

First record of *Euzetes globulus* (NICOLET, 1855) from  
Neotropical region  
(Acarı: Oribatida)

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**ABSTRACT.** In this work, we present the first record of representatives of the oribatid genus *Euzetes* outside Palearctic Region. Additional information of *Euzetes globulus* (NICOLET, 1855) is given. The classification and distribution of the genus *Euzetes* are discussed.

Key words: acarology, taxonomy, Oribatida, new record, *Euzetes globulus*, Neotropical region.

#### INTRODUCTION

The genus *Euzetes* was described by BERLESE (1908), with *Oribates globulus* NICOLET as type species. *Euzetes globulus* (= *E. globula* of some authors) is a large species, inhabiting forest floor. It usually appears in small numbers of individuals but can sometimes be very abundant (PÉREZ-IÑIGO 1993).

Several *Euzetes* species, described initially with specific epithet other than *globulus*, were later synonymized to *globulus* or transferred to other genera. SUBÍAS (2004, updated to 2010) considers two *species inquirenda* and two valid species: *E. globulus* (NICOLET) and *E. centroamericanus* (STOLL). The latter was described by Stoll (1893) as *Oribata centro-americana* and transferred to *Euzetes* by WILLMANN (1930), but this action is not justified and, in our opinion, is debatable (see below). With the current knowledge available, we propose *Euzetes* as a monospecific genus, with *E. globulus* as its unique species.

At present, *E. globulus* has been recorded in almost all European regions, from Spain (PÉREZ-IÑIGO 1993) to Latvia (BARANOVSKA 2007) among others, whereas any record has been mentioned from Nearctic and Neotropical regions up to now.

In 2006, during a study of soil coleopterans in central Argentina, biologist Liliana Tudesco observed collector liquid in some pitfall traps carpeted by a film of mites. These mites were identified as *E. globulus*. This finding was really unusual, because of the high density of mites and their absence in nearby areas. This region (mid-east of Buenos Aires Province) had been sampled for twenty years, but *E. globulus* had never been recorded before. Sampling site is a forest of *Populus nigra*, located at 38° 08'54.89" S, 58°14'13.62" W at the edge of "Chocorí" stream, in Mechongué city, Buenos Aires, Argentina.

The aims of this work are: to record the genus *Euzetes* for the first time from Neotropical Region; to enhance the knowledge on *E. globulus* morphology, and its taxonomic position; to make some considerations about its distribution including the Neotropical Region.

Specimens were separated with stereoscopic microscope Leica MZ6. They were mounted in open slides with lactic acid 1:1 and examined in a light microscope Zeiss Primo Star. Despite the high abundance of specimens, only a few immatures were obtained. We selected five adult specimens to analyze with electronic microscopy. They were sputter-coated with gold (100 Å thick) during 1min and observed with a scanning microscope JEOL-JSM 6460.

## EUZETIDAE GRANDJEAN, 1954

### *Euzetes* BERLESE, 1908

Type species: *Euzetes globulus* (NICOLET 1855).

#### *Euzetes globulus* (NICOLET 1855)

*Oribata globula* NICOLET 1855;  
*Oribates globulus* BERLESE 1887;  
*Notaspis globulus* OUDEMANS 1900;  
*Euzetes aterrimus* SELLNICK 1928;  
*Oribata globula* SCHWEIZER 1922.

Our specimens were compared with descriptions by BAYARTOGTOKH et al. (2002) and with the short diagnosis provided by GHILAROV & KRIVOLUCKIJ (1975) and PÉREZ-IÑIGO (1993).

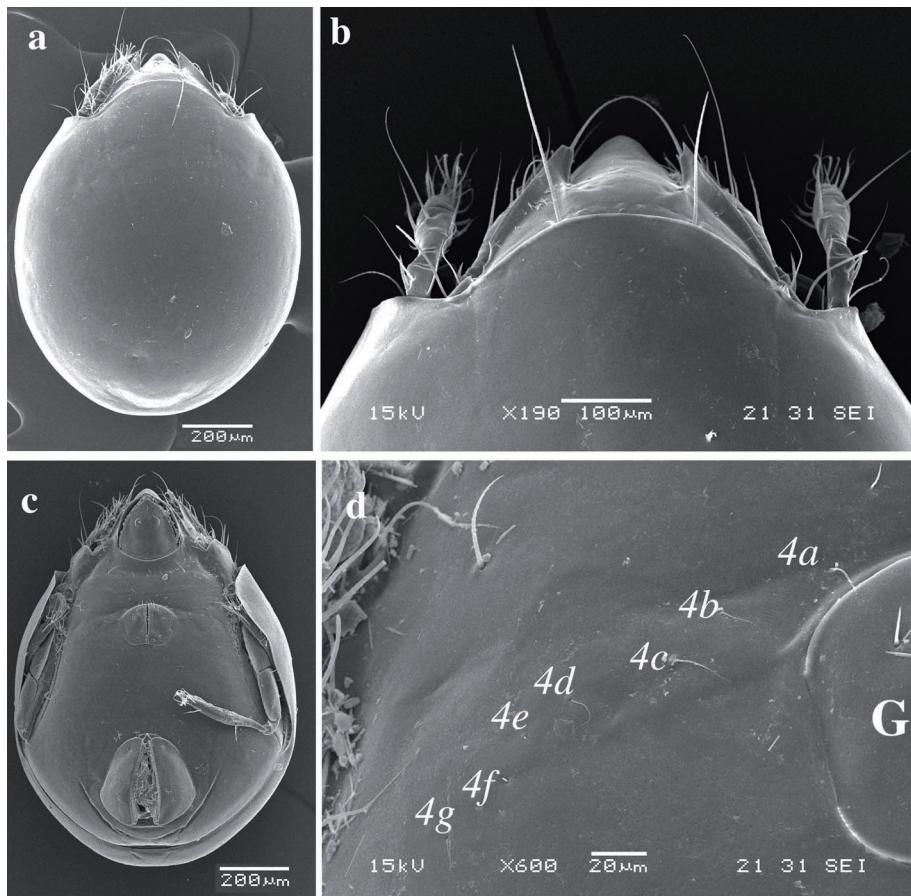
Five males and five females were measured and 5 were used to SEM (Fig. 1a-d).

Females mean size: length= 1150µm, width= 900µm; males mean size: length= 1075µm, width= 825µm. Neither of the previous works presented size discriminated by sex and, in several cases, only length was recorded. Taking into account the range of measurement, the size of the specimens found is in agreement with data by GHILAROV

& KRIVOLUCKIJ (1975) ( $L = 1075\text{-}1161\mu\text{m}$ ) and PÉREZ-ÍÑIGO (1993) ( $L = 1080\text{-}1140\mu\text{m}$ ,  $W = 880\text{-}950\mu\text{m}$ ). Comparison with BAYARTOGTOKH et al. (2002) cannot be possible, due to the absence of those values.

In dorsal view, near sejugal suture, an oval-shaped photoreceptor area can be observed. This area was previously noted by SHALDYBINA (1973). In ventral view, the size and arrangement of setae on epimere IV found in our specimens is slightly different from that provided by BAYARTOGTOKH et al. (2002): all setae are smaller and smooth and they are arranged in a single row (Fig. 1e), whereas in BAYARTOGTOKH et al. specimen, they appear disposed in two rows (2002, Fig. 58). All ventral setae have a particular comma-shaped root, not signaled previously.

Family Euzetidae was proposed by GRANDJEAN in 1954 to include the genus *Euzetes* BERLESE, 1908. In his diagnosis, he emphasized the presence, only in immatures



1. SEM of adults of *Euzetes globulus*; **a** Dorsal view; **b** Detail of prodorsum in dorsal view; **c** Ventral view; **d** Detail of epimeric IV setae disposition; **4a-4g**: setae of epimere IV, **G**: genital plate

of this family, of two prodorsal “*niches*” around the bothridia. In addition, he remarks: “*L'adulte ressemble à un Ceratozetidé tandis que les nymphes et la larve ressemblent à celles d'un Galumnidé*”.

Subsequently, GHILAROV & KRIVOLUCKIJ (1975) included the family Euzetidae in the superfamily Ceratozetoidea. They provided a short diagnosis of genus stressing its large size, dark colour, lamellae with well developed cusps, tutorium, immovable pteromorphae and absence of translamella and notogastral setae. They also denoted the similitude of this species with galumnid genera. PÉREZ-IÑIGO (1993) and BAYARTOGTOKH et al. (2002) follow this classification, whereas SUBÍAS (2004, updated 2010) includes *Euzetes* in Family Ceratozetidae.

Genus *Euzetes*, proposed by BERLESE (1908), currently includes *E. aterrimus* (Koch, 1844), *E. centroamericanus* (STOLL, 1893), *E. globulus* (NICOLET, 1855) and *E. seminulum* (MÜLLER, 1776) (SUBÍAS 2004, updated 2010), but at present the position of these species is under discussion. First, *E. centroamericanus* (STOLL), transferred to this genus by WILLMANN in 1930, has several diagnostic characteristics such as short bristles at anterior margin of the lamellae, absence of dorsosejugal suture and inconspicuous interlamellar setae (STOLL 1893), which have not been found in those cogeneric species; unfortunately, there are no redescriptions of *E. centroamericanus*. Second, original description of *E. seminulum*: “*subsphaericus, nitidissimus, fuscus*” (MÜLLER 1776) is not specific and too ambiguous for unequivocal placement in *Euzetes*; finally, *E. aterrimus* and *E. seminulum* are considered *species inquirenda* (SUBÍAS 2004, updated 2010), synonymous of *globulus* (SELLNICK 1922 for *aterrimus*, SELLNICK 1928 and MAHUNKA & MAHUNKA-PAPP 2000 for *seminulum*) or even good species (RYABININ & PANKOV 2002 for *seminulum*).

Before this study, *Euzetes* was recorded from Palearctic (several authors) and Nearctic (MARSHALL et al. 1987); the later was originally identified by BEHAN (1972) and BEHAN et al. (1978) as *Euzetes* sp. from Canada (cited in MARSHALL et al. 1987), in studies of ecology of mites and other arthropods.

Therefore, our finding means the first record of *Euzetes* genus from Neotropical region.

Finally, open questions emerge about the origin of these high-density populations in a specific site like this place in the South of Neotropics. One possible explanation to test would be that the specimens were introduced with the planting of *Populus nigra*, non-native species present at the locality where the mites were collected.

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## REFERENCES

- BARANOVSKA, A., 2007. A checklist of Latvian Oribatida. *Latvijas entomologs*, **44**: 5-10.
- BAYARTOGTOKH, B., COBANOGLU, S. & OZMAN, S.K., 2002. Oribatid mite of the superfamily Ceratozetoidea (Acaria: Oribatida) from Turkey. *Acarina*, **10**: 3-23.
- BERLESE, A., 1908. Elenco di generi e specie nuove di Acari. *Redia*, **5**: 1-15.
- GHILAROV, M.S. & KRIVOLUTSKIJ, D.A., 1975. A key to the soil-inhabiting mites. Sarcoptiformes. Nauka Published, Moscow, 492 pp. (in russian).
- GRANDJEAN, F., 1970. Nouvelles observations sur les Oribates (7e série). *Acarologia*, **12**: 432-460.
- GRANDJEAN, F., 1954. Essai de classification des oribatei (Acariens). *Bull. Soc. zool. Fr.*, **78**: 421-446.
- HAMMEN, L. van der, 1952. The Oribatei (Acari) of the Netherlands. *Zool. verhandel.*, **17**: 1-139.
- MAHUNKA, S. & MAHUNKA-PAPP, L., 2000. Check list of the oribatid mite of Hungary (Acari: Oribatida). *Folia Entomol. Hung.*, **61**: 27-53.
- MARSHALL, V.G., REEVES, R. M. & NORTON, R.A., 1987 Catalogue of the Oribatid (Acaria) of continental United States and Canada. *Mem. Entomol. Soc. Canada*, **139**, 418 pp.
- MÜLLER, O.F., 1776. *Zoologiae Danicae prodromus seu Animalium Daniae et Norvegiae indigenarum characteres, nomina, et synonyma imprimis popularium*. Havniae (Copenhagen), 282 pp.
- PÉREZ-ÍÑIGO, C., 1993. Acari, Oribatei, Poronota. In: RAMOS, M. A. et al. (Eds.), *Fauna Ibérica Vol III. Museo Nacional de Ciencias Naturales, CSIC*, Madrid. pp. 1-320.
- RYABININ, N.A. & PANKOV, A. N. 2002. Cataogue of the oribatid mite of the Far East of Russia. p. II. continental part of the Far East. DVO, Vladivostok, Khabarovsk, 92 pp.
- SELLNICK, M., 1922. Milben der Sammlung des Deutschen Entomologischen Instituts. I. Oribatidae. *Entomol. Mitt.*, **11**: 18-20.
- SELLNICK, M., 1928. Formenkreis: Hornmilben, Oribatei. - In: BROHMER, P., EHRMANN, P. & ULMER, G. (Eds.): *Die Tierwelt Mitteleuropas. Quelle und Meyer*, Leipzig, **9**, 1-42.
- SHALDYBINA, E.S., 1973. Postembryonic development of *Euzetes globulus* (Oribatei, Euzetidae). *Zool. Zh.*, **52**: 1168-1172.
- STOLL, O., 1893. Arachnida Acaridea. *Biologia Centrali-Americanana*, **13**: 24-25.
- SUBÍAS, L.S., 2004. Listado sistemático, sinonímico y biogeográfico de los ácaros oribátidos (Acariforme: Oribatida) del mundo. *Graellsia*, **60**: 3-305.
- WILLMANN, C., 1930. Neue und bemerkenswerte Oribatiden aus der Sammlung Oudemans. *Abhandl. Naturwiss. Verein*, **28**: 1-12.