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Sinosteropus
**NEW SUBGENUS AND THREE NEW SPECIES
OF *Pterostichus* FROM CHINA
(Coleoptera Carabidae)**

SUMMARY - *Sinosteropus* new subgenus of *Pterostichus* from China is described. This subgenus includes the species *scuticollis* and *sinensis*, up to now attributed to *Steropus* and three new species here described and figured, *P. rotundus* and *P. liliputanus* from Sichuan and *P. cathaicus* from Shaanxi. The overall geographic range of the subgenus is limited to the regions of Yunnan, Sichuan and Shaanxi.

RIASSUNTO - *Sinosteropus* nuovo sottogenere e tre nuove specie di *Pterostichus* della Cina (Coleoptera Carabidae). Viene qui descritto *Sinosteropus*, nuovo sottogenere di *Pterostichus* della Cina. Questo sottogenere comprende *P. scuticollis* e *P. sinensis*, finora attribuiti a *Steropus*, e tre specie nuove, qui descritte e raffigurate (*P. rotundus* e *P. liliputanus* del Sichuan e *P. cathaicus* del Shaanxi). Il suo areale distributivo complessivo è limitato alle regioni dello Yunnan, del Sichuan e del Shaanxi.

INTRODUCTION

The study of interesting material from China recently collected by various entomological expeditions has allowed me to recognise, among the others, two species of *Pterostichus* described in the past but still insufficiently known and three other species certainly related to these but clearly different.

HISTORICAL NOTES

After the original description of *Pterostichus scuticollis* Fairmaire, 1888, the first mention of this species is by CSIKI (1930), who includes it in the subgenus *Steropus* of *Pterostichus*. JEDLICKA (1962) follows this interpretation and describes a second species of the same group (*P. sinensis*), but notes that these two species may not belong to *Steropus* («Es scheint, daß diese zwei Arten nicht zum Subgenus *Steropus* gehören, erstens wegen der beschriebenen Bildung der Basaleindrücke, die von dem *Steropus*-Typ abweicht, zweitens wegen der Mikroskulptur der Flügeldecken, die beim *sinensis* aus breiten queren Maschen besteht»). JEDLICKA, 1962: 249).

From this sentence it is easy to understand that JEDLICKA had not seen any

specimen of *P. scuticollis* but only referred to Fairmaire's description. Later, BOUSQUET (1984), after examining two paratypes of *P. sinensis*, noted that these two species are certainly to be excluded from *Steropus* and that «their taxonomic position within the genus *Pterostichus* is uncertain».

Studying abundant material of both species, I could confirm BOUSQUET's observation. The shape of the basal impressions of pronotum is, as noted by JEDLIČKA, very different and the rounded shape of pronotum is merely due to convergence. As far as the microsculpture is concerned, I would not give to it a primary importance, but as a matter of fact in the five known species it is composed of transversal meshes, while in *Steropus* it is generally isodiametric.

The criteria for assigning this group a subgeneric rank are based mainly upon the study of other *Pterostichini* from China. When a group is well delimited, with no intermediate forms with other groups and shows a biogeographic consistency it should be considered a distinct subgenus. In a future general work on the subgenera of *Pterostichus* from China, now in preparation. I will better explicitate my views on this subject.

S i n o s t e r o p u s nov. subg.

Diagnosis. A subgenus of *Pterostichus* of small size, characterised by the rounded shape of pronotum, with only one basal impression. Third interval of elytra with two point in the apical half, aedeagus with apex rounded, twisted to the left as in the «normal» *Pterostichini*; right paramere generally long, sometimes biphid at apex.

Derivatio nominis

The name of this subgenus points out the resemblance in the shape of pronotum to the subgenus *Steropus*, to which the two species known up to now had been previously assigned.

Type-species: *Pterostichus scuticollis* Fairmaire, 1888.

Description

Head convex, with frontal sulci simple and weakly diverging behind. Antennae and legs relatively short and stout.

Pronotum convex, rounded, with median sulcus very distinct and deep. Only one basal depression, impunctate or with few points.

Elytra relatively short, oval, with rounded humeri. Striae complete, punctate, scutellar stria absent. Sterna laterally punctate; last sternite of male with a depression proximally delimited by an arched carina.

Aedeagus with prebasal portion relatively thin, ostium strongly moved on the left side, as in the «normal» *Pterostichini*.

Systematic position

The systematic position of this new subgenus is not easy to define, as the number of species of *Pterostichus* from Eastern Asia is very big and many of them

are very insufficiently known. My opinion is that it is close to *Morphohaptoderus* Tschitscherine, 1898, *Neohaptoderus* Tschitscherine, 1898 and *Pseudohaptoderus* Tschitscherine, 1898. The shape of the aedeagus is similar to that of these subgenera and only the structure of the right paramere is quite different. A certain resemblance in the shape of pronotum can be observed with the nearctic subgenus *Gastrosticta* Casey, 1918 (BOUSQUET, 1992), but the shape of the aedeagus is slightly different.

***Pterostichus (Sinosteropus) scuticollis* (Fairmaire, 1888)**

Feronia scuticollis Fairmaire, 1888: 11.

Type-locality: China, Yunnan.

Earliest species described of this group, *P. scuticollis* has been described simply as *Feronia*, but it seems that after the original description there are very few mentions of this species, except those of CSIKI (1930) and JEDLICKA (1962), who include it in the subgenus *Steropus*.

This species is known only from the region of Yunnan. I have seen about thirty specimens collected in three localities: Yulongshan mts., Lijang env., Heishui env.

The specimens of these three localities do not differ in any significant character; the size is the biggest within the subgenus, varying from 8.9 to 9.1 mm. Aedeagus long, with apical portion thin and pointed; right paramere very long and thin, bent at acute angle, with simple apex (fig. 6).

***Pterostichus (Sinosteropus) r o t u n d u s* n. sp.**

Diagnosis: *Pterostichus (Sinosteropus)* of relatively big size (8.2 mm), related to *P. scuticollis* but different in the elytrae more constricted at base and the different shape of the aedeagus.

Type-locality: China, western Sichuan, Litang, 10 km S, m 4000.

Type-series: Holotypus ♂, 9.VII.1992, in coll. Sciaky.

Derivatio nominis: The name of this species alludes to the rounded shape of its pronotum.

Description

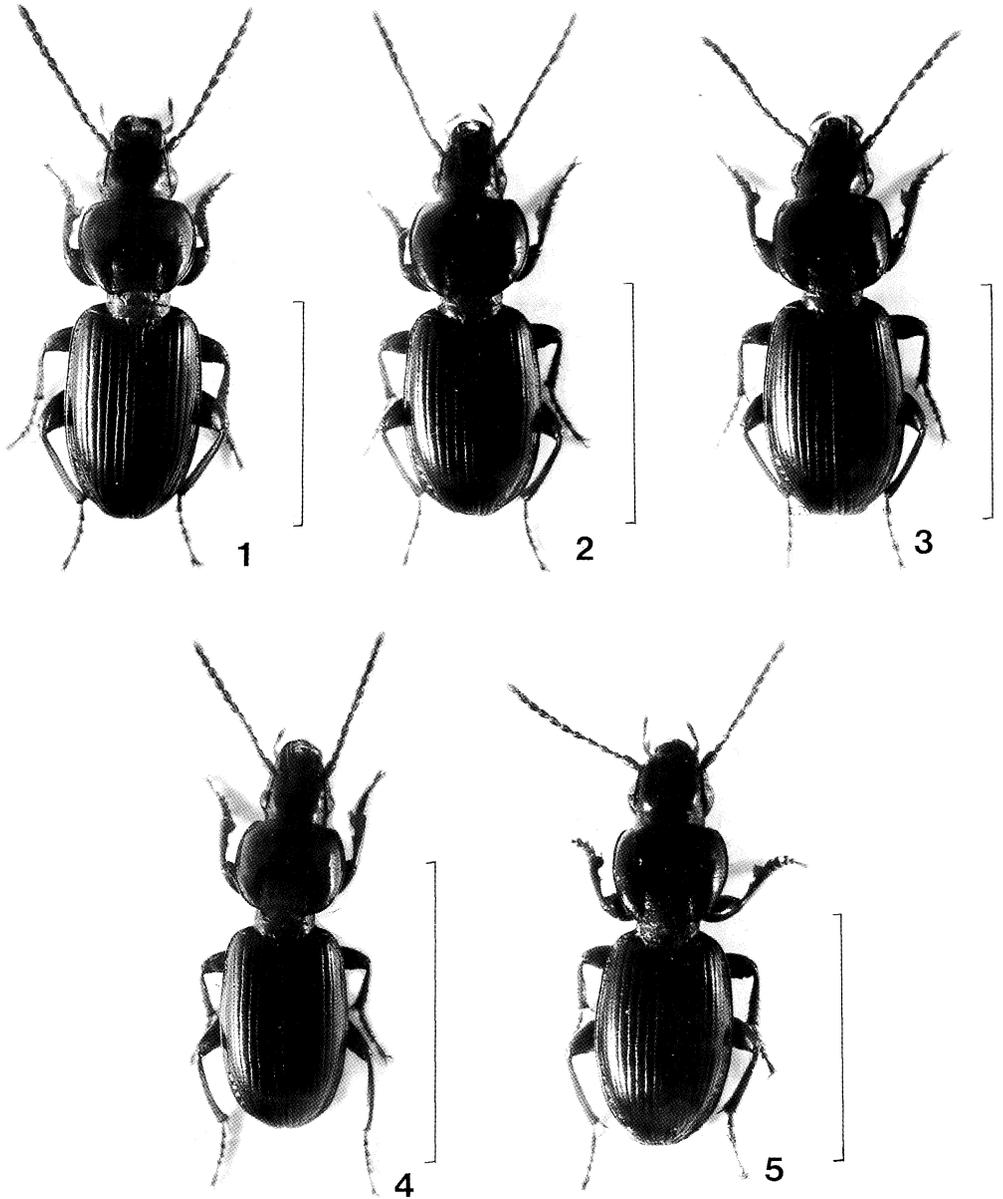
Size 8.2 mm; body dark brown, appendages dark reddish-brown. Habitus as in fig. 2.

Head big, smooth, narrower than pronotum; eyes feebly convex. Temporae short and obliquous, collar constriction indistinct.

Pronotum big, rounded, strongly constricted in the basal half. Fore angles weakly projecting forward but obtuse, hind angles largely rounded. Lateral gutter narrow all along its development; base strongly concave. Basal impressions short, linear,

impunctate but wrinkled. Index width pronotum/length pronotum = 1.22, index length elytra/length pronotum = 2.15, index width elytra/width pronotum = 1.15.

Elytra narrow (index length/width = 1.53) and convex, weakly enlarged in the middle; striae deep and strongly punctate; intervals convex. Third interval with two setigerous punctures in the apical half, adjoining stria 2. Shoulders rounded, the



Figs. 1-5 - Habitus of: 1: *P. scuticollis*; 2: *P. rotundus*; 3: *P. sinensis*; 4: *P. liliputanus*; 5: *P. cathaicus*. (Warning: the illustrations are not in the same scale, the bar at the right of each species represents 5 mm).

basal margin forming a curve with the lateral one. Umbilicate series composed by 5+1+9 setigerous punctures.

Legs relatively short, rather stout; onychium without setae underneath.

Genitalia: aedeagus long, with apex simple, rounded (fig. 7a). Right paramere long and thin, bent at right angle, not biphid at apex (fig. 7b).

Affinities

For the shape of the right paramere, long and simple, this species is related to *P. scuticollis*.

Distribution

This species is known only of one locality in one male specimen. This locality, Litang, in western Sichuan, is also the type locality of another species here described, *P. liliputanus*. *P. rotundus* forms with *P. scuticollis* a small natural group, whose gravitation is more southern than that of the *P. sinicus* group, including *P. sinicus* and *P. liliputanus*. The distribution areas of the two groups, as far as known today, overlap only in this station.

***Pterostichus (Sinosteropus) sinensis* Jedlicka, 1962**

Pterostichus (Steropus) sinensis Jedlicka, 1962: 249.

Type-locality: China, Sichuan, Tatsienlu (Kangding).

This species, described by JEDLICKA (1962) from four female specimens, was later mentioned only by BOUSQUET (1984), who proposed to exclude it from *Steropus*. The type-locality is Tatsienlu (today Kangding), but I have seen many specimens from some localities in western Sichuan: Mugezo (or Mugeco) Lake m 3800-4000; Pame m 4000; Gongga Shan m 4500.

All these localities are relatively close to Kangding and the specimens from the different stations do not show any significant difference.

This species is very similar in external aspect to *P. scuticollis*, even though slightly smaller (8.1-8.5 mm), but the study of genitalia allowed me to discover an important difference: while the apex of the right paramere is simple in *P. scuticollis* and in *P. rotundus* here described, it is biphid in *P. sinensis* and *P. liliputanus* here described. The aedeagus is similar in structure to that of *P. scuticollis*, but the apex is shorter (fig. 8).

***Pterostichus (Sinosteropus) liliputanus* n. sp.**

Diagnosis. A *Pterostichus (Sinosteropus)* of very small size (mm 6.3-6.6), related to *P. sinensis* but different in the smaller size, longer pronotum, narrower elytra and different median lobe of aedeagus.

Derivatio nominis. The name of this species alludes to its very small size, the smallest within the subgenus.

Type-locality: China, western Sichuan, Litang, 10 km S, m 4000.

Type-series: Holotypus ♂, 9.VII.1992, in coll. Sciaky. 3 paratypes ♀♀, same data as holotypus, in coll. Pavesi and Sciaky.

Description

Size mm 6.3-6.6; body brown, appendages reddish-brown. Habitus as in fig. 4.

Head big, smooth, narrower than pronotum; eyes feebly convex. Temporae short and obliquous, collar constriction indistinct.

Pronotum big, rounded, strongly constricted in the basal half. Fore angles almost not projecting forward, hind angles largely rounded. Lateral gutter narrow all along its development; base strongly concave. Basal impressions short, linear, impunctate and smooth. Index width pronotum/length pronotum = 1.23, index length elytra/length pronotum = 2.33, index width elytra/width pronotum = 1.19.

Elytra narrow (index length/width = 1.60) and convex, almost parallel-sided; striae deep and strongly punctate; intervals weakly convex. Third interval with two setigerous punctures in the apical half, adjoining stria 2. Shoulders rounded, the basal margin forming a curve with the lateral one. Umbilicate series composed by 5+8 setigerous punctures, with a wide gap between the humeral and apical series.

Legs relatively short, rather stout; onychium without setae underneath.

Genitalia: aedeagus long, with ostium strongly moved on the left side. Prebasal portion strongly concave, apex simple, slightly pointed upward (fig. 9a). Right paramere long and biphid at apex (fig. 9b).

Affinities

For the shape of the right paramere, long and biphid, this species is related to *P. sinensis*. It is the smallest known species of the subgenus, as its size is even smaller than that of *P. sinensis*.

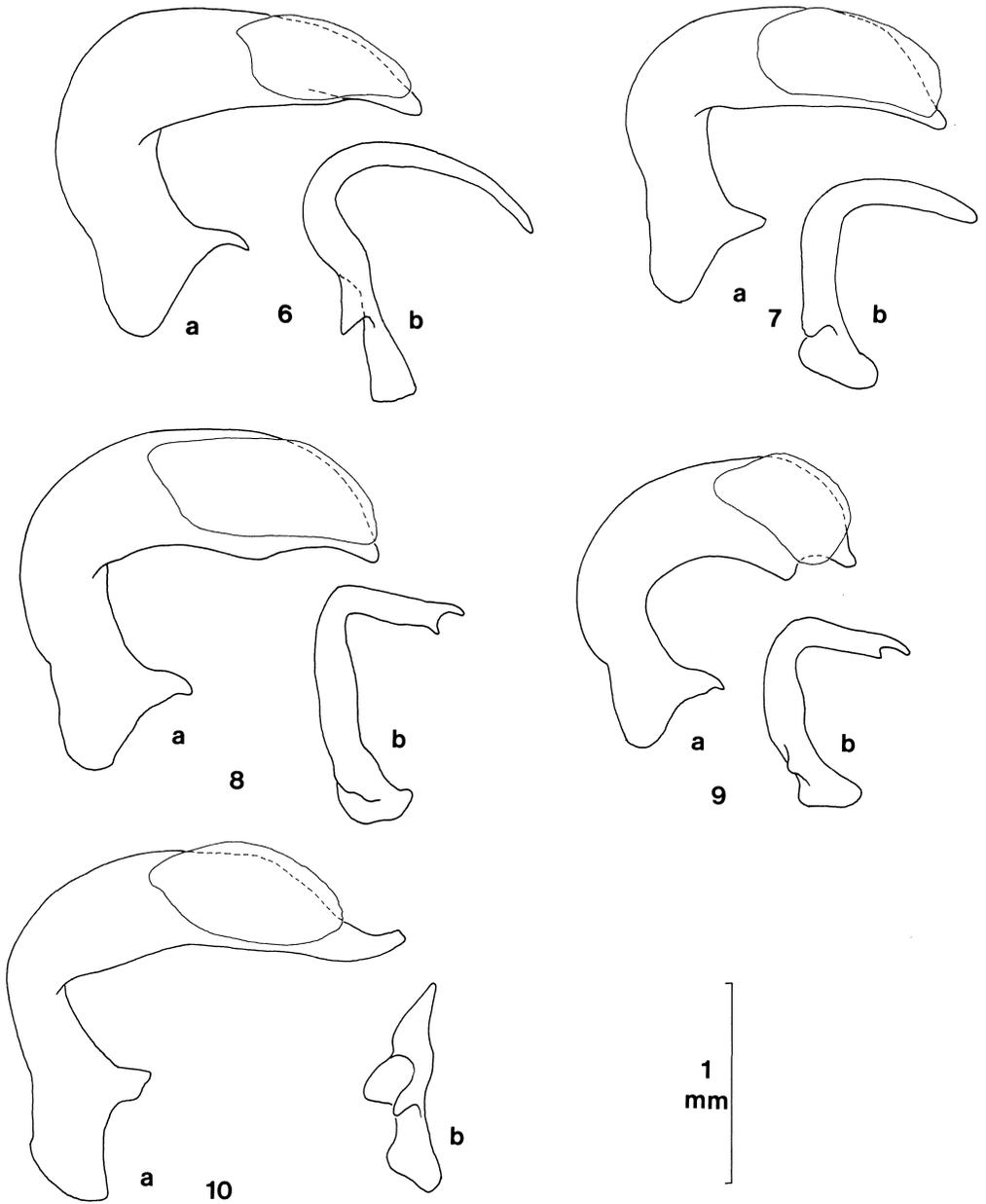
Distribution

This species is known only of Litang, in western Sichuan, where it has been found in sympatry with *P. rotundus* n. sp. As already mentioned, it is the only known instance of sympatry between two species of this subgenus.

***Pterostichus (Sinosteropus) cathaicus* n. sp.**

Diagnosis. A *Pterostichus (Sinosteropus)* of medium size (8.1-8.3 mm), very isolated within the subgenus in the small eyes, short right paramere and long aedeagal apex bent upwards.

Derivatio nominis. The name of this species derives from Cathai, the ancient name of China.



Figs. 6-10 - Aedeagus (a) and right paramere (b) of: 6: *P. scuticollis*, 7: *P. rotundus*; 8: *P. sinensis*; 9: *P. liliputanus*; 10: *P. cathaicus*.

Type-locality: China, Shaanxi, Hua Shan.

Type-series: Holotypus ♂, 28.VII.1990, in coll. Sciaky. 2 paratypes ♂ ♀, same data, in coll. Pavesi and Sciaky.

Description

Size 8.1-8.3 mm; body dark brown, appendages dark reddish-brown. Habitus as in fig. 5.

Head big, smooth, narrower than pronotum; eyes strongly reduced, occupying only the anterior portion of the ocular convexity. Temporae short and obliquous, collar constriction indistinct.

Pronotum big, rounded, strongly constricted in the basal half. Fore angles weakly projecting forward, obtuse, hind angles largely rounded but distinguishable. Lateral gutter narrow all along its development; base strongly concave. Basal impressions short, linear, sparsely punctate. Index width pronotum/length pronotum = 1.21, index length elytra/length pronotum = 2.24, index width elytra/width pronotum = 1.19.

Elytra narrow (index length/width = 1.58) and convex, weakly enlarged in the middle; striae deep and strongly punctate; intervals weakly convex. Third interval with two setigerous punctures in the apical half, adjoining stria 2. Shoulders rounded, the basal margin forming a curve with the lateral one. Umbilicate series composed by 5 + 8 setigerous punctures, with a wide gap between the humeral and apical series.

Legs very short and stout; onychium with two couples of thin setae.

Genitalia: aedeagus long, with ostium strongly moved on the left side. Apex long, bent upwards (fig. 9). Right paramere short, rectilinear, pointed at tip, with simple apex.

Affinities

This species is very isolated within the subgenus. Its eyes are smaller than in the other known species; the appendages are shorter and more robust; the aedeagus has a longer apex and the right paramere is shorter and stouter. In spite of these differences, the overall aspect is so similar that I still believe that it can be correctly placed within this subgenus.

Distribution

The type-locality of this species, Hua Shan, is a mountain of nearly 3100 m near the southern border of Shaanxi. It therefore seems that this species lives at lower elevations than the other species of this subgenus; some of them, in fact, have been collected at elevations of over 4000 m. In turn, the lower elevation of the habitat of this species might have lead to a semi-endogaeus mode of life, that would explain the small size of the eyes, much smaller than the other four species, and the shortness of the legs.

GENERAL DISCUSSION

The species here included in the new subgenus are five; these can be divided in three groups on the base of the aedeagical characters: the first group, characterised by the very long and simple apex of the right paramere, includes *P. scuticollis* and *P. rotundus*. A second group, where the right paramere is long but biphid at apex, includes *P. sinensis* and *P. liliputanus*. A third group, with right paramere much shorter and stouter, includes only *P. cathaicus*.

Of these five species, three are known from Sichuan and one each from Yunnan and Shaanxi. The occurrence of a species of *Sinosteropus* in Shaanxi is certainly very interesting, as it shows a continuity between the fauna of this region and that of Sichuan, as already observed in the subgenus *Morphohaptoderus* (SCIAKY, in press). Shaanxi is still very little known from a faunistic point of view, and many more species than those known up to now certainly remain to be discovered.

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