body, especially by head in area above eyes without reticulate sculpture, at most with longitudinal ridges. All these species have gynes distinctly larger than *T. exasperatum* and less sculptured with pronotal dorsum at most with longitudinal striation but usually with more or less developed shiny areas.

NOTES ON HABITAT AND SYNTOPIC ANTS

In both localities ants were found under big stone inside the bright cork oak forest. In El Tiradero as syntopic ant species collected were *Camponotus truncatus*, *Crematogaster scutellaris*, *Lasius grandis*, *Temnothorax* cf. *aveli*, *Temnothorax* cf. *exilis*, *Temnothorax luteus*, *Temnothorax* cf. *luteus*, and *Temnothorax* cf. *tristis*; in El Bujeo the syntopic ant species collected were *Crematogaster scutellaris*, *Hypoponera eduardi*, *Lasius grandis*, *Ponera testacea*, *Solenopsis* cf. *lusitanica*, *Temnothorax luteus*, and *Temnothorax* cf. *luteus*. CAGNIANT (1997) noted that in Morocco this species was collected in clearings and borders of forests, pastures and steppe. GUILLEM & BENSUSAN (2009) recorded it in woodland close to well known “The Mount” gardens and in rocky, high maquis.

ACKNOWLEDGEMENTS

Thanks to Jolanta ŚWIĘTOJAŃSKA (University of Wrocław, Poland) for her assistance during field trips of the senior author and Marek L. BOROWIEC (University of California, Davis, USA) for language verification and other comments. The junior author would like to thank the University of Wrocław for supporting grant no. 1161/M/KBTE/13.

REFERENCES

- AntWeb, www.antweb.org. Accessed 12 September 2014.
- BOLTON, B., 1977. The ant tribe Tetramoriini (Hymenoptera: Formicidae). The genus *Tetramorium* MAYR in the Oriental and Indo-Australian regions, and in Australia. Bulletin of the British Museum (Natural History). Entomology, **36**: 67-151.
- , 1979. The ant tribe Tetramoriini (Hymenoptera: Formicidae). The genus *Tetramorium* MAYR in the Malagasy region and in the New World. Bulletin of the British Museum (Natural History). Entomology, **38**: 129-181.
- , 1980. The ant tribe Tetramoriini (Hymenoptera: Formicidae). The genus *Tetramorium* MAYR in the Ethiopian zoogeographical region. Bulletin of the British Museum (Natural History). Entomology, **40**: 193-384.
- BOROWIEC, L., 2014. Catalogue of ants of Europe, the Mediterranean Basin and adjacent regions (Hymenoptera: Formicidae). Genus (Monograph), **25**: 1-340.
- CAGNIANT, H., 1997. Le genre *Tetramorium* au Maroc (Hymenoptera: Formicidae): clé et catalogue des espèces. Annales de la Société Entomologique de France (n.s.) **33**: 89-100.
- DALLA TORRE, K. W., von. 1893. Catalogus Hymenopterorum hucusque descriptorum systematicus et synonymicus. Vol. 7. Formicidae (Heterogyna). Leipzig: W. Engelmann, 289 pp.
- EMERY, C., 1891. Exploration scientifique de la Tunisie. Zoologie. - Hyménoptères. Révision critique des fourmis de la Tunisie. Paris: Imprimerie Nationale, iii + 21 pp.
- , 1909. Beiträge zur Monographie der Formiciden des paläarktischen Faunengebietes. (Hym.) Teil IX. Deutsche Entomologische Zeitschrift, **1909**: 695-712.
- GUILLEM, R., BENSUSAN, K., 2009. *Tetramorium parvioculum* sp. n. (Formicidae: Myrmicinae), a new species of the *T. simillimum* group from Gibraltar. Boletín de la Sociedad Entomológica Aragonesa, **45**: 157-161.
- SANTSCHI, F., 1921. Formicides nouveaux de l'Afrique du Nord. Bulletin de la Société d'Histoire Naturelle de l'Afrique du Nord, **12**: 68-77.
- , 1923 a. Messor et autres fourmis paléarctiques. Revue Suisse de Zoologie, **30**: 317-336.
- , 1923 b. Notes sur les fourmis paléarctiques. 4ème note. Boletín de la Real Sociedad Española de Historia Natural, **23**: 133-137.