

# A NEW SPECIES OF *GALUMNA* (*NEOGALUMNA*) (ACARI, ORIBATIDA, GALUMNIDAE) FROM THE PHILIPPINES

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**ABSTRACT:** One new species of *Galumna* (*Neogalumna*) (Oribatida, Galumnidae)—*Galumna* (*Neogalumna*) *eusebioi* sp. n.—is described from the Mount Guiting-guiting Natural Park, Sibuyan Island, Philippines. This species differs from all other known species of the subgenus in the presence of two (vs. one) pairs of notogastral porose areas *Aa*.

**KEY WORDS:** Mites, taxonomy, morphology, Oriental region.

DOI: 10.21684/0132-8077-2022-30-1-9-12

## INTRODUCTION

Our paper describes and illustrates one new oribatid mite (Acari Oribatida) species of the genus *Galumna* Heyden, 1826 (Galumnidae), subgenus *G.* (*Neogalumna*) Hammer, 1973, collected from the Philippines.

The subgenus *Galumna* (*Neogalumna*) was described by Hammer (1973) as an independent genus, with *Neogalumna antenniger* Hammer, 1973 as type species. At present, it comprises 14 species, which are distributed collectively in the Afro-tropical, Neotropical and Oriental regions, Samoa and China (Ermilov and Khaustov 2021). The subgeneric diagnosis has been presented by Ermilov and Klimov (2017). An identification key to known species of *Galumna* (*Neogalumna*) was provided by Ermilov and Khaustov (2021).

So far, one species of *Galumna* (*Neogalumna*) has been registered in the Philippines (Corpuz-Raros and Ermilov 2019): *G.* (*N.*) *tolstikovi* Ermilov and Anichkin, 2014.

## MATERIALS AND METHODS

**Observation and documentation.** Specimens were mounted in lactic acid, on temporary cavity slides for measurement and illustration. Body length was measured in lateral view, from the tip of the rostrum to the posterior edge of the notogaster. Notogastral width refers to the maximum width of the notogaster in dorsal view (behind pteromorph). Lengths of body setae were measured in lateral aspect. All body measurements are presented in micrometers (µm). Formulas for leg setation are given in parentheses according to the sequence trochanter–femur– genu–tibia–tarsus (famu-

lus included). Formulas for leg solenidia are given in square brackets according to the sequence genu–tibia–tarsus. Drawings were made with a camera lucida using a Leica transmission light microscope “Leica DM 2500”.

**Terminology.** Morphological terminology used in this paper follows that of Grandjean (see Ermilov and Klimov 2017 for review and application).

**Abbreviations.** *Prodorsum:* *L*—lamellar line; *S*—sublamellar line; *N*—prodorsal leg niche; *E*, *T*—lateral ridges of prodorsum; *ro*, *le*, *in*, *bs*—rostral, lamellar, interlamellar, and bothridial seta, respectively; *Ad*—dorsosejugal porose area; *D*—dorsophragma; *P*—pleurophragma. *Notogaster:* *c*, *la*, *lm*, *lp*, *h*, *p*—notogastral setal alveoli; *Aal*, *Aam*, *A1*, *A2*, *A3*—notogastral porose areas; *ia*, *im*, *ip*, *ih*, *ips*—lyrifissures; *gla*—opisthotal gland opening. *Epimeral and lateral podosomal regions:* *1a*, *3b*, *4a*, *4b*—epimeral setae; *PdI*, *PdII*—pedotectum I, II, respectively; *dis*—discidium; *cir*—circum-pedal carina. *Anogenital region:* *g*, *ag*, *an*, *ad*—genital, aggenital, anal, and adanal seta, respectively; *iad*—adanal lyrifissure; *p.o.*—preanal organ; *Ap*—postanal porose area.

## SYSTEMATICS

***Galumna* (*Neogalumna*) *eusebioi*  
Ermilov and Corpuz-Raros, sp. n.**

Figs. 1–4

**Diagnosis.** Body length: 398. Lamellar line incomplete, straight, thickened. Rostral seta medium-sized, slightly barbed; lamellar seta short, thinner than *ro*, slightly barbed; interlamellar seta



ened; sublamellar line thin, curving backwards. Rostral (28–32) and lamellar (12–16) setae setiform, slightly barbed; *le* thinner than *ro*. Interlamellar seta (4) needleform. Bothridial seta (114–123) setiform, shortly ciliate unilaterally. Exobothridial seta absent. Dorsosejugal porose area (16–20 × 6) oval, transversely oriented, located posterior to interlamellar seta. Dorsophragma distinctly elongated longitudinally.

**Notogaster.** Dorsosejugal suture complete, convex medially. With 10 pairs of setal alveoli and five pairs of rounded porose areas (10–12); porose area *Aa* divided into two areas *Aal* and *Aam*, both located close to pteromorph hinge; distance *A1*–*A2* equal to *A2*–*A3*; *la* absent but additional setal alveolus  $c_x$  developed and located anteromedial to *Aam*. Median pore absent. Opisthonotal gland opening and all lyrifissures distinct: *gla* located posterolateral to *A2* and removed from it; *im* between *lm* and *A1*; *ip* between  $p_1$  and  $p_2$ , nearer to  $p_1$ ; *ih* and *ips* close to each other, between  $p_2$  and  $p_3$ .

**Gnathosoma.** Similar to other species of *Galumna* (*Neogalumna*) (e.g., Ermilov and Khaustov 2021; Ermilov *et al.* 2021). Subcapitulum size: 98–102 × 82–86. Subcapitular setae (*a*: 20; *m*: 16; *h*: 12), setae setiform, roughened; *a* thickest, *h* thinnest. Adoral seta (12) setiform, slightly barbed. Palp (length: 73–77) with typical setation: 0–2–1–3–9(+ $\omega$ ). Postpalpal seta (6) spiniform, smooth. Chelicera (length: 118–123) with two setiform, barbed setae (*cha*: 41; *chb*: 24).

**Epimeral and lateral podosomal regions.** Anterior tectum of epimere I smooth. Epimeral setal formula: 1–0–1–2. All epimeral setae (*1a*, *3b*: 10–12; *4a*, *4b*: 6–8) needleform. Circumpedal carina medium-sized, directed to setal alveolus *3b* but clearly not reaching it.

**Anogenital region.** Genital ( $g_1$ : 10–12;  $g_2$ – $g_6$ : 6–8), aggenital (6–8), anal (10–12), and adanal (10–12) setae needleform. Anterior edge of genital plate with two setae. Aggenital seta located between genital and anal apertures, equally removed from them. Adanal setae  $ad_1$  and  $ad_2$  posterior,  $ad_3$  lateral to anal plate; distance  $ad_1$ – $ad_2$  clearly shorter than  $ad_2$ – $ad_3$ . Adanal lyrifissure oblique, distant from anal plate, located anterolateral to  $ad_3$ . Unpaired postanal porose area (14–16 × 8) oval.

**Legs.** Similar to other species of *Galumna* (*Neogalumna*) (e.g., Ermilov and Khaustov 2021; Ermilov *et al.* 2021). Median claw distinctly thicker than lateral claws, all roughened on dorsal side. Porose area on all femora and on trochanters

III, IV present, but poorly visible. Formulas of leg setation and solenidia: I (1–4–3–4–20) [1–2–2], II (1–4–3–4–15) [1–1–2], III (1–2–1–3–15) [1–1–0], IV (1–2–2–3–12) [0–1–0]; homology of setae and solenidia indicated in Table 1. Famulus inserted between solenidia  $\omega_1$  and  $\omega_2$ . Solenidion on tibia IV inserted in the middle of the segment.

**Material examined.** Holotype (male) and one paratype (female): Philippines, Sibuyan Is., Romblon Province, Mt. Magdiwang, Mount Guiting-guiting Natural Park, leaf litter in forest (Museum number: JCBN 17 0330-2), 30.III.2017 (leg. O.L. Eusebio).

One paratype (male): the Philippines, Sibuyan Is., Romblon Province, Mt. Magdiwang, Mount Guiting-guiting Natural Park, soil and litter inside dead tree stump (Museum number: JCBN 17 0613-1), 13.VI.2017 (leg. J.C. Naredo).

**Type deposition.** The holotype and two paratypes (preserved in 70% solution of ethanol with a drop of glycerol) are deposited in the collection of the Tyumen State University Museum of Zoology, Tyumen, Russia.

**Etymology.** The species name is dedicated to our Philippine colleague, long-time UPLB Museum Technician and research assistant, Orlando L. Eusebio, who collected the new species.

**Remarks.** *Galumna* (*Neogalumna*) *eusebioi* sp.n. is morphologically most similar to *G. (N.) tolstikovi* Ermilov and Anichkin, 2014 from the Oriental region (see Ermilov and Anichkin 2014) and *G. (N.) specifica* Ermilov, Sandmann, Klarner, Widyastuti and Scheu, 2015 from Indonesia (see Ermilov *et al.* 2015) in the following: setiform bothridial seta, straight lamellar line, short interlamellar seta, rounded notogastral porose areas, presence of postanal porose area, absence of median pore. However, the new species differs from the two species above in the presence of two pairs (vs. one) of notogastral porose areas *Aa*. Also, *G. (N.) tolstikovi* is characterized by the presence (vs. absence) of notogastral setal alveolus *la*, striate (vs. with one strong strium) genital plate, and rostral and lamellar setae equal in length (vs. rostral seta distinctly longer than lamellar seta). *G. (N.) specifica* is characterized by larger body size (498–531 × 348–365 vs. 398 × 265–332), longer and barbed (vs. minute and smooth) interlamellar seta, narrowly elongate oval (vs. oval) postanal porose area; striate (vs. not striate) subcapitular mentum and striate (vs. with one strong strium) genital plate.

**ACKNOWLEDGEMENTS**

We cordially thank J.C. Naredo and O.L. Eusebio for collecting materials used in this study. We would also like to express our gratitude to J.C. Naredo for facilitating the transmittal of the specimens, along with other oribatids, to Russia. This research was partially supported by the cooperative agreement No. FEWZ-2021-0004 (the Russian Ministry of Science and Higher Education).

**REFERENCES**

Corpuz-Raros, L. and Ermilov, S.G. 2019. Catalogue of oribatid mites (Acari: Oribatida) from the Malay Archipelago. *Zootaxa*, 4716(1): 1–240. DOI: 10.11646/zootaxa.4716.1.1

Ermilov, S.G. and Corpuz-Raros, L. 2015. New species of oribatid mites with auriculate pteromorphs (Acari, Oribatida, Galumnidae) from the Philippines. *Zootaxa*, 3905(4): 511–528. DOI: 10.11646/zootaxa.3905.4.5

Ermilov, S.G. and Anichkin, A.E. 2014. Taxonomic study of oribatid mites (Acari, Oribatida) of Bi Dup–Nui Ba National Park (southern Vietnam). *Zootaxa*, 3834(1): 1–86. DOI: 10.11646/zootaxa.3834.1.1

Ermilov, S.G. and Corpuz-Raros, L. 2015. New species of oribatid mites with auriculate pteromorphs (Acari, Oribatida, Galumnidae) from the Philip-

ines. *Zootaxa*, 3905(4): 511–528. DOI: 10.11646/zootaxa.3905.4.5

Ermilov, S.G. and Khaustov, A.A. 2021. Some faunistic and taxonomic data on oribatid mites (Acari, Oribatida) from the vicinity of Lake Sivash (North Crimea). *International Journal of Acarology*, 47(7): 603–609. DOI: 10.1080/01647954.2021.1971296

Ermilov, S.G. and Klimov, P.B. 2017. Generic revision of the large-winged mite superfamily Galumnoidea (Acari, Oribatida) of the world. *Zootaxa*, 4357(1), 1–72. DOI: 10.11646/zootaxa.4357.1.1

Ermilov, S.G., Subías, L.S., Shtanchaeva, U.Ya. and Friedrich, S. 2021. New species of oribatid mites of the family Galumnidae (Acari, Oribatida) from Peru. *Systematic and Applied Acarology*, 26(9): 1653–1664. DOI: 10.11158/saa.26.9.3

Ermilov, S.G., Sandmann, D., Klärner, B., Widyastuti, R. and Scheu, S. 2015. Contributions to the knowledge of oribatid mites (Acari, Oribatida) of Indonesia. 3. The genus *Galumna* (Galumnidae) with description of a new subgenus and seven new species. *ZooKeys*, 539, 11–51. DOI: 10.3897/zookeys.539.6541

Hammer, M. 1973. Oribatids from Tongatapu and Eua, the Tonga Islands, and from Upolu, Western Samoa. *Det Kongelige Danske Videnskabernes Selskab Biologiske Skrifter*, 20 (3), 1–70.

Heyden, C. von. 1826. Versuch einer systematischen Eintheilung der Acariden. *Isis, Oken*, 1 (4), 607–613.

Table 1

Leg setation and solenidia of adult *Galumna* (*Neogalumna*) *eusebioi* sp.n.

Leg	<i>Tr</i>	<i>Fe</i>	<i>Ge</i>	<i>Ti</i>	<i>Ta</i>
I	<i>v'</i>	<i>d, (l), bv''</i>	<i>(l), v', σ</i>	<i>(l), (v), φ<sub>1</sub>, φ<sub>2</sub></i>	<i>(ft), (tc), (it), (p), (u), (a), s, (pv), v', (pl), l'', ε, ω<sub>1</sub>, ω<sub>2</sub></i>
II	<i>v'</i>	<i>d, (l), bv''</i>	<i>(l), v', σ</i>	<i>(l), (v), φ</i>	<i>(ft), (tc), (it), (p), (u), (a), s, (pv), ω<sub>1</sub>, ω<sub>2</sub></i>
III	<i>v'</i>	<i>d, ev'</i>	<i>l', σ</i>	<i>l', (v), φ</i>	<i>(ft), (tc), (it), (p), (u), (a), s, (pv)</i>
IV	<i>v'</i>	<i>d, ev'</i>	<i>d, l'</i>	<i>l', (v), φ</i>	<i>ft'', (tc), (p), (u), (a), s, (pv)</i>

Note: Roman letters refer to normal setae, Greek letters—to solenidia (except ε—famulus). Single quotation mark (') designates seta on the anterior and double quotation mark (')—seta on the posterior side of a given leg segment. Parentheses refer to a pair of setae.