

## A new species of the genus *Neogalumna* (Acari, Oribatida, Galumnidae) from China

W. LIANG, M. YANG\* and Q. TANG

Dr. Wenqin Liang, Qiuxiao Tang & Prof. Maofa Yang, Institute of Entomology, Guizhou University; Guizhou Provincial Key Laboratory for Agricultural Pest Management of the Mountainous Region, Guiyang, Guizhou, 550025, China. \*Corresponding author: yangmaofa@sohu.com

**Abstract.** A new species of oribatid mites of the family Galumnidae, *Neogalumna longiporosa* sp. nov., is described from dark loamy soil collected under moss in North Eastern China. It is the first identified member of the genus *Neogalumna* recorded for China. An identification key to the known species of *Neogalumna* is also given.

**Keywords.** Oribatida, Galumnidae, *Neogalumna*, new species, new record.

### INTRODUCTION

The genus *Neogalumna* was proposed by Hammer (1973) with *Neogalumna antenniger* Hammer, 1973 as type species. Currently, it comprises five species in the world (Subías 2004). The generic diagnosis of the genus *Neogalumna* is already summarized by Hammer (1973) Balogh & Balogh (1992) and not repeated here.

In the course of a faunistic survey of oribatid mites in Beiling Park, Shenyang, Liaoning province, North Eastern China, several specimens belonging to the genus *Neogalumna* were found, representing the first record of the genus in China. The species found is herewith described as *Neogalumna longiporosa* sp. nov., and also a key to all species of the genus is provided.

### MATERIAL AND METHODS

Specimens were examined in lactic acid, mounted on temporary cavity slides for the duration of the study, and then stored in vials in 75% ethanol. All measurements are presented in micrometers. Body length was measured in lateral view, from the tip of the rostrum to the posterior edge of the ventral plate. Notogastral width refers to the maximum width in dorsal aspect. Lengths of body

setae were measured in lateral aspect. Formula for leg setation is given in parentheses according to the sequence trochanter–femur–genu–tibia–tarsus (famulus included). Formula for leg solenidia is given in square brackets according to the sequence genu–tibia–tarsus. General terminology used in this paper follows that of Grandjean (1956, 1957, 1966), Engelbrecht (1969, 1972a), and Norton & Behan-Pelletier (2009).

### TAXONOMY

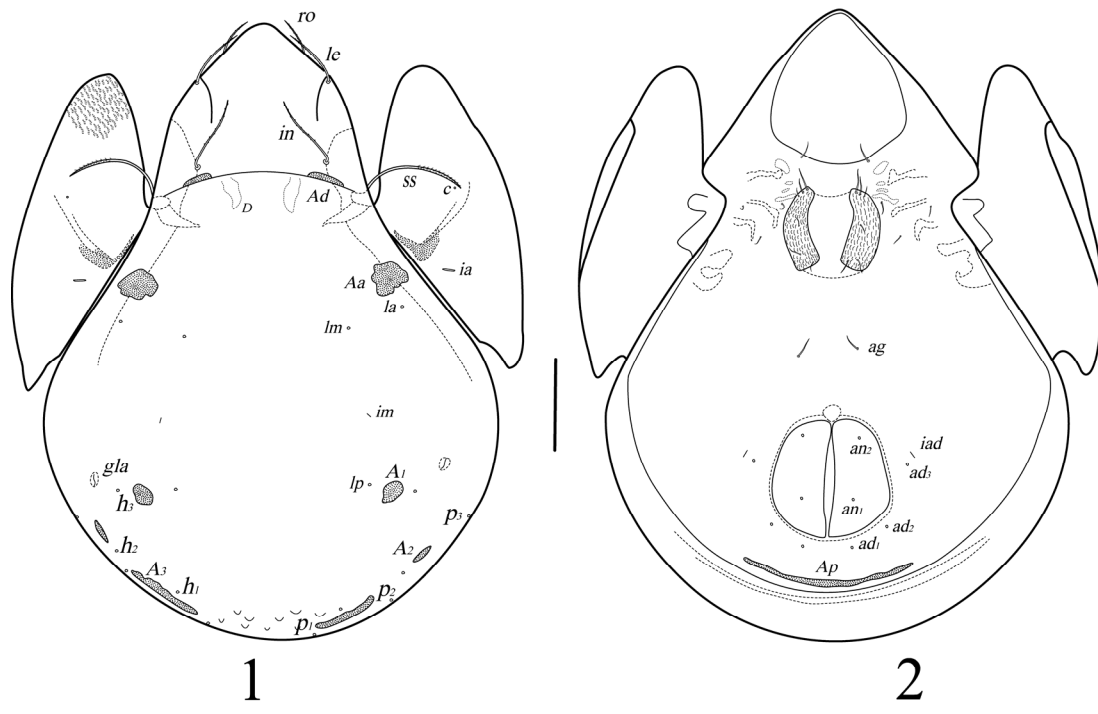
#### *Neogalumna longiporosa* sp. nov.

(Figures 1–8)

*Material examined.* Holotype (female) and 45 paratypes (19 males and 26 females) from soil and moss, Beiling Park in Shenyang (41°50'50.56"N, 123°25'18.09"E), Liaoning province, North Eastern China, 90 m above sea level. Collected by Lixia Xie, Rong Huang, Daxing Yang and Bin Li, 11. August, 2010.

*Type deposition.* All examined specimens are deposited in the Institute of Entomology, Guizhou University, Guiyang, Guizhou, China (GUGC).

*Diagnosis.* Body size: 700–780 × 500–565. Surface smooth. Prodorsal setae setiform, slightly



Figures 1–2. *Neogalumna longipora* sp. nov. 1 = dorsal view, 2 = ventral view. Scale bars 100µm.

Table 1. Leg setation and solenidia of *Neogalumna longiporosa* sp. nov.

Leg	Trochanter	Femur	Genu	Tibia	Tarsus
I	v'	d, (l), bv''	(l), v', σ	(l), (v), φ <sub>1</sub> , φ <sub>2</sub>	(ft), (tc), (it), (p), (u), (a), s, (pv), v', (pl), l'', e, ω <sub>1</sub> , ω <sub>2</sub>
II	v'	d, (l), bv''	(l), v', σ	(l), (v), φ	(ft), (tc), (it), (p), (u), (a), s, (pv), ω <sub>1</sub> , ω <sub>2</sub>
III	v'	d, ev'	l', σ	l', (v), φ	(ft), (tc), (it), (p), (u), (a), s, (pv)
IV	v'	d, ev'	d, l'	l', (v), φ	ft'', (tc), (p), (u), (a), s, (pv)

\*Roman letters refer to normal setae (e–famulus), Greek letters refer to solenidia. A prime marks (') anterolateral setae and a double prime (") posterolateral setae of the given leg segment. Parentheses refer to a pair of setae.

barbed. Lamellar setae longer than rostral and interlamellar setae. Sensilli setiform, slightly fusiform sensillar head indistinct. Lamellar lines well developed, parallel to sublamellar lines. Dorso-sejugal suture complete. Pteromorphs and genital plates with distinctly thin wrinkles. Four pairs of oval notogastral porose areas developed. Median pores absent. Postanal porose area elongated.

**Measurements.** Body length 700 (holotype), 700–780 (paratypes); body width 500 (holotype), 500–565 (paratypes).

**Integument.** Body color brown to dark brown. Surface of body smooth; pteromorphs and genital plates with distinctly thin wrinkles.

**Prodorsum** (Figs. 1, 3, 4). Rostrum widely rounded. Rostral (*ro*, 60, 72), lamellar (*le*, 105, 118) and interlamellar (*in*, 80, 98) setae setiform, slightly barbed. Sensilli (*ss*, 160, 180) setiform, slightly fusiform sensillar head indistinct, median and distal parts with several barbs. Exobothridial setae absent. Lamellar lines long, parallel to sublamellar lines. Sublamellar lines distinct. One pair

of porose areas *Ad* large, oval, located posterior to interlamellar setae.

*Notogaster* (Figs. 1, 5, 6). Anterior notogastral margin weakly developed. Dorsophragmata (*D*) of medium size, elongate. Notogastral setae represented by 10 pairs of alveoli. Four pairs of porose areas, *Aa* irregular rounded or oval (20–36 × 50–58), largest; *A<sub>1</sub>* irregular rounded (25–29 × 30–36); *A<sub>2</sub>* oval (9–13 × 20–28), smallest; *A<sub>3</sub>* irregular elongate oval (9–17 × 30–60). Alveoli of setae *la* inserted posteriorly to *Aa*. Lyrifissures *im* located between setal alveoli *lm* and *lp*. Median pore absent.

*Gnathosoma*. Morphology of subcapitulum, palps and chelicerae typical for *Neogalumna* (for example: Ermilov and Anichkin 2010).

*Epimeral region* (Fig. 2). Epimeres smooth. Only four pairs of setiform, thin epimeral (9–22) setae observed. Epimeral setal formula: 1–0–1–2.

*Anogenital region* (Figs. 2, 7). Six pairs of genital (*g<sub>1</sub>–g<sub>2</sub>*, 20–26; *g<sub>3</sub>–g<sub>6</sub>*, 10–14), one pair of aggenital setae (*ag*, 20–23) setiform, smooth. Anterior edge of genital plates with three setae. Two pairs of anal and three pairs of adanal setae alveoli. Adanal lyrifissures *iad* located anterior-laterally to adanal setae *ad<sub>3</sub>*. Postanal porose area (*Ap*, 4–9 × 196–200) irregularly elongate.

*Legs* (Fig. 8). Three claws of each leg, smooth. Morphology of leg segments, setae and solenidia typical for *Neogalumna* (see Ermilov & Anichkin 2010). Formulae 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.

*Etymology*. The specific epithet “*longiporosa*” refers to the elongate postanal porose area (*Ap*).

*Remarks*. *Neogalumna longiporosa* sp. nov. is clearly distinguishable from the other known species of the genus *Neogalumna* by the combination of the following characters: pteromorphs and genital plates with distinctly thin wrinkles; lamellar setae longer than rostral and interlamellar setae; sensilli setiform, slightly fusiform, sensillar

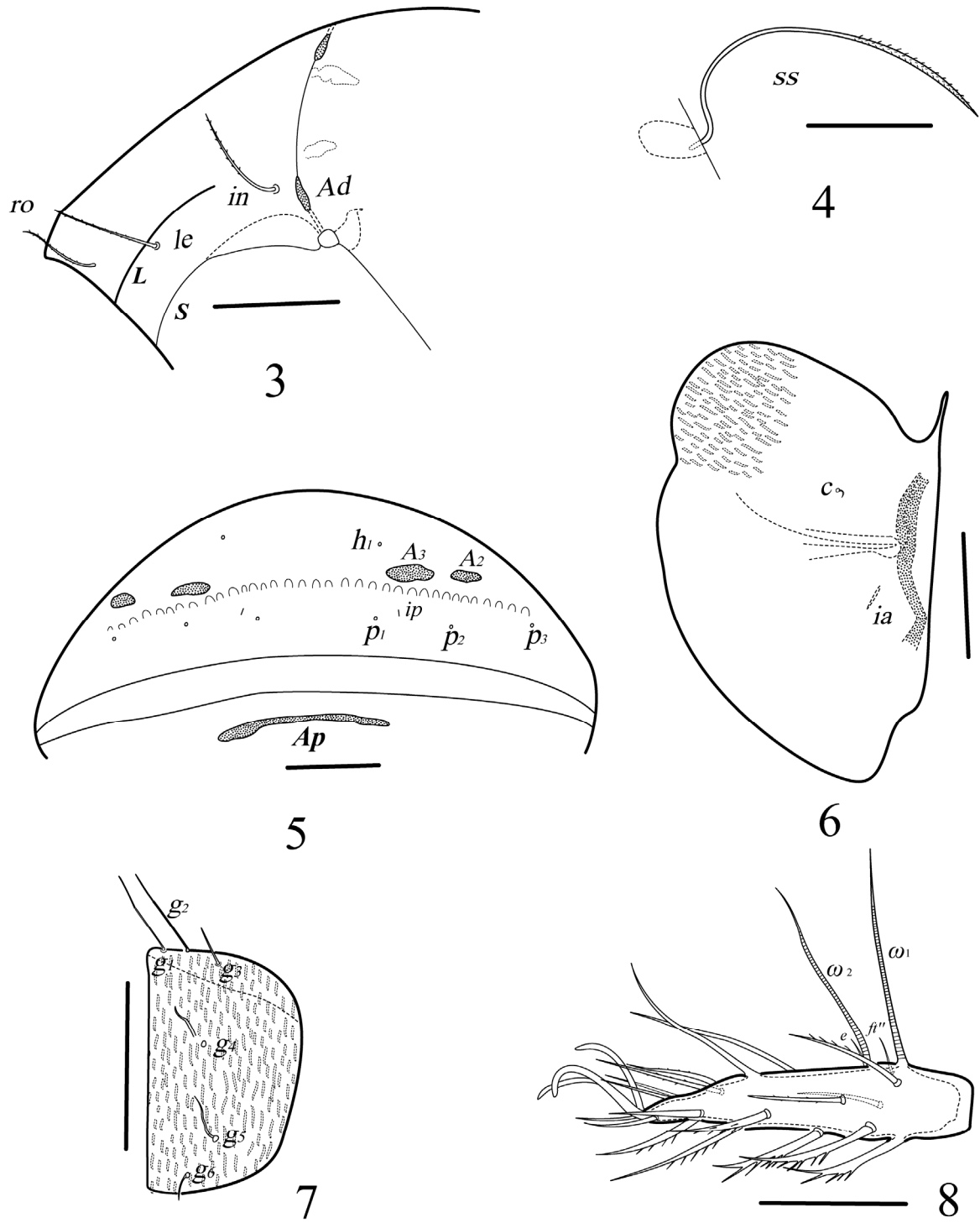
head indistinct; lamellar lines well developed; postanal porose area irregularly elongate.

In having the prodorsal setae long, setiform; sensilli setiform, slightly fusiform, sensillar head indistinct and anterior notogastral margin developed, the new species is similar to *N. seniczaki* Ermilov & Anichkin, 2010 described from Vietnam, but clearly differs from the latter by the larger body size (700–780 × 500–565 versus 381–398 × 265–282 in *N. seniczaki*); the length of lamellar lines (lamellar lines medium long, parallel to sublamellar lines versus very short and straight in *N. seniczaki*) and the structure of postanal porose area (irregularly elongate versus oval in *N. seniczaki*).

#### Key to known species of *Neogalumna*

- 1 Interlamellar setae long.....2  
Interlamellar setae very short or absent .....4
- 2 Sensilli with a short stalk and lanceolate head .....  
..... *N. curviporosa* Balakrishnan  
Sensilli nearly setiform, indistinctly fusiform .....3
- 3 Lamellar lines very short and straight; surface of pteromorphs and genital plates smooth, postanal porose area short, oval .....  
..... *N. seniczaki* Ermilov & Anichkin  
Lamellar lines well developed, parallel to sublamellar lines; surface of pteromorphs and genital plates with distinctly thin wrinkles; postanal porose area irregularly elongate ..... *N. longiporosa* sp. nov.
- 4 Areae porose *Aa* wedge-shaped, transversely elongate..... *N. araujo* (Pérez-Íñigo & Baggio)  
Areae porose *Aa* rounded or oval.....5
- 5 Interlamellar setae absent; sensilli extremely long, with smooth head..... *N. antenniger* Hammer  
Interlamellar setae very short, but observable; sensilli average long, with barbed head.....  
..... *N. aethiopica* Mahunka & Mahunka-Papp

**Acknowledgements** – We cordially thank Dr. Lixia Xie, Rong Huang, Daxing Yang and Bin Li (Guizhou University, Guizhou, China) for their help in oribatid mite material gathering and Dr. Sergey G. Ermilov (Tyumen State University, Tyumen, Russia; Joint Russian-Vietnamese Tropical Research and Technological Center, Hanoi-Ho Chi Minh, Vietnam) for his help in document delivery.



**Figures 3–8.** *Neogalumna longiporosa* sp. nov. 3 = dorso-lateral view of prodorsum, 4 = sensillus, 5 = posterior view, 6 = pterompha, 7 = left anal plate, 8 = tarsus of leg I, left, antiaxial view.  
 Scale bars (3, 5, 6) 100  $\mu$ m; (4, 7, 8) = 50  $\mu$ m.

## REFERENCES

- BALAKRISHNAN, M. M. (1986): Two new species of oribatids (Arachnida: Acarina) from south India. *Journal of the Bombay Natural History Society*, 83(3): 645–649.
- BALOGH, J. & BALOGH, P. (1992): *The Oribatid Mites Genera of the World*. Vol. I. Hungarian National Museum Press, Budapest, 166 pp.
- ENGELBRECHT, C. M. (1969): Some South African species of the genus *Galumna* von Heyden, 1826 (Acari: Galumnidae). *Journal of the Entomological Society of Southern Africa*, 32(1): 99–122.
- ENGELBRECHT, C. M. (1972a): Galumnids from South Africa (Galumnidae, Oribatei). *Acarologia*, 14(1): 109–140.
- ERMILOV, S. G. & NIEDBALA, W. (2013): Contribution to the knowledge of the oribatid mite fauna of Bolivia, Zambia, Cambodia and Vietnam, with descriptions of two new species. *Spixiana*, 36(1): 9–19.
- ERMILOV, S. G. & ANICHKIN, A. E. (2010): Three new species of Galumnidae (Acari: Oribatida) from Cat Tien National Park, southern Vietnam. *Zootaxa*, 2681: 20–34.
- GRANDJEAN, F. (1956): Observations sur les Galumnidae. 1<sup>re</sup> série (Acariens, Oribates). *Revue Française d'Entomologie*, 23(3): 137–146.
- GRANDJEAN, F. (1957): Galumnidae sans carènes lamellaires (Acariens, Oribates) 2<sup>e</sup> série. *Bulletin de la Société Zoologique de France*, 82(1): 57–71.
- GRANDJEAN, F. (1966): *Erogalumna zeucta* n. g., n. sp. *Acarologia*, 8(3): 475–498.
- 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.
- MAHUNKA, S. & MAHUNKA-PAPP, L. (2009): New and little known oribatids from Kenya, with descriptions of two new genera (Acari: Oribatida). *Journal of Natural History*, 43(9–12): 737–768.
- NORTON, R. A. & BEHAN-PELLETIER, V. M. (2009): *Oribatida. Chapter 15*. In: G. W. KRANTZ & D. E. WALTER (Eds.) *A Manual of Acarology*. Texas Technical University Press, Lubbock, p. 430–564.
- PÉREZ-ÍÑIGO, C. & BAGGIO, D. (1994): Oribates édaphiques du Brésil (VIII). Oribates de l'état de São Paulo (Cinquième partie). *Acarologia*, 35(2): 181–198.
- SUBÍAS, L. S. (2004): Listado sistemático, sinonímico y biogeográfico de los ácaros oribátidos (Acariformes: Oribatida) del mundo (excepto fósiles). *Graellsia* 60 (número extraordinario): 3–305. Actualized electronic version in Feb 2014, <http://www.ucm.es/info/zoo/Artropodos/Catalogo.pdf>, 448 pp.