



## *Lithobius (Ezembius) multispinipes* n. sp., a new species of centipede from North West China (Lithobiomorpha: Lithobiidae)

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The centipede subgenus *Lithobius (Ezembius)* Chamberlin, 1919 comprises a group of about 60 species known from the Near East across Siberia and Central Asia to China, and Japan, and Southwards into the Northern Indian subcontinent and the Northern part of the Oriental region (Eason 1992, Zapparoli 1999). It is also known from Alaska in Western North America (Zapparoli & Edgecombe 2011). 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 the presence of 2+2 or 3+3 coxosternal teeth, antennal articles fixed at 20 or thereabouts, tergites generally without posterior triangular projections and tarsal articulation of legs 1–13 distinct (Chamberlin 1923, Zapparoli & Edgecombe 2011).

The lithobiomorph centipedes of China are poorly known as only 73 species and subspecies are hitherto known from the country (Ma *et al.* 2014a, b, 2015; Pei *et al.* 2014, 2015; Qin *et al.* 2014). Xinjiang Autonomous Region is among the poorly studied regions of China with only seven species at present registered from its territory (Ma *et al.* 2014a, b; Pei *et al.* 2015). Altogether, 15 species of *Lithobius (Ezembius)* have been recorded from China, only one of them from Xinjiang Autonomous Region. Herewith we describe a new species recently found in Balikun County.

### Methods

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

The following abbreviations are used in the text and the tables: T, TT = tergite, tergites; S, SS = sternite, sternites; C = coxa, Tr = trochanter, P = prefemur, F = femur, Ti = tibia, a = anterior, m = median, p = posterior.

### Taxonomic part

#### Lithobiidae Newport, 1844

#### *Lithobius (Ezembius) multispinipes* sp. n.

Figs 1–7

**Material examined. Holotype:** ♀ (Fig. 1), body length 18.6 mm, cephalic plate 1.7 mm long, 1.8 mm broad, Balikun County, Hami City, Xinjiang Autonomous Region, 43°06'N 93°00'E, 968 m, 25 July 2006, leg. H. Ma, F. Zhang, S. Liu.

**Paratypes.** 82 ♀♀, 51 ♂♂, same data as holotype.

**Etymology.** the specific name refers to the 5–6 comparatively short, robust dorsolateral setae on the second article of the female gonopods.

**Diagnosis.** The new species is morphologically close to *L. (E.) rhyusus* Attems, 1934 from Province Fokien (Fujian) and Taiwan, China, with which it shares the following traits: antennae commonly composed of 20+20 articles, 2+2 spurs of female gonopods and the 15<sup>th</sup> legs' dorsal plectrotaxy (10310), but can be readily distinguished from the latter by having coxal pores at most 5555 versus coxal pores 6554 in the posterior species, and ocelli arranged in 3 irregular rows

with posterior two ocelli being comparatively large vs ocelli in 4 irregular rows and only the posteriormost ocellus being large. The new species resembles also *L. (E.) martensi* Eason, 1989 from Nepal in having similar number of ocelli and identical 15<sup>th</sup> legs' dorsal plectrotaxy (10310), but could be separated from the latter by Tömösváry's organ slightly smaller than adjoining ocelli other than larger than adjoining ocelli in the posterior, female gonopods with 2+2 spurs and simple claw versus female gonopods with 3+3 spurs and a claw with a small lateral denticle and 1–3 medial denticles in *L. (E.) martensi*. The new species is also morphologically close to *L. (E.) giganteus* Sselivanoff, 1881 from Central Asia, with which it shares Tomosvary's organ slightly smaller than adjoining ocelli and ocelli situated in 3 irregular rows, but can be readily distinguished from the latter by having 5–6 comparatively shorter robust setae concentrated posteriorly on the external margin of the dorsal part of the second article of female gonopods and different leg plectrotaxy (the 15<sup>th</sup> legs' dorsal plectrotaxy is 10310 in new species, vs 10110 in *L. (E.) giganteus*), and posterior two ocelli being comparatively large (versus only posteriormost ocellus being large).

**Description.** Body length: female, 11.6–22.6 mm, cephalic plate 1.1–1.7 mm long, 1.2–2.0 mm wide; male, 14.3–19.6 mm, cephalic plate 1.4–1.7 mm long, 1.7–1.9 mm wide. Colour: basal antennal articles yellow-brown, all following antennal articles pale, distalmost one yellow-brownish; tergites pale orange to fuscous with a white mottling concentrated in a longitudinal median band; cephalic plate, TT 14 and 15 chocolate with a reddish hue; pleural region pale grey; all sternites pale yellow-brownish to chocolate; distal part of forcipules red-brown, basal and proximal parts of forcipules, forcipular coxosternite and S 15 yellow-brownish with reddish hue; legs 1–13 pale yellow-brown with greyish hue, legs 14–15 darker; tarsus of all legs yellow-brown.

Antennae: commonly 20+20 (three specimens with 20+21, one specimen with 20+26) articles (Fig. 1); basal article longer than wide, second one markedly longer than wide, following articles gradually shortening, distal article up to 2.4–4.0 times as long as wide. Abundant setae on the antennal surface, less so on the basal articles, setae gradually increase in density 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; from short to long setae scattered along the marginal ridge of the cephalic plate; lateral marginal ridge discontinuous (Fig. 1).

Seven–nine oval to rounded ocelli on each side (Fig. 2) situated in three irregular rows; the posterior two comparatively large; two smaller ocelli lying at the ventral side of the cephalic plate, overhanging its lateral margin; all seriate ocelli domed, translucent, usually darkly pigmented.

Tömösváry's organ situated at the anterolateral margin of the cephalic plate, slightly smaller than the adjoining ocelli and lying well apart from them (Fig. 2, To).

Coxosternite subtrapezoidal (Fig. 3), anterior margin narrow, external side lightly longer than internal side; median diastema moderately deep, V-shaped; anterior margin with 2+2 teeth; porodonts thick and stout, lying posterolateral to the lateralmost tooth (Fig. 4); some short setae scattered on the ventral side of coxosternite; usually there are longer setae near the dental margin.

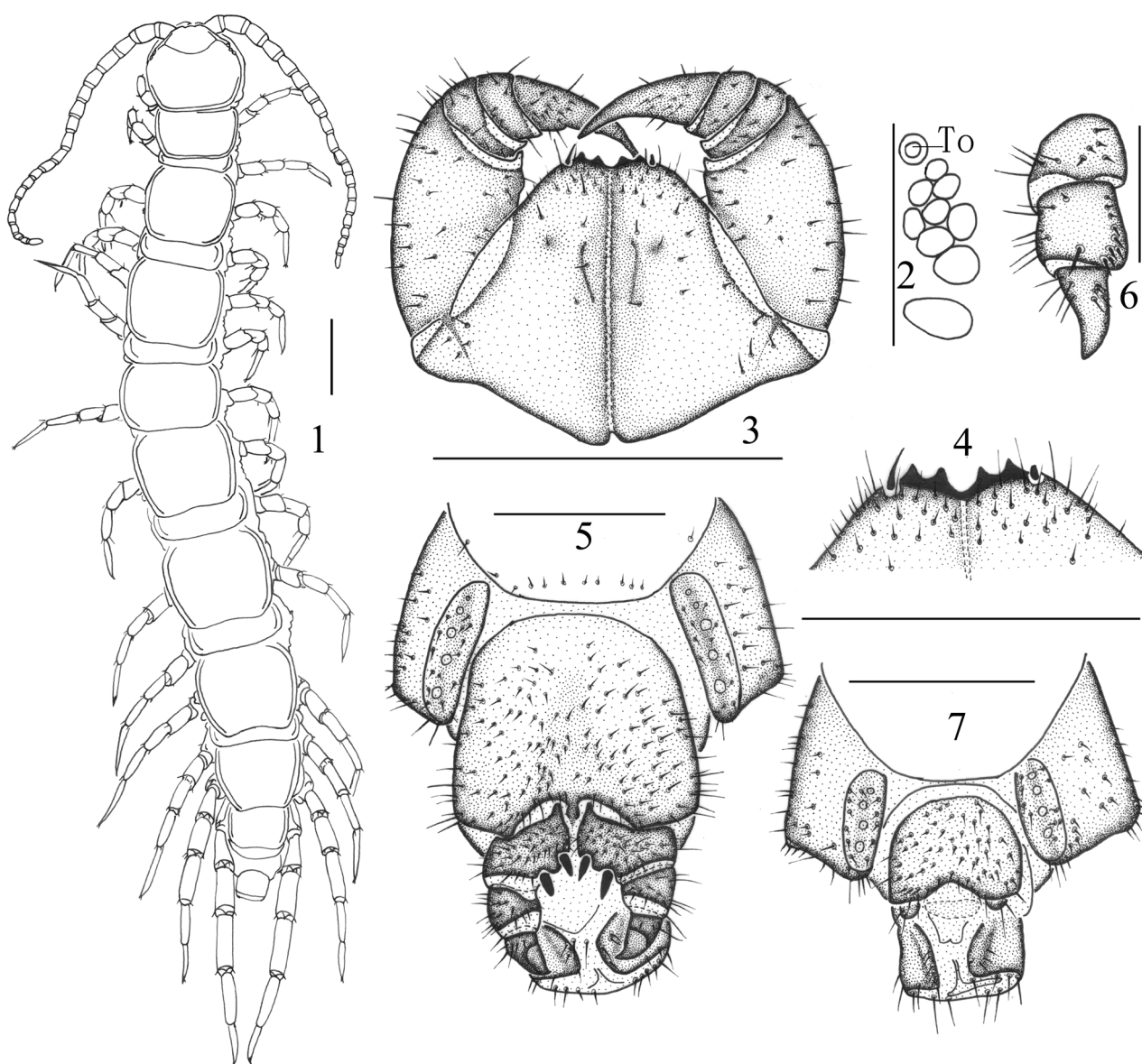
All tergites smooth, without wrinkles; T 1 posterolaterally narrower than anterolaterally, generally trapeziform, narrower than T 3 and the cephalic plate, the cephalic plate slightly wider than T 3; posterior margin of T 1 slightly concave, posterior marginal ridge of T 1 discontinuous; posterior margin of TT 3, 5, 8, 10, 12 and 14 relatively concave, posterior margin ridge of TT 3 and 5 continuous, posterior margin ridge of TT 8, 9, 10, 11, 12, 13 and 14 discontinuous; all posterior angles generally rounded, without triangular projections; lateral margin ridge of all tergites continuous; tiny setae scattered very sparsely over the surface, more numerous setae on anterior and posterior angles of each tergite (Fig. 1).

The posterior side of sternites narrower than the anterior one, generally trapeziform, comparatively smooth, setae emerging from pores scattered very sparsely on the surface, slightly thicker setae on the surface of the anterior part of each sternite; markedly thicker evenly scattered setae on the surface of SS 12, 13, 14 and 15.

Legs strong, tarsal articulation well defined on legs 1–15; all legs with fairly long curved claws; anterior and posterior accessory spurs on legs 1–14; anterior accessory spurs moderately long and slender, the posterior one slightly stronger; both spurs form almost equal angles with the pretarsus. No accessory spurs on legs 15. Abundant glandular pores on the surface of prefemur, femur, tibia and tarsus of legs 14 and 15; short to comparatively long setae scattered very sparsely over the surface of all segments of all legs, more setae scattered on the surface of tarsus, slightly thick setae arranged in a row on the ventral side of tarsus; male legs 14 and 15 slightly thicker and stronger than other legs. In the female, tarsus 1 5.0–5.6 times as long as wide, tarsus 2 about 78%–82% length of tarsus on legs 15. In the male, legs 14 and 15 thicker and stronger than in the female, tarsus 1 about 4.8–5.6 times as long as wide, tarsus 2 about 72%–83% length of tarsus on legs 15. Legs' plectrotaxy as in Table 1.

**TABLE 1.** Legs' plectroaxy of *Lithobius (Ezembius) multispinipes* sp. n. (Letters in brackets indicate variable spines.)

legs	ventral					dorsal				
	C	Tr	P	F	Ti	C	Tr	P	F	Ti
1	-	-	mp	amp	(a)m	-	-	p	ap	a
2-5	-	-	mp	amp	am	-	-	ap	ap	ap
6	-	-	mp	amp	am	-	-	(a)mp	ap	ap
7-8	-	-	mp	amp	am	-	-	amp	ap	ap
9-10	-	-	(a)mp	amp	am	(a)	-	amp	ap	ap
11	-	-	amp	amp	am	a	-	amp	ap	ap
12	-	(m)	amp	amp	am	a	-	amp	ap	ap
13	-	(m)	amp	amp	am	a	-	amp	(a)p	ap
14	-	m	amp	am	a	a	-	amp	p	p
15	-	m	amp	am	a	a	-	amp	p	-



**FIGURES 1–7.** *Lithobius (Ezembius) multispinipes* sp. n., 1–6 holotype, female: 1 habitus, dorsal view, scale 1 mm; 2 ocelli and Tömösváry's organ (To), lateral view, scale 250 µm; 3 forcipular coxosternite, ventral view, scale 500 µm; 4 dental margin of forcipular coxosternite, ventral view, scale 250 µm; 5 posterior segments and gonopods, ventral view, scale 500 µm; 6 right gonopod, dorsal view, scale 250 µm; 7 paratype, male: posterior segments and gonopods, ventral view, scale 500 µm.

TABLE 2. Range and main morphological characters of Chinese species of subgenus *Lithobius* (*Ezembius*) Chamberlin, 1919.

characters	<i>anabilineatus</i>	<i>anusulctifemoratis</i>	<i>bidens</i>	<i>bitineatus</i>	<i>chekianus</i>	<i>gantensis</i>
Sources	Ma, Pei, Hou, Zhu & Gai, 2015	Ma, Pei, Wu & Gai 2013	Takakuwa, 1939	Pei, Ma, Zhu & Gai, 2014	Chamberlin & wang, 1952	Takakuwa & Takashima, 1949
Distribution	China S (Guangxi)	China S (Guangxi)	China S (Taiwan)	China S (Guangxi)	China S (Zhengjiang and Taiwan)	China NW (Shanxi)
Body length (mm)	11.9–12.1	10.1–12.3	15	9.0–9.1	16	9
Number of antennal articles	23+23 articles in female, fragmentary in male, 11+12 articles	19+19–24+24, commonly 20+20	20–21	two specimens with 20+21, one specimen with 20+23	20+20	20–23
Number, arrangement and shape of the ocelli	5–6, in 2 rows	6, in 3 rows	7	5–6, in 2 rows	5, in 3 rows	6
Posterior ocellus	round, posterior three ocelli large	oval to round, large	comparatively large	oval to rounded	oval to round, comparatively large	oval to round, comparatively large
Seriate ocelli	subequal and all ocelli domed, translucent, usually darkly pigmented.	the one near ventral margin moderately small, others almost equal	not reported	subequal and all ocelli domed, translucent, usually darkly pigmented	not reported	comparatively large
Tömösövény's organ	round, smaller than the adjoining ocelli	moderately large, rounded, slightly larger than the adjoining ocelli	At most same size as one ocellus	slightly larger than the adjoining ocelli	not reported	subequal in size to the adjoining medium large ocelli
Number and arrangement of coxosternal teeth	2+2 subtriangular teeth	2+2, moderately blunt teeth	2+2	2+2, slightly triangular	2+2	2+2, approximately sharp small teeth
Porodont	long, lying posterolateral to the most lateral teeth	slender, lying posterolateral to the lateral most tooth, their basal moderately bulged	moderately long	thick and long, lying posterolateral to the lateral most tooth	not reported	not detailed reported
Tergites	Smooth, backside slightly hunched	smooth	not reported	smooth, slightly hunched behind	not reported	smooth, without wrinkles
Number of coxal pores	3–5, female 4454, 3554; male 4443, 4453	3–6, usually 4663, 5654, 5553, 5563 and 5565	5 (6) 555	usually females 4554, 5565; males 4553, 4454	6655 or 7665	3333
Shape of coxal pores	round or slightly ovate	round or slightly ovate	round	ovate	not reported	round
Tarsus 1–tarsus 2 articulation on legs 1–13	not well-defined	not well-defined	well-defined	not well-defined	not reported	not reported

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TABLE 2. (Continued)

characters	<i>anabilineatus</i>	<i>anasulcifemoratis</i>	<i>bidens</i>	<i>bitineatus</i>	<i>chekianus</i>	<i>gantoensis</i>
Male 14th leg	obvious thicker and stronger than other legs	markedly thicker and stronger than 1–13 legs, more thicker and stronger than female	not reported	distinctly thick and strong	not reported	not reported
Male 15th leg	obvious thicker and stronger than other legs	markedly thicker and stronger than 1–13 legs, more thicker and stronger than female	not reported	distinctly thick and strong	not reported	not reported
Dorsal sulci on male 14th legs	absent	absent	not reported	with two, shallow longitudinal sulci	not reported	not reported
Dorsal sulci on male 15th legs	two distinct, shallow, dorsal sulci on the femur and tibia, the inner sulci long and continuous, the external sulci short and discontinuous, with one obvious longitudinal black line in the bottom	with a distinct, shallow, dorsal sulci on the tibia	not reported	with two, shallow longitudinal sulci	not reported	not reported
VaC spine	absent	absent	absent	absent	absent	absent
DaC spine	on 14 <sup>th</sup> –15 <sup>th</sup> legs	on 14 <sup>th</sup> –15 <sup>th</sup> legs	absent	on 4 <sup>th</sup> –15 <sup>th</sup> legs	on 14 <sup>th</sup> –15 <sup>th</sup> legs	absent
14 <sup>th</sup> accessory spur	anterior accessory spur reduced in size, only half the length of the posterior accessory spur	absent	not reported	anterior accessory spur absent	present	present
15 <sup>th</sup> accessory spur	absent	absent	not reported	anterior accessory absent	present	present
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 blunt, with conical spurs, inner spur slightly smaller	3+3 or 4+4, sharp	2+2 moderately small, blunt, coniform spurs, inner spur slightly smaller than the outer one	not reported	1+1, conical spurs
dorsal side of the second article of female gonopods	with one spine lying dorsally on its external margin	no striking features	not reported	with three short, robust setae lying dorsally on its external margin	not reported	not reported
Apical claw of female gonopods (and lateral denticles)	simple, there a small subtriangular teeth in the inner	apical claw dimidiate	simple, there a small sharply teeth in the inner	apical claw bipartite, and its inner aspect broader	not reported	simple
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	not reported

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TABLE 2. (Continued)

characters	<i>giganteus</i>	<i>insolitus</i>	<i>irregularis</i>	<i>kiayiensis</i>	<i>laevidentata</i>	<i>lineatus</i>
Sources	Sseliwanooff, 1881	Eason, 1993	Takakuwa & Takashima, 1949	Wang, 1959	Pei, Ma, Hou, Zhu & Gai, 2015	Takakuwa, 1939
Distribution	China N (Inner Mongolia Autonomous region)	China S (Hongkong)	China W ) (Shanxi)	China S (Taiwan)	China NW (Xinjiang Uygur)	China S (Taiwan)
Body length (mm)	1.5–2.3	10.0–11.5	12	9–12	9.6–13.3	18
Number of antennal articles	20+20	18+18–19+19	20+20	26–31	19+19–21+21 commonly 20+20	19+19–21+21
Number, arrangement and shape of the ocelli	6–10, in 2–3 rows	6–8, in 2 rows	7, in 2 rows	6–9	8–10, in 3 rows	8–11, in 3 rows
Posterior ocellus	oval to round, comparatively large	oval to round, comparatively large	round, comparatively large	not reported	Posterior two ocelli bigger than the seriate ocelli	comparatively small
Seriate ocelli	not reported	not reported	other ocelli subequal	not reported	other seriate ocelli slightly larger than the ocelli adjoining to the ventral	not reported
Tömös-vary's organ	slightly smaller than the adjoining ocelli	slightly smaller than the adjoining ocelli	same size as largest ocellus	not reported	subequal in size to the adjoining ocelli	same size as the adjoining ocelli
Number and arrangement of coxosternal teeth	2+2	2+2, approximately sharp small teeth	2+2, small teeth	3+3	2+2, approximately blunt teeth	2+2, comparatively large
Porodent	not reported	slender, lying posterolateral to the lateral tooth, their basal slightly bulged	long, their basal slightly bulged	not reported	thick and long, lying posterolateral to the most lateral teeth	Long and strong
Tergites	smooth, with slightly wrinkles	T1 smooth, other with wrinkles	Smooth	Smooth, posterior angles triangular in TT7, 9, 11, 13	smooth, without wrinkles, backside slightly hunched	smooth
Number of coxal pores	3333, 4554, 4555, 4565, 5565 or 5566	3–6, male 3443; female 4454, 4555, 5555, 5565	3–10, female 3–6 in 12 <sup>th</sup> leg, 4–6 in 13 <sup>th</sup> leg, 7–10 in 14 <sup>th</sup> and 15 <sup>th</sup> leg	4444	2–5, female commonly 4555, 4554, sometime 3454, 3455, 3343, male commonly 2332, 2333, sometime 3444, 3333	6–7, usually 66(7)6
Shape of coxal pores	round	round	round	not reported	round or slightly ovate	round to ovate

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TABLE 2. (Continued)

characters	<i>giganteus</i>	<i>insolitus</i>	<i>irregularis</i>	<i>kiayiensis</i>	<i>laevidentata</i>	<i>lineatus</i>
Tarsus 1–tarsus 2 articulation on legs 1–13	well-defined	not defined	well-defined	not reported	not well-defined	well-defined
Male 14th leg	not reported	distinctly thick and strong	not reported	thick and strong	remarkably thicker and stronger than 1–13 legs,	not reported
Male 15th leg	not reported	distinctly thick and strong, with dark zones on dorsal of tibia	not reported	no striking features	markedly thicker and stronger than 1–13 legs	not reported
Dorsal sulci on male 14th legs	not reported	absent	not reported	no striking features	absent	absent
Dorsal sulci on male 15th legs	not reported	absent	not reported	no striking features	with a distinct, shallow, dorsal sulci on the tibia	not reported
VaC spine	absent	absent	absent	absent	absent	absent
DaC spine	on 12 <sup>th</sup> –15 <sup>th</sup> legs (11 and 12 sometimes present)	absent	on 13 <sup>th</sup> –15 <sup>th</sup> legs	absent	on 12 <sup>th</sup> –15 <sup>th</sup> legs	on 14 <sup>th</sup> –15 <sup>th</sup> legs
14 <sup>th</sup> accessory spur	present	not reported	not reported	not reported	present	present
15 <sup>th</sup> accessory spur	absent	absent	not reported	not reported	anterior accessory spur absent	present
Number and shape of spurs on female gonopods	2+2	3+3, coniform spurs	2+2 or 2+3, moderately small, blunt, coniform spurs	2+2	3+4, or 4+4 small, blunt, coniform spurs, commonly with 3+3, inner spur smaller than the outer one	3+3 moderately sharp, slender conical spurs
dorsal side of the second article of female gonopods	with eight spines in two irregular rows lying dorsally on its external margin	not reported	not reported	not reported	with three long setae lying dorsally on its anterior external margin	not reported
Apical claw of female gonopods (and lateral denticles)	simple	simple	simple and broad	tridentate	simple and broad	simple
Male gonopods	not reported	not reported	not reported	not reported	small bulge, with one to two long setae apically slightly sclerotised	hemispherical bulge,

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TABLE 2. (Continued)

characters	<i>mandschrensis</i>	<i>multispinipes</i>	<i>parvicornis</i>	<i>rhysus</i>	<i>sulcipes</i>	<i>sulcifemoratis</i>	<i>zhui</i>
Sources	Takakuwa, 1939	This paper	(Porat, 1893)	Attems, 1934	Attems, 1927	Takakuwa, & Takashima 1949	Pei, Ma, Shi, Wu & Gai, 2011
Distribution	China (Taiwan, Sichuan, Jiangsu, Heilongjiang, Jilin, Liaoning)	China NW (Xinjiang Uygur)	China S (Taiwan)	China S (Fujian and Taiwan)	China S (Taiwan)	China W (Shanxi)	China NW (Xinjiang Uygur)
Body length (mm)	22–23	11.6–22.6	16	15	Not reported	12	8.1–15.0
Number of antennal articles	20–28	commonly 20+20, one specimen 20+26, and one 20+21	20+20, 21+21	20+20 in female, 20+21 in male	19–22	20+20	20–24, commonly 20
Number, arrangement and shape of the ocelli	9–13, in 3 rows	8, in 3 rows	3–4, in 1 or 2 rows	8, in 4 rows	7, in 2 rows	6	10–13, in 3–4 rows
Posterior ocellus	comparatively large	two ocelli large, oval to rounded	comparatively large	comparatively large	comparatively large	all ocelli same size	comparatively large
Seriate ocelli	Same size	the two near ventral margin moderately small, others almost equal	not reported	not reported	not reported	same size	dorsal ones moderately large, those near ventral margin of ocellar field moderately small, others of moderate size
Tömösváry's organ	larger than the adjoining ocelli	slightly smaller than the adjoining ocelli	not reported	not reported	not reported	same size as ocelli	slightly larger than the adjoining ocelli
Number and arrangement of coxosternal teeth	2+2, small and sharp teeth	3+3, slightly triangular	2+2	2+2	2+2	2+2, small and sharp	2+2 moderately small and pointed teeth
Porodont	lying posterolateral to the lateral most tooth	thick and long, lying posterolateral to the lateral most tooth	lying posterolateral to the most lateral teeth	not obvious	not reported	slend and long	moderately thick in basal, moderately pointed, just posterolateral to the lateral tooth
Tergites	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, backside slightly hunched
Number of coxal pores	77(6/7)5(6)	3–5, 4555, 5555, 4444, 4455 (females) and 4444, 3344 (males)	3334	6554	4554	5555	2–4, 3444, 3344, 3443, 3333 in female, and 3443, 2343, 2433, 2333 in male.

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TABLE 2. (Continued)

characters	<i>mandschrensis</i>	<i>multispinipes</i>	<i>parvicornis</i>	<i>rhyusus</i>	<i>sulcipes</i>	<i>sulcifemorialis</i>	<i>zhui</i>
Shape of coxal pores	round or ovate	round to ovate	not reported	round	round	round	round or slightly ovate
Tarsus 1–tarsus 2 articulation on legs 1–13	well-defined	well-defined	not reported	not reported	well-defined	well-defined	well-defined
Male 14th leg	not reported	thick and strong	not reported	not reported	not reported	thick and strong	moderately thicker and stronger
Male 15th leg	not reported	thick and strong	not reported	femur and tibia thicker	femur and tibia thicker	thick and strong	thicker and stronger, with a circular protuberance on distal end of tibia
Dorsal sulci on male 14th legs	not reported	absent	not reported	not reported	present on the femur	present on the femur and tibia	absent
Dorsal sulci on male 15th legs	not reported	absent	not reported	not reported	present on the femur and tibia	present on the femur and tibia	absent
VaC spine	absent	absent	not reported	Absent 15 <sup>th</sup> legs	absent	absent	absent
DaC spine	on 12 <sup>th</sup> –15 <sup>th</sup> legs	on 11 <sup>th</sup> –15 <sup>th</sup> legs, 9 <sup>th</sup> –10 <sup>th</sup> sometimes present	not reported	on 15 <sup>th</sup> legs present	on 15 <sup>th</sup> legs present	absent	on 13 <sup>th</sup> –15 <sup>th</sup> legs, 12 <sup>th</sup> sometimes present
14 <sup>th</sup> accessory spur	not reported	present	not reported	not reported	not reported	not reported	present
15 <sup>th</sup> accessory spur	not reported	absent	not reported	absent	not reported	not reported	absent
Number and shape of spurs on female gonopods	3+3, same size	2+2, blunt, coniform spurs, with inner spur smaller than the outer one	2+2	2+2, slendly	2+2, thick spurs	2+2, stong, long and sharp	2fl 2 moderately long, coniform spurs, inner spur slightly smaller and more anterior than outer
dorsal side of the second article of female gonopods	not reported	with 3–4 long setae and 5–6 spines lying dorsally on its external margin	not reported	not reported	not reported	not reported	three spurs arranged in one irregular row on the dorsal terminal part
Apical claw of female gonopods (and lateral denticles)	simple	simple	simple	simple	dimidiate	simple	broad, and tridentate
Male gonopods	without setae	hemispherical bulge, having a long seta, and apically slightly sclerotised	not reported	not reported	not reported	not reported	small bulge, with 1–2 long setae on surface, and terminal slightly sclerotised

Coxal pores 3–5, round or slightly ovate, usually 4555, 5555 (females) and 4444 (males), rarely 4444 or 4455 in females and 3344 in males. Coxal pore field set in a relatively shallow groove, the fringe of coxal pore-field with an eminence, short to moderately long setae scattered sparsely over the surface of the eminence.

Female S 15 anterolaterally broader than posterolaterally, generally trapeziform, posteromedially straight; sternite of genital segment usually well sclerotized, length nearly equal to width; posterior margin of genital sternite deeply concave between the condyles of gonopods, except for a small, median approximately globular bulge; relatively long setae scattered over the ventral surface of the genital segment, few setae near S 15, regularly fringed with longer setae along the posterior margin. Gonopods: first article: fairly broad, bearing 25–30 short to moderately long setae; 2+2 moderately blunt, coniform spurs, inner spur slightly smaller than the outer one (Fig. 5); second article with 10–14 rather long setae, arranged in three irregular rows on its ventral side, 3–4 long setae lying at the external margin of the second article, 5–6 comparatively short robust setae lying posteriorly at the external margin of the second article; usually 4 moderately long setae on the ventral surface of third article, 5–6 comparatively long setae situated at the dorsal surface of third article; apical claw simple, slender and sharp (Fig. 6).

Male S 15 posterolaterally narrower than anterolaterally, posterior edge straight, sparsely covered with long setae; the sternite of the genital segment smaller than in female, usually well sclerotised. Posterior margin quite deeply concave between the gonopods, without a medial bulge; comparatively long setae evenly scattered on the ventral surface of the genital segment, few setae near S 15, the distal of gonopods that can be seen, short and small as a small bulge, with two long setae, apically slightly sclerotised (Fig. 7).

**Habitat.** The specimens were collected in a *Larix* forest at 950–1000 m alt. It inhabits moderately moist habitats under roadside stones and litter of the forest floor.

To assist in the identification of the Chinese species of *Lithobius* (*Ezembius*), the following range and main morphological characters of Chinese species of the subgenus is offered (table 2). These characters are specific only to adults to the taxa occurring in China.

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