Lithobius (Ezembius) ternidentatus sp. n., a new species from China

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Abstract

Lithobius (Ezembius) ternidentatus sp. n. (Lithobiomorpha, Lithobiidae), recently discovered from Wuyuezhai Mountain, Lingshou County, Shijiazhuang City, Hebei Province, China, is described. Morphologically it resembles L. (E.) multipinipes Pei, Lu, Liu, Hou, Ma & Zapparoli, 2016, but can be easily distinguished from the latter by having a different sized Tömösváry’s organ, different numbers of ocelli, obvious differences in ventral plectrotaxy of legs 14, and tarsal articulation ill-defined on legs 1–13, well-defined on legs 14–15. The main morphological characters of the known Chinese species of the subgenus Ezembius Chamberlin, 1919 based on adult specimens is presented.

Keywords
Centipede, Chilopoda, China, Hebei Province, myriapods

Introduction

Ezembius was originally proposed as a subgenus of Lithobius Leach, 1814 in the family Lithobiidae by Chamberlin (1919); it accommodates a group of 60 species/subspecies mostly known from Asia, with little extension into north-western North America. Known species colonize a wide range of habitats, from the Arctic and Subarctic to tropical and sub-tropical forests, to steppe and overgrazed stony areas of central Asia, to Himalayan montane forests, from the sea shore up to 5500 m (Himalayas) (Zapparoli and Edgecombe 2011, Qiao et al. 2018). Although the subgenus was formally proposed
as new and described in 1923 (Chamberlin 1923), according to Jeekel (2005) its name had been already validated in 1919 (Chamberlin 1919). *Ezembius* is characterized by antennae with ca 20 articles; ocelli 1+4–1+20; forcipular coxosternal teeth usually 2+2; porodonts generally setiform, sometimes stout. Tergites are generally without posterior triangular projections; tarsal articulation of legs 1–13 is distinct. Female gonopods are with uni-, bi or tridentate claws, and 2+2–3+3 (rarely 4+4) spurs (Zapparoli and Edgecombe 2011).

The myriapod fauna of China is still poorly known and very little attention has been paid to the study of Lithobiomorpha, with only 82 species/subspecies hitherto known from the country. Altogether, 21 species of *Ezembius* have been recorded from China, but none of them have been reported from Hebei Province (Pei et al. 2018, Qiao et al. 2018). Here a new species, recently found in the Hebei Province, China, is described and illustrated. Tables of the main morphological characters of Chinese *Ezembius* species are presented.

**Materials and methods**

All specimens were hand-collected under leaf litter or stones. The material was examined with the aid of a Motic-C microscope (Xiamen, China). The colour description is based on specimens preserved in 75% ethanol, and the body length is measured from the anterior margin of the cephalic plate to the posterior margin of the postpedal tergite. Type specimens are preserved in 75% ethanol and deposited in the School of Life Sciences, Hengshui University, Hengshui, China (HUSLS). The terminology of the external anatomy follows Bonato et al. (2010).

The following abbreviations are used in the text and the tables: a, anterior; C, coxa; DaC spine, anterior dorsal spine of coxa; F, femur; m, median; p, posterior; P, prefemur; S, SS, sternite, sternites; T, TT, tergite, tergites; Ti, tibia; To, Tömösváry's organ; Tr, trochanter.

**Taxonomy**

Lithobiomorpha Pocock, 1895  
Lithobiidae Newport, 1844  
*Lithobius* Leach, 1814  
*Lithobius* (*Ezembius*) Chamberlin, 1919

*Lithobius* (*Ezembius*) *ternidentatus* sp. n.
http://zoobank.org/CA3A868A-5684-4563-A942-F079371A4B9F
Fig. 1A–E, Tables 1, 2

**Diagnosis.** Body length 7.1–8.5 mm, antennae commonly composed of 24 articles, but also 22+24 or 24+25, 5–6 ocelli on each side of head, arranged in two irregular
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Figure 1. Lithobius (Ezembius) ternidentatus sp. n., holotype female and paratype male: A male habitus, dorsal view B male ocelli and Tömösváry’s organ (To), lateral view C female forcipular coxosternite, ventral view D female posterior segments and gonopods, ventral view E male: posterior segments and gonopods, ventral view. Scale bars: 2 mm (A); 200 μm (B); 250 μm (C–E).

rows, posterior two ocelli comparatively large; Tömösváry’s organ larger than the adjacent ocelli; commonly 3+3, but also 3+2 or 2+2 prosternal teeth, porodonts moderately slender, posterolateral to the lateral-most tooth, posterior angles of all tergites without triangular projections; coxal pore formula 3-4-4-3, oval to round, arranged in one row; female gonopods with 2+2 moderately small coniform spurs, apical claw simple; male gonopods short and small, with 1–3 long setae on the terminal segment.

Material examined. Holotype: ♀ (Fig. 1), China, Hebei Province, Wuyuezhai Mountain, Lingshou County, Shijiazhuang City, 38°43’15.02”N, 114°08’32.62”E, 480 m, under litter of the forest floor in a mixed coniferous broad-leaved forest, 28 Sept 2014, leg. S. Pei, H. Ma. Paratypes: 33 ♀♀, 38 ♂♂, same data as holotype. Other material: 9 ♀♀, 6 ♂♂, China, Hebei Province, Shanyanggou, Longquanguan Town, Fuping County, Baoding City, 38°50’13.57”N, 114°03’26.93”E, 941 m, 7 Sept 2014, leg. S. Pei, H. Ma. Type specimens and other material are deposited in the HUSLS.

Description. Body length: 7.1–8.5 mm, cephalic plate 0.75–0.97 mm long, 0.60–0.75 mm wide.
**Colour:** antennal articles and whole body pale yellow-brown, tergites darker, pleural region and sternites pale yellow with greyish hue; basal and proximal parts of forcipules, forcipular coxosternite, and SS XIV and XV darker.

**Antennae:** 22–25 articles, commonly 24 articles (Fig. 1A), 2 specimens 22+24, 3 specimens 24+25 articles; antennae articles length is approximately equal to width except basal articles II–V slightly longer than wide, distal-most article 2.7–3.1 times as long as wide; abundant setae on the antennal surface, less so on the basal articles, gradual increase in density of setae to about the fourth article, then more or less constant.

**Cephalic plate** smooth, convex, slightly wider than long; tiny setae emerging from pores scattered very sparsely over the whole surface; frontal marginal ridge with shallow anterior median furrow; short to long setae scattered along the marginal ridge of the cephalic plate; lateral marginal ridge discontinuous, posterior margin continuous, straight, wider than lateral marginal ridge (Fig. 1A).

Five or six oval to rounded ocelli on each side (Fig. 1B), most of them rounded, domed, translucent, usually darkly pigmented, situated in two irregular rows; the posterior two ocelli comparatively large; others subequal in size.

Tömösváry’s organ situated at anterolateral margin of the cephalic plate, about same size as the largest two ocelli and lying well apart from them (Fig. 1B).

**Coxosternite** subtrapezoidal (Fig. 1C), anterior margin narrow, lateral margins slightly longer than medial margins; median diastema moderately deep, narrow V-shaped; anterior margin with 3+3 acute triangular teeth, very few 2+2 (8% of studied individuals) or 2+3 (3% of studied individuals); porodonts slender, lying posterolateral to and separated from the lateral-most tooth (Fig. 1); scattered long setae on the ventral side of coxosternite, longer setae near the dental margin.

All tergites smooth, without wrinkles, dorsum slightly convex; tiny setae emerging from pores scattered sparsely over the entire surface, near the margin with few long setae; T I narrower posterolaterally than anterolaterally, generally trapezoidal, narrower than the cephalic plate and T III, obvious shorter than T III, the cephalic plate slightly wider than T III. Lateral marginal ridges of all tergites continuous. Posterior margin of TT I, III, V, and VII slightly concave, posterior marginal ridges continuous. Posterior margins of TT VIII, IX, XI, XIII, and XV concave, posterior marginal ridges discontinuous. Posterior angles of tergites generally rounded, without triangular projections. Miniscule setae scattered sparsely over the surface, 3–5 slightly thick and long setae on anterior and posterior angles of each tergite.

Posterior side of sternites narrower than anterior side, generally trapezoidal, smooth; setae emerging from sparsely scattered pores on the surface and lateral margin, few long setae on the surface of the anterior part of each sternite, 1–2 comparatively long setae scattered sparsely on the surface respective both of the middle part and posterior part of each sternite.

Legs robust, tarsal articulation ill-defined on legs 1–13, well-defined on legs 14–15; all legs with fairly long curved claws; legs 1–13 with anterior and posterior accessory spurs; anterior accessory spurs moderately long and slender, forming a moderately
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small angle with the claw, posterior accessory spurs slightly more robust, forming a comparatively large angle with the claw, legs 14 and 15 only with small posterior accessory spurs; long setae sparsely scattered over the surface of prefemur, femur and tibia of all legs, more setae on the tarsal surface; setae on dorsal surface of tarsus slightly shorter than the ventral, one row of thicker setae regularly arranged on the medial ventral side of tibia of legs 1–13, with setae significantly reduced in legs 14 and 15, no thicker setae regularly arranged in one row on the medial ventral side of tibia; legs 14 and 15 moderately thicker and longer than the anterior pairs in the female; leg plectrotaxy as in Table 1.

Coxal pores 3-3(4)-4(5)-3, commonly 3-4-4-3, round to slightly oval, in a row; coxal pore field set in a relatively shallow groove, the coxal pore-field fringe with prominence; prominence with short to moderately long setae sparsely scattered over the surface.

Female S 15 anterior margin broader than posterior, generally trapezoidal, postero-medially straight, colour yellow-brown; short to long sparse setae evenly scattered on surface; surface of the lateral sternal margin of genital segment well chitinized, posterior margin of genital sternite deeply concave between condyles of gonopods, except for a small, median tongue-shape bulge; relatively long setae sparsely scattered over ventral surface of the genital segment; gonopods: first article fairly broad, bearing 8–10 moderately long setae, arranged in three irregular rows; with 2+2 moderately long and slender, coniform spurs, inner spur slightly smaller than the outer; second article with 5–6 long setae, arranged in two irregular rows; third article with 3–4 comparatively long setae, arranged in one or two irregular rows; third article with a simple apical claw (Fig. 1D).

Male S 15 posterior margin narrower than anterior, postero-medially straight, sparsely covered with long setae on the surface; sternite of genital segment smaller than in female, usually well sclerotized, posterior margin deeply concave between the gonopods, without medial bulge; long setae sparsely scattered on the ventral surface of the genital segment; fewer setae near S 15, fringed with longer setae along the posterior margin; gonopods short, appearing as a small hemispherical bulge, with 1–3 long setae, apically slightly sclerotized (Fig. 1E).

Habitat. The specimens here studied were collected in a mixed coniferous broad-leaved forest at ca 480–900 m above sea level, in moderately moist habitats under roadside stones and litter of the forest floor.

**Table 1.** Leg plectrotaxy of Lithobius (Ezembius) ternidentatus sp. n.

| Legs | Ventral | Dorsal |
|------|---------|--------|
|      | C | Tr | P | F | Ti | C | Tr | P | F | Ti |
| 1–9  | mp | amp | am |    |    | ap | ap | ap |
| 10   | mp | amp | am | a  |    | ap | ap | ap |
| 11   | mp | amp | am | a  |    | amp| ap | ap |
| 12   | (a)mp | amp | am | a  |    | amp| p  | ap |
| 13   | m  | amp | am | a  |    | amp| p  | ap |
| 14   | m  | amp | am | am | a  | amp| p  | p  |
| 15   | m  | amp | am | a  | a  | amp| p  | p  |

N.B. Letters in brackets indicate variable spines.
Table 2. The main morphological characters of the known Chinese species of subgenus Ezembius Chamberlin, 1919.

| Characters                        | Characters                        | Characters                        | Characters                        | Characters                        | Characters                        | Characters                        | Characters                        |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| **S. anabilineatus**              | **S. anasulcifemoralis**          | **S. bidens**                    | **S. bilineatus**                | **S. chekiannus**                 | **S. datongensis**                | **S. gantoensis**                 | **S. giganteus**                  |
| **b. in**                        |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| **Authorities**                  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| Ma et al. 2015                   | Ma et al. 2013                    | Takakuwa 1939                    | Chamberlin and Wang 1952         | Qiao et al. 2018                  | Takakuwa and Takashima 1949      | Eason 1986                       | Eason 1993                       |
| **Distribution**                 |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| China S (Guangxi)                | China S (Guangxi)                | China S (Taiwan)                 | China S (Guangxi)                | China S (Zhengjiang and Taiwan)   | China NW (Qinghai Province)       | China N (Inner Mongolia Autonomous region) | China S (Hong Kong)            |
| China NW (Shanxi)                |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| **Body length (mm)**             |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| 11.9 – 12.1                      | 10.1 – 12.3                      | 15.0                             | 9.0 – 9.1                        | 16.0                             | 12.3 – 14.2                      | 9.0                              | 15.0 – 9.0 - 12.0                |
| **Number of antennal articles**  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| 23+23 articles in female, unkown | 19+19–24+24, commonly 20+20     | 20 – 21                          | 20+20                            | 19+19 – 24+24                    | 20–23                            | 20+20                            | 20+20                            |
| **Number of tergites**           |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| smooth, backside slightly hunched | smooth                          | not reported                      | smooth, slightly larger than adjoining ocelli | not reported                      | not reported                      | smooth, with slightly wrinkles    | smooth, without wrinkles         |
| **Tergites**                     |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| smooth, backside slightly hunched | smooth                          | not reported                      | smooth, slightly larger than adjoining ocelli | not reported                      | not reported                      | smooth, with slightly wrinkles    | smooth, without wrinkles         |
| **Number of coxal pores**        |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| 3 – 5, female 4454, 4553, 4454   | 3 – 6, usually 4663, 5654, 5554, 5556, 5565 in male | 55555                           | 4553, 4555, 4453, 4454, 4465 in male | not reported                      | not reported                      | not reported                      | not reported                      |
| **Shape of coxal pores**         |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| round                             | round                            | round or slightly ovate          | round                            | round                            | round or slightly ovate          | round                            | round                            |
| **Number and arrangement of coxosternal teeth** |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| 2+2, subtriangular, long, lying medially, small tooth, large tooth, small tooth, small tooth | 2+2, moderately long, small tooth, small tooth | 2+2, slightly acute, small tooth, small tooth | 2+2, long, lying medially, small tooth, small tooth | 2+2, moderately long, small tooth, small tooth | 2+2, moderately long, small tooth, small tooth | 2+2, moderately long, small tooth, small tooth | 2+2, moderately long, small tooth, small tooth |
| **Number of antennal articles**  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| 23+23 articles in female, unkown | 19+19–24+24, commonly 20+20     | 20 – 21                          | 20+20                            | 19+19 – 24+24                    | 20–23                            | 20+20                            | 20+20                            |
| **Number of antennal articles**  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| 23+23 articles in female, unkown | 19+19–24+24, commonly 20+20     | 20 – 21                          | 20+20                            | 19+19 – 24+24                    | 20–23                            | 20+20                            | 20+20                            |
| **Number of antennal articles**  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| 23+23 articles in female, unkown | 19+19–24+24, commonly 20+20     | 20 – 21                          | 20+20                            | 19+19 – 24+24                    | 20–23                            | 20+20                            | 20+20                            |
| **Number of antennal articles**  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| 23+23 articles in female, unkown | 19+19–24+24, commonly 20+20     | 20 – 21                          | 20+20                            | 19+19 – 24+24                    | 20–23                            | 20+20                            | 20+20                            |
| **Number of antennal articles**  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| 23+23 articles in female, unkown | 19+19–24+24, commonly 20+20     | 20 – 21                          | 20+20                            | 19+19 – 24+24                    | 20–23                            | 20+20                            | 20+20                            |
| **Number of antennal articles**  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| 23+23 articles in female, unkown | 19+19–24+24, commonly 20+20     | 20 – 21                          | 20+20                            | 19+19 – 24+24                    | 20–23                            | 20+20                            | 20+20                            |
| **Number of antennal articles**  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| 23+23 articles in female, unkown | 19+19–24+24, commonly 20+20     | 20 – 21                          | 20+20                            | 19+19 – 24+24                    | 20–23                            | 20+20                            | 20+20                            |
| **Number of antennal articles**  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| 23+23 articles in female, unkown | 19+19–24+24, commonly 20+20     | 20 – 21                          | 20+20                            | 19+19 – 24+24                    | 20–23                            | 20+20                            | 20+20                            |
| **Number of antennal articles**  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| 23+23 articles in female, unkown | 19+19–24+24, commonly 20+20     | 20 – 21                          | 20+20                            | 19+19 – 24+24                    | 20–23                            | 20+20                            | 20+20                            |
| **Number of antennal articles**  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| 23+23 articles in female, unkown | 19+19–24+24, commonly 20+20     | 20 – 21                          | 20+20                            | 19+19 – 24+24                    | 20–23                            | 20+20                            | 20+20                            |
| **Number of antennal articles**  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| 23+23 articles in female, unkown | 19+19–24+24, commonly 20+20     | 20 – 21                          | 20+20                            | 19+19 – 24+24                    | 20–23                            | 20+20                            | 20+20                            |
| Characters | anabilineatus | masulci femoralis | bidens | bilineatus | chekianus | datongensis | gantoensis | giganteus | insolitus | irregularis |
|------------|--------------|-------------------|--------|------------|-----------|-------------|------------|-----------|-----------|-------------|
| Tarsus 1–tarsus 2 articulation on legs 1–13 | not well-defined | not well-defined | Well-defined | not well-defined | not reported | distinct | not reported | Well-defined | not defined | Well-defined |
| Male 14th leg | Obvious, thicker and stronger than other legs | markedly thicker and stronger than 1–13 legs, thicker and stronger than female | not reported | distinctly thick and strong | not reported | not reported | not reported | distinctly thick and strong | not reported |
| Male 15th leg | obvious thicker and stronger than other legs | markedly thicker and stronger than 1–13 legs, thicker and stronger than female | not reported | distinctly thick and strong | not reported | not reported | not reported | distinctly thick and strong, with dark zones on dorsal of tibia | not reported |
| Dorsal sulci on male 14th legs | absent | absent | not reported | with two, shallow longitudinal sulci | not reported | not reported | not reported | absent | not reported |
| Dorsal sulci on male 15th legs | two distinct, shallow, dorsal sulci on femur and tibia | with a distinct, shallow, dorsal sulci on tibia | not reported | with two, shallow longitudinal sulci | not reported | not reported | not reported | absent | not reported |
| DaC spine | on 14th–15th legs | on 14th–15th legs | absent | on 4th–15th legs | on 14th–15th legs | on 12th–15th | absent | on 12th–15th legs (on 11th and 12th legs sometimes present) | absent | on 13th–15th legs |
| 14th accessory spur | anterior accessory spur reduced in size, only half length of posterior accessory spur | absent | not reported | anterior accessory spur absent | present | present | present | present | not reported | not reported |
| 15th accessory spur | absent | absent | not reported | anterior accessory spur absent | present | anterior accessory spur absent | present | absent | not reported | not reported |
| Number and shape of spurs on female gonopods | 2+2 moderately small, blunt, coniform spurs, inner spur slightly smaller than the outer | 2+2 moderately small, blunt, with conical spurs, inner spur slightly smaller than outer one | 3+3 or 4+4, sharp | 2+2 moderately small, blunt, coniform spurs, inner spur slightly smaller than outer one | not reported | 2+2 moderately large, coniform spurs | 1+1, conical spurs | 2+2 | 3+3, coniform spurs | 2+2 or 2+3, moderately small, blunt, coniform spurs |
| Dorsal side of second article of female gonopods | with one spine lying dorsally on its external margin | no striking features | with three short, robust setae lying dorsally on its external margin | not reported | 5–6 setae and five long curved spines | not reported | with eight spines in two irregular rows lying dorsally on its external margin | not reported | not reported |
| Apical claw of female gonopods (and lateral denticles) | simple, small subtriangular teeth in the inner | apical claw dimidiate | simple, small sharply teeth in the inner | apical claw bipartite, and its inner aspect broader | not reported | undivided, bearing a small triangular protuberance on ventral side | simple | simple | simple | simple and broad |
| Male gonopods | short and small bulge, with one to two long setae, apically slightly sclerotised | with a small bulge, without setae and apically less sclerotised | hemispherical, with two long setae | short and small bulge, having a long seta, apically slightly sclerotised | not reported | a hemispherical bulge, with three setae | not reported | not reported | not reported | not reported |
Table 2. (Continued) The main morphological characters of the known Chinese species of subgenus *Ezembius* Chamberlin, 1919.

| Characters | laevidentata | longbasitarsus | lineatus | mandshuensis | multipinipes | parvicornis | rhymus | sulcipes | suikifemoralis | ternidentatus | zhui | tetraspinus |
|------------|--------------|----------------|----------|--------------|--------------|-------------|--------|----------|---------------|--------------|------|------------|
| Authorities | Pei et al. 2015 | Qiao et al. 2018 | Takakuwa 1939 | Takakuwa 1940 | Pei et al. 2016 | Zapparoli 1991 | Attems 1934 | Attems 1927 | Takakuwa and Takashima 1949 | This paper | Pei et al. 2011 | Pei et al. 2018 |
| Distribution | China NW (Xinjiang Uygur) | China NW (Qinghai) | China S (Taiwan) | China (Taiwan, Sichuan, Jiangsu, Heilongjiang, Jilin, Liaoning) | China NW (Xinjiang Uygur) | China S (Taiwan) | China S (Taiwan) | China S (Taiwan) | China W (Shanxi) | China N (Hebei) | China NW (Xinjiang Uygur) | China NW (Xinjiang Uygur) |
| Body length (mm) | 9.6–13.3 | 17.0–18.0 | 18.0 | 22.0–23.0 | 11.6–22.6 | 16.0 | 15.0 | Not reported | 12.0 | 7.1–8.5 | 8.1–15.0 | 9.6–13.3 |
| Number of antennal articles | 19+19–21+21 commonly 20+20 | 20+20 | 19+19–21+21 | 20–28 | commonly 20+20, (three specimens with 20+21, one specimen with 20+26 of 134 specimens) | 20+20, 21+21 | 20+20 in female, 20+21 in male | 19–22 | 20–20 | 22–25 | 20–24, commonly 20 | 19–22, commonly 20 |
| Number, arrangement and shape of the ocelli | 8–10, in 3 rows | 11, in 3 rows | 8–11, in 3 rows | 9–13, in 3 rows | 3–4, in 1 or 2 rows | 8, in 4 rows | 3, in 2 rows | 6 | 5–6, in 2 rows | 10–13, in 3–4 rows | 8–10, in 3 rows |
| Posterior ocellus | posterior two ocelli bigger than seriate ocelli | posterior ocellus largest | comparatively small | comparatively large | two ocelli large, oval to rounded | comparatively large | comparatively large | all ocelli same size | posterior two ocelli comparatively large | comparatively large | two ocelli comparatively large |
| Seriate ocelli | other seriate ocelli slightly larger than seriate ocelli adjoining ventrally | not reported | not reported | same site | two near ventral margin moderately small, others almost equal | not reported | not reported | not reported | same size | others subequal in size | dorsal ones moderately large, those near ventral margin of ocellar field moderately small, others of moderate size | the adjoining Tömösváry organ slightly small |
| Tömösváry’s organ | subequal in size to adjoining ocelli | smaller than adjacent ocelli | same size as adjoining ocelli | larger than adjoining ocelli | slightly smaller than adjoining ocelli | not reported | not reported | not reported | same size as ocelli | about same size as largest ocellas | slightly larger than adjoining ocelli | subequal in size to adjoining ocelli |
| Number and arrangement of coxosternal teeth | 2+2, approximately blunt | 3+2 blunt nipple-like teeth | 2+2, comparatively large | 2+2, small and sharp | 3+3, slightly triangular | 2+2 | 2+2 | 2+2, small and sharp | 3+3 acute triangular, very kw 2+2 or 2+3 | 2+2 moderately small and pointed | 2+2 subtriangular slightly acute |
| Characters | laevidentata | longibasitarsus | lineatus | manschsheniensis | multipinipes | parviscornis | rhynus | sulcipes | sulcifemoralis | ternidentatus | zhui | tetraspinus |
|------------|--------------|-----------------|---------|-----------------|-------------|-------------|--------|----------|----------------|-------------|------|-----------|
| Porodont   | thick and long, lying posterolaterally to lateral-most teeth | thick and strong, separated from lateral tooth | long and strong | lying posterolaterally to lateral-most tooth | thick and long, lying posterolaterally to lateral-most tooth | lying posterolaterally to the lateral-most teeth | not obvious | not reported | slender and long | slender, lying posterolaterally to, and separated from, lateral-most teeth | moderately thick in basal, moderately pointed, just posterolateral to lateral tooth | thick and strong, just posterolateral and separated from lateral tooth |
| Tergites   | smooth, without wrinkles, backside slightly hunched | all smooth, without wrinkles | smooth, without wrinkles | smooth, without wrinkles and slightly hunched behind | smooth | with shallow wrinkles | Smooth, posterior angles slightly triangular in T14 | not reported | smooth, without wrinkles, dorsum slightly convex | smooth, without wrinkles, backside slightly hunched | smooth, without wrinkles, dorsum slightly convex |
| Number of coxal pores | 2–5, female commonly 4555, 4554, sometime 3454, 3455, 3343, male commonly 2332, 2333, sometime 3444, 3333 | 6555 | 6–7, usually 66(7)6 | 776(7)5(6) | 3–5, 4555, 5555, 4444, 4455 (females) and 4444, 3344 (males) | 3334 | 6554 | 4554 | 5555 | 3-3(4)-4-4-3, commonly 3-4-4-3 | 2–4, 3444, 3434, 3433 in female, and 3434, 2343, 2343, 2333 in male, usually 4555, 4554, rarely 3454, 3455, 3343 in females and usually 2332, 2333, rarely 3444, 3333 in males |
| Shape of coxal pores | round or slightly ovate | circular | round to ovate | round or ovate | round to ovate | not reported | round | round | round | round to slightly oval | round or slightly oval | round or slightly oval |
| Tarsus 1–tarsus 2 articulation on legs 1–13 | not well-defined | well-defined | well-defined | well-defined | not reported | not reported | well-defined | well-defined | ill-defined | well-defined | ill-defined |
| Male 14th leg | remarkably thicker and stronger | moderately thicker and longer | not reported | not reported | thick and strong | not reported | not reported | thick and strong | moderately thicker and longer | moderately thicker and stronger | significantly thicker and stronger |
| Male 15th leg | markedly thicker and stronger | moderately thicker and longer | not reported | not reported | thick and strong | not reported | femur and tibia thicker | femur and tibia thicker | thick and strong | moderately thicker and longer | thicker and stronger, with a circular protuberance on distal end of tibia | significantly thicker and stronger |
| Dorsal sulci on male 14th legs | absent | absent | absent | not reported | absent | not reported | not reported | present on femur | present on femur and tibia | absent | absent |
| Dorsal sulci on male 15th legs | with a distinct, shallow, dorsal sulci on the tibia | absent | not reported | not reported | absent | not reported | not reported | present on femur and tibia | present on femur and tibia | absent | absent | present on femur |
| Characters | laevidentata | longibasitarsus | lineatus | mandschreiensis | multispinipes | parvicornis | rhyas | sulcipes | sulcifemoralis | ternidentatus | zhui | tetraspinus |
|------------|-------------|----------------|---------|----------------|---------------|-------------|-------|----------|---------------|---------------|------|------------|
| DaC spine  | on 12th–15th legs | on 13th–15th legs, 12th sometimes present | on 14th–15th legs | on 12th–15th legs, 9th–10th sometimes present | not reported | on 15th legs present | on 15th legs present | absent | on 10th–15th legs | on 12th–15th legs | |
| 14th accessory spur | present | present | present | not reported | present | not reported | not reported | not reported | anterior accessory spur absent | present | present |
| 15th accessory spur | anterior absent | absent | present | not reported | absent | not reported | not reported | not reported | anterior accessory spur absent | absent | absent |
| Number and shape of spurs on female gonopods | 3+4, or 4+4 small, blunt, coniform spurs, commonly with 3+3, inner spur smaller than outer one | 2+2 moderately long, bullet-shaped spurs, inner spur slightly smaller and more anterior than outer one | 3+3 moderately sharp, slender conical spurs | 3+3, same size | 2+2, blunt, coniform spurs, with inner spur smaller than outer one | 2+2, slender | 2+2, thick spurs | 2+2, strong, long and slender, coniform | 2+2 moderately long, coniform spurs, inner spur slightly smaller and more anterior than outer | 3 long setae and four short, robust spines lying dorsally on posterior part of external margin |
| dorsal side of the second article of female gonopods | with three long setae lying dorsally on its anterior external margin | three long setae along dorsolateral ridge | not reported | not reported | with 3–4 long setae and 5–6 spines lying dorsally on its external margin | not reported | not reported | not reported | no setae and spines | three spurs arranged in one irregular row on dorsal terminal part |
| Apical claw of female gonopods (and lateral denticles) | simple and broad | simple, having small triangular prominence on ventral side | simple | simple | simple | simple | simple | dimidiate | simple | simple | simple, with a very small subtriangular blunt denticle on inner margin |
| Male gonopods | small bulge, with one to two long setae apically slightly sclerotised | small, semicircular article with 3–5 seta on its surface | hemispherical bulge, without setae | hemispherical bulge, having a long seta, and apically slightly sclerotised | not reported | not reported | not reported | not reported | short, small hemispherical bulge, with 1–3 long setae, apically slightly sclerotised | small bulge, with 1–2 long setae on surface, and terminal slightly sclerotised | small hemispherical bulge, with 1–2 long setae |
**Etymology.** The specific name *ternidentatus* refers to the coxosternite anterior margin with 3+3 slightly acute triangular teeth.

**Discussion.** The new species resembles *L. (E.) multispinipes* Pei, Lu, Liu Hou, Ma & Zapparoli, 2016 from the Xinjiang Autonomous Region in having 3+3 prosternal teeth commonly, the posterior two ocelli comparatively large, coxal pores 3–5 and with two coniform spurs on female gonopods. However, the new species can be easily distinguished by the following characters: the Tömösváry’s organ about same size as the largest ocellus in contrast to slightly smaller than the adjoining ocelli in *L. (E.) multispinipes*; and with five or six ocelli in new species instead of eight ocelli in *L. (E.) multispinipes*; and tarsal articulation ill-defined on legs 1–13 in the new species in contrast to well-defined on legs 1–13 in *L. (E.) multispinipes*; and legs 14 posterior accessory spur absent versus present in *L. (E.) multispinipes*, moreover, the 14 legs ventral plectrotaxy are obviously different: 0-1-3-2-2 compared to 0-1-3-2-1 in *L. (E.) multispinipes*.

To assist in the identification of the Chinese species of *Lithobius (Ezembius)*, the main morphological characters (Table 2) of the known Chinese species of the subgenus *Ezembius* Chamberlin based on adult specimens are presented.

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