
**MONOMORIUM ELLENARIUM, A NEW INQUILINOUS ANT
SPECIES (HYMENOPTERA: FORMICIDAE) OF THE
MONOMORIUM MONOMORIUM GROUP FROM
AZERBAIJAN REPUBLIC**

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ABSTRACT: In this publication, a new ant species, *Monomorium ellenarium* sp. nov., is described based on material collected from several colonies, all found in a steppe near a beach between the areas of Shuvelyan and Dubendi settlements (Absheron Peninsula). This species, placed in the *Monomorium monomorium* species group, makes one of many much-needed contributions to the understudied myrmecophauna of Azerbaijan. The species also appears to be an inquiline of *Cataglyphis nodus* (Brullé, 1833).

KEY WORDS: Ants, Azerbaijan Republic, Formicidae, inquiline, *Monomorium*, new species

The ant genus *Monomorium*, described by Mayr (1855), consists of over 300 species and subspecies (Bolton, 1995; Bolton et al., 2007) found in all zoogeographic regions. The only species of this genus previously recorded in Azerbaijan is *Monomorium ruzskyi* Dlussky & Zabelin, 1985 (Bračko, 2019). The relatively high diversity of surrounding countries in species of this genus strongly suggests it has gone understudied in Azerbaijan. New species are likely to be found over time as research in this country continues.

Members of the genus *Monomorium* can be distinguished by the following characters: monomorphic to polymorphic; antennae 10–12 segmented (most frequently 12), usually with a conspicuous 3-segmented club; mandibles with 3–5 teeth, median clypeal seta conspicuous; median portion of clypeus raised, the raised section longitudinally bicarinate; the carinae usually distinct; metanotal groove present, commonly impressed; propodeal dorsum usually unarmed and rounding into the declivity; propodeal spiracle usually circular, located at about the midlength of the sclerite (Bolton, 1987).

The *Monomorium monomorium* group (Bolton, 1987) can be distinguished by the following characters: Monomorphic; mandibles unsculptured; the masticatory margin usually with 4 teeth; palp formula predominantly 2,2; cephalic dorsum unsculptured and glossy smooth except for scattered hairpits; eyes always present, size small to large (0.15–0.38×HW), with 4 or more ommatidia in the longest row; head always longer than broad (CI 72–89); metanotal groove moderately to strongly impressed, with distinct crossribs; propodeal dorsum

rounding into declivity, not angulate or dentate; petiole, postpetiole and gaster usually unsculptured (Sharaf & Aldawood, 2011).

Below is presented a description of a new species of the genus *Monomorium*, *M. ellenarium* from Azerbaijan based on the worker caste.

MATERIALS AND METHODS

Material was collected by hand and using an aspirator, stored in standard small alcohol vials. Biology of species was observed in the field over a total of over six hours to confirm the species' inquilinous nature and the lack of aggression from other ants.

Images taken using Nikon D3100 DSLR camera paired with an 18-55mm kit lens mounted on a reverse lens mount, and the scanning electron microscope JEOL JCM-6000, were used to record morphological details of the new species.

All measurements are in millimeters and follow the standard measurements (Bolton, 1987).

TL Total Length; the outstretched length of the ant from the mandibular apex to the gastral apex.

HW Head Width; the maximum width of the head behind eyes in full-face view.

HL Head Length; the maximum length of the head, excluding the mandibles.

CI Cephalic Index ($HW \times 100/HL$).

SL Scape Length, excluding basal neck.

SI Scape Index ($SL \times 100/HW$).

EL Eye Length; the maximum diameter of the eye.

ML Mesosoma Length; the length of the mesosoma in lateral view, from the point at which the pronotum meets the cervical shield to the posterior base of the propodeal lobes or teeth.

PRW Pronotal width, maximum width in dorsal view.

PL Petiole Length; the maximum length measured in dorsal view, from the anterior margin to the posterior margin.

PW Petiole Width; maximum width measured in dorsal view.

PPL Postpetiole Length; maximum length measured in dorsal view.

PPW Postpetiole Width; maximum width measured in dorsal view.

RESULTS

Holotype worker. TL 2.98, HL 0.56, HW 0.60, SL 0.55, ML 0.77, EL 0.17, PRW 0.32, PL 0.19, PW 0.17, PPL 0.14, PPW 0.18, SI 92, CI 107.

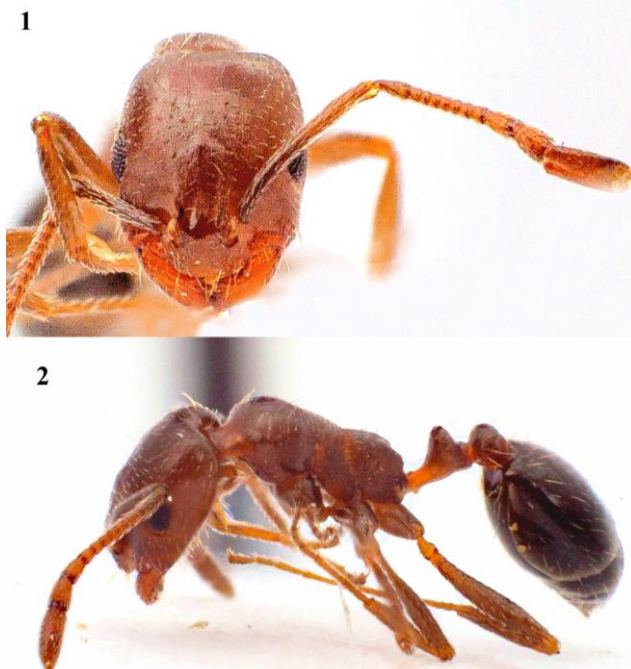
Paratypes. TL 2.32-2.98, HL 0.56-0.65, HW 0.48-0.63, SL 0.40-0.58, ML 0.74-0.94, EL 0.15-0.20 PRW 0.32-0.42, PL 0.17-0.29, PW 0.14-0.20, PPL 0.14-0.19, PPW 0.16-0.20, SI 83-92, CI 85-107. (N=7)

Holotype worker. Azerbaijan, Absheron, 40.46541, 50.24801 6.VII.2021 (C. Shigayev); Baku Institute of Zoology, National Academy of Science of Azerbaijan.

Paratypes 14 workers, same locality and data as holotype; Deposited same as holotype.

Worker (Figs. 1-2). Head distinctly longer than broad, with weakly convex sides and feebly concave posterior margin. Underside of head with many short hairs, but not forming a psammophore. Head in profile with a weakly convex

dorsal surface and weakly convex ventral surface. Clypeal carinae sharply developed and elevated, divergent anteriorly and forming short, low triangular projecting angles at the anterior margin. Median portion of anterior clypeal margin noticeably convex. Eyes oval and moderately large in size with 9 ommatidia in the longest row. With head in profile, eyes consist of rings of ommatidia encircling a single centermost ommatidium. In lateral view, the maximum diameter of the eyes barely equal to the distance between the anteriormost point of the eyes and the nearest point of the mandibular articulation. Frontal lobes farther apart. Antennal scapes, when laid straight back, barely reach posterior margin. Mesosoma in profile with a flat promesonotal dorsum, sloping posteriorly to a developed metanotal groove. Metanotal crossribs moderately long and distinct. Propodeal spiracles small and round. First third of propodeal dorsum relatively straight, with second third sloping evenly and third sloping most strongly. Petiole node low and narrowly rounded above. Petiole peduncle moderately long and stout with small ventral process. Postpetiole node lower and more rounded than petiole. Petiole and postpetiole each with three to four pairs of long backward-directed erect hairs placed dorsally, with more small pairs placed laterally on the petiole and one-two long pairs placed laterally on the postpetiole. Body pilosity moderate, long across entire body, slightly shorter on pronotum. Anterior pronotal margin with one pair of longer hairs, middle part of pronotum with many short pairs, promesonotum with few short pairs. Dorsum and declivity of propodeum with few short hairs. Overall reddish brown to dark red. Legs, antennae, mandibles orange, gaster distinctly darker. Gaster smooth and shining, body rougher, more matte.

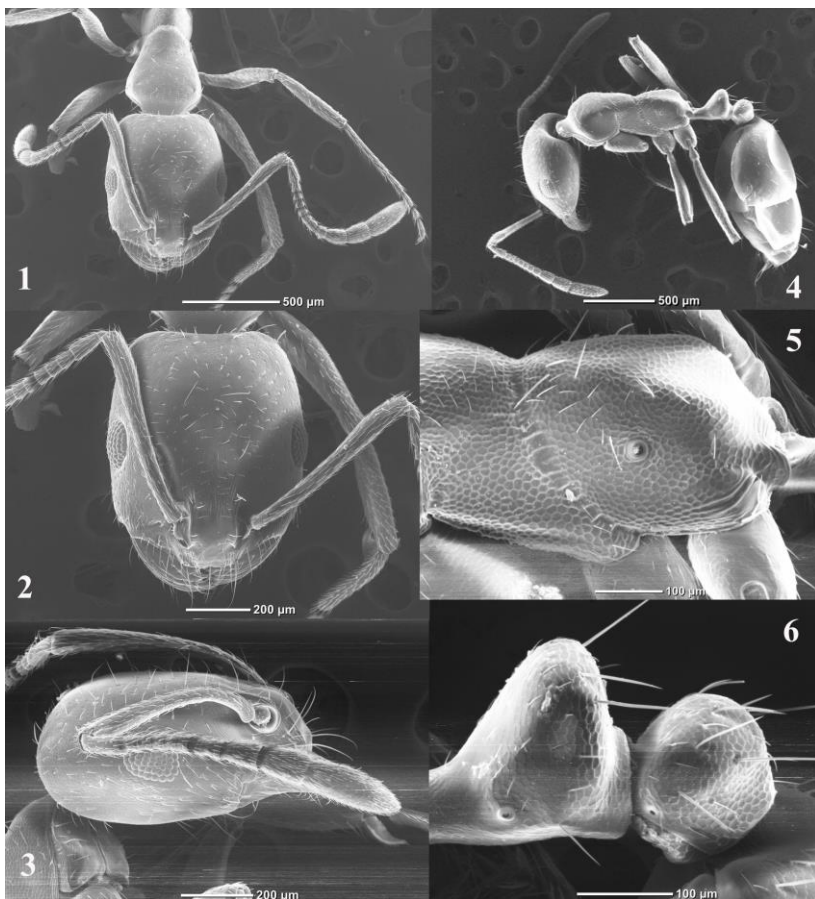


Figures 1-2. *Monomorium ellenarium* sp. nov. paratype worker: 1- head in full-face view, 2- body in profile.

Etymology. The species name "ellenarium" is derived from the female name of Greek origin, meaning "torch" or "light".

DISCUSSION

This new species, member of the *Monomorium monomorium* group, only bears some resemblance to *Monomorium ruzskyi* Dlussky et Zabelin 1985, described from Kazakhstan and also found in Azerbaijan. *Monomorium ellenarium* may be easily distinguished from *M. ruzskyi* by the following: Metanotal crossribs more distinct in *M. ellenarium*, feebly defined in *M. ruzskyi*; Posterior margin of head posessing several long hairs in *M. ellenarium*; Anterior pronotal margin with pair of longer hairs, pronotum with many shorter hairs; Propodeal lobes more distinctly developed; Gaster fully covered with long semi-erect to erect hairs; Overall body coloration much darker in *M. ellenarium* than *M. ruzskyi*.



Figures 2. *Monomorium ellenarium* sp. nov. paratype worker (SEM): 1-2- head in full-face view, 3- head in profile, 4- body in profile, 5- propodeal spiracle, 6- petiole and postpetiole.

BIOLOGY OF *MONOMORIUM ELLENARIUM* SP. NOV.

The type locality is a wild arid steppe located near a sandy beach between the areas of Shuvelyan and Dubendi (Fig. 3). *Monomorium ellenarium* was collected from several locations within the area including near the shore within litter around nests of *Cataglyphis nodus* (Brullé, 1833) and *Messor laboriosus* Santschi, 1927 and from a nest within a pile of dry grass directly near the entrance to a large *M. laboriosus* nest. Most curiously, workers were sighted entering and exiting nests of *C. nodus*, with the much larger, aggressively territorial *Cataglyphis* ants showing no aggression. When the upper chambers of a *Cataglyphis* nest were excavated, groups of *Monomorium ellenarium* workers were also sighted evacuating from food chambers, along with the larger *Cataglyphis*. This strongly suggests *M. ellenarium* may cohabitate with *Cataglyphis nodus* as inquilines, perhaps feeding on food scraps or even consuming the brood of their hosts. A nest was collected in dry grass, however due to its immediate vicinity of a *M. laboriosus* colony, we are unable to confidently say whether the species can live independently, or prefers to act as inquilines of the larger ants. Observation of the dry grass nest within captivity over approximately 3 months (contained within a 16x150mm test tube, half-full of water blocked off with cotton, fed raw honey and 1:4 sugar-to-water mix) has currently shown that, despite no individual within the colony showing typical dealate gyne traits, new brood is reared, which suggests the presence of one or several ergatoid gynes. Scarcity of surface plants and lack of sugar-producing mutualistic insects on the surface and stems of plants suggests *M. ellenarium* may tend to root aphids underground.



Figures 3. *Monomorium ellenarium* sp. nov. type locality, steppe in Khazar district, Dubendi settlement, Baku, Azerbaijan.

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LITERATURE CITED

- Bolton, B.** 1987. A review of the *Solenopsis* genus group and revision of Afrotropical *Monomorium*. Bulletin of the British Museum (Natural History) Entomology, 54: 263-452.
- Bolton, B.** 1995. A new general catalogue of the ants of the World. Harvard University Press, Cambridge, Massachusetts, 504 pp.
- Bolton, B. Alpert, G., Ward, P. S. & Naskrecki, P.** 2007. Bolton's Catalogue of the Ants of the World: 1758–2005. Compact Disc Edition, Harvard University Press.
- Bračko, G.** 2019. New data on the ant fauna (Hymenoptera: Formicidae) of Azerbaijan. Caucasian Entomological Bulletin, 15: 165-175.
- Sharaf, M. R. & Aldawood, A. S.** 2011. *Monomorium dryhimi* sp. n., a new ant species (Hymenoptera, Formicidae) of the *M. monomorium* group from Saudi Arabia, with a revised key to the Arabian species of the group. ZooKeys, 106: 47-54.