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ON LITHOBIIDAE FROM SARDINIA (CHILOPODA: LITHOBIOMORPHA)

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ABSTRACT

Six species of Lithobiidae are recorded from Sardinia and are also described. *Lithobius castaneus*, *Lithobius tricuspis* and *Lithobius crassipes* have been recorded from the island by previous authors. The probability of *Eupolybothrus impressus* and *Lithobius lapidicola* being among those species previously recorded is discussed. *Lithobius pilicornis doriae* is recorded from Sardinia for the first time. *Lithobius turritanus* Fanzago is proposed as a junior synonym of *Lithobius tricuspis* Meinert. There is insufficient evidence to conclude that the Sardinian forms of any of these species differ subspecifically from those occurring on the mainland.

INTRODUCTION

Although there have been several reports during the present century of Lithobiidae being found in Sardinian caves (Silvestri, 1908; Manfredi, 1956; Matic, 1967), our knowledge of the surface-dwelling species of Sardinia still depends on Fanzago's (1881) list, supplemented by a single record by Costa (1885) and a brief report by Silvestri (1898) who repeated all Fanzago's records and added some of his own. Verhoeff's (1925) list of Sardinian species was compiled

from Silvestri's (1898) report, but a number of species which Verhoeff should have recorded from Sardinia were, mistakenly, recorded from Corsica so that this list is incomplete. Of the 16 species recorded by Fanzago, all from the neighbourhood of Sassari, many are difficult to recognize with any certainty from his descriptions and it is therefore desirable to make a fresh survey of the epigeal Lithobiidae of the island. The present account, which is an attempt to initiate such a survey, is based on 181 specimens from nine separate localities ranging from Sassari in the

north to Cagliari in the south, collected by Dr. C.A.W. Jeekel in the autumn of 1957 and now preserved in the Zoological Museum, Amsterdam University.

Descriptions of each species are given in sufficient detail to establish, where possible, their probable identity with one of those previously described from Sardinia. Synonyms are restricted to those involving one of those species.

1. *Eupolybothrus impressus* (C.L. Koch)

Lithobius impressus C.L. Koch, 1841: 224.

Material.-

Tempio Pausania, 1 ♀.

Description.-

Size: 28 mm long and 3.0 mm broad at T. 10. Antennae: 15 mm long with 53 and 56 articles. Ocelli: 1+4, 4, 4, 3. Prosternum: with 7 + 8 teeth; porodont dentiform. Tergites: T. 8, 10 and 12 broader than long with posterior borders emarginate and posterior angles blunt, not rounded; posterior angles of T. 9, 11 and 13 with prominent projections. Coxal pores: typical of *Eupolybothrus*. 15th accessory apical claw: absent. Gonopod: with two spurs and a simple claw. Spinulation: see table I.

Remarks.-

The doubt surrounding the synonymy of *Eupolybothrus elongatus* (Newport, 1849) with *E. impressus*, both originally described from Algeria, and their possible synonymy with *Lithobius nudicornis* Gervais, 1837, from Sicily have been discussed at some length in a previous paper (Eason, 1972). The relatively broad T. 8, 10 and 12 with blunt, not rounded, posterior angles, the well-developed posterior projections on T. 9, and the ventral tarsal spines on the 14th and 15th legs place the Sardinian specimen in *impressus* rather than in *elongatus*. It may well be identical with *E. impressus corsicus* (Léger & Duboscq, 1903) from Corsica but in the absence of a male with the characteristic modification of the spine 14 DpP this cannot be confirmed. It does not closely resemble either *E. elongatus sardus* (Manfredi, 1956) or *E. elongatus* as described by Matic (1967), both of which were found in Sardinian caves and neither of which have ventral tarsal spines: nor do these two forms resemble one another very closely. However, it is unlikely that the present specimen is specifically distinct from either of these forms: there may have been some differentiation of the species into subspecies owing to cave-dwelling: or *E. impressus* may be merely very variable in Sardinia.

This species does not resemble any of those described from Sardinia either by Fanzago or by Silvestri.

Table I

	Ventral						Dorsal				
	C	t	P	F	T	Ta	C	t	P	F	T
1	-	-	mp	amp	amp	-	-	-	amp	a	a
2	-	-	mp	amp	amp	-	-	-	amp	a p	a
3-6	-	-	mp	amp	amp	-	-	-	amp	a p	a p
7-9	-	-	amp	amp	amp	-	-	-	amp	a p	a p
10-11	-	-	amp	amp	amp	-	(a)	-	amp	a p	a p
12-13	-	m	amp	amp	amp	-	a	-	amp	a p	a p
14	a	m	amp	amp	a	a	a	-	amp	p	p
15	a	m	amp	am	a	a	a	-	amp	p	-

10 and 11 DaC present on one side only.

2. *Lithobius castaneus* Newport

(Fig. 1)

Lithobius castaneus Newport, 1844: 96.
Lithobius audax Meinert, 1872: 334.
Lithobius (Archilithobius) audax: Fanzago, 1881: 9.

Material.-

Tempio Pausania, 6 ♂♂, 9 ♀♀, 16 juv.; Desulo, 2 ♂♂, 5 ♀♀, 2 juv.; Tonara, 1 ♂, 2 ♀♀, 3 juv.; Sorgono, 1 ♂, 1 juv.; Oliena, 1 ♀.

Description of adults.-

Length: 15 to 23 mm. Antennae: of 26 to 33 articles. Prosternum: usually with 2 + 2 well-developed closely-set teeth, a distinct median sinus and each porodont massive, dentiform and pigmented (Fig. 1); in the smaller specimens the teeth are relatively rather smaller but rarely as small as those figured by Brölemann (1930: fig. 439) for French examples of *L. castaneus*; in the single female form Oliena, however, which is 18 mm long, the teeth are as small as those figured by Brölemann, the median sinus is very shallow and the porodonts are represented by translucent spines, fairly broad at the base but setiform at the apex. Tergites: the characteristic sculpturing of the large tergites (Brölemann, 1930: fig. 440) is quite distinct on T. 1, 3, 5, 8, 10 and 12 and, in the larger specimens, on T. 7. Coxal pores: frequently 5, 6, 6, 6 or 4, 5, 5, 5 but as many as 6, 7, 8, 7 and as few as 2, 4, 4, 4 are also found; trans-

verse to oblong in larger and oval to circular in smaller specimens. 14th and 15th legs: equally swollen in both sexes; 15th accessory apical claw absent. Female gonopod: with two long acuminate spurs and a claw with a sharp lateral denticle. Male genitalia: gonopod of a single article; second genital sternite without setae. Spinulation: see Table II.

Description of juveniles.-

Prosternum: in specimens from 10 to 15 mm long the teeth are well-developed and the porodont is stout at the base but acuminate and not blunt as in adults, sometimes with a setiform apex. Female gonopod: in specimens from 10 to 15 mm long the spurs may be almost equal in size or very unequal, the claw may be feebly dentate or sharp and simple; a specimen 9 mm long has a single spur and a small incipient claw. Spinulation of 15th legs: as in adults in all but an a genitalis, 7 mm long, which has neither VaC nor VaT.

Remarks.-

Although the dentate claws which are found on the gonopods of all the females among the present specimens agree with Meinert's description of *L. audax* from Italy and Tirol rather than with the holotype of *L. castaneus* from Sicily which has a simple claw (Eason, 1972), it has been explained in a previous paper (Eason, 1974), why *audax* should be regarded as a junior synonym of *castaneus*. An unusual feature of most of the

Table II

	Ventral					Dorsal				
	C	t	P	F	T	C	t	P	F	T
1	-	-	mp	amp	am	-	-	amp	ap	a
2-6	-	-	mp	amp	am	-	-	amp	ap	ap
7-11	-	-	(a)mp	amp	am	-	-	amp	ap	ap
12	-	-	amp	amp	am	-	-	amp	ap	ap
13	-	(m)	amp	amp	am	a	-	amp	ap	ap
14	(a)	m	amp	amp	am	a	-	amp	p	p
15	a	m	amp	am	a	a	-	amp	p	-

The letters in brackets indicate variable spines. In addition to these common variations 13 VaC and 15 VpF may occasionally be present, and 15 VmF and 15 VaT may occasionally be absent. Some spines, notably 15 VaC, may be duplicated.

present specimens is the relatively large size of the prosternal teeth and the well-marked median prosternal sinus, particularly in the largest female from Tempio Pausania (Fig. 1), which contrast with the small teeth and shallow sinus usually found in this species (see Brölemann, 1930: fig. 439) and found among the Sardinian specimens only in the single female from Oliena. This last specimen also has the usual massive porodont replaced by a small setiform spine and thus resembles *L. castaneus* var. *submediterraneus* Verhoeff, 1934, from northern Italy (Verhoeff, 1934).

Although the large prosternal teeth may be characteristic of a Sardinian subspecies, the small teeth and delicate porodont of the specimen from Oliena, which is not far distant from some of the other localities in which *castaneus* was found, suggest that these prosternal features may vary among individuals from the same population.

There is no reason to question the identity of this species with *L. audax* as described by Fanzago.

3. *Lithobius pilicornis doriae* Pocock

Lithobius (Archilithobius) doriae Pocock, 1890: 63.

Material.-

Desulo, 3 ♀♀, 1 juv.

Description of adult females.-

Length: 18 to 22 mm. Antennae: of 28 to 32 articles. Prosternum: with 4 + 4 or 5 + 5 teeth. Tergites: posterior angles of T. 9 and 11 squared,

those of T. 13 with small posterior projections. Coxal pores: 5, 7, 7, 6 etc.; transverse to oblong. 15th accessory apical claw: absent. Gonopod: with two spurs and a stout tridentate claw. Spinulation: see Table III.

Description of juvenile.-

Length: 13 mm. Antennae: of 28 and 29 articles. Prosternum: with 4 + 4 teeth. Tergites: as in adults. Coxal pores: 4, 5, 5, 4; almost circular. Female gonopod: with two spurs, slightly unequal in size, and a tridentate claw. Spinulation: as in adult.

Remarks.-

These specimens undoubtedly belong to *L. doriae* as described by Pocock from Busalla in Italy. The only consistent difference between this form and *L. pilicornis* Newport, 1844, apart from its smaller average size, is the absence of any posterior projections on T. 11. It is therefore regarded here as a subspecies of *L. pilicornis* (see Brölemann, 1930).

None of the species previously described from Sardinia bear any resemblance to *L. pilicornis doriae* and this is the first Sardinian record of this common western Mediterranean form.

4. *Lithobius tricuspis* Meinert (Fig. 2)

Lithobius tricuspis Meinert, 1872: 297.
Lithobius tricuspis: Fanzago, 1881: 4.
Lithobius (Hemilithobius) turritanus Fanzago, 1881: 6 (Syn. nov.).
? *Lithobius oligoporus*: Silvestri, 1898: 682 (non Latzel, in Costa, 1885: 254).

Table III

	Ventral					Dorsal				
	C	t	P	F	T	C	t	P	F	T
1-11	-	-	mp	amp	am	-	-	amp	ap	ap
12	-	-	amp	amp	am	-	-	amp	p	ap
13	(a)	m	amp	amp	am	a	-	amp	p	ap
14	(a)m	m	amp	amp	am	a	-	amp	p	p
15	a	m	m	amp	am	a	-	amp	p	-

The letters in brackets indicate variable spines.

Material.-

Cagliari, 4 ♀♀, 20 juv.; Campu Omu, 4 ♂♂, 1 ♀, 30 juv.; Sassari, 17 juv., 1 3rd larval stadium; Tempio Pausania, 9 juv.; Sorgono, 7 juv.; Mte. Ortobene, 3 juv.; Oliena, 1 juv.

Description of adults.-

Length: 12 to 16 mm. Antennae: one third of bodylength; of 35 to 48 irregular articles. Ocelli: 1 + 4, 3, 3; 1 + 3, 3, 3, or 1 + 3, 3, 2; organ of Tömösváry equal in size to one of the smaller ocelli. Prosternum: with 2 + 2 teeth. Tergites: posterior angles of T. 10, 12 and 14 blunt or rounded and not angulated as in English examples (Eason, 1965), those of T. 9 with much smaller projections than those of T. 11 and 13. Coxal pores: small; 2, 3, 3, 3 or 3, 3, 3, 3. 15th accessory apical claw: well-developed. Female gonopod: with three spurs and a simple claw; the claw may have feeble sinuosity of its medial ridge but is never dentate; the small ventral lobe at the base of the claw, found in many species of *Lithobius*, is always well-developed (Fig. 2). Male genitalia: gonopod of a single article; second genital sternite without setae. Spinulation: see Table IV.

Description of juveniles.-

Antennae: of as few as 30 articles in specimens from 9 to 12 mm long. Tergites: the posterior projections on T. 9 may be quite inconspicuous in specimens up to 12 mm long. Female gonopods: specimens from 9 to 12 mm long may have 3 + 3 or 2 + 3 spurs, but usually have 2 + 2 and some have only 1 + 1; smaller specimens have neither spurs nor claw. Spinulation of 15th legs: VaC is frequently absent in specimens from 9 to 12 mm long and usually absent in smaller specimens; only in an a genitalis, 6 mm long, are any of the other spines deficient.

Remarks.-

The present specimens differ from French (Brölemann, 1930) and most English (Eason, 1965) examples of *L. tricuspis* in the absence of the spine 15 VaT, and from both in the forward extension of VpP onto the first or second leg. The relatively small size of the posterior tergal projections in these specimens, particularly the projections on T. 9, contrasts with the prominent projections found in English examples (Eason, 1965: fig. 3): but Brölemann (1930) stated that in the French form of the species the size of

Table IV

	Ventral					Dorsal				
	C	t	P	F	T	C	t	P	F	T
1	-	-	(p)	(a)m	m	-	-	p	a	a
2	-	-	p	am	m	-	-	(m)p	ap	a
3	-	-	p	am	m	-	-	(m)p	ap	ap
4	-	-	(m)p	am	(a)m	-	-	(m)p	ap	ap
5	-	-	(m)p	am	am	-	-	(am)p	ap	ap
6	-	-	(m)p	am(p)	am	-	-	a(m)p	ap	ap
7-9	-	-	mp	am(p)	am	-	-	amp	ap	ap
10-11	-	-	mp	amp	am	-	-	amp	ap	ap
12	-	-	(a)mp	amp	am	-	-	amp	ap	ap
13	-	m	(a)mp	amp	am	-	-	amp	ap	ap
14	(a)	m	amp	amp	am	(a)	-	amp	(a)p	p
15	a	m	amp	amp	-	a	-	amp	p	-

The letters in brackets indicate variable spines. In addition to these variations 15 VaC and 15 VpF may occasionally be absent.

these projections is variable, those on T. 9 being sometimes obsolete.

Fanzago described *L. tricuspis* as being 8 to 16 mm long with 42 to 50 antennal articles each side and posterior projections on T. 9, whereas *L. turritanus* he described as 11 mm long with 33 to 35 antennal articles and no projections on T. 9. It seems almost certain that *turritanus* was based on large juveniles or small adults of *tricuspis* and that Eason & Minelli (1976) were mistaken in suggesting *L. turritanus* as a possible synonym of *Lithobius microdon* Latzel, 1886. Fanzago recorded a ventral spine on the 15th tibia (presumably 15 VaT) in both *tricuspis* and *turritanus* so it seems that this spine, which is known to be variable in *tricuspis* (Eason, 1965), does occur in some Sardinian populations of this species.

Silvestri probably based his description of *L. oligoporus* Latzel on small or juvenile examples of *L. tricuspis*. But he only recorded a single ventral spine on the 15th femur whereas all the specimens in the present collection which would otherwise fit Silvestri's description have VaF as well as VmF on the 15th leg: the identity of Silvestri's specimens is, therefore, uncertain. They are unlikely to be identical with *L. oligoporus* Latzel which constitutes Costa's single Sardinian record because, assuming Latzel's description to be accurate, this species is without the accessory apical claw on the 15th leg.

5. *Lithobius lapidicola* Meinert
(Figs. 3 and 4)

Lithobius lapidicola Meinert, 1872: 328.
? *Lithobius* (*Hemilithobius*) *borealis*: Fanzago, 1881: 6.
? *Lithobius* (*Archilithobius*) *lapidicola*: Fanzago, 1881: 9.

Material.-

Sassari, 8 ♂♂, 7 ♀♀, 1 juv.; Oliena, 4 ♂♂, 2 ♀♀, 3 juv.; Sorgono, 2 ♂♂, 1 juv.; Desulo, 1 juv.

Description.-

Size: 6.8 to 9.6 mm long; breadth of head 0.7 to 0.96 mm. Antennae: one third of body

length; of 26 to 34 articles. Ocelli: usually 1 + 4, 3,2; also 1 + 4, 3, 1 and 1 + 4, 4, 2; posterior ocellus a little larger than postero-superior; organ of Tömösváry about the size of an average ocellus of the main mass. Prosternum: with 2 + 2 teeth, the line of their apices recurved; porodont setiform but stouter than a seta; lateral to the porodont the free border sloped backwards forming, at most, a very feeble shoulder (Fig. 3). Tergites: T. 1 almost rectangular or somewhat trapeziform; the wrinkling characteristic of this species is usually quite well-marked on T. 5 and the more posterior large tergites but is not consistent enough to be of much value as a taxonomic character; posterior borders of T. 8, 10 and 12 moderately emarginate, that of T. 14 emarginate or almost straight; posterior angles of T. 8 rounded, those of T. 10 rounded or blunt, those of T. 12 blunt, those of T. 14 blunt or angulated, those of T. 9, obtuse or squared, those of T. 11 squared or with traces of projections, those of T. 13 with very small projections; posterior border of intermediate tergite moderately emarginate. Coxal pores: frequently 2, 3, 3, 2 in males and 3, 4, 4, 3 in females but as many as 4, 5, 4, 3 and as few as 2, 2, 3, 2 are also found; circular; separated from one another by their own diameter or more. Tarsal articulations of anterior legs: faint but definite. 14th and 15th legs: moderately swollen in both sexes without any modification in the male; 15th accessory apical claw well-developed. Sensory spurs: equal in length to accessory claws on first to 13th legs; less than half the length of accessory claws on 14th and 15th. Female gonopod: with two stout conical spurs; claw with a distal medial denticle and a rather smaller more proximal lateral denticle (Fig. 4); dorsolateral setae no stouter than general setae, two on the second article and one, very short, on the third. Male genitalia: gonopod of a single article with one or two setae; second genital sternite without setae. Spinulation: shows striking regional variation and the tables V, VI, and VII, in which letters in brackets indicate variable spines, are based on specimens from the three localities in which adults were found.

Table V

	Ventral					Dorsal				
	C	t	P	F	T	C	t	P	F	T
1	-	-	(p)	(a)m	m	-	-	(m)p	a	a
2	-	-	(p)	a m	m	-	-	mp	a p	a
3-4	-	-	(p)	am(p)	m	-	-	mp	a p	a (p)
5-7	-	-	(p)	am(p)	m	-	-	mp	a p	a p
8-9	-	-	(mp)	am(p)	m	-	-	(a)mp	a p	a p
10	-	-	mp	amp	m	-	-	(a)mp	a p	a p
11	-	-	mp	amp	m	-	-	amp	a p	a p
12	-	-	mp	amp	m	-	-	amp	p	p
13	-	m	amp	amp	m	-	-	amp	p	p
14	-	m	amp	amp	m	-	-	amp	p	-
15	-	m	amp	m	-	-	-	mp	-	-

The above table is based on four males and four females from Sassari. In addition to the common variations shown, 12 VmT, 12 VaP, 15 VaF, 15 VpF, 15 DaP and 12 DaT are each present on one specimen only, and 13 VaP, 1 VmF, 14 VpF, 14 DaP and 2 DpF are each absent on one specimen only. VpP is sometimes discontinuous between 1 and 9.

Table VI

	Ventral					Dorsal				
	C	t	P	F	T	C	t	P	F	T
1	-	-	-	-	m	-	-	(p)	a	a
2-6	-	-	-	am	m	-	-	p	a p	a
7	-	-	-	am	m	-	-	p	a p	a (p)
8	-	-	-	am	m	-	-	p	a p	a p
9	-	-	-	am	m	-	-	(m)p	a p	a p
10	-	-	m	am(p)	m	-	-	mp	a p	a p
11	-	-	m(p)	am(p)	m	-	-	mp	a p	a p
12	-	-	mp	am(p)	m	-	-	mp	p (a)p	
13	-	m	amp	amp	m	-	-	mp	p	p
14	-	m	amp	am	m	-	-	mp	p	-
15	-	m	amp	m	-	a	-	mp	-	-

The above table is based on two males from Oliena. Of the other adults from this locality all have 15 DaC and none have DaP on any of the legs.

Table VII

	Ventral					Dorsal				
	C	t	P	F	T	C	t	P	F	T
1	-	-	-	-	m	-	-	-	a	a
2-4	-	-	-	am	m	-	-	p	ap	a
5-7	-	-	-	am	m	-	-	p	ap	ap
8	-	-	-	am	m	-	-	(m)p	ap	ap
9	-	-	-	am	m	-	-	mp	ap	ap
10	-	-	-	amp	m	-	-	mp	ap	ap
11	-	-	-	amp	m	-	-	mp	p	ap
12	-	-	mp	amp	m	-	-	mp	p	p
13	-	m	amp	amp	m	-	-	mp	p	p
14	-	m	amp	amp	m	-	-	mp	p	-
15	-	m	amp	m	-	-	-	mp	-	-

The above table is based on a male from Sorgono.

Remarks.-

This species has, until recently, been confused with *Lithobius borealis* Meinert, 1868, but its identity has now been established by examination and redescription of the type material (Eason, 1974). But this redescription is inadequate so that the species is described here in some detail. *L. lapidicola* is probably widespread in western Europe and the western Mediterranean region and the Sardinian material agrees with a description of this species based on numerous examples from Sweden (G. Andersson, personal communication). It is very unlikely that a species so well-represented in the present collection should not have been found by Fanzago, but none of his descriptions seem to answer exactly to *L. lapidicola*. His description of *L. borealis* gives the formula for the ventral spinulation of the 15th legs as 1, 3, 3, 1 but otherwise is a fair description of those specimens of *L. lapidicola* with traces of posterior projections on T. 11. Although Fanzago's description of *L. lapidicola* gives the length as 1 to 11 (a misprint for 10 to 11) mm, the formula for the ventral spinulation of the 15th legs is given as 0, 0, 3, 1 which, being rather improbable, may be a misprint for 1, 3, 1, 0, the correct formula for most specimens of *lapidicola*. However, the identity of these two forms described by Fanzago is uncertain.

The spinulation of the lectotype of *L. lapidicola*, with absence of 15 DaC and also of DaP on all legs is close to that of the male from Sorgono whereas some of the paralectotypes which have 9 to 13 DaP are close to the specimens from Sassari. But regional variation among the type specimens cannot be assessed because we do not know whether they came from one or from several localities; nor can we be certain even of their country of origin (Eason, 1974). Jeekel (1964a) found 15 DaC on some of the specimens of this species from the Gran Sasso d'Italia which he described under *Lithobius pusillus pusillifrater* Verhoeff, 1925, (a junior synonym of *L. lapidicola*) and which otherwise agree well with those from Sassari. This spine, present in all the specimens from Oliena, if found in combination with 15 DaP which is present on one side of a specimen from Sassari would make the individual difficult to distinguish from *Lithobius lusitanus valesiacus* Verhoeff, 1935, which, apart from spinulation, can only be separated from *lapidicola* by rather obscure characters (Eason, unpublished).

The spinulation of Andersson's Swedish specimens is close to that of the specimens from Sassari which probably represents the prevailing pattern throughout the range of the species. Although the variability of this character among the Sardinian specimens does seem to have some regional basis it is probably very local and does not appear to be correlated with geographical distribution in the broad sense.

6. *Lithobius (Monotarsobius) crassipes* L. Koch

no reason to question it.

Lithobius crassipes L. Koch, 1862: 71, fig. 31.
Lithobius (Archilithobius) crassipes: Silvestri,
 1898: 684.

Material.-

Tempio Pausania, 1 ♀.

Description.-

Length: 12 mm. Antennae: broken on both sides: the appearance of the longest fragment which consists of 16 articles suggests that the number of articles did not exceed 20 before the antenna was damaged. Ocelli: 1 + 4, 4, 2. Prosternum: with 2 + 2 teeth. Tergites: typical of *Monotarsobius*. Coxal pores: 4, 5, 5, 4 and 4, 5, 5, 5. Tarsal articulations of anterior legs: fused. 14th legs: moderately swollen. 15th legs: missing. Gonopod: with two stout conical spurs and a tridentate claw. Spinulation: see Table VIII.

Remarks.-

In spite of the mutilation of this specimen there is little doubt as to its identity. The coxal pores are more numerous and the anterior spinulation of the legs rather more profuse than in examples of this species from other parts of its range for which detailed descriptions are available (Brölemann, 1930; Eason, 1964, Jeekel, 1964b; Matic, 1966), and these features may possibly be characteristic of a Sardinian subspecies of *L. crassipes*: but such a conclusion would not be justified on the basis of a single specimen.

Silvestri's Sardinian record of *L. crassipes* was unaccompanied by a description but there is

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Table VIII

	Ventral					Dorsal				
	C	t	P	F	T	C	t	P	F	T
1-2	-	-	p	amp	m	-	-	mp	ap	ap
3-9	-	-	p	amp	am	-	-	amp	ap	ap
10-11	-	-	mp	amp	am	-	-	amp	ap	ap
12	-	-	amp	amp	am	-	-	amp	p	p
13	-	(m)	amp	amp	am	a	-	amp	p	p
14	-	m	amp	amp	m	a	-	amp	p	-

13 VmT present on one side only. VaC absent and DaC present on 15th coxa.

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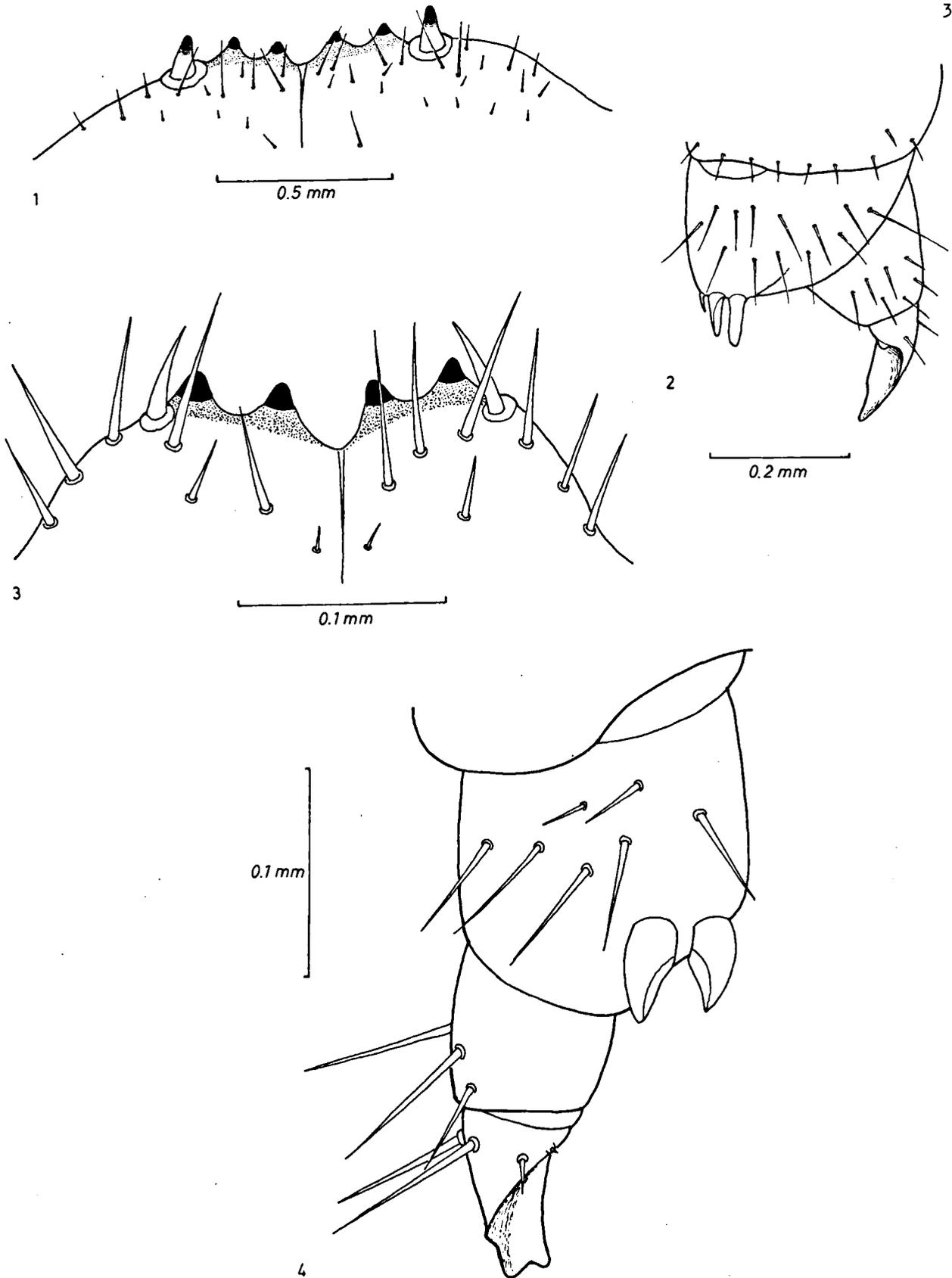


Fig. 1. *Lithobius castaneus*, ♀ 23 mm long, Tempio Pausania.- dental margin of prosternum, ventral.

Fig. 2. *Lithobius tricuspis*, ♀, Cagliari.- left gonopod, ventral.

Figs. 3-4. *Lithobius lapidicola*, ♀, Sassari.- (3) dental margin of prosternum, ventral; (4) right gonopod, ventral.