Chilopoda from the Monte Sirente and the Gran Sasso d' Italia

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In the summer of 1960 the author assembled a collection of centipedes from the higher altitudes of the Mte. Sirente and the Gran Sasso d'Italia, two of the highest mountains of the Central Apennines, in the province of L'Aquila, Italy. Although this collection proved to consist of a comparatively small number of species, a report upon it may be of some interest in view of the apparent lack of information on the Chilopod-fauna of the areas visited.

LITHOBIIDA

Lithobius forficatus (Linnaeus, 1758)

Mte. Sirente, 2000—2200 m, 19.VII.1960, 8 ♂♂, 5 ♀♀, 3 juvs.; Gran Sasso, Campo Imperatore, 1700—1800 m, 27.VII.1960, 4 ♂♂, 3 ♀♀.

According to VERHOEFF (1934, p. 103), this species, which is quite common in Western and Central Europe, is decidedly rare in Central Italy. Its occurrence in the higher regions of the Apennines is, therefore, noteworthy. VERHOEFF has expressed the opinion that the distribution of *forficatus* in Central Italy is of a relictary nature, and although this may be correct, it seems more probably the result of the excessive deforestation of the region than of climatological changes as VERHOEFF asserts. In Central Europe *forficatus* is primarily a woodland species; the two sites where the present material was collected from under stones were comparatively dry, and, as indeed the entire upper region of the two mountains, completely devoid of wood.

The spinulation of the legs of four males and three females from the Mte. Sirente is given in the following tables. These are based respectively on a male of 17 mm length with 34 and 37 antennal joints, a male of 19 mm length with 39 antennal joints, a male of 21 mm length with 35 and 41 antennal joints, a male of 19 mm length with mutilated antennae, and a female of 21 mm length with 34 and 39 antennal joints, a female of 23 mm length with 36 and 38 antennal joints, a female of 19 mm length with 42 antennal joints.

	♂♂			♀♀	
	Ventral	Dorsal		Ventral	Dorsal
Ca	————	12/13—15	Ca	————	12/13—15
Tr	13/14—15	————	Tr	13—15	————
Pa	1/11—15	1/2 —15	Pa	9/11—15	1/2 —15
m	1—15	1 —15	m	1—15	1—15
p	1—15	1 —15	p	1—15	1—15
Fa	1—15	1 —11	Fa	1—15	1—11
m	1—15	————	m	1—15	————
p	1—15	1 —15	p	1—15	1—15
Tia	1—14/15	1 —12	Tia	1—14/15	1/2—12
m	1—15	————	m	1—15	————
p	————	1/2—14/15	p	————	1/2—14

The spinulation formulas of four males and three females from the Gran Sasso, based on a male of 17 mm with 36 and 37 ant. j., a male of 17 mm with 36 ant. j., a male of 21 mm with 32 and 33 ant. j., a male of 15 mm with 34 and 36 ant. j., and a female of 17 mm with 38 and 40 ant. j., a female of 15 mm with 36 ant. j., a female of 15 mm with 36 ant. j., are as follows:

	♂♂ Ventral	♂♂ Dorsal		♀♀ Ventral	♀♀ Dorsal
Ca	———	12—15	Ca	———	12—15
Tr	12/13—15	———	Tr	12/13—15	———
Pa	7/11—15	1/2—15	Pa	8/11—15	1/5—15
m	1—15	1—15	m	1—15	1—15
p	1—15	1—15	p	1—15	1—15
Fa	1—15	1—11	Fa	1—15	1—11/12
m	1—15	———	m	1—15	———
p	1—15	1—15	p	1—15	1—15
Tia	1—14/15	1—12	Tia	1—14/15	1—12
m	1—15	———	m	1—15	———
p	13—14 or absent	1/2—14	p	———	1/2—14

The spinulation of the legs in the specimens studied closely agrees with the data given by BROLEMANN (1930, p. 258), although that author did not record variation in VTr, DCa and DFa, or the eventual presence of VTip. Still, the present material differs from Central European specimens by the smaller mean bodysize, the somewhat lower mean number of antennal joints, and, in particular, by the tendency of the processes of the 9th tergite to become reduced or even rudimentary. The colour appears to be slightly different too, being somewhat paler and less reddish brown.

From the Peninsula of Sorrento, near Naples, VERHOEFF (1943, p. 63) has described a *Lithobius forficatus,* subsp. *degener*, characterized chiefly by the almost complete absence of processes in the 9th tergite. This subsp. *degener* was based on a single male specimen of 12 mm length, which had been collected together with some typical *forficatus* specimens. It cannot, therefore, be regarded a subspecies in the common meaning of that term. Presumably, the type of *degener* was an immature male of *forficatus*, in which the processes of the 9th tergite were similarly rudimentary as in some of the specimens in the present collection.

All in all, it seems not unlikely that in Central Italy *forficatus* is represented by a distinct subspecies, but material from many more localities is needed to verify this point and to, eventually, define this race.

Lithobius acuminatus Brolemann, subsp. **cassinensis** Verhoeff, 1925

Gran Sasso, Rif. Garibaldi, 2200—2350 m, 2.VIII.1960, 3 ♂♂, 5 ♀♀, 1 juv.

This subspecies has been recorded from various localities in Central Italy, from Capri and from Corsica. The present material agrees perfectly well with the characters given by VERHOEFF (1925, p. 152; 1937, p. 213).

Data on the spinulation of the legs were still very incomplete. For two males and

two females from the present collection these are given in the following tables, which are based respectively on a male of 8 mm with 36 and 38 ant. j., a male of 9 mm with 38 and 43 ant. j., and a female of 10 mm with 39 ant. j. and a female of 8 mm with 38 ant. j.

	♂♂		♀♀	
	Ventral	Dorsal	Ventral	Dorsal
Ca	14/15—15	15	15	14/15—15
Tr	13—15	———	13—15	———
Pa	12/13—15	12—15	13—15	12—15
m	8—15	7/9—15	8—15	9/10—15
p	11—15	10/11—15	11/12—15	11—15
Fa	3/4—15	1/3—11	3/5—15	1—12
m	2—15	———	2—15	———
p	11—14	2/3—15	10/13—14	2/3—15
Tia	6/8—14/15	1/3—13	4/9—14	1—13
m	1—14	———	1—14	———
p	———	3/4—14	———	4—14

In his original description, VERHOEFF (1925) has summarily indicated the spinulation of the first, 2nd, 14th and 15th legs. Differences between the typical specimens and the present material concern only the spinulation of the 2nd and 14th legs. VERHOEFF mentions the presence of a DP spine in the 2nd leg, and the presence of only one VTi spine in the 14th. According to him the 14th leg has no coxal spines, but apparently these may occur incidentally. Unfortunately, further comparison is impossible.

The material was collected from under stones on grassy slopes, near melting snowpatches, associated with *Lithobius castaneus* Newp.

Lithobius pusillus Latzel, subsp. **pusillifrater** Verhoeff, 1925

Gran Sasso, Campo Imperatore, Rif. Albergo, 1950—2200 m, 24.VII—2.VIII.1960, 17 ♂♂, 15 ♀♀.

This subspecies, originally described from the Riviera, has been recorded since from various localities in Central and South Italy. According to VERHOEFF (1937, p. 216) it is distinguished from *pusillus* s.str. by the absence of DCa in the 15th leg and the larger number of ocelli: 7 to 9 as against 5. The present material agrees with *pusillifrater* in having 8 to 9 ocelli, but shows no constancy as regards the absence of DCa. In some specimens it is absent, in some it is present, either on one side only or on both sides. Obviously, this character has no distinctive value.

As it is, the status of *pusillifrater* remains to be evaluated as *pusillus* s. str. also has been recorded from the Italian Peninsula. Thus there seem to be two possibilities. Either *pusillus* and *pusillifrater* are two distinct species, or *pusillifrater* replaces *pusillus* in the Apennines. In the latter case the records of *pusillus* from this region are incorrect as a consequence of the fact that the characters of the subspecies have not yet been determined correctly.

In the following tables the spinulation of the material from the Campo Imperatore has been given. They are based on four males: one male of 7.5 mm with 28

and 29 ant. j., one male of 8.0 mm with 29 ant. j., one male of 8.5 mm with 30 and 31 ant. j., and one male of 8.0 mm with 26 and 27 ant. j., and on four females: one female of 8.5 mm with 31 ant. j., one female of 8.5 mm with 27 and 28 ant. j., one female of 8.5 mm with 28 and 30 ant. j., and one female of 9.0 mm with 28 ant. j.

	♂♂			♀♀	
	Ventral	Dorsal		Ventral	Dorsal
Ca	———	15 or absent	Ca	———	15 or absent
Tr	13—15	———	Tr	13/14—15	———
Pa	13/14—15	7/8—14	Pa	13—15	7/11—14
m	8/11—15	2/3—15	m	9/10—15	2/4—15
p	9/12—15	1—15	p	11/12—15	1—15
Fa	1/2—14	1—11/12	Fa	1/2—13/14	1—10/11
m	1/3—15	———	m	2—15	———
p	10/13—13/14 or absent	1/2—14/15	p	9/13—13/14 or absent	2—14/15
Tia	———	1—12	Tia	———	1/2—11/12
m	1—14	———	m	1—13/14	———
p	———	6/10—13	p	———	7/8—13

The spinulation apparently agrees with the data given by VERHOEFF (1925, p. 152), with the exception that the type specimens had only two DP spines in the 14th leg.

That *pusillifrater* might be referred to *Lithobius lapidicola* Meinert, as was suggested by BROLEMANN (1930, p. 295), is incorrect. Although probably belonging with *lapidicola* in one species-group, *pusillifrater* is a considerably smaller form with a more reduced spinulation.

Pusillifrater was rather common under stones on the drier slopes.

Lithobius lapidicola Meinert, 1872

Gran Sasso, Rif. Garibaldi, 2200—2350 m, 2.VIII.1960, 1 ♀.

It is clear now, that BROLEMANN (1930, p. 291) mixed up several species under this name. The species described by MEINERT occurs in the upper regions of the Alps. It has no supplementary spine on the femur of the 15th leg, a spine which for a long time was thought to be characteristic for *lapidicola*. The typical *lapidicola* probably is the species from the French Alps to which BROLEMANN refers in his "Remarque I".

The species which has the supplementary spine has been named *L. saalachiensis* by VERHOEFF (1937, p. 214, 227).

The *lapidicola*-form from the littoral of the Seealps, to which BROLEMANN refers in his "Remarque II" might be *pusillifrater* Verh.

The single female specimen in the present collection is tentatively referred to *lapidicola* Mein., although it probably represents a distinct subspecies. It measured 12.5 mm and had 29 antennal joints. The spinulation of the legs is shown in the following table:

	Ventral	Dorsal
Ca	———	15
Tr	13—15	———
Pa	13—15	4—15
m	10—15	1—15
p	2—15	1—15
Fa	1—14	1—12
m	2—15	———
p	10—13	2—14
Tia	———	1—12
m	1—14	———
p	———	7—13

The tergal processes, even those of the 13th tergite, were practically absent, but this may also be the case sometimes in the typical *lapidicola*.

Of course, much more material is needed to verify the present identification.

Lithobius castaneus Newport, 1844

Gran Sasso, Rif. Garibaldi, 2200—2350 m, 2.VIII.1960, 12 ♂♂, 16 ♀♀, 19 juvs.; Gran Sasso, Campo Imperatore, Rif. Albergo, 1950—2200 m, 24.VII—2.VIII.1960, 1 ♂.

This is a common species in Italy, though, as it is mostly found in wooded areas, its occurrence in the open on these high altitudes is noteworthy.

According to BROLEMANN (1930, p. 311), the premarginal sulci of the first and third tergites are interrupted in the middle of the posterior border, and he uses this character in his identification key. In the material studied, however, the sulcus of the first tergite is never, and that of the third tergite only incidentally interrupted. The paramedian furrows are present.

The spinulation of the legs is shown in the tables below, which are based on six males (21 mm with 28 ant. j.; 20 mm with 27 ant. j.; 19 mm with 28 ant. j.; 19 mm with 27 and 28 ant. j.; 18 mm with 28 ant. j.; 17 mm with 17 ant. j.) and six females (24 mm with 29 ant j.; 23 mm with 28 ant. j.; 20 mm with mutilated antennae; 19 mm with 28 and 29 ant. j.; 19 mm with 28 ant. j.; 17 mm with 28 ant. j.) from Rif. Garibaldi.

	♂♂			♀♀	
	Ventral	Dorsal		Ventral	Dorsal
Ca	14/15—15	13—15	Ca	13/15—15	13/14—15
Tr	13/14—15	———	Tr	13/14—15	———
Pa	9/11—15	1—15	Pa	9/11—15	1—15
m	1—15	1—15	m	1—15	1—15
p	1—15	1—15	p	1—15	1—15
Fa	1—15	1—12/13	Fa	1—15	1—12/13
m	1—15	———	m	1—15	———
p	1—15	1—15	p	1—15	1—15
Tia	1—15	1—13	Tia	1—15	1—13
m	1—13/14	———	m	1—14	———
p	12/13—13 or absent	1/2—14	p	12/13—13/14 or absent	1/2—14/15

Eupolybothrus elongatus (Newport, 1849)

Gran Sasso, Campo Imperatore, Rif. Albergo, 1950—2200 m, 24.VII—2.VIII.1960, 1 juv. ♀.

An immature female specimen of this wide-spread west-mediterranian species measured 15 mm and had 46 antennal joints and 5 + 6 coxal teeth. The spinulation of the legs is shown herewith:

	Ventral	Dorsal
Ca	14—15	11—15
Tr	12—15	———
Pa	10—15	1—15
m	1—15	1—15
p	1—15	1—15
Fa	1—15	1—13
m	1—15	———
p	1—14	3—15
Tia	3—15	1--13
m	1—13	———
p	1—13	4—14
Taa	14—15	———

GEOPHILIDA

Stigmatogaster gracilis (Meinert, 1870)

Gran Sasso, Campo Imperatore, 1700—1800 m, 27.VII.1960, 1 ♂.

The specimen has a length of about 55 mm and 93 pairs of legs. It apparently belongs to the typical form of this wide-spread west-mediterranean species.

Schendyla nemorensis (C. Koch, 1837)

Gran Sasso, Campo Imperatore, Rif. Albergo, 1950—2200 m, 24.VII—2.VIII.1960, 1 juv. ♀.

This is a common species in West and Central Europe. In the mediterranean region, however, it seems rare. As it is primarily a woodland species, its occurrence in the open is quite interesting. The specimen has 41 pairs of legs and a length of 7 mm.

Strigamia mediterranea (Verhoeff, 1928)

Gran Sasso, Rif. Garibaldi, 2200—2350 m, 2.VIII.1960, 1 ♀.

This is one of the forms which VERHOEFF has split off from the species formerly generally known as *Scolioplanes crassipes* (C. Koch, 1835). It has been recorded from Italy and Central Europe. First described as a species (VERHOEFF, 1928, p. 277), its status was reduced to that of a variety of *crassipes* by VERHOEFF later (1935, p. 13). But, as the interrelationship of the many forms which have been distinguished seems still somewhat uncertain, the original conception has been followed here.

The specimen is about 40 mm long and has 55 pairs of legs. The coxae of the anal legs each have about 28 pores.

Geophilus gavoyi Chalande, 1910

Gran Sasso, Rif. Garibaldi, 2200—2350 m, 2.VIII.1960, 3 ♂♂, 5 ♀♀.

This species has been recorded from several localities in France and from England (Brolemann, 1930, p. 178), and seems to be new to the Italian fauna.

The present material agrees very well with the description given by Brolemann except that anal pores are present. In this respect the specimens under report agree with *Geophilus aetnensis* Verhoeff, 1928, from Sicily and *Geophilus evisensis* Verhoeff, 1943, from Corsica. From the first, however, they differ in having well developed sternal grooves, from the second in having longer antennae, normal claws in the anal legs, etc. Considering the close relationship between *gavoyi* and *aetnensis* and *evisensis* one may wonder if not the anal pores in *gavoyi* were overlooked. Furthermore, since *aetnensis* and *evisensis* both were based on a single male specimen, one might suggest if not part of their characters are attributable to individual variation.

The number of legs in *gavoyi* according to Brolemann varies between 39 and 43 (males) and between 41 and 45 (females) in the typical form, and between 49 and 55 (males) and between 51 and 57 (females) in the forma *elongata* Chalande, 1910. The present males have 45, the females 47 pairs of legs. Their size varies between 23 and 35 mm.

The material was collected from under stones near melting snow patches.

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