

Preliminary contributions toward a revision of Greek *Messor* Forel, 1890 (Hymenoptera: Formicidae)

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Abstract: Based on recently collected material and study on type specimens *Messor carpathous* Menozzi, 1936 n. stat. and *Messor concolor* Santschi, 1927 n. stat. are raised to species rank and redescribed. *Messor creticus* sp. nov. is described as a new endemic species to Crete. Revised data for members of the *Messor structor* complexes are given and updated checklist of Greek *Messor* taxa is provided.

Key words: Formicidae, *Messor*, Greece, endemic species, Mediterranean

1. Introduction

Messor Forel, 1890 is a moderately large genus counting more than 150 taxa (Bolton, 2018) spread in the Palearctic, Afrotopical, and Oriental regions. Approximately 85 taxa of this genus are known from the Mediterranean subregion (Borowiec, 2014). Its species are granivorous and play an important role in seeds dispersal. Most of species are reported from open and arid habitats, such as savannahs, grasslands, phryganas, semideserts, and deserts (Bolton, 1982).

Workers of the genus *Messor* are polymorphic and very often shape of head, its sculpture cover and intensity, and shape of propodeal convexity depend on the size of the specimen. Minor workers have usually sculpture weaker or, in some cases, even absent and propodeum more or less rounded without special angulations or denticles, while major workers of the same species can bear very dense and robust sculpture and often distinct propodeal angulations or denticles (Steiner et al., 2018). Thus this genus is considered to be one of the most taxonomically challenging genera. Additionally, many of Mediterranean *Messor* taxa have been proposed as intraspecific names of various ranks, partly available to nomenclature, which impedes certain estimation of diversity of this genus in this region.

So far, only members of the *Messor structor* group have been included in modern revision (Steiner et al., 2018) and knowledge on Greek and East Mediterranean members of this genus is in the preliminary stage. The current state of cognition is unable to perform revisions of the species-

groups since it should be preceded by studies focused on easily distinguished taxa. The aim of this research was to clarify the status of some species and allow to determine their intraspecific variability.

During our fieldwork, we collected samples of various *Messor* morphotypes from localities spread on almost the whole Greek territory (Borowiec and Salata, 2012, 2013, 2014, 2017a, 2017b, 2018a, 2018b, 2018c; Braćko et al., 2016). The collected material allowed us to estimate the morphological variability of some enigmatic *Messor* species: *M. concolor* endemic to Crete and *M. carpathous* endemic to Karpathos Island. Additionally, we found in material from Crete a species new to science: *M. creticus* sp. nov., the only known member of the *M. caducus* group from this region.

Below we describe *Messor creticus* sp. nov. and, based on type specimens and freshly collected material, redescribe *M. concolor* and *M. carpathous*. We also reexamine Greek samples of taxa belonging to the recently revised *M. structor* group (Steiner et al., 2018) and list its five members with assigned distribution data. In the discussion section, we provide also a revised checklist of Greek *Messor* taxa known from this country. Data provided in this work comprise the first stage in our attempt to organize and estimate the real level of diversity of Greek *Messor* species.

2. Materials and methods

Most of the material was sampled between 2007 and 2018 from sites in different parts of Greece. The main method was direct sampling (hand collecting). Individual

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specimens and nests were collected on the ground, in leaf litter and rock rubble, under stones and tree trunks. This method was occasionally supplemented by litter sifting and collecting material with an entomological umbrella. All specimens were preserved in 75% EtOH. This study was supported with material deposited in the National History Museum of Crete, Heraklion. All studied type specimens of taxa mentioned in differential diagnosis or characteristics are listed below. Examined specimens are housed in the following collections:

- BMNH – Natural History Museum, London;
- DBET – Department of Biodiversity and Evolutionary Taxonomy, University of Wrocław, Poland;
- DSAB – Dipartimento di Scienze Agrarie, Università di Bologna, Bologna, Italy;
- MHNG – Museum d’Historie Naturelle, Genève, Switzerland;
- MNHN – Muséum National d’Histoire Naturelle, Paris;
- MSNG – Museo Civico di Storia Naturale, Genova, Italy;
- NHMB – Naturhistorisches Museum Basel, Switzerland;
- NHMC – Natural History Museum of Crete, Heraklion, Greece;
- SSC – Sebastian Salata collection;
- USMB – Upper Silesian Museum, Bytom, Poland.

To determine a distribution range and a morphological variability of new and redescribed species, we compared them with material collected from other Greek regions. Data concerning samples used in the comparison and records provided in the revised distribution data of the *M. structor* members is provided in series of regional checklists (Borowiec and Salata, 2012, 2013, 2014, 2017a, 2017b, 2018a, 2018b, 2018c; Bračko et al., 2016).

Specimens were compared using standard methods of comparative morphology. Photos were taken using a Nikon SMZ 1500 stereomicroscope, Nikon D5200 photo camera and Helicon Focus software. All given label data are in original spelling, presented in square brackets; a vertical bar (|) separates data in different rows and double vertical bars (||) separate labels. Images of type specimens are available online on AntWeb (www.antweb.org) and are accessible using the unique CASENT identifying specimen code.

Pilosity inclination degree applies to this used in Hölldobler and Wilson (1990). The adpressed (0°–5°) hairs run parallel or nearly parallel to the body surface. Decumbent hairs stand 10°–15°, subdecumbent hair stands 30°, suberect hairs stand 35°–45°, and the erect hairs stand more than 45° from the body surface.

Measurements

EL – eye length; measured along the maximum vertical diameter of eye;

EW – eye width; measured along the maximum horizontal diameter of eye;

HL – head length; measured in straight line from midpoint of anterior clypeal margin to midpoint of posterior margin in full-face view;

HW – head width; measured in full-face view directly above the eyes;

ML – mesosoma length; measured as diagonal length from the anterior end of the neck shield to the posterior margin of the propodeal lobe;

PEH – petiole height; maximum height of petiole in lateral view;

PEL – petiole length; maximum length of petiole in lateral view;

PNW – pronotum width; maximum width of pronotum in dorsal view;

PPH – postpetiole height; maximum height of postpetiole in lateral view;

PPL – postpetiole length; maximum length of postpetiole in lateral view;

PPW – postpetiole width; maximum width of postpetiole in dorsal view;

PSL – propodeal spine length; measured from the center of the propodeal spiracle to the top of the propodeal spine in lateral view;

PW – petiole width; maximum width of petiole in dorsal view;

SDL – spiracle to declivity length; minimum distance from the center of the propodeal spiracle to the propodeal declivity;

SL – scape length; maximum straight-line length of scape.

Indices

HI: HW/HL * 100;

SI1: SL/HL * 100;

SI2: SL/HW * 100;

MI: PNW/ML * 100;

EI1: EW/EL * 100;

EI2: EW/HL * 100;

PI: PL/PH * 100;

PPI: PPL/PPH * 100;

PSI: PSL/SDL * 100.

Abbreviations

q. – gyne; w. – worker.

Examined type material of species mentioned in differential diagnosis

Messor alexandri Tohmé & Tohmé, 1981, syntype (w.): *M. barbarus* | sub. *structor* | v. *alexandri* | type | Santschi || Type || Sammlung | Dr. F. Santschi | Kairouan || Asi Minor | Alexandretti || ANTWEB | CASENT0913151 (NHMB);

Messor hellenius Agosti & Collingwood, 1987, syntype (w.): v. *hellenius* | Santschi || [red label] || type || *Messor* | *structor* Lat. | *varrialei* Em || MUSEUM

PARIS | SALONIQUE | D'RIVET 1918 || NOVEMBRE || Sammlung | Dr. F. Santschi | Kairouan || ANTWEB | CASENT0913186 (NHMB);

Messor ebeninus Santschi, 1927, syntype (w.): *Messor barbarus* L. | subsp. *semirufus* Andr. | v. *ebenina* | type | Forel || Typus || Djebel Kasioun | Antiliban (Kerville) || Coll. | A. Forel || ANTWEB | CASENT0907734 (MHNG);

Messor intermedius Santschi, 1927, syntype (w.): *Messor barbarus* | subsp. *semirufus* | Andr. | v. *intermedia* | type | Forl || Typus || Doumar Syrie | (Kerville) 22 || Coll. | A. Forel || ANTWEB | CASENT0907736 (MHNG);

Messor barbarus mediosanguineus Donisthorpe, 1946, paratype (w.): Paratype | *barbarus* | ssp. *mediosanguineus* | 1946 Donisthorpe || No. 224 || ANTWEB | CASENT0900484 || BMNH | 1013841 (BMNH);

Messor nahali Tohmé & Tohmé, 1981, syntype (w.): MNHN Paris || type || *Messor nahali* | Tohme & Tohme, 1981 || 581 || Syrie, Alep | 7. X. 1973 | Tohome rec. || Tube n 581 || Museum Paris | EY9109 || ANTWEB | CASENT0913772 (MNHN);

Messor semirufus (André, 1883), syntype (w.): *barbarus* | v. | *semirufus* | Andre || Cotypus || ANTWEB | CASENT0907730 || Syria | 1899 | Morice || Coll. | A. Forel (MHNG);

Messor oertzeni Forel, 1910, syntype (w.): *M. oertzeni* | Forel | type || Typus || Smyrna || Coll. A. Forel || ANTWEB | CASENT0907752 (MHNG);

Messor syriacus Tohmé, 1969, syntype (w.): *M. aralocaspicus* | *laboriosus* | v. *syriacus* Sanschi || TYPE || Syrie | Damas. | G. de Kerville || Sammlung | Dr. F. Santschi || Kairouan || ANTWEB | CASENT0913178 (NHMB).

3. Results

Messor carpathous Menozzi, 1936 new status

(Figures 1–4)

Messor oertzeni var. *carpathous* Menozzi, 1936: 277.

Messor denticulatus Santschi, 1927: Borowiec, 2014: 105 (misidentification).

Type material. Lectotype (present designation), top of the pin (w.): Piles | Scarpanto | 22.iv.1934 | C. Menozzi || *M. oertzeni* | v. *carpathus* | Typus! Menoz. | Menozzi deter. (DSAB). Paralectotypes (2w.): two other workers on the same pin.

Nontype material. Dodecanese: Karpathos, Avlona (35.78039°N / 27.17842°E), 285 m, 19 V 2014, 1w. (pin), leg. S. Salata (DBET); Karpathos, Agios Nikolaos (35.63563°N / 27.15231°E), 205 m, 20 V 2014, 7w. (pin), leg. S. Salata (DBET).

Differential diagnosis. *Messor carpathous* was described as a subspecies of *M. oertzeni* Forel, 1910 but it differs from it, and from related *M. alexandri* Tohmé & Tohmé, 1981, in reduced or absent sculpture on vertex, temple, and genae and in propodeum with wide at base,

lobe-shaped projections, with blunt, rounded, and directed outwards tips. *Messor carpathous* can be also confused with *M. hellenius* Agosti & Collingwood, 1987 and some taxa of the *M. structor* group. It differs from *M. hellenius* in lack of psammophores; from *M. muticus* (Nylander, 1849) in lack of abundant standing setae on side of head and presence of lobe-shaped projections on propodeum; from *M. mcarthuri* Steiner et al., 2018 and *M. varrialei* Emery, 1921 in presence of lobe at the base of scape and propodeum with lobe-shaped projections; from *M. clivorum* (Ruzsky, 1905) in reduced or absent sculpture on vertex, temple, and genae.

Redescription. Worker (n = 10): HL: 2.627 ± 0.3 (2.032–2.951); HW: 2.732 ± 0.4 (1.934–3.147); SL: 1.928 ± 0.2 (1.657–2.086); EL: 0.402 ± 0.06 (0.279–0.459); EW: 0.353 ± 0.06 (0.262–0.426); ML: 3.192 ± 0.4 (2.59–3.64); PSL: 0.434 ± 0.04 (0.344–0.457); SDL: 0.373 ± 0.05 (0.256–0.429); PEL: 0.864 ± 0.09 (0.721–0.951); PPL: 0.541 ± 0.07 (0.426–0.623); PEH: 0.701 ± 0.09 (0.525–0.82); PPH: 0.586 ± 0.08 (0.459–0.647); PNW: 1.598 ± 0.2 (1.279–1.770); PEW: 0.563 ± 0.08 (0.426–0.648); PPW: 0.631 ± 0.1 (0.475–0.787); HI: 103.5 ± 4.8 (95.2–107.3); SI1: 73.8 ± 4.2 (70.5–82.9); SI2: 71.6 ± 7.5 (66.1–87.1); MI: 50.1 ± 1.2 (48.6–52.0); EI1: 88.1 ± 5.6 (77.3–94.1); EI2: 13.4 ± 0.6 (12.7–14.4); PI: 148.3 ± 8.2 (135.0–157.1); PPI: 77.4 ± 4.8 (72.0–86.4).

Color. Whole body uniformly dark brown, sometimes malar area and lateral sides of clypeus bright brown to brown (Figures 1–4). **Head.** Square, nearly as long as wide, lateral surfaces below and above eyes gently convex, posterior edges convex, occipital margin of head concave (Figures 3 and 4). Anterior margin of the clypeus slightly convex and dentate on its central part. Eyes small, oval, 1.1 times as long as wide. Antennal scape short, in lateral view its anterior part curved, 0.7 times as long as length of the head, in apex gradually widened, its base with distinct, triangular tooth, funiculus long (Figures 3 and 4). Surface of scape with very fine microreticulation, shiny, covered with thin, moderate dense, decumbent to erect setae. Mandibles rounded with thick, dense, longitudinal striae, shiny. Clypeus shiny with thick, longitudinal striae, area between striae rugulose. Frontal carinae short, not extending beyond frontal lobes. Antennal fossa shallow, with dense, thin, and weak roundly curved and longitudinal striae, area between striae smooth, shiny. Frontal lobes narrow, smooth with slight, dense longitudinal striation (Figures 3 and 4). Whole head shiny with very dense, fine and longitudinal striation, striae on central and anterior parts of frons and malar area stronger and thicker, vertex, temple and genae with striation weaker, in big workers sometimes strongly reduced or absent (Figures 1–4). The whole head surface covered by short, adpressed and thick setae; frons and vertex with a few additional erect, thick setae; ventral



Figures 1–4. *Messor carpathous* (scale bar: 0.5 mm); 1-Dorsal view, 2-Lateral view, 3- Head, sculpture, 4-Head and antennae.

surface of head with dense layer of thin, erect, straight setae (Figures 1–4). **Mesosoma.** Short, 2 times as long as wide; metanotal groove present. Pronotum convex on sides. In lateral view promesonotum arched, propodeum positioned lower than promesonotum, its dorsum flat and leaning towards propodeal declivity, propodeum with very wide at base, lobe-shaped projections with tips blunt and rounded directed outwards (Figures 1 and 2). Whole mesosoma shiny, with dense transverse striation, lateral sides of mesonotum with striation irregular or longitudinal; dorsum of promesonotum with reduced sculpture; mesosoma dorsum sometimes with striation irregular to longitudinal, area between propodeal lobes always with transverse striation (Figures 1 and 2). Mesosoma dorsum with numerous thick, long, and straight setae (Figures 1 and 2). **Petiole.** In lateral view, with moderate peduncle, node high, with anterior face slightly concave, posterior face convex and dorsum wide and rounded. Peduncle and petiolar node shiny, with dense reticulation, dorsum with sparser and thicker reticulation. Dorsal surface bearing sparse, long, thick, erect setae (Figures 1 and 2). **Postpetiole.** In lateral view, regularly convex, apical half with gently convex sides (Figures 1 and 2), on the whole surface shiny, with dense reticulation, dorsum with microreticulation thicker and sparser. Dorsal surface bearing sparse, long, erect setae (Figures 1 and 2). **Gaster.** Shiny and smooth, bearing numerous erect, thin, pale setae (Figures 1 and 2).

Distribution. Greece, Karpathos – endemic species.

Biology. Poorly known. Workers were collected at twilight, in dry phrygana on Karpathos. Nest was in soil, area between nest entrances and its vicinity was covered with dense net of paths that were used by workers.

Messor concolor Santschi, 1927 new status

(Figures 5–8)

Messor semirufus var. *concolor* Santschi, 1927: 229 (= *Messor barbarus semirufus* var. *concolor* Emery, 1908: 448, unavailable name).

Messor barbarus semirufus var. *concolor*: Emery, 1908: 448;

Messor barbarus semirufa v. *concolor*: Emery, 1921a: 72;

Messor semirufus var. *concolor*: Santschi, 1927: 229; Menozzi, 1929: 146.

Type material. Lectotype (present designation) (w.): *M. semirufus* And. | v. *concolor* Em. | SANTSCHI det. 1926 || Crete | Rettimno | (Cecconi) || *M. meridionalis* | And. | *concolor* Em. || TYPE || Sammlung | Dr. F. Santschi | Kairouan || ANTWEB | CASENT0913219 (NHMB); Syntype (w.): *M. semirufus* And. | v. *concolor* Em. | SANTSCHI det. 1926 || Crete | Rettimno | (Cecconi) || *M. meridionalis* | And. | *concolor* Em. || TYPE || Sammlung | Dr. F. Santschi | Kairouan || ANTWEB | CASENT0913220 (NHMB); Syntype (w.): *M. barbarus* | *semirufus* | v. *concolor* Em. || Creta (Cecconi) | Kalives || *concolor* | cotype ||

SYNTYPUS | *Messor barbarus* | *semirufus* | var. *concolor* | des. EMERY, 1908 || MUSEO GENOVA | coll. C. Emery | (dono 1925) | ANTWEB | CASENT0904126 (MSNG).

Nontype material. Crete, Chania prov., Imbros Gorge (35.2°N / 24.16666°E), 234 m, 8 V 2013, 16w., leg. L. Borowiec (DBET).

Differential diagnosis. *Messor concolor*, a member of the *M. semirufus* group, is characterized by smooth and shiny head sculpture, lack of rugosity between striation on mesosoma and low number of erect setae on mesosoma dorsum and first gastral tergite. From most members of the *semirufus* group it differs in almost uniform body coloration with mesosoma not or only partly paler colored than head and gaster. There are four Mediterranean known taxa with similar body coloration: *M. semirufus* (André, 1883), *M. nahali* Tohmé & Tohmé, 1891, *M. ebeninus* Santschi, 1927 and *M. dentatus* Santschi, 1927. *Messor concolor* can be easily distinguished from them, and from other species of the *M. semirufus* group, in having dull gaster with very dense microreticulation.

Redescription. Worker (n = 15): HL: 1.952 ± 0.1 (1.711–2.145); HW: 1.984 ± 0.2 (1.71–2.216); SL: 1.519 ± 0.11 (1.316–1.684); EL: 0.349 ± 0.03 (0.316–0.381); EW: 0.265 ± 0.03 (0.197–0.295); ML: 2.316 ± 0.1 (2.099–2.592); PSL: 0.325 ± 0.03 (0.289–0.368); SDL: 0.306 ± 0.024 (0.268–0.342); PL: 0.771 ± 0.08 (0.658–0.974); PPL: 0.398 ± 0.02 (0.342–0.447); PH: 0.532 ± 0.04 (0.474–0.632); PPH: 0.554 ± 0.05 (0.474–0.657); PNW: 1.226 ± 0.08 (1.079–1.368); PW: 0.409 ± 0.03 (0.342–0.487); PPW: 0.498 ± 0.04 (0.421–0.579); HI: 101.7 ± 2.3 (98.4–105.6); SI1: 77.9 ± 2.7 (73.9–82.6); SI2: 76.7 ± 3.7 (70.8–83.8); MI: 75.4 ± 2.3 (71.5–78.9); EI1: 75.8 ± 6.3 (62.5–84.6); EI2: 13.5 ± 0.7 (11.5–14.4); PI: 141.4 ± 7.9 (130.2–161.1); PPI: 72.8 ± 4.8 (65.1–83.3).

Color. Whole body uniformly brown to dark brown, sometimes mesonotum and propodeum with brighter brown to reddish brown pigmentation. Legs and antennae brown to dark brown, flagellum sometimes brighter than scape (Figures 5–8). **Head.** Square, nearly as long as wide, lateral surfaces below and above eyes gently convex, posterior edges convex, occipital margin of head concave (Figures 5–8). Anterior margin of the clypeus slightly convex and dentate on its central part. Eyes moderate, oval, 1.3 times as long as wide. Antennal scape short, in lateral view curved, 0.8 times as long as length of the head, in apex gradually widened, its base with distinct, triangular tooth, funiculus long (Figures 5–8). Surface of scape with very fine microreticulation, shiny, covered with thin, moderate dense, decumbent to erect setae. Mandibles rounded with thick sparse, longitudinal striae, shiny. Clypeus shiny with thick, longitudinal striae, area between striae shiny. Frontal carinae short, not extending beyond frontal lobes. Antennal fossa shallow, with sparse,



Figures 5–8. *Messor concolor* (scale bar: 0.5 mm); 1-Dorsal view, 2-Lateral view, 3-Head, sculpture, 4-Head and antennae.

thin and weak roundly curved striae, area between striae with sparse and fine microreticulation, shiny. Frontal lobes narrow, smooth with slight, dense longitudinal striation (Figures 7 and 8). Whole head shiny with very sparse and fine microreticulation, only single longitudinal wrinkles appear on the anterior part of frons center and malar area (Figures 7 and 8). The whole head surface covered with short, adpressed, and thick setae; frons and vertex with a few additional erect, thick setae; ventral surface of head with dense layer of thin, erect, straight setae (Figures 5–8). **Mesosoma.** Short, 1.8 times as long as wide; metanotal groove deep. Pronotum convex on sides. In lateral view promesonotum arched in profile, propodeum positioned lower than mesonotum and slightly arched, propodeum with very small tooth-like projections, its ventral surface slightly concave (Figures 5 and 6). Whole mesosoma shiny, with dense transverse striation. Sometimes dorsum of pronotum with reduced sculpture (Figures 5 and 6). Mesosoma dorsum with less than 10 thick, long, and straight setae (Figures 5 and 6). **Petiole.** In lateral view, with moderate peduncle, node high, with anterior face concave, posterior face straight and dorsum steep arched. Peduncle and petiolar node shiny, with sparse microreticulation, dorsum with sparser reticulation. Dorsal surface bearing sparse, long, thick, erect setae (Figures 5 and 6). **Postpetiole.** In lateral view, regularly convex, apical half with gently convex sides (Figures 5 and 6), on the whole surface shiny, with sparse microreticulation, dorsum with microreticulation reduced. Dorsal surface bearing sparse, long, erect setae (Figures 5 and 6). **Gaster.** Gaster matt, with dense microreticulation, bearing erect, thin, pale setae (Figures 5 and 6).

Distribution. Most recent data confirms certain presence of this species on Crete, and, in our opinion, *M. concolor* should be treated as a species endemic to this island. However, based on literature data, this taxon was also recorded from Bulgaria and former Yugoslavia (Agosti and Collingwood, 1987), Turkey (Santschi, 1921; Schaff, 1924; Baroni Urbani, 1964; Agosti and Collingwood, 1987), Syria and Lebanon (Tohmé and Tohmé, 1981). Due to long-lasting misinterpretation of features considered to be specific for this species all literature records should be interpreted with high caution. In our collection, we have numerous samples collected from the Balkans and Asia Minor, and in none of them we could observe such dense gaster microreticulation as on specimens collected on Crete. Therefore, based on collected evidences, we consider *M. concolor* to be a Cretan endemic species, but cannot exclude the possibility that it could be an Aegean species (sensu Fattorini, 2000). See also Comments.

Biology. Poorly known. Workers were collected at midday, in the dry riverbed located in Imbros Gorge. Area was overgrown by phrygana. Most probably, as in all Cretan *Messor* species, nest was located in soil.

Comments. Species described from Crete (Emery, 1908), in the original description *M. concolor* was distinguished from other members of the *Messor semirufus* group based on matt gaster surface. Unfortunately, this feature was wrongly interpreted, what resulted in very complicated taxonomical history of this taxon. *Messor concolor* was treated as a subspecies of *M. semirufus* (Baroni Urbani, 1964), its junior synonym (Baroni Urbani, 1974), valid species (Tohmé and Tohmé, 1981), and finally as a junior synonym of *M. wasmanni* (Collingwood and Agosti, 1996). Study on type specimens and new material led us to the conclusion that the Cretan specimens with matt gaster surface maintain their separateness. Hence, we consider *M. concolor* a separate species, endemic to Crete.

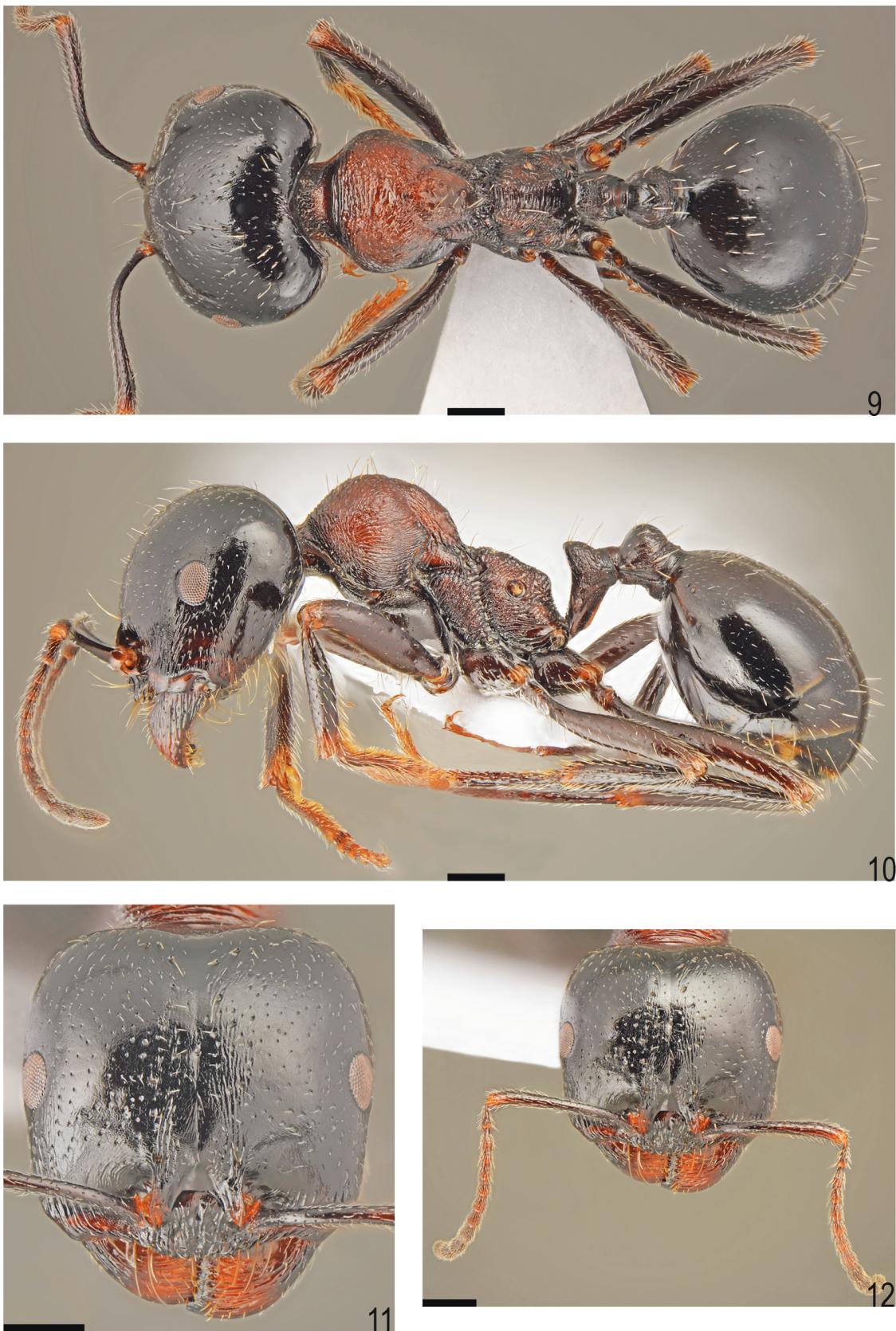
Messor creticus sp. nov.

(Figures 9–12)

Messor caducus (Motschoulsky, 1839): Borowiec and Salata, 2012: 512 (misidentification).

Type material. Holotype (w.): Collection L. Borowiec | Formicidae | LBC-GR00505 || GREECE W Crete, 1034 | Omalos Plateau | 35°20'N/23°53'E | 3 V 2011. L. Borowiec (DBET); paratypes (22w, 1g.): the same locality as holotype (DBET, NHMC).

Nontype material. Greece, Crete. Chania Prov.: Gramvousa peninsula, (35.56667°N / 23.58333°E), 80 m, 12 VII 1997, 1w. (EtOH), leg. P. Lymberakis (NHMC); Korfos or Kefala, (34.83333°N / 24.1°E), 55 m, 14 VI 1997, 1w. (EtOH), leg. K. Paragamian (NHMC); Omalos, (35.31667°N / 23.9°E), 1122 m, 05 V 2014, 3w. (EtOH) leg. S. Salata, (DBET). Heraklion Prov.: Rouvas Forest loc. 1, (35.15°N / 24.93333°E), 1316 m, 06 V 2014, 4w. (EtOH), leg. S. Salata (DBET); Rouvas Forest loc. 2, (35.15°N / 24.83333°E), 1089 m, 28 III 2014, 4w. (EtOH), leg. S. Salata (DBET). Lasithi Prov.: above Kalimaki loc. 3, (35.11667°N / 25.43333°E), 1240 m, 25 IV 2014, 3w. (EtOH), leg. S. Salata (DBET); Chamaitoulo, (35.03333°N / 26.2°E), 180 m, 06 VIII 2000, 2w. (EtOH), leg. M. Chatzaki (NHMC); Chamaitoulo, (35.03333°N / 26.2°E), 180 m, 12 X 2000, 1w. (EtOH), leg. M. Chatzaki (NHMC); Chamaitoulo, (35.03333°N / 26.2°E), 180 m, 16 III 2001, 2w. (EtOH), leg. S. Simaiakis (NHMC); Dikti mt., (35.11667°N / 25.46667°E), 1450 m, 05 VIII 2000, 2w. (EtOH), leg. S. Simaiakis (NHMC); Dikti mt., (35.11667°N / 25.46667°E), 1450 m, 09 I 2001, 1w. (EtOH), leg. S. Simaiakis (NHMC); Milatos, (35.3°N / 25.58333°E), 310 m, 12 VII 2000, 1w. (EtOH), leg. M. Chatzaki (NHMC). Rethymno Prov.: Nida platou, (35.2°N / 24.83333°E), 1370 m, 01 V 2014, 3w. (EtOH), leg. S. Salata (DBET); road to Nida platou, (35.25°N / 24.88333°E), 1166 m, 25 IV 2014, 5w. (EtOH), leg. S. Salata (DBET); Afentis Christos, (35.23333°N / 24.7°E), 650 m, 21 X 1999, 1w. (EtOH), leg. E. Nikolakakis (NHMC); Moni Preveli, (35.15°N / 24.46667°E), 15 m, 26 VIII 1996, 2w. (EtOH), leg. M. Maroukli (NHMC).



Figures 9–12. *Messor creticus* (scale bar: 0.5 mm); 1-Dorsal view, 2-Lateral view, 3-Head, sculpture, 4-Head and antennae.

Locus typicus. Greece, Crete, Omalos Plateau.

Etymology. Created based on the Latin name of Crete [*Creta*].

Differential diagnosis. *Messor creticus* is most similar to *M. caducus* and is easily distinguished from most of Mediterranean *Messor* in having mostly smooth and shiny head surface, more than 10 thick, erect setae on promesonotal dorsum, sparse and short erect setae on the first gastral tergite and presence of additional reticulation between striae covering surface of mesosoma. From *M. caducus*, it differs in lack of distinct psammophores. *M. creticus* has ventral head surface covered with long, thin setae that are only slightly curved on their upper part and do not form a shape characteristic for psammophores.

Description. Worker (n = 15): HL: 1.975 ± 0.2 (1.658–2.289); HW: 2.092 ± 0.22 (1.789–2.461); SL: 1.487 ± 0.1 (1.316–1.632); EL: 0.383 ± 0.03 (0.342–0.447); EW: 0.272 ± 0.03 (0.237–0.316); ML: 2.364 ± 0.2 (2.039–2.774); PSL: 0.349 ± 0.04 (0.289–0.421); SDL: 0.345 ± 0.04 (0.276–0.408); PL: 0.695 ± 0.07 (0.605–0.829); PPL: 0.434 ± 0.04 (0.368–0.487); PH: 0.506 ± 0.05 (0.434–0.579); PPH: 0.547 ± 0.06 (0.461–0.645); PNW: 1.253 ± 0.1 (1.026–1.447); PW: 0.424 ± 0.06 (0.342–0.566); PPW: 0.551 ± 0.09 (0.421–0.75); HI: 104.1 ± 5.5 (100.3–109.1); SI1: 75.7 ± 4.5 (62.1–82.4); SI2: 73.4 ± 3.7 (68.5–79.4); MI: 71.2 ± 2.9 (63.6–74.2); EI1: 71.2 ± 3.5 (65.5–76.9); EI2: 13.9 ± 0.7 (13.1–15.3); PI: 137.5 ± 4.2 (130.0–143.2); PPI: 79.7 ± 4.0 (73.6–85.7).

Color. Head and gaster black, sometimes malar area and mandibles brick-reddish. Mesosoma brick-reddish with darker coloration on sutures or in the same coloration as gaster. Petiole and postpetiole black, sometimes peduncle brick-reddish. Antennae dark brown, with brick-reddish scape apex. Legs in the same coloration as mesosoma or black (Figures 9–12). **Head.** Square, nearly as long as wide, lateral surfaces below and above eyes gently convex, posterior edges convex, occipital margin of head concave (Figures 11 and 12). Anterior margin of the clypeus slightly convex and dentate on its central part. Eyes moderate, oval, 1.4 times as long as wide. Antennal scape short, in lateral view curved, 0.8 times as long as length of the head, in apex gradually widened, its base with distinct, triangular tooth, funiculus long (Figures 11 and 12). Surface of scape with very sparse punctuation, shiny, covered with thin, moderate dense, decumbent to erect setae. Mandibles rounded with thick sparse, longitudinal striae, shiny. Clypeus shiny with thick, longitudinal striae, area between striae shiny. Frontal carinae short, not extending beyond frontal lobes. Antennal fossa shallow, with sparse, thin, and weak roundly curved striae, area between striae with sparse and fine microreticulation, shiny. Frontal lobes narrow, smooth with slight, dense longitudinal striation (Figures 11 and 12). Whole head shiny with very sparse

and fine microreticulation, only single, thin, longitudinal wrinkles appear on the anterior part of frons center and malar area (Figures 9–12). The whole head surface covered with short, adpressed to suberect, and thick setae; frons and vertex with a few additional erect, thick setae; ventral surface of head with dense layer of thin, erect, slightly curved setae (Figures 9–12). **Mesosoma.** Short, 1.9 times as long as wide; metanotal groove deep. Pronotum convex on sides. In lateral view promesonotum arched in profile, propodeum positioned lower than promesonotum, its dorsum flat and leaning towards its declivity, propodeum with very low lobe-like projections or unarmed, its ventral surface slightly concave (Figures 9 and 10). Whole mesosoma shiny, with dense striation, transverse on sides and irregular to transverse on dorsum. Area between striae with irregular rugosity (Figures 9 and 10). Mesosoma dorsum with at least 10 thick, long, and straight setae (Figures 9 and 10). **Petiole.** In lateral view, with moderate peduncle, node high, with anterior face concave, posterior face straight and dorsum steep arched. Peduncle and petiolar node shiny, with dense reticulation, dorsum with sparser reticulation. Dorsal surface bearing sparse, long, thick, erect setae (Figures 9 and 10). **Postpetiole.** In lateral view, regularly convex, apical half with convex sides (Figures 9 and 10), on the whole surface shiny, with dense reticulation, dorsum with reticulation reduced. Dorsal surface bearing sparse, long, erect setae (Figures 9 and 10). **Gaster.** Shiny, with sparse microreticulation, bearing more than 10 erect, thin, pale setae (Figures 9 and 10).

Distribution. Greece, Crete – endemic species.

Biology. Alpine species, recorded only from areas located above 1000 m. Nesting in soil, most often in humid, open areas, e.g., pastures or fields. Workers most active at nightfall, collecting seeds from ground or herbs. Colonies monogynous.

Messor structor group

Messor structor group was revised recently (Steiner et al., 2018) and five species of the group were collected in Greece. All past records of *Messor cf. clivorum*, *Messor muticus*, *Messor structor* and *Messor orientalis* from Greece should be verified by study of preserved materials. We re-examined the following material from Greece:

Messor ibericus Santschi, 1931

Messor structor var. *ibericus* Santschi, 1931: 4 (= *Messor barbarus* ssp. *structor* var. *iberica* Emery, 1922: 92, unavailable name).

Messor structor (Latreille, 1798): Borowiec and Salata, 2012: 514 (misinterpretation).

Messor cf. structor: Borowiec and Salata, 2014: 511, 2017b: 214, 2018a: 8; Bračko et al., 2016: 23.

Revised material. **Crete:** Chania prov., Aradena Gorge (35.21667°N / 24.06667°E), 580 m, 30 IV 2014, 4w. (EtOH), leg. S. Salata (SSC); Chania prov., 3 km S of Askifou

(35.26666°N / 24.16666°E), 800 m, 1 V 2007, 3w, leg. L. Borowiec (DBET); Chania prov., Gavdos (34.8°N / 24.1°E), 58 m, 14 VI 1997, 1w. (EtOH), 27 VIII 1997, 1w. (EtOH), leg. K. Paragamian (NHMC); Chania prov., Imbros Gorge (35.2°N / 24.16667°E), 234 m, 8 V 2013, 5w. (EtOH), leg. S. Salata (SSC); Chania prov., Karga (35.45°N / 24.18333°E), 22 m, 25 XI 1995, 1w. (EtOH), leg. P. Lymberakis (NHMC); Chania prov., Kato Daratso n. Chania (35.5°N / 23.96666°E), 23 m, 30 IV 2011, 1w, leg. L. Borowiec (DBET); Chania prov., Khora Sfakion (35.2°N / 24.13333°E), 6 m, 1 V 2007, 2w, leg. L. Borowiec (DBET); Chania prov., Kourna Lake (35.31667°N / 24.26667°E), 30 m, 10 VII 1997, 2w. (EtOH), leg. P. Lymberakis (NHMC); Chania prov., Kourna Lake (35.31666°N / 24.28333°E), 95 m, 3 V 2007, 1w, leg. L. Borowiec (DBET); Chania prov., Neo Chorio vic. (35.41667°N / 24.13333°E), 50 m, 4 V 2015, 1w, leg. G. Bračko (GB); Chania prov., Plemeniana n. Kandanos (35.31666°N / 23.71666°E), 339 m, 2 V 2011, 4g, 3w, leg. L. Borowiec (DBET), 293 m, 3 V 2014, 2w. (EtOH), leg. S. Salata (SSC); Chania prov., Therisso Gorge (35.43333°N / 23.98333°E), 339 m, 1 V 2011, 1w, leg. L. Borowiec (DBET); Heraklion prov., Agios Eirini (35.26667°N / 25.15°E), 130 m, 30 IV 2014, 2g, 3w. (EtOH), leg. S. Salata (SSC); Heraklion prov., Alagni-Patsideros road (35.16667°N / 25.21667°E), 463 m, 24 IV 2014, 1g, 4w. (EtOH), leg. S. Salata (SSC); Heraklion prov., Almyros river (35.33469°N / 25.05441°E), 297 m, 3 VI 2012, 1w. (EtOH), leg. E. Aspradaki (NHMC); Heraklion prov., Apesokari-Miammou (34.98333°N / 24.93333°E), 350 m, 4 VIII 1999, 2w. (EtOH), leg. M. Papadimitrakis (NHMC); Heraklion prov., Archanes (35.23333°N / 25.13333°E), 768 m, 28 III 2014, 1g, 4w. (EtOH), leg. S. Salata (SSC); Heraklion prov., Kali Limnes (34.95°N / 24.78333°E), 76 m, 29 IV 2014, 2w. (EtOH), leg. S. Salata (SSC); Heraklion prov., Keratokampos (35.98333°N / 25.36667°E), 0 m, 28 IX 1999, 1w. (EtOH), leg. M. Papadimitrakis (NHMC); Heraklion prov., Lentas (34.93333°N / 24.93333°E), 100 m, 3 II 2000, 2w. (EtOH), leg. E. Nikolakakis (NHMC); Heraklion prov., Omalos Viannou (35.06667°N / 25.43333°E), 1100 m, 28 IX 1999, 1w. (EtOH), leg. M. Papadimitrakis (NHMC); Heraklion prov., Panagia Almyri (35.06667°N / 24.98333E), 350 m, 2 VII 2000, 2w. (EtOH), leg. E. Nikolakakis (NHMC); Heraklion prov., Plati Peramata (34.93333°N / 24.81667°E), 450 m, 8 VI 1999, 1w. (EtOH), leg. M. Papadimitrakis (NHMC); Heraklion prov., Rouvas Forest loc. 1 (35.15°N / 24.93333°E), 1316 m, 8 V 2014, 4w. (EtOH), leg. S. Salata (SSC); Heraklion prov., Skotina (35.28333°N / 25. 3°E), 125 m, 9 IV 2014, 4w. (EtOH), leg. S. Salata (SSC); Lasithi prov., Dikti Mt. (35.11667°N / 25.46667°E), 1450 m, 5 VIII 2000, 1w. (EtOH), 9 I 2001, 2w. (EtOH), leg. S. Simaiakis (NHMC);

Lasithi prov., Moni Kapsa (35.01667°N / 26.05°E), 1 m, 22 IV 2014, 1w. (EtOH), leg. S. Salata (SSC); Lasithi prov., Myrtos (35.03333°N / 25.56667°E), 100 m, 23 VII 1999, 2w. (EtOH), 23 IX 1999, 1w. (EtOH), leg. M. Papadimitrakis, 31 I 2000, 2w. (EtOH) leg. E. Nikolakakis (NHMC); Lasithi prov., Praisos (35.11667°N / 26.56667°E), 193 m, 10 IV 2014, 5w. (EtOH), leg. S. Salata (SSC); Selakano (35.08333°N / 25.55°E), 800 m, 5 V 1999, 1w. (EtOH), leg. M. Papadimitrakis (NHMC); Lasithi prov., 3 km S of Ziros (35.05°N / 26.13333°E), 552 m, 10 IV 2014, 4w. (EtOH), leg. S. Salata (SSC); Rethymno prov., Fourfouras (35.21666°N / 24.71666°E), 578 m, 14 V 2014, 2w. (EtOH), leg. S. Salata (SSC); Rethymno prov., Frati (35.2°N / 24.46666°E), 297 m, 7 V 2013, 3w. (EtOH), leg. S. Salata (SSC); Rethymno prov., Karoti, 12 km E Georgioupoli (35.33333°N / 24.35°E), 110 m, 30 IV 2007, 2w, leg. L. Borowiec (DBET); Rethymno prov., Kato Malaki (35.28333°N / 24.4°E), 235 m, 15 V 2013, 2w. (EtOH), leg. S. Salata (SSC); Rethymno prov., Katsifou Gorge (35.2°N / 24.38333°E), 57 m, 15 V 2013, 2w. (EtOH), leg. S. Salata (SSC); Rethymno prov., Kissos (35.2°N / 24.38333°E), 623 m, 9 V 2013, 2w. (EtOH), leg. S. Salata (SSC); Rethymno prov., Kourtaliotiko Gorge (35.18333°N / 24.45°E), 158 m, 6 V 2013, 1w, leg. L. Borowiec (DBET); Rethymno prov., Mariou (35.18333°N / 24.41667°E), 210 m, 6 V 2013, 2w. (EtOH), leg. S. Salata (SSC); Rethymno prov., Moni Preveli (35.15°N / 24.46667°E), 15 m, 9 V 26 VIII 1996, 6w. (EtOH), leg. M. Maroukli (NHMC); Rethymno prov., Moni Preveli (35.15°N / 24.45°E), 200 m, 7 V 2013, 2w. (EtOH), leg. S. Salata (SSC); Rethymno prov., Preveli beach (35.15333°N / 24.475°E), 5 m, 1 VIII 2006, 1w. (EtOH), leg. G. Bračko (GB); Rethymno prov., road to Preveli beach loc. 2 (35.16666°N / 24.46666°E), 48 m, 7 V 2013, 1w. (EtOH), leg. S. Salata (SSC); Rethymno prov., Rodakino-Selia rd. (35.2°N / 24.33333°E), 301 m, 8 V 2013, 1w. (EtOH), leg. S. Salata (SSC); Rethymno prov., Selli-Oros rd. (35.28333°N / 24.5°E), 473 m, 11 V 2013, 2w. (EtOH), leg. S. Salata (SSC); Rethymno prov., Setoures (35.26667°N / 24.38333°E), 305 m, 15 V 2013, 21w. (EtOH), leg. S. Salata (SSC); Rethymno prov., Velonado vic. (35.25°N / 24.36667°E), 373 m, 14 V 2013, 3w, leg. L. Borowiec (DBET), 2w. (EtOH), leg. S. Salata (SSC); Rethymno prov., Vistagi (35.23333°N / 24.68333°E), 563 m, 16 V 2013, 2w. (EtOH), leg. S. Salata (SSC); **Dodecanese:** Agia Kyriaki n. Astypalaia (36.5473°N / 26.4027°E), 7 m, 11 VI 2005, 2w. (EtOH), leg. M. Chatzaki (NHMC); Kalymnos, NW of Vathy (36.9843°N / 26.9896°E), 70 m, 9 VI 2005, 1w. (EtOH), leg. M. Chatzaki (NHMC); Pacheia (36.5677°N / 27.0679°E), 88 m, 6 VI 2005, 2w. (EtOH), leg. M. Chatzaki (NHMC); Rhodes, 1 km W of Kattavia (35.95°N / 27.73333°E), 39 m, 5 VII 2008, 2w, leg. L. Borowiec (DBET); Rhodes, Kiotari (36.03333°N / 27.95°E), 12 m, 9 VII 2008, 4w, leg. L. Borowiec (DBET); Rhodes,

Mesanagros (36°N / 27.81666°E), 257 m, 8 VII 2008, 1w, leg. L. Borowiec (DBET); **Ionian Islands:** Kephalonia, Peratata vic. (38.9514058°N / 20.55038°E), 211 m, 24 VI 2014, 2g, 2w. (pin) 2w. (EtOH), leg. L. Borowiec (DBET); Korfu, Acharavi (39.793°N / 19.793°E), 10 m, 6 VII 2011, 15w, leg. W. Żyła (USMB); Korfu, Ag. Stefanos (39.75733°N / 19. 64634°E), 28 m, 5 VI 2013, 5w. (EtOH), leg. L. Borowiec (DBET); Korfu, N of Ag. Stefanos (39.76338°N / 19.65213°E), 88 m, 5 VI 2013, 2w. (EtOH), leg. L. Borowiec (DBET); Korfu, Dassia (39.68333°N / 19.83333°E), 5 m, 4 VIII 2002, 1w. (EtOH), leg. G. Bračko (GB); Korfu, Doukades (39.70075°N / 19.75055°E), 174 m, 8 VI 2013, 2w. (EtOH), leg. L. Borowiec (DBET); Korfu, Ipsos (39.69833°N / 19.83833°E), 0 m, 27 VII 2004, 2w. (EtOH), leg. G. Bračko (GB); Korfu, Klimatia (39.74123°N / 19.78953°E), 311 m, 6 VI 2013, 1g, 1w. (pin) 2w. (EtOH), leg. L. Borowiec (DBET); Korfu, Old Perithia (39.76159°N / 19.87412°E), 467 m, 10 VI 2013, 4g, 2w. (pin) 12g, 55w. (EtOH), leg. L. Borowiec (DBET); Korfu, Pandokrator (39.70075°N / 19.75055°E), 785 m, 19 VII 2011, 1w. (EtOH), leg. Trichas & Kardaki (NHMC); Korfu, Pandokrator (39.74749°N / 19.86375°E), 736 m, 7 VI 2013, 7w. (EtOH), leg. L. Borowiec (DBET); Korfu, Petaleia vic. (39.75°N / 19.83333°E), 650 m, 4 VIII 2002, 1w. (EtOH), leg. G. Bračko (GB); Korfu, Vistonas (39.68549°N / 19.71453°E), 422 m, 8 VI 2013, 1w. (EtOH), leg. L. Borowiec (DBET); Zakynthos, 580 m SW of Lithakia (37.71491°N / 20.8242°E), 225 m, 7 V 2018, 1w. (pin) 4w. (EtOH), leg. L. Borowiec (DBET); Zakynthos, 600 m E of Ag. Leon (37.77045°N / 20.72959°E), 600 m, 9 V 2018, 4w. (pin) 3w. (EtOH), leg. L. Borowiec (DBET); Zakynthos, Argassi (37.76182°N / 20.92704°E), 10 m, 4 V 2018, 2w, leg. L. Borowiec (DBET); **Macedonia:** Drama, Mt. Falakro (41.2939°N / 24.0948°E), 1300 m, 6 VII 1996, 4w. (EtOH), leg. K. Vardinoyannis (NHMC); Pieria, Olympus Mts., Leptokaria-Karia rd. (40.02968°N / 22.49219°E), 901 m, 2 IX 2012, 1w. (EtOH), leg. L. Borowiec (DBET); Pieria, Olympus Mts., Leptokaria-Karia rd. loc. 2 (39.99038°N / 22.4392°E), 803 m, 2 IX 2012, 9w. (EtOH), leg. L. Borowiec (DBET); Pieria, Olympus Mts., Platamonas castle (40.0057°N / 22.59873°E), 106 m, 4 IX 2012, 1w. (EtOH), leg. L. Borowiec (DBET); **Peloponnese:** Ahaia, Aroania Mts., Mesorroughi (38.11046°N / 22.28297°E), 1022 m, 29 VIII 2013, 1w. (EtOH), leg. L. Borowiec (DBET); Korinthia, Evrostina-Sarandapiho rd. (38.04323°N / 22.22.38926°E), 1232 m, 1 IX 2013, 1w. (pin) 1g., 17w. (EtOH), leg. L. Borowiec (DBET); Korinthia, Gerania Mts., Pisia-Schinou rd. loc. 2 (38.03169°N / 23.0053°E), 566 m, 26 VIII 2013, 1w. (EtOH), leg. L. Borowiec (DBET); Korinthia, n. Sarandapiho (38.0275°N / 22.39346°E), 1389 m, 1 IX 2013, 1w. (EtOH), leg. L. Borowiec (DBET).

Comments. The most common species of the *Messor structor* group, well distinguished by small gynes. Noted

from various types of habitats, mostly open such as pastures, roadsides, stone hills, ruderal places in villages but also inside open pine forests, olive plantations, open oak forests from sea coast up to 1450 m a.s.l.

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

Messor mcarthuri Steiner, Csósz, Markó, Gamisch, Rinnhofer, Folterbauer, Hammerle, Stauffer, Arthofer & Schlick-Steiner, 2018: 401.

Messor muticus (Nylander, 1849): Borowiec and Salata, 2012: 514 (part).

Messor orientalis (Emery, 1898): Borowiec and Salata, 2012: 515 (part), 2017b: 214; Bračko et al., 2016: 23.

Revised material. Crete: Chania, Agia Irini Gorge (35.31667°N / 23.83333°E), 587 m, 1 V 2014, 2w. (EtOH), leg. S. Salata (SSC); Chania, Akrotiri Peninsula, Stavros (35.59003°N / 24.10081°E), 20 IV 2016, 9w. (EtOH), leg. G. Hebda (SSC); Chania, Diktamos Gorge n. Stilos (35.43333°N / 24.1°E), 160 m, 4 V 2011, 3w, leg. L. Borowiec (DBET); Chania, Imbros Gorge (35.2°N / 24.16667°E), 234 m, 8 V 2013, 1g, 4w, leg. L. Borowiec & S. Salata (DBET, SSC); Chania, Kallikratis (35.25°N / 24.25°E), 950 m, 7 X 2001, 3w. (EtOH), leg. I. Stathi (SSC); Chania, Kandanos-Floria rd. (35.35°N / 23.73333°E), 588 m, 2 V 2011, 2w, leg. L. Borowiec (DBET); Chania, Koutsomatas-Mili rd. (35.38333°N / 23.66666°E), 308 m, 2 V 2011, 1g, leg. L. Borowiec (DBET); Chania, Omalos (35.31667°N / 23.9°E), 1122 m, 3 V 2014, 3w. (EtOH), leg. S. Salata (SSC); Chania, Therisso Gorge (35.46666°N / 23.98333°E), 128 m, 1 V 2011, 1g, 3w, leg. L. Borowiec (DBET); Heraklion, Almiros Gorge (35.33333°N / 25.03333°E), 42 m, 2 IV 2014, 3w. (EtOH), leg. S. Salata (SSC); Heraklion, Asimi (35.03333°N / 25.08333°E), 258 m, 5 V 2014, 3w. (EtOH), leg. S. Salata (SSC); Heraklion, Ethia plateau (34.98333°N / 25.2°E), 683 m, 3 IV 2014, 4w. (EtOH), leg. S. Salata (SSC); Heraklion, 4 km E of Ganies (35.98333°N / 24.96667°E), 383 m, 15 IV 2014, 2w. (EtOH), leg. S. Salata (SSC); Heraklion, archeological site Gotrys (35.05°N / 24.93333°E), 151 m, 3 V 2014, 3w. (EtOH), leg. S. Salata (SSC); Heraklion, Houdetsi (35.16667°N / 25.15°E), 426 m, 22 IV 2014, 2w. (EtOH), leg. S. Salata (SSC); Heraklion, Kato Kastelliana-Tsoutsouros road (35°N / 25.26667°E), 390 m, 23 IV 2014, 3w. (EtOH), leg. S. Salata (SSC); Heraklion, Katofigi (35.08333°N / 25.4°E), 560 m, 12 IV 2014, 6w. (EtOH), leg. S. Salata (SSC); Heraklion, Miamou (34.96667°N / 24.93333°E), 494 m, 24 IV 2014, 3w. (EtOH), leg. S. Salata (SSC); Heraklion, Panastros (35.11667°N / 24.98333°E), 545 m, 3 V 2014, 5w. (EtOH), leg. S. Salata (SSC); Heraklion, Pigaidakia (34.98333°N / 24.85°E), 450 m, 1 VI 1999, 1w. (EtOH), leg. M. Papadimitrakis (SSC), 3 II 2000, 1w. (EtOH), leg. E. Nikolakakis (SSC); Heraklion, Rouvas Gorge (35.13333°N / 24.9°E), 455 m, 26 IV 2014, 2w. (EtOH), leg. S. Salata (SSC); Heraklion, Roza's Gorge (35.21667°N / 25.43333°E),

316 m, 3 IV 2014, 1g, 3w. (EtOH), leg. S. Salata (SSC); Heraklion, Skalavokambos (35.28333°N / 24.93333°E), 562 m, 15 IV 2014, 3w. (EtOH), leg. S. Salata (SSC); Heraklion, Stoli-Louves road (35.03333°N / 25.01667°E), 197 m, 3 V 2014, 3w. (EtOH), leg. S. Salata (SSC); Heraklion, Tilissos - Moni road (35.28333°N / 25°E), 261 m, 15 IV 2014, 1w. (EtOH), leg. S. Salata (SSC); Heraklion, Xanias-Miliarades road (35.08333°N / 25.38333°E), 504 m, 15 IV 2014, 3w. (EtOH), leg. S. Salata (SSC); Lasithi, above Kalimaki loc. 3 (35.11667°N / 25.43333°E), 1240 m, 22 IV 2014, 3w. (EtOH), leg. S. Salata (SSC); Lasithi, Adravasti-Karidi road (35.11667°N / 26.2°E), 498 m, 8 IV 2014, 5w. (EtOH), leg. S. Salata (SSC); Lasithi, Agia Fotia (35.18333°N / 26.16667°E), 21 m, 7 IV 2014, 5w. (EtOH), leg. S. Salata (SSC); Lasithi, Agia Fotia-Paleokastro rd. (35.2°N / 26.16667°E), 2 m, 7 IV 2014, 5w. (EtOH), leg. S. Salata (SSC); Lasithi, Cha Gorge (35.08333°N / 25.81667°E), 150 m, 1 II 2000, 4w. (EtOH), leg. E. Nikolakakis (SSC), 123 m, 5 IV 2014, 4w. (EtOH), leg. S. Salata (SSC); Lasithi, Chochlades Gorge (35.13333°N / 26.23333°E), 76 m, 8 IV 2014, 3w. (EtOH), leg. S. Salata (SSC); Lasithi, Dead's Gorge (35.08333°N / 26.25°E), 15 m, 9 IV 2014, 2w. (EtOH), leg. S. Salata (SSC); Lasithi, Exo Lakkonia (35.21667°N / 26.65°E), 156 m, 4 IV 2014, 3w. (EtOH), leg. S. Salata (SSC); Lasithi, Hametoulo (35.05°N / 26.18333°E), 520 m, 10 IV 2014, 4w. (EtOH), leg. S. Salata (SSC); lata (SSC); Lasithi, Kalamafka (36.06667°N / 26.65°E), 472 m, 12 IV 2014, 2w. (EtOH), leg. S. Salata (SSC); Kato Symi loc. 3 (35.05°N / 25.4833°E), 818 m, 12 IV 2014, 4w. (EtOH), leg. S. Salata (SSC); Lasithi, Krista Gorge (35.15°N / 25.63333°E), 243 m, 4 IV 2014, 5w. (EtOH), leg. S. Salata (SSC); Lasithi, Lasithi Plateau, Kato Metohi (35.16667°N / 25.41667°E), 810 m, 9 IV 2014, 1g., 12w. (EtOH), leg. S. Salata (SSC); Lasithi, Lasithi Plateau, Plati (35.16667°N / 25.43333°E), 831 m, 16 IV 2014, 4w. (EtOH), leg. S. Salata (SSC); Lasithi, Limnakarou plato (35.13333°N / 25.46667°E), 1130 m, 28 IV 2014, 2w. (EtOH), leg. S. Salata (SSC); Lasithi, Milatos (35.3°N / 25.58333°E), 170 m, 11 X 2000, 1w. (EtOH), leg. M. Chatzaki (SSC); Lasithi, Mohlos (35.16667°N / 25.9°E), 9 m, 6 IV 2014, 3w. (EtOH), leg. S. Salata (SSC); Lasithi, Moni Toplou Gorge (35.21667°N / 26.2°E), 151 m, 8 IV 2014, 3w. (EtOH), leg. S. Salata (SSC); Orino (35.06667°N / 25.9°E), 523 m, 10 IV 2014, 3w. (EtOH), leg. S. Salata (SSC); Lasithi, Pahia Ammos (35.1°N / 25.8°E), 0 m, 5 IV 2014, 2w. (EtOH), leg. S. Salata (SSC); Lasithi, Perma-Koutounari road (35.01667°N / 25.83333°E), 0 m, 11 IV 2014, 2w. (EtOH), leg. S. Salata (SSC); Lasithi, Platanos-Lastros road (35.15°N / 25.88333°E), 339 m, 5 IV 2014, 3w. (EtOH), leg. S. Salata (SSC); Lasithi, Roza's Gorge loc. 2 (35.21667°N / 25.45°E), 664 m, 1 IV 2014, 5w. (EtOH), leg. S. Salata (SSC); Lasithi, Selakano (35.08333°N / 25.55°E), 800 m, 23 VII 1999, 1w. (EtOH), leg. M. Papadimitrakis

(SSC); Lasithi, Sfaka-Tourloti road (35.15°N / 25.93333°E), 237 m, 7 IV 2014, 3w. (EtOH), leg. S. Salata (SSC); Rethymno, Aidonobori (35.31667°N / 24.91667°E), 528 m, 16 IV 2014, 2w. (EtOH), leg. S. Salata (SSC); Rethymno, Ampelakiou (35.35556°N / 24.67944°E), 464 m, 10 V 2013, 3w. (EtOH), leg. S. Salata (SSC); Rethymno, Episkopi beach (35.35°N / 24.35°E), 0 m, 30 IV 2014, 2w. (EtOH), leg. S. Salata (SSC); Rethymno, Fourfouras (35.21666°N / 24.21667°E), 578 m, 14 V 2013, 1w. (pin) leg. L. Borowiec (DBET) 3w. (EtOH) leg. S. Salata (SSC); Rethymno, Frati (35.2°N / 24.46666°E), 297 m, 7 V 2013, 1g, 1w, leg. L. Borowiec (DBET); Rethymno, Kallikratiano Gorge (35.2°N / 24.21667°E), 441 m, 8 V 2013, 1w. (EtOH), leg. S. Salata (SSC); Rethymno, Argiroupolis vic. (35.28333°N / 24.33333°E), 197 m, 13 V 2013, 1w. (EtOH), leg. S. Salata (SSC); Rethymno, Vilandredo vic. (35.25°N / 24.31667°E), 354 m, 13 V 2013, 5w. (EtOH), leg. S. Salata (SSC); Rethymno, Oros (35.28333°N / 24.5°E), 591 m, 10 V 2013, 2w. (pin), leg. L. Borowiec (DBET) 2w. (EtOH) leg. S. Salata (SSC); Rethymno, Orthes Gorge (35.33333°N / 24.68333°E), 318 m, 28 IV 2014, 3w. (EtOH), leg. S. Salata (SSC); Rethymno, Plakias (35.18333°N / 24.38333°E), 4 m, 5 V 2013, 2w. (EtOH), leg. S. Salata (SSC); Rethymno, Plakias - Akrotiri Kakomouri (35.16667°N / 24.4°E), 28 m, 5 V 2013, 5w. (EtOH), leg. S. Salata (SSC); Rethymno, Potamoi Darn n. Veleones (35.26666°N / 24.58333°E), 210 m, 11 V 2013, 3w. (EtOH), leg. S. Salata (SSC); Rethymno, Spili-Gerakari rd. loc. 1 (35.2°N / 24.55°E), 763 m, 9 V 2013, 1g, leg. L. Borowiec (DBET); Rethymno, Vistagi (35.23333°N / 24.68333°E), 563 m, 16 V 2013, 6w. (EtOH), leg. S. Salata (SSC); Rethymno, Saktouria (35.11667°N / 24.61667°E), 450 m, 1 IX 1999, 2w. (EtOH), leg. E. Nikolakakis (SSC); **Dodecanese:** Karpathos, Agios Loukas (35.6008°N / 27.15275°E), 250 m, 18 V 2014, 1w, leg. S. Salata (DBET); Karpathos, Agnondia (35.59422°N / 27.16741°E), 165 m, 18 V 2014, 1w. (EtOH), leg. S. Salata (DBET); Karpathos, Avlona (35.78039°N / 27.17842°E), 285 m, 19 V 2014, 1w, leg. S. Salata (DBET); Karpathos, Karpathos city (35.50667°N / 27.21631°E), 26 m, 24 V 2014, 2w, leg. S. Salata (DBET); Karpathos, Katodhi (35.57519°N / 27.18209°E), 205 m, 18 V 2014, 2w. (EtOH), leg. S. Salata (DBET); Karpathos, Lastos (35.57795°N / 27.1444°E), 724 m, 18 V 2014, 2w. (EtOH), leg. S. Salata (DBET); Karpathos, Olympos (35.72448°N / 27.16972°E), 429 m, 19 V 2014, 1w, leg. S. Salata (DBET); Karpathos, Panaghia (35.69998°N / 27.16666°E), 302 m, 20 V 2014, 2w. (EtOH), leg. S. Salata (DBET); Kos, Aspri Petra (36.71857°N / 26.9741°E), 236 m, 6 VII 2015, 15w. (EtOH), leg. S. Salata (SSC); Kos, Kardamena city (36.78363°N / 27.14107°E), 7 m, 9 VII 2015, 3w. (pin) 28w. (EtOH), leg. S. Salata (SSC); Kos, Paleo Pili (36.8357°N / 27.19018°E), 78 m, 7 VII 2015, 7w. (EtOH), leg. S. Salata (SSC); Kos, Pili (36.84185°N / 27.1557°E), 78 m, 7 VII 2015, 1w. (EtOH),

leg. S. Salata (SSC); Dodecanese, Kos, Zia (36.84555°N / 27.20493°E), 328 m, 7 VII 2015, 3w, leg. S. Salata (DBET); Rhodes, Faliraki (36.337°N / 28.204°E), 7 m, 21 VI 2015, 2w, leg. W. Żyła (USMB); Rhodes, Faliraki vic. (36.334°N / 28.205°E), 6 m, 21 VI 2015, 4w, leg. W. Żyła (USMB); **East Aegean Islands:** Lesbos, Anaxos Skoutarou (39.31839°N / 26.14776°E), 4-28 m, 7 VI 2015, 1w. (pin) 16w. (EtOH), leg. L. Borowiec (DBET); Lesbos, Antissa vic. (39.23841°N / 25.99782°E), 74 m, 8 VI 2015, 3w. (EtOH), leg. L. Borowiec (DBET); Lesbos, Argennos (39.35494°N / 26.2661°E), 548 m, 12 VI 2015, 4w. (EtOH), leg. L. Borowiec (DBET); Lesbos, Ipsilometopo (39.32012°N / 26.24461°E), 485 m, 11 VI 2015, 10w. (EtOH), leg. L. Borowiec (DBET); Lesbos, Ligona Valley (39.32012°N / 26.21009°E), 229 m, 11 VI 2015, 3w. (EtOH), leg. L. Borowiec (DBET); Lesbos, Mt. Olympos (39.06958°N / 26.34976°E), 814 m, 10 VI 2015, 1g, 1w. (pin) 120w. (EtOH), leg. L. Borowiec (DBET); Lesbos, 3.4 km NE of Skalochori (39.27923°N / 26.10926°E), 292 m, 9 VI 2015, 2w. (EtOH), leg. L. Borowiec (DBET); Lesbos, rd. Sykaminia-Vigla (39.35468°N / 26.30483°E), 395 m, 12 VI 2015, 17w. (EtOH), leg. L. Borowiec (DBET); Samos, 1.7 km S of Agios Konstantinos (37.79064°N / 26.83246°E), 285 m, 5 VI 2017, 1w. (pin) 19w. (EtOH), leg. L. Borowiec (DBET); Samos, Mili (37.67975°N / 26.86006°E), 40 m, 3 VI 2017, 1w. (EtOH), leg. L. Borowiec (DBET); Samos, 850 m W of Mili (37.6814°N / 26.83246°E), 155 m, 3 VI 2017, 1w. (EtOH), leg. L. Borowiec (DBET); Samos, Pandroso (37.73165°N / 26.82803°E), 670 m, 8 VI 2017, 8w. (EtOH), leg. L. Borowiec (DBET); **Macedonia:** Halkidiki, Kassandra, Cap Paliouri (39.91666°N / 23.7°E), 38 m, 29 VIII 2009, 2g, 1w, leg. L. Borowiec (DBET); Halkidiki, Kassandra, Kassandrino-Polihrono rd. (40°N / 23.43333°E), 100 m, 29 VIII 2009, 1w. (EtOH), leg. L. Borowiec (DBET); Pieria, Olympus Mts., Petra vic. (40.17741°N / 22.32991°E), 584 m, 7 IX 2012, 23w. (EtOH), leg. L. Borowiec (DBET); **Thessaly:** Larissa, Ossa Mts., Evaggelismos-Elatia rd. (39.81762°N / 22.53357°E), 189 m, 6 IX 2012, 1w, leg. L. Borowiec (DBET); Larissa, Ossa Mts., Omoli-Stomio rd. loc. 1 (39.88933°N / 22.66243°E), 27 m, 8 IX 2012, 1w, leg. L. Borowiec (DBET); **Thrace:** Rodopi, Drymi (41.21394°N / 25.5734°E), 189 m, 2 IX 2015, 1m, leg. L. Borowiec (DBET).

Comments. Described from Greece and western Turkey. In Greece, prefers lowlands and highland habitats up to 820 m a.s.l. Nests were observed in various open habitats like pastures, stone hills, roadsides, sides of oak forests, olive plantations, ruderal areas in tourist resorts but also in limestone gorges or stream valleys with open deciduous forests.

Messor ponticus Steiner et al., 2018

Messor ponticus Steiner, Csősz, Markó, Gamisch, Rinnhofer, Folterbauer, Hammerer, Stauffer, Arthofer & Schlick-Steiner, 2018: 399.

Messor muticus (Nylander, 1849): Borowiec and Salata, 2012: 514 (part).

Messor orientalis (Emery, 1898): Borowiec and Salata, 2012: 515 (part).

Revised material. Macedonia: Halkidiki, Kassandra, Fourka-Kassandrino rd. (40.01666°N / 23.41666°E), 69 m, 29 VIII 2009, 1w, leg. L. Borowiec (DBET); Halkidiki, Kassandra, Livadakia (39.96666°N / 23.55°E), 6 m, 26 VIII 2009, 2w, leg. L. Borowiec (DBET); Halkidiki, Kassandra, Siviri (40.03333°N / 23.35°E), 6 m, 25 VIII 2009, 3w, leg. L. Borowiec (DBET); Halkidiki, Kassandra, Metangisi-Ag. Nikolaos rd. (40.28333°N / 23.66666°E), 120 m, 27 VIII 2009, 1w, leg. L. Borowiec (DBET); Halkidiki, 14 km E of Thessaloniki (40.65°N / 23.11666°E), 230 m, 7 IV 2010, 5w, leg. J. Kalisiak (DBET); Halkidiki, Sithona, Parthenonas (40.1195°N / 23.81297°E), 305 m, 2 IX 2009, 1w, leg. L. Borowiec (DBET); Pieria, Olympus Mts., Litochoro-Faragi Enipeas (40.49286°N / 22.66666°E), 322 m, 31 VIII 2012, 2w, leg. L. Borowiec (DBET).

Comments. In Greece, *Messor ponticus* is lowland species, nests were observed in pine forests, roadsides in pine forests, pastures, open ruderal habitats inside villages.

Messor structor (Latreille, 1798)

Formica structor Latreille, 1798: 46.

Messor cf. clivorum: Borowiec and Salata, 2018a: 7.

Revised material. Epirus: Arta, Giannioti (39.14318°N / 21.27782°E), 945 m, 5 IX 2016, 4w, 3m (pin) 5w, 5m (EtOH), leg. L. Borowiec (DBET); Arta, 1.5 km SE Karpino (39.20065°N / 21.26353°E), 950 m, 5 IX 2016, 4w. (EtOH), leg. L. Borowiec (DBET); Arta, 2 km S of Skoulikaria (39.158°N / 21.27393°E), 890 m, 5 IX 2016, 2w. (EtOH), leg. L. Borowiec (DBET); **Peloponnese:** Messinia, Taygetos Mts., 0.6 km E of Ag. Triada (37.07255°N / 22.22412°E), 600 m, 17 VI 2016, 1w, leg. L. Borowiec (DBET); Messinia, Taygetos Mts., 0.6 km W of Artemisia (37.09877°N / 22.22287°E), 660 m, 15 VI 2016, 1w, leg. L. Borowiec (DBET); Messinia, Taygetos Mts., 0.8 km SE of Exochori (36.89582°N / 22.27464°E), 535 m, 20 VI 2016, 4w, leg. L. Borowiec (DBET); Messinia, Taygetos Mts., rd. Kalamati-Sparta loc. 1 (37.07153°N / 22.25717°E), 1270 m, 21 VI 2016, 1w, leg. L. Borowiec (DBET); **Stereia Ellas:** Eubea, 3.6 km SW of Glifada (38.64283°N / 23.80736°E), 980 m, 12 VI 2018, 1w. (pin) 3w. (EtOH), leg. L. Borowiec (DBET); Eubea, 3.7 km SW of Metochi (38.5964°N / 23.92527°E), 1145 m, 9 VI 2018, 5w. (pin) 3w. (EtOH), leg. L. Borowiec (DBET); Eubea, 3.3 km NE of Steni (38.60557°N / 23.86239°E), 1075 m, 10 VI 2018, 5w. (pin) 1w. (EtOH), leg. L. Borowiec (DBET); Eubea, 2.4 km SW of Stropones (38.60327°N / 23.87°E), 1025 m, 10 VI 2018, 1w. (EtOH), leg. L. Borowiec (DBET); **Thessaly:** Larissa, Kato Olimbos Mts., Kalipefki (39.97208°N / 22.47133°E), 1070 m, 8 V 2017, 5w. (pin) 5w. (EtOH), leg. L. Borowiec (DBET); Larissa, Mt. Olympus, 2.8 km W of EOCHO ski

center (40.0255°N / 22.30421°E), 1340 m, 9 V 2017, 1w, leg. L. Borowiec (DBET).

Comments. In Greece, *Messor structor* appears to be mountain species, it was collected in mountain habitats between 535 and 1340 m a.s.l., mostly pastures, often close to coniferous forests, only one locality was in shadow mountain valley, on roadsides close to deciduous forest.

Messor varrialei Emery, 1921

Messor barbarus var. *varrialei* Emery, 1921b: 215.

Messor structor var. *aegeus* Santschi, 1926: 286 (= *Messor barbarus* ssp. *structor* var. *aegea* Emery, 1921b: 213, unavailable name); Schlick et al., 2018: supplementary material p. 7, as synonym of *Messor varrialei*, Emery, 1921.

Messor muticus (Nylander, 1849): Borowiec and Salata, 2012: 514 (part).

Messor orientalis (Emery, 1898): Borowiec and Salata, 2012: 515 (part).

Revised material. Dodecanese: Rhodes, Epta Piges (36.25459°N / 28.11378°E), 100 m, 4 V 2015, 1w, leg. L. Borowiec (DBET); Rhodes, Kiotari (36.03333°N / 27.93333°E), 3 m, 11 VII 2008, 7w, leg. L. Borowiec (DBET); Rhodes, Kolymbia, Tsambika Hill (36.23902°N / 28.15942°E), 157 m, 3 V 2015, 4w, leg. L. Borowiec (DBET).

Comments. Species known only from the western Turkey and Dodecanese islands (Karpathos and Rhodes) in Greece. Lowland species, nests were observed in clay wastelands, ruderal places inside tourist resorts and pastures.

4. Discussion

In the first Greek checklist Legakis (2011) listed 16 *Messor* species but presence of some of those taxa was questioned in further publications (Borowiec and Salata, 2013). Finally, Borowiec (2014) estimated that the number of *Messor* taxa known from Greece is 13 species – *M. alexandri* Tohmé & Tohmé, 1981, *M. antennatus* Emery, 1908 (with doubts), *M. caducus* (Motschoulsky, 1839), *M. capitatus* (Latreille, 1798), *M. denticulatus* Santschi, 1927, *M. hellenius* Agosti & Collingwood, 1987, *M. intermedius* Santschi, 1927 (as doubtful data), *M. meridionalis* (André, 1883), *M. muticus* (Nylander, 1849), *M. oertzeni* Forel, 1910, *M. orientalis* (Emery, 1898), *M. structor* (Latreille, 1798), and *M. wasmanni* Krausse, 1910. Among these, after recent studies, presence of only 4 species is certain: *M. hellenius*, *M. oertzeni*, *M. structor*, and *M. wasmanni*.

Records of *M. alexandri* and *M. denticulatus* refer to *M. carpathous*, and record of *M. caducus* should be assigned to *M. creticus* (Collingwood, 1993; Borowiec and Salata, 2012; Borowiec, 2014). *Messor capitatus* is a west-Mediterranean species and its Greek records probably concern *M. hellenius*. As stated by Borowiec and Salata (2012) record of *M. antennatus* Emery, 1908 refers to

Messor antennatus fodorii Röszler, 1942, described from Chios Island. Location of types of *M. antennatus fodorii* is unknown, thus they are probably lost. Based on the description it is difficult to place this taxon in any defined group and we treated this name as incertae sedis.

Notes referring to *M. muticus* and *M. orientalis* belong probably to large species of the *M. structor* group. *Messor orientalis* (Emery, 1898) was described from Mersin in the southeastern Turkey. Based on type specimens, it is a member of the *M. structor* group. Unfortunately, it was not included in the most recent revision of this group (Steiner et al., 2018). Morphologically it appears to be very similar to *M. mcarthuri* and probably represent closely related species of more eastern distribution. *Messor muticus*, according to Steiner et al. (2018), is distributed in the area north of Black Sea and in Central Asia. In consequence, its records from Greece should refer to another large species of the *M. structor* group.

Messor concolor, *M. intermedius*, and *M. meridionalis* (André, 1883) are members of the *M. semirufus* species-group. Due to the frequently overlapping characters, high morphological variability and lack of sufficiently reliable diagnostic traits on most of members of this group, their proposed delimitation is difficult. Only *M. concolor* can be easily distinguished based on matt gaster surface. *Messor intermedius* was described from Syria and further recorded from Rhodes Island by Santschi (1934). Its occurrence in Greece is doubtful, although recently an unidentified species of this group was collected in Epirus (Borowiec and Salata, 2018a), Peloponnese (Borowiec and Salata, 2017b), Thrace (Bračko et al., 2016) and Ionian Islands (unpublished data). However, Greek populations distinctly differ from types of *M. intermedius* and at first glance are more similar to *M. ebeninus* Santschi, 1927, another species of the *M. semirufus* group widely distributed in the Near East. Until revision of all taxa of the *M. semirufus* group status of Greek populations remain unclear. Status of *M. meridionalis* is also uncertain. It was described from Albania, Algeria, Greece, Tunisia, and Turkey and with great probability type series contained more than one species. Unfortunately, its type specimens are considered to be lost and until designation of neotype this taxon should be also treated as incertae sedis. Thus, in our opinion, most of Greek records of members of the *M. semirufus* group concern *M. wasmanni*.

Hence, we suggest to consider the following 11 taxa as present in Greece (abbreviations to Greek regions in the sense of Legakis (2011)): AEG – East Aegean Islands, CRE – Crete, CYC – Cyclades, DOD – Dodecanese, EPI – Epirus, ION – Ionian Islands, MAC – Macedonia, PEL – Peloponnese, STE – Sterea Ellas, THE – Thessaly, THR – Thrace):

1. *Messor creticus* sp. nov. – CRE
2. *Messor carpathicus* Menozzi, 1936 – DOD
3. *Messor concolor* Santschi, 1927 – CRE
4. *Messor hellenius* Agosti & Collingwood, 1987 – AEG, CRE, CYC, DOD, EPI, MAC, PEL, STE, THE, THR
5. *Messor ibericus* Santschi, 1931 – CRE, DOD, ION, MAC, PEL, THE
6. *Messor mcarthuri* Schlick et al., 2018 – CRE, DOD, AEG, MAC, THE, THR
7. *Messor oertzeni* Forel, 1910 – AEG, MAC, THR
8. *Messor ponticus* Schlick et al., 2018 – MAC
9. *Messor cf. semirufus* sp. 1 – DOD, EPI, ION, THR
10. *Messor structor* (Latreille, 1798) – EPI, PEL, STE, THE
11. *Messor wasmanni* Krausse, 1910 – AEG, CRE, CYC, DOD, EPI, ION, MAC, PEL, STE, THE, THR

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