A new subgenus Wraseiellus of the genus Pterostichus Bonelli (Coleoptera, Carabidae, Pterostichini) and new species descriptions

HONGLIANG SHI1, RICCARDO SCIAKY2, HONGBIN LIANG1 & HONGZHANG ZHOU1, 3
1Key laboratory of Zoological Systematics and Evolution, Institute of Zoology, Chinese Academy of Sciences, Beijing 100101, China
2Via Fiamma 13, Milano, Italy
3Corresponding author. E-mail: zhouhz@ioz.ac.cn

Abstract

A new subgenus Wraseiellus new subgenus (type species: Pterostichus andrewesi Jedlička 1931) of the genus Pterostichus from China is described. Eight species and one subspecies are recognized in the new subgenus including three new species and one new subspecies: Pt. (Wraseiellus) andrewesi Jedlička, 1931 (type species:) Pt. (Wraseiellus) meyeri Jedlička, 1934, Pt. (Wraseiellus) crassiapex Shi & Sciaky, new species, Pt. (Wraseiellus) diversus (Fairmaire, 1886), Pt. (Wraseiellus) comatus Shi & Sciaky, new species, Pt. (Wraseiellus) pseudodiversus Shi & Sciaky, new species, Pt. (Wraseiellus) stictopleurus cangshanensis Shi & Sciaky, new subspecies, Pt. (Wraseiellus) kambaiti (Andrewes, 1947). A key to all known species and subspecies, images of habitus and genitalia, and distribution maps are provided.

Key words: China, Pterostichus, key, new subgenus, new species

Introduction

The genus Pterostichus Bonelli, 1810 is one of the largest genus-level taxa in the family Carabidae (Coleoptera). A total of 1138 species and 76 subgenera were known (Lorenz, 2005) to exist mainly from the Holarctic region, as well as from the northern part of the Neotropical and Oriental regions. As a ground beetle genus of high species diversity, the genus includes some species and subspecies of high conservation value.
diversity, the subgenus level taxonomy of *Pterostichus* has been poorly studied; many species were difficult to assign to the existing subgenera, and merely listed as "*incertae sedis*" (Bousquet, 2003; Lorenz, 2005). It is necessary to assign these species each into an appropriate subgenus based on careful revision studies. For some of these species, we may not be able to classify them into an existing subgenus, and therefore erected new ones to accommodate them correctly.

The fauna of *Pterostichus* of China is extremely abundant (Bousquet, 2003; Lorenz, 2005): about 34 subgenera of *Pterostichus* were recorded from China (based on our unpublished results); many of them were found to be endemic to the eastern Tibetan Plateau and elevated subtropical regions in southeast China (i.e. *Morphohaptoderus* Tschitschérine, 1898, *Circinatus* Sciaky, 1996, etc.). During our study on different collections, we found that there were many interesting specimens, some of which might represent new species. Moreover, we were not able to assign some of these species to a correct subgenus; they were found to be dramatically different from any of the known subgenera, with unique male genitalia. Furthermore, other characters were found to support these species as distinct from other likely related subgenera (see details in comparisons sections under the new subgenus below). Thus, we erected the new subgenus *Wraseiellus* (type species *Pterostichus andrewesi* Jedlička 1931) to accommodate these species.

In this paper we to describe a new subgenus *Wraseiellus*, and provide a brief discussion on its taxonomical status. Five known species are revised with description of three new species and one new subspecies. All species and subspecies of *Wraseiellus n. subg.* are amply described, keyed and illustrated with male and female genitalia when available.

**Materials and methods**

**Materials.** This work is based on the examination of 131 specimens of the new subgenus including 86 type specimens (see "materials examined" section of each species below), as well as many materials belonging to other subgenera for comparison. Many of the specimens included in this study were borrowed from or examined in the following collections:

- CCCC  Collection of Changchin Chen, Tianjin, China
- CRS   Collection of Riccardo Sciaky, Milano, Italy
- CSF   Collection of Sergio Facchini, Piacenza, Italy
- IZAS  Institute of Zoology, Chinese Academy of Science, Beijing, China
- MNHN  Muséum National d'Histoire Naturelle, Paris, France
- MSNM  Museo Civico di Storia Naturale, Milano, Italy
- NHMB  Naturhistorisches Museum, Basel, Switzerland
- NQRS  Naturhistoriska Riksmuseum, Stockholm, Sweden
- NMPC  Národní Muzeum Právodovédecké Muzeum, Prague, Czech Republic
- SCAU  South China Agriculture University, Guangzhou, China
- SNUM  Specimen Museum of Shanghai Normal University, Shanghai, China
- ZRAS  Zoological Institute, Russian Academy of Sciences, St Petersburg, Russia

We compared some species representing different *Pterostichus* subgenera with the new subgenus in the present study (type species of the subgenus with an asterisk). Their localities and deposited sites are provided as following:

*Pterostichus* (*Anomostichus*) *anomostriatus* Sciaky*: Emeishan, Sichuan, China (CRS)
*Pterostichus* (*Eosteropus*) *creper* (Tschitschérine)*: Mt. Chausu, Nagano Japan (IZAS)
*Pterostichus* (*Eosteropus*) *orientalis* (Motschulsky): Hulin, Heilongjiang, China (IZAS)
*Pterostichus* (*Feroperis*) *acutidens* (Fairmaire): Yunmengshan, Beijing, China (IZAS)
*Pterostichus* (*Feroperis*) *vladivostokensis* Lafer: Ile Askold, Russia (MNHN)
*Pterostichus* (*Lianoe*) *daufourii* (Dejean)*: Hautes. Pyr., Le Vignemale, France (IZAS)
*Pterostichus* (*Morphohaptoderus*) *dundai* Sciaky & Wrase: Houzhenzi, Shaanxi, China (IZAS)
*Pterostichus* (*Morphohaptoderus*) *kalabi* Sciaky: Moxi, Sichuan, China (IZAS)
*Pterostichus* (*Morphohaptoderus*) *maximus* (Tschitschérine)*: Dangchang, Gansu, China (IZAS)
**Methods.** Body length was measured from anterior margin of labrum to elytral apex; pronotum length (PL) was measured along its median line; pronotum width (PW) was the greatest width of pronotum. All measurements were made with the aid of an ocular micrometer in a Nikon SMZ-1500 or SMZ-1000 stereoscopic dissecting microscope.

Photographs of male and female genitalia were captured by a Nikon SMZ-1500 stereoscopic dissecting microscope fitted with a Canon 450D digital camera, or by a Nikon digital Sight DS–SM camera fitted to a Nikon SMZ–1500 stereoscopic dissecting microscope controlled by ACT–2U software. Photographs of habitus were captured by a Canon Macro 100mm lens fitted with a Canon 450D digital camera or a Tamron SP 90mm lens fitted with a Nikon D7000 digital camera. For each final image, several photographs were taken at different focal planes, combined with HELICON FOCUS software to get one synthesized photograph, and finally edited by Adobe PHOTOSHOP software. Distribution maps were created in Adobe PHOTOSHOP software based upon examined materials and published records.

Male genitalia were dissected from the apex of the abdomen using forceps. The treated genitalia were glued on transparent film for imaging and permanent storage. Female genitalia were prepared in a multi-step process: terminal one or two abdominal segments were dipped in 10% KOH solution at room temperature for 8–20 h, then the genitalia were extracted from the abdominal segments and stained in Chlorozol Black E saturated solution in 70% ethanol for approximately ten s, and finally rinsed with 70% ethanol. The treated genitalia were kept in 70% ethanol for imaging, and then transferred into glycerol for permanent storage.

For each taxon, original and relevant taxonomic references are cited. Genus combination, subgenus assignment, information on name-bearing type, and other comments are listed in parentheses after each reference. For name-bearing type materials, full label data has been provided. Individual labels are separated by a semicolon and each line within one label is separated by a slash. All writings are cited with their original spelling, punctuation and language. Hand-written letters are cited in italic. Original italic or bold is ignored. If no special indication, it means white rectangular label with black writing, different cases are indicated in square brackets. Detailed information, including label data, body length, mounting method, and depositing collection has been provided as well. Red labels were added to the types of new species and lectotypes. For other materials, the locality label is given in quotation marks. Sometimes, other important labels are also cited if necessary.

**Terminology.** Most morphological terms in the present paper follow their general applications. The typical basal fovea of pronotum in *Pterostichus* is composed of two longitudinal grooves: inner groove and outer groove. Sometimes one or two of them obsolete or absent, or they are fused together; the area between them sometimes convex or sometimes concave. In some groups of *Pterostichus* (*Pterostichus prattii* Bates, 1890, for example), the umbilical pore series on elytral 9th interval is continuous. However, in most subgenera and *Wraseiellus* n. subg., the umbilical series is discontinuous and sparse in the middle, so that it can be divided into three groups: Pores of the anterior and posterior groups are densely arranged, while those of the median group are sparse which may be missing in some subgenera. We used a formula as (a, b, c) to represent the pore number of the anterior, median and posterior groups respectively. When referring to the orientation of the median lobe of male genitalia, “left” or “right” was determined when the apex of the median lobe pointing posteriorly, and its base ventrally. Special terms describing male and female genitalia followed Bousquet (1999).

**Taxonomy**

**Key to subgenera of the genus Pterostichus from China (part)**

1. Mesofemora with two or three setae on posterior margin; metaepisterna short, length subequal to the width of anterior margin; metacoxa with only two setae; hind trochanter without setae; penultimate labial palpomere without seta near apex; pronotum
Pronotum strongly wider than head; hind angles more or less distinct, with posterior seta near hind angle; front angle rounded, slightly pointed forwards; lateral depression a little wide; lateral bead distinct, narrow; basal foveae composed of two grooves, inner one longer than the outer one, basal foveae and basal-median area more or less punctate. Eyral striae distinct; intervals more or less convex; basal pore present; scutellar striae present, complete or incomplete, located inside 1st striae or between 1st and 2nd striae; 3rd interval with two setigerous pores, the anterior one at about anterior two-fifths, the posterior one at about anterior three-fifths, both pores adjacent to 2nd stria; in some individuals, one or both elytra with one or three pores (the anterior pore lacking or one additional pore present behind the posterior one); 7th interval with two small pores near apex; umbilical pore series on 9th
interval discontinuous, the middle group with two to four pores; apical plica of epipleura present but shallow, gradually tapered to merge with lateral elytral margin.

Metaepisterna short, their length subequal to the width of anterior margin, basal margin complete; hind wings reduced; terminal sternum distinctly bordered, males without special structure or only with very faint transverse ridge or tubercle; males with one pair of setae and females with two pairs on terminal sternum, such setae distant from apical margin. Mesofemora with two setae on posterior margin; males with inner margin of mesotibiae slightly curved near apex, with a long spine at apex; metacoxae with two setae; metatrochanters without seta; metatarsi with outer ridge well developed on 1st to 3rd tarsomeres and less distinct on 4th tarsomere; 5th tarsomeres glabrous or setose beneath.

Male genitalia with median lobe of aedeagus slender, bent usually at about 90 degree; median lobe almost straight in median portion (between the basal bend and apical lamella); apical portion of apical lamella abruptly bent dorsally or ventrally in lateral view; usually bent to the left side in dorsal view; apical orifice slightly twisted to the left side; right paramere variable from species to species, but generally flat, very short to moderately elongate; left paramere subquadrate, with transverse apophysis long, disc without distinct ridge.

Female genitalia with spermatheca strongly elongate, seminal canal and receptaculum differentiated; spermathecal gland inserted at sub-apical area of the spermatheca; spermatheca inserted at the basal or sub-basal area of common oviduct; seminal canal very long, about five or ten times as long as the receptaculum; receptaculum tube-form, strongly bent near base; spermathecal canal inserted at the end of the seminal canal, about as long as the spermathecal gland (Figs. 85–89). Stylomere 1 with a series of ensiform setae ventro-apically. Stylomere 2 elongate, narrower apically; outer margin with two or three ensiform setae restricted in the basal part, inner margin with two to four ensiform setae; two short nematiform setae located in a furrow near the apex (Figs. 90–93).

**Distribution.** This subgenus includes eight species and one subspecies. Many of them distributed in the northern and western Yunnan (one species occurs in northeast Myanmar, adjacent to Yunnan), and others occur in some mountains in central China (Figs. 110, 111).

**Etymology.** We dedicate this new subgenus to Dr. David W. Wrase, a renamed carabidologist from Berlin (Germany), who makes great contribution to the *Pterostichus* fauna of China. The gender of this genus-group name is masculine.

**Relationships.** The relationships among *Pterostichus* subgenera from China are unresolved. So, it is difficult to demonstrate the systematic position of *Wraseiellus* n. subg. now. But based on some important characters, we propose three possibilities regarding its related subgenera.

A close relationship between *Wraseiellus* n. subg. and *Neohaptoderus* Tschitschérine could be inferred by the following shared characters: (1) penultimate labial palpomere without seta near apex; (2) pronotum with hind angles more or less distinct, not fully rounded, posterior seta placed near hind angle; (3) umbilical pore series on 9th interval discontinuous, the middle group usually present, rarely absent; (4) metaepisterna short, length subequal to the width of anterior margin; (5) mesofemora with two setae on posterior margin; (6) metacoxae with two setae. Moreover, the similar distribution regions of these two subgenera may also suggest their close relationship.

These following three characters may suggest a relationship between *Wraseiellus* n. subg. and *Feroperis* Lafer: (1) setae on terminal sternum distant from apical margin; (2) metatrochanters without seta; (3) apical orifice of male genitalia only slightly twisted to the left. Moreover, in *Wraseiellus* n. subg., *Pt. diversus* Fairmaire with apical lamella of median lobe somewhat capitate (Figs. 41–42) as in many species of *Feroperis* (figures in Lafer 1979). But their external and genital differences conflict with this grouping (details in comparisons and discussion sections).

The relationship between *Wraseiellus* n. subg. and *Morphohaptoderus* Tschitschérine could be inferred by their similar modified apical lamella of male genitalia, and other similarities such as sexual dimorphism of elytral microsculpture, pores on elytral 3rd interval, lateral ridges on hind tarsomeres, and terminal spine on male mesotibiae. But, an important difference, the number of setae on metacoxae (*Wraseiellus* n. subg. with two setae, *Morphohaptoderus* with three), may suggest *Morphohaptoderus* could be close to subgenus *Cryobius* Chaudoir, 1838 rather than to *Wraseiellus* n. subg.

**Comparisons.** Some species of *Wraseiellus* n. subg. were previously assigned to subgenera *Neohaptoderus* and *Lianoe* Gozis, 1882 (Bousquet, 2003). Compared with *Neohaptoderus*, the new subgenus is distinguishable by the combination of the following external characters (the opposite state in brackets for *Neohaptoderus*): (1) metatrochanters without seta (metatrochanters with one seta); (2) setae on terminal sternum distant from apical
margin (such setae close to apical margin); (3) females with microsculpture on elytra much stronger than male, isodiamic (Figs. 107–109) (both sexes with similar microsculpture on elytra); (4) males with a distinct spine at the apex of inner margin of mesotibiae (such spine absent or very short); (5) metatarsi with outer ridge well developed on first three tarsomeres and less distinct on 4th tarsomere (outer ridge at most present on first one or two tarsomeres). Some species of Neohaptoderus may match one or two of the above characters, but none match all. Neohaptoderus (for example Pt. kleinfeldianus Sciaky & Wrase, 1997, Fig. 116) have male genitalia similar to Wraseiellus n. subg., but their apical lamelli are not distinctly bent to left in dorsal view, and apical orifices are more twisted to the left side.

Compared with Lianoe, an European subgenera, the new subgenera is different in (the opposite state in brackets for Lianoe): (1) setae on terminal sternum distant from apical margin (such setae close to apical margin); (2) metatarsi with distinct grooves on outer surface of first three segments (without such grooves on all metatarsomeres); (3) median lobe of male genitalia regularly thick on basal part, basal part bent at about 90 degree or a little more (median lobe of male genitalia distinctly slenderer on basal part, basal part bent at an angle less than 90 degree, Fig. 115A); (4) right paramere laminar, very short to moderately elongate, straight or slightly bent, Figs. 67-84 (right paramere thick, very long and strongly bent, Fig. 115C).

Females of Wraseiellus n. subg, strongly resemble some species of Morphohaptoderus (Pterostichus maximus Tschitschérine, 1889 for example) for strong microsculpture on elytra and pronotum shape. But compared with Morphohaptoderus, the new subgenera is different in (the opposite state in brackets for Morphohaptoderus): (1) metacoxae with only two setae (metacoxae with three setae); (2) males with faint isodiamic or transverse microsculpture on elytra (males with linear elytral microsculpture); (3) metatrochanters without seta (metatrochanters with one seta); (4) setae on terminal sternum distant from apical margin (such setae close to apical margin); (5) right paramere usually elongate and laminar (usually very short and thick); (6) apical lamella usually bent or thickened, but never hooked (apical lamella, if distinctly modified, strongly twisted and strongly hooked at left margin ().

Compared with subgenus Feroperis from north China, Wraseiellus n. subg, is different in (the opposite state in brackets for Feroperis): (1) outer groove of pronotum moderately concaved (strongly concave and formed a strong ridge on its outside); (2) elytral 3rd interval usually with two setigerous pores (usually with three or more pores, their number and position variable); (3) median lobe of male genitalia thick and apex more or less bent to the dorsal side (flat and apex simple or slightly thickened); (4) right paramere laminar (right paramere thick). of some species the apical lamella of Feroperis only slightly

The most remarkable apically bent lamella is observed in subgenus Eosteropus Tschitschérine, 1902. But they are quite different from Wraseiellus n. subg, for the apical lamella in Eosteropus strongly curved dorsally (for example Pt. orientalis Motschulsky, 1844, Fig. 117).

Discussion. Wraseiellus n. subg, was first recognized by us for its species having special male genitalia: (1) in dorsal view, apex of median lobe usually bent to left; (2) in lateral view, apical portion of apical lamella abruptly bent, dorsally or ventrally; (3) right paramere laminar, short to moderately elongate. The male genitalia of all species in this new subgenus can be concluded as such, except for that of Pterostichus meyeri Jedlička, 1934, which is discussed below. Some other allied genera may also have apex of median lobe bent (Figs. 112, 113, 114, 117). But as discussed above, their male genitalia are in different types from Wraseiellus n. subg,.

Moreover, is also unique in Pterostichus for the combination of following external and female genitalia characters: (1) females with extraordinarily strong microsculpture on elytra (at least in these species with females studied); (2) elytral 3rd interval normally with two setigerous pores, all adjacent to 2nd stria; (3) metatrochanters without seta; (4) setae on terminal sternum distant from apical margin; (5) metaepisterna short, length subequal to the width of anterior margin; (6) spermatheca with seminal canal and receptaculum differentiated. The species of Wraseiellus n. subg, cannot be assigned into any existing subgenus, and their similarity on external and genital characters supports that they should be grouped together. So, we would like to establish a new subgenus to accommodate them and the above characters strongly support the validity of the new subgenus Wraseiellus.

Pterostichus meyeri Jedlička seems an extraordinary species in the subgenus Wraseiellus for its male genitalia shape (Fig. 30) somewhat different from others, namely: in dorsal view, apex of median lobe not bent to the left; and in lateral view, apical portion of apical lamella only very faintly bent dorsally. But, in addition to its accordance with the diagnostic characters for the new subgenus mentioned above, there are more evidences supporting Pt. meyeri can not be excluded from Wraseiellus n. subg,.: (1) the male secondary sexual character on terminal sternum of Pt. meyeri (namely with a faint transverse ridge) exactly accordant with those of Pt. andrewesi species group.
(Figs. 94–97); (2) the right paramere of *Pt. meyeri* (Fig. 69B) is laminar, and very similar with that of *Pt. andrewesi* (Figs. 67B, 68B) and *Pt. kambaiti* Andrewes, 1947 (Fig. 78B). With their short apical lamella and short right paramere, *Pt. meyeri* could be most close to *Pt. andrewesi* in the new subgenus.

**Infra-subgenus taxonomy.** In the present paper, two species groups of *Wraseiellus n. subg.* are recognized for their difference on these following characters:

In *Pterostichus andrewesi* species group, (1) males with elytral microsculpture transverse at least on basal half (Fig. 107); (2) scutellar striae located between 1st and 2nd striae; (3) 5th tarsomere setose beneath; (4) males with a faint transverse ridge or tubercle on terminal sternum (Figs. 94–97); (5) apical lamella of male genitalia thin, apex distinctly thickened. This species group includes four species distributed in the central regions of China.

In *Pterostichus diversus* (Fairmaire, 1886) species group, (1) males with elytral microsculpture isodiametric (Fig. 108); (2) scutellar striae usually located between the 1st stria and elytral suture; (3) 5th tarsomere usually glabrous beneath (except for *Pt. stictopleurus cangshanensis*); (4) males without special structure on terminal sternum; (5) apical lamella of male genitalia thin, apex not thickened. This species group includes four species and one subspecies distributed in Yunnan and adjacent area (N. E. Myanmar).

**Checklist**

*Wraseiellus* Shi & Sciaky, new subgenus

*Pterostichus andrewesi* species group

*Pterostichus* (*Wraseiellus*) *andrewesi* Jedlička, 1931

*Pterostichus* (*Wraseiellus*) *meyeri* Jedlička, 1934

Synonym: *crebrepunctatus* Straneo, 1937 n. syn.

*Pterostichus* (*Wraseiellus*) *crassiapex* Shi & Sciaky, n. sp.

*Pterostichus* (*Wraseiellus*) *comatus* Shi & Sciaky, n. sp.

*Pterostichus diversus* species group

*Pterostichus* (*Wraseiellus*) *diversus* (Fairmaire, 1886)

*Pterostichus* (*Wraseiellus*) *pseudodiversus* Shi & Sciaky, n. sp.

*Pterostichus* (*Wraseiellus*) *stictopleurus* (Fairmaire, 1888)

*Pterostichus* (*Wraseiellus*) *stictopleurus* ssp. *cangshanensis* Shi & Sciaky, n. ssp.

*Pterostichus* (*Wraseiellus*) *kambaiti* (Andrewes, 1947)

Synonym: *kambaiti* Jedlička, 1965

**Key to species and subspecies of *Wraseiellus* new subgenus**

1. 5th tarsomere usually glabrous beneath, rarely with a pair of very fine setae .............................................. 2
- 5th tarsomere distinctly setose beneath .......................................................... 5

2. Pronotum with short ridge between lateral margin and outer basal foveal groove distinctly convex; lateral margin slightly sinuate just before hind angle; hind angle obtuse, slightly pointed (Figs. 102, 103). .............................................. 3
- Pronotum with short ridge between lateral margin and outer basal foveal groove hardly convex; lateral margin not sinuate before hind angle; hind angle obtuse, not pointed (Figs. 104, 106) .............................................. 4

3. Area between inner and outer basal foveal groove usually more convex (Fig. 102); 3rd antennomere usually glabrous except the apical ring; right paramere longer, apex truncate (Figs. 74B–77B); median lobe of aedeagus with apex of apical lamella distinctly widened (Figs. 41–42); Lijiang, Dali. .................................................. *Pt. diversus* (Fairmaire)
- Area between inner and outer basal foveal groove usually less convex (Fig. 103); 3rd antennomere usually with few additional setae; right paramere shorter, apex round or slightly pointed (Figs. 79B–84B); median lobe of aedeagus with apex of apical lamella not widened, narrow or slightly truncate (Figs. 45–56); Deqin, Weixi, Ninglang, Zhongdian, Lanping, Multi. .................................................. *Pt. pseudodiversus* n. sp.

4. Metaepisterna impunctate; scutellar stria located between 1st and 2nd striae; right paramere with apex wide and obtuse (Fig. 78B); size smaller, 9.9–10.3 mm; Myanmar (Kambaiti). .................................................. *Pt. kambaiti* (Andrewes)
- Metaepisterna distinctly punctate; scutellar stria located inside 1st stria; right paramere with apex narrow and sharp (Fig. 72B); size larger, 10.8–13.1 mm; north Yunnan (Dali, Jizushan Mt.). .................................................. *Pt. stictopleurus* s. *stictopleurus* (Fairmaire)

5. Lateral margin of pronotum with three to five setae before middle on each side; Guangxi (Maoershan Mt.). .................................................. *Pt. comatus* n. sp.
- Lateral margin of pronotum with only one seta at about anterior third on each side .............................................. 6
Pterostichus (Wriseiellus) andrewesi Jedlička, 1931
(Figures 1, 2, 19, 29, 57, 67, 86, 93, 94, 98


Type locality. Chongqing: Jinfoshan Mt. (N29.10º, E107.21º). The labels of type series only indicate the locality Chung-King (=Chongqing). But the preface of the original literature indicated that all materials of this paper were collected from Kinfushan (=Jinfoshan) of Chung-king (=Chongqing) in May and June 1929.


Notes on types. According to the original description, this species was described on about 70 specimens, but there is no fixation for this species to a holotype by original designation. In the collection of NMPC, a total of 13 syntypes were found, with the first one (a female) bearing a pink determination label, and the others bearing white ones. So, we designate one male (Figs. 1, 19, see above, under type examined), with a serial label 20902, deposited in NMPC as the lectotype, for taxonomic purpose of fixing the name to a single specimen and preventing further uncertainty. Besides the type materials mentioned above, paralectotypes were also found in MNHN and NHML by us, but the label informations were not recorded.


Diagnosis. This species can be distinguished from all the other species of this subgenus by the combination of the following characters: (1) 5th tarsomere with setae beneath; (2) pronotum cordiform, basal margin narrower than

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or nearly equal to the anterior margin; (3) pronotum lateral margins with one middle seta on each side; (4) median lobe of aedeagus with apical lamella short, not distinctly bent to the left in dorsal view; (5) right paramere very short with apex rounded (shortest in the subgenus).

This species is most similar to *Pt. crassiapex* n. sp. from Hubei; the differences between them are provided in diagnosis of *Pt. crassiapex*.

**Description.** Body length 13.2–15.1 mm; dorsal side black or with elytra slightly brownish; legs dark brown, tarsi brown; ventral side black or dark brown. Males with elytral microsculpture transverse on the basal half, and after the middle, gradually turning to isodiametric. **Head.** Frons with fine punctures restricted to the frontal furrows; antennae reaching basal fourth of elytra; 3rd antennomere glabrous except apical setae; males with terminal labial palpmere tubular. **Pronotum** cordiform, widest before middle, PW/PL = 1.31–1.36; lateral margins rounded near middle, and gradually sinuate before hind angles; hind angles distinct, rectangular, slightly projecting; one mid-lateral seta present at about anterior third of lateral margins; basal fovea moderately deep, faintly defined; inner groove of basal fovea subparallel to the median line, slightly curved to the outside, ended at a distance from the posterior margin of pronotum; outer groove of basal fovea about one half as long as the inner one, deep and reaching the basal margin of pronotum; ridge between outer groove and lateral margin distinct; area between inner and outer basal foveal grooves rugose and hardly convex; basal fovea area finely and densely punctate, area between two basal foveal grooves and lateral depression sparsely punctate. **Elytra** with base slightly depressed between 3rd and 5th intervals; elytral shoulders strongly narrowed, humeral teeth very small; intervals feebly convex; striae moderately deep, without punctures; scutellar striae incomplete, forming short grooves, located between 1st and 2nd striae; umbilical pore series on 9th interval sparse in the middle, composed of 15–17 pores (5–6, 3–4, 6–7). **Ventral side.** Proepisterna and metaepisterna finely punctate, posterior half of proepisterna with punctures sparse; terminal sternum of males with a lunette ridge at about anterior fourth, very faint and transverse, and slightly depressed after the ridge (Fig. 94). **Legs.** 5th tarsomere with three or four pairs of setae beneath. **Male genitalia.** Median lobe of male genitalia bent at a 90 degrees angle at about basal two fifths; ventral margin almost straight in the middle, apex not bent to the ventral side (Fig. 29A); apical orifice large, slightly turned to the left side (Fig. 29B); apical lamella slightly thick, short and wide, slightly wider than its length, apex truncate, not twisted or bent to the left; apex of apical lamella thickened and turned to the dorsal side (Fig. 57). Right paramere very short, laminar, apex rounded (Figs. 67–68). **Female genitalia.** Spermatheca with the seminal canal about five times as long as the receptaculum, that is the shortest on the four studied species of this subgenus; spermathecal gland less expanded than in the other species; the seminal canal inserted at sub-basal part of the common oviduct (Fig. 86). Stylomere 2 with ensiform setae much finer than in the other species of the subgenus, two or three ensiform setae at the outer margin and three at inner margin (Fig. 93).

**Distribution.** Only known form the type locality, Jinfoshan Mt., Chongqing (Fig. 110).

**Remarks.** In recent catalogues (Bousquet 2003, Lorenz, 2005), this species was placed in subgenus *Lianoe* probably for their similar pronotum shape. But compared with the "true" *Lianoe* from Europe (*Pt. dufourii* Dejean for instance, Fig. 115), *Pt. andrewesi* is different in: (1) apex of median lobe of male genitalia slightly bent to the dorsal side in *Pt. andrewesi*, bent to the ventral side in *Lianoe*; (2) right paramere very short in *Pt. andrewesi*; although in some species of *Wraseiellus n. subg.* long and somewhat curved, but never extremely long and curved as in *Lianoe*; (3) *Pt. andrewesi* with setae on terminal sternum distant from apex, while such setae near apex in *Lianoe*; (4) *Pt. andrewesi* with distinct grooves on the outer surface of first three metatarsomeres, but *Lianoe* without such grooves. So, the male genitalia and external characters show that, *Pt. andrewesi* is far different from species of *Lianoe*.

**Pterostichus (Wraseiellus) meyeri** Jedlička, 1934
(Figures 3, 4, 5, 20, 21, 30, 58, 69, 95, 99)


NEW SUBGENUS WRASEIELLUS FROM CHINA Zootaxa 3664 (2) © 2013 Magnolia Press - 109
Type locality. *Pterostichus meyeri* Jedlička. Yunnan: Soling-ho (valley from N25.22°, E100.98° to N25.96°, E101.88°), [= Longchuanjiang valley, Yuanmou County]. No specific locality was indicated by the labels of holotype or the original description.

*Feronia crebrepunctata* Straneo. Yunnan: Pe Yen Tsin (N25.86°, E101.10°), [= Shiyang Town, Dayao County]

**Type materials examined.** Holotype of *Pterostichus meyeri* Jedlička, by original designation (NMPC): male, body length = 12.5 mm, pinned, genitalia dissected and glued on board and pinned under specimen, "China. / Prov. Yunnan. / Vallis flumin. / Soling-ho."; "TYPE" [red label]; "Mus. Nas. Pragae / Inv. 22408" [yellow label]; "Meyeri / type sp.n. / Det. ING. JEDLIČKA" [pink label] ([Figs. 3, 20]. **Holotype of Feronia crebrepunctata** Straneo, monotypy (MSNM): male, body length = 15.9 mm, "Pe Yen Tsin / Yunnan"; "Pterostichus / sp.n. / det. Ing. Jedlička"; "Holotypus" [red label]; "N.14"; "crebrepunctata / Stran" [red letter] ([Figs. 4, 21].

**Notes on types.** *Pterostichus meyeri* Jedlička. The original description clearly indicated this species was described on two males: the holotype (indicated as "type" in the original description) is deposited in the collection of Jedlička (now in NMPC), and the paratype (indicated as "cotype" in the original description) is deposited in the collection of Dr. Meyer.

*Feronia crebrepunctata* Straneo. The original description clearly indicated this species was described on a single male, so the one in MSNM, in the Straneo collection is the holotype.

**Non-type materials examined** (total 4 specimens). 1 male (NMPC), "Vallis Flumin, Soling-ho, Yun.". 1 male (MNHN), "Yunnan". 1 male (MNHN), "Yunnan, Yunnan-fou". 1 male (CRS), "yunnan sen".

**Diagnosis.** From other species of this subgenus, *Pt. meyeri* can be readily distinguished by its stout body form, pronotum large and wide, pronotum basal margin wider than the anterior margin (Figs. 3–5). Besides the pronotum shape, *Pt. meyeri* can also be distinguished from the other species of this subgenus by the combination of the following characters: (1) 5th tarsomere with setae beneath; (2) vertex usually with dense punctures; (3) area between inner and outer basal foveal grooves convex (Fig. 99); (4) males with microsculpture on elytra transverse on the base; (5) median lobe of aedeagus with apical lamella short, not distinctly bent to the left in dorsal view (Fig. 30); (6) right paramere short.

From the male genitalia characters (apical lamella short and not twisted, right paramere very short), this species could be close to *Pt. andrewesi*. These two species can be distinguished by their markedly different shape of pronotum.

**Description.** Body length 12.5–15.9 mm; dorsal side black or with elytra slightly brownish; legs dark brown, tarsi brown; ventral side black or dark brown. Males with elytral microsculpture typical transverse on the basal half, and after the middle, gradually turns to isodiametric. **Head.** Frons and vertex usually with dense punctures, area between frontal furrows impunctate; antennae reaching elytra basal eighth; 3rd antennomere glabrous except apical setae; males with the terminal labial palps more slightly expanded and truncate. **Pronotum** rounded, widest at about middle, PW/PL = 1.25–1.33; lateral margins fully rounded near the middle, gradually curved before hind angles; hind angles abruptly pointed, slightly acute; one mid-lateral seta present at about anterior third of lateral margins; basal fovea moderately deep, clearly defined except basal area; inner groove of basal fovea deep, their basal part oblique, ended at a distance from the posterior margin of pronotum; outer groove of basal fovea about half length as inner one, deep and reaching the basal margin of pronotum; ridge between outer groove and lateral margin distinct; area between inner and outer basal foveal grooves strongly convex, forming a ridge separating inner and outer grooves; basal fovea area coarsely and densely punctate, as well as middle area between two basal foveae. **Elytra** with base slightly depressed between 3rd and 5th intervals; elytral shoulders a little wide, humeral teeth very small; intervals convex; striae deep, without punctures; scutellar striae short but complete, forming short grooves; umbilical pore series on 9th interval sparse in the middle, composed of 15–17 pores (5–6, 2–3, 7–8). **Ventral side.** Proepisterna and metaepisterna densely punctate; terminal sternum of males with a lunate ridge at about middle, faint and transverse, and slightly depressed after the ridge (Fig. 95). **Legs.** 5th tarsomere with three to five pairs of setae beneath. **Male genitalia.** Median lobe of male genitalia bent at a 90 degrees angle at about basal third; ventral margin almost straight in the middle, apical fourth bent to the ventral side (Fig. 30A); right margin forming a plica before apex; apical orifice large, slightly turned to the left side (Fig. 30B); apical lamella slightly thick, short and wide, slightly wider than its length, apex rounded, not twisted or bent to the left (Fig. 58A); ventral surface concave; apex of apical lamella thickened and slightly turned to the dorsal side (Fig. 58B). Right paramere laminar, slightly elongate and curved, apex feebly angulate (Fig. 69B). Female unknown.
**Distribution.** Seven known specimens of this species were collected from three localities of Yunnan: Soling-ho (=Longchuanjiang valley), Pe Yen Tsin (= Shiyan Town), and Yunnan fou (= Kunming) (Fig. 110). This species seems to be distributed in the central-north part of Yunnan, from Kunming to the north part of Chuxiong.

**Notes on synonym.** We examined male genitalia of the holotypes of both *Pt. meyeri* and *Pt. crebrepunctatus*, thus proving their synonymy, although there are little differences between their type localities and external characters (head puncture, pores on 3rd interval, see below).

**Variation.** The holotype of *Pt. meyeri* and another specimen from the type locality (Soling-ho), are smaller than the other studied specimens. Moreover, the holotype is also peculiar for its head almost impunctate (another male from the type locality shows normal punctate head). But the study of male genitalia from the three known localities showed a marked similarity, allowing us to believe that these specimens belong to the same species.

The holotype of *Pt. crebrepunctatus* is special for having three setigerous pores on the elytral 3rd interval, which was already mentioned in the original description. We believe that such additional setigerous pore is an individual variation which also exists in other species of this subgenus. For example, in some individuals of *Pt. diversus*, one or both elytra show such additional pore.

**Pterostichus (Wraseiellus) crassiapex Shi & Sciaky, new species**  
(Figures 7, 8, 23, 31, 59, 71, 96, 100, 107)

**Type locality.** Hubei: Badong County, Tiechanghuhuang [=Tiechanghuang] (N30.75º, E110.30º), altitude about 1300 m.

**Type materials.** Holotype (IZAS): male, body length = 16.2 mm, board mounted, genitalia dissected and glued on plastic film pinned under specimen, "China, W Hubei, 27.VI–11.VII / road Badong-Yesanguan, 2003 / TIECHANGHUANG / pit fall traps, 30.75N 110.3E / Jaroslav Turna leg. ~1300m"; "HOLOTYPE $\exists$

Paratypes: 2 males (CRS), the same collecting data as the holotype but labeled as paratype.

**Diagnosis.** This new species can be distinguished from all the other species of this subgenus by the combination of the following characters: (1) 5th tarsomere with setae beneath; (2) pronotum cordiform, basal margin narrower than or subequal to the anterior margin (Fig. 7); (3) pronotum lateral margins with one seta on each side; (4) median lobe of aedeagus with apical lamella long, strongly bent to the left in dorsal view (Fig. 31); (5) right paramere long and bent, apex sharp (Fig. 71B).

This species is most similar with *Pt. andrewesi* Jedlička from Jinfoshan. Besides their significant difference on male genitalia (Figs. 29, 31, 67, 71), these two species can be also distinguished by: (1) in *Pt. crassiapex*, lateral margins abruptly sinuate before hind angles, hind angles distinctly projecting (Fig. 100); in *Pt. andrewesi*, lateral margins gradually sinuate before hind angles, distance between the sinuation and hind angle superior than in *Pt. crassiapex*, hind angles slightly projecting (Fig. 98); (2) in *Pt. crassiapex*, elytral humeral teeth small but distinct; in *Pt. andrewesi*, elytral humeral teeth very small (Figs. 98, 100); (3) in *Pt. crassiapex*, punctures on proepisterna dense and coarse; in *Pt. andrewesi*, such punctures fine and sparse.

**Description.** Body length 15.0–16.2 mm; dorsal side black, shining; tarsi and apex of tibiae brown; ventral side almost black. Males with elytral microsculpture transverse on the basal half, gradually turning to isodiametric near apex. **Head.** Frons with fine punctures restricted in the frontal furrows; antennae reaching elytra basal fifth; 3rd antennomere glabrous except apical setae; males with the terminal labial palpmom tubular. **Pronotum** cordiform, widest before middle, PW/PL = 1.29–1.32; lateral margins fully rounded near the middle, and abruptly sinuate before hind angles; hind angles distinct, rectangular or slightly acute, distinctly projecting; one mid-lateral seta present at about anterior third of lateral margins; basal fovea moderately deep, faintly defined; inner groove of basal fovea subparallel to median line, not curved to the outside, ended at a distance from the posterior margin of pronotum; outer groove of basal fovea somewhat longer than half length of the inner one, deep and reaching the basal margin of pronotum; ridge between outer groove and lateral margin distinct; area between inner and outer basal foveal grooves rugose and hardly convex; basal fovea and basal-median area strongly and densely punctate, sometimes basal-median area less so. **Elytra** with base slightly depressed between 3rd and 5th intervals; elytral shoulders moderately narrowed, humeral teeth small but distinct; intervals feebly convex; striae moderately deep, finely punctate or not; scutellar striae incomplete, forming short grooves, located between 1st and 2nd striae;
umbilical pore series on 9th interval sparse in the middle, composed of 16–17 pores (6–7, 2, 7–8). **Ventral side.** Proepisterna and metaepisterna densely and coarsely punctate, proepisterna densely punctate; terminal sternum of males with a lunate ridge at about anterior third, slightly distinct and transverse, and slightly depressed after the ridge (Fig. 96). **Legs.** 5th tarsomere with three or four pairs of setae beneath. **Male genitalia.** Median lobe of male genitalia bent less than 90 degrees, apex slightly bent to the ventral side and then the turned to the dorsal side (Fig. 31A); ventral margin almost straight in the middle, dorsal margin gradually curved; apical orifice large, slightly turned to the left side (Fig. 31B); apical lamella lamarin, apical strongly thickened and turned to the dorsal side (Figs. 31B, 59B); in dorsal view, apical lamella narrow and long, length about twice as the basal width, twisted to the left (the widest surface of apical lamella orientated to the dorsal-left side of median lobe), slightly turned to the left side (Fig. 31B); apex of apical lamella round, slightly oblique to the left (Fig. 59A). Right paramere fine and long, sickle-form, apex sharp (Fig. 71B). Female unknown.

**Distribution.** Only known form the type locality, Tiechanghuang (Hubei) (Fig. 110).

**Etymology.** The name "crassiapex" is the combination of the Latin adjective etyma "crass-", which means "thick", and the Latin noun "apex", referring to the median lobe of aedeagus with apex of apical lamella strongly thickened.

**Remarks.** Two females very close to this species were also studied by us: 2 females (IZAS), "Sichuan, Wushan, Liziping, 1850m" [Fig. 8]. But they are slightly different in the pronotum basal fovea (basal fovea only with very sparse punctures) and locality (about 60km NW of the type locality, but isolated by the Yangtze river gorge) from the holotype of *Pt. crassiapex*, so we didn’t included these two females in type series or determined them as this species, and only labeled them as "Pterostichus sp. near crassiapex".

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**Pterostichus (Wraseiellus) comatus Shi & Sciaky, new species**

(Figures 6, 22, 32, 60, 70, 97, 101)

**Type locality.** Guangxi: Maoershan Mt. (N25.87º, E110.42º). The label of holotype does not indicate its altitude or exact locality. But from the altitude information on the two paratypes (1900m), we suppose that this species only lives in the very high altitude of that mountain, which has its highest peak at 2142m.

**Type materials.** **Holotype (MNHN):** male, body length = 12.8 mm, board mounted, genitalia dissected and glued on plastic film pinned under specimen, "CHINE (GUANGXI) / MAO'ER SHAN / VII-1995 T.DEUVE"; "Museum Paris"; "HOLOTYPE ♂ Pterostichus (Wraseiellus) / comatus new species / Des. SHI H.L. 2012" [red label] [Figs. 6, 22, 32, 60, 70, 101]. **Paratypes:** 2 teneral males (IZAS and SCAU), "Guangxi, Maoershan, Sanjiangyuan, 1900m, 2003.8.25, TIAN Mingyi leg." [Fig. 97].

**Diagnosis.** This new species can be easily distinguished from all the other species of this subgenus by their lateral margins of pronotum with three to five setae on each side, contrasting other species only with a single mid-lateral seta.

**Description.** Body length 12.3–12.8 mm; dorsal side black or with elytra slightly brownish; legs dark brown, tarsi light brown; ventral side black or dark brown. Males with elytral microsculpture transverse on the basal half, gradually turning to isodiametric after middle. **Head.** Frons finely and sparsely punctate, densely in the frontal furrows; antennae reaching elytra basal fifth; 3rd antennomere glabrous except apical setae; males with the terminal labial palpmere tubular. **Pronotum** cordiform, widest before middle, PW/PL = 1.26–1.32; lateral margins fully rounded near the middle, and strongly sinuate just before hind angles; three to five mid-lateral setae present before middle, hind angles distinct and sharp, rectangular; basal fovea moderately deep, faintly defined; inner groove of basal fovea subparallel to median line, slightly curved to the outside, ended at a distance from the posterior margin of pronotum; outer groove of basal fovea about half length as the inner one, deep and reaching the basal margin of pronotum; ridge between outer groove and lateral margin distinct; area between inner and outer basal foveal grooves rugose and hardly convex; basal fovea area, as well as area between two basal foveae finely and densely punctate; some very fine and sparse punctures also present in the lateral depression and, sometimes, on the lateral area of disc. **Elytra** with base slightly depressed between 3rd and 5th intervals; humeral teeth very small; intervals slightly convex; striae moderately deep, without punctures; scutellar striae incomplete, forming short grooves, located between 1st and 2nd striae; umbilical pore series on 9th interval sparse in the middle, composed of 14–15 pores (6, 2, 6–7). **Ventral side.** Proepisterna and metaepisterna finely punctate, posterior half
of proepisterna with punctures sparser; terminal sternum of males with a very faint transverse ridge at about anterior fourth, and slightly depressed after the ridge (Fig. 97). Legs. 5th tarsomere with two or three pairs of setae beneath. Male genitalia. Median lobe of male genitalia bent less than 90 degree, apex slightly bent to the ventral side and then the turned to the dorsal side (Fig. 32A); ventral margin almost straight in the middle, dorsal margin gradually curved; apical orifice large, slightly turned to the left side; apical lamella thick, apex slightly thickened and turned to the dorsal side (Figs. 32B, 60B); when in dorsal view, apical lamella narrow and long, length about 2.5 times as basal width, twisted to the left (the widest surface of apical lamella orientated to the dorsal-left side of median lobe), strongly bent to the left side (Fig. 32B); apex of apical lamella oblique to the left (Fig. 60A). Right paramere fine and long, sickle-form, apex sharp (Fig. 70B). Female unknown.

**Variation.** The three specimens we studied are different in the number of lateral setae of pronotum: the holotype with five lateral setae, but the two paratypes with only three. We suppose that the number of lateral setae of pronotum may vary from individual to individual. Such case is also found in other members of Pterostichini with three or more lateral setae of pronotum.

**Pterostichus (Wraseiellus) diversus** (Fairmaire, 1886)
(Figures 9, 10, 24, 33, 34, 41, 42, 61, 74, 75, 76, 77, 87, 90, 102, 108, 109)


**Type locality.** Yunnan. The detailed type locality of this species was neither indicated in the original literature nor in the labels of the examined syntype. It was indicated in the preface of original literature that species from Yunnan in this paper were collected by Largeteau and Chasle (Fairmaire, 1886: 303). However, there is no way to infer the exactly type locality of this species from their journey record.

There are two other Pterostichini species (*Pterostichus simillimus*, *Pterostichus curtatus*) from Yunnan described in the same paper together with *Omaseus diversus* Fairmaire. We have examined more complete type series of the other two, and confirmed that all these three species are distributed and abundant in Yulongshan Mountain according to our recent expedition results and examined materials from different collections. Moreover, except *Pterostichus diversus*, the other two species are rediscovered only from Yulongshan Mountain. So, according the above evidence, we suppose that the type locality of this species is probably not far from Yulongshan mountain (N27.17°, E100.26°) from Lijiang.

**Type materials examined.** Syntype of *Omaseus diversus* Fairmaire: 1 female (ZRAS), body length = 14.2 mm, pinned, "diversus / yunnan" [handwritten by Fairmaire]; "yunnan. / Coll. Fairmaire." [handwritten by Semenov]; "diversus Fairmaire. / typ. (Omaseus) / L. Fairmaire det" [handwritten probably by Tschitschérine]; "Zoological Institute / Russian Academy / of Sciences / St. Petersburg" [yellow label] (Figs. 9, 24).

**Notes on types.** This species was described on an uncertain number of specimens, but both sexes were mentioned in the original description. Later, Tschitschérine (1897) redescribed this species on a male belonging to the type series. The collection of Fairmaire should be in MNHN, but we failed to find any specimen belonging to the type series of this species after a carefully searching among the collection of MNHN. The studied female by us was the only syntype found in the collection of ZRAS (Figs. 9, 24). This specimen could be exchanged from the collection of Fairmaire through Tschitschérine. But we don’t think it is appropriate to designate a lectotype before the type locality of this species from their journey record.

**Non-type materials examined** (total 30 specimens). 1 male (MNHN), "Yunnan, R.P.Delavay" (Fig. 17). 1 male (MNHN), "Yunnan, Ta-pin-tze, R.P.Delavay" (Figs. 34, 42, 76). 3 males, 2 females (NHMB), "Yunnan 3500–4000m, 27.10N 100.13E, YULONGSHAN mts., vist Kubán leg. 16–19/6/1993.". 1 male, 2 females (NHMB), "Yunnan 3600–4300m, 27.02N 100.11E, YULONGSHAN mts., vist Kubán leg. 22/6/1993". 2 males, 1 female (NHMB), "Yunnan 3600–4100m, 27.02N 100.11E, YULONGSHAN mts., vist Kubán leg. 27/5/1993" (Fig. 87, 109). 1 male, 1 female (NHMB), "YUNNAN, YULONG Mts., 20–21 Jun 1993, 27.07N 100.13E, Bolm lgt., 3400m". 1 female.
Most species of *Pterostichus diversus* species group are very difficult to distinguish from each other by external characters, except the subspecies *Pterostichus stictopleurus cangshanensis* n. sp., which is different by its 5th tarsomere setose beneath. From other allied species of this species group, *P. diversus* can be easily distinguished by male genital characters: (1) apical lamella of median lobe of aedeagus long and capitate, apex slightly truncate (Figs. 41, 42); (2) right paramere long and wide, apex usually truncate, not narrowed (Figs. 74B–77B). But it is easier to distinguish this species from others by their different localities except from *Pt. stictopleurus stictopleurus*, which is sympatric with *P. diversus* at Jizushan Mt. (Dali). Except for their difference on male genitalia, *P. diversus* is different from *Pt. stictopleurus stictopleurus* also in: (1) area between outer basal foveal groove and lateral margin of pronotum strongly convex, forming a distinct ridge (Fig. 102) (only slightly convex not forming a distinct ridge in *Pt. stictopleurus stictopleurus* (Fig. 104)); (2) lateral margins slightly sinuate just before hind angles, hind angles obseuse but slightly pointed (Fig. 102) (not sinuate before hind angles, hind angles not pointed in *Pt. stictopleurus stictopleurus* (Fig. 104)); (3) pronotum widest a little before middle (Figs. 9, 10) (widest in the middle in *Pt. stictopleurus stictopleurus* (Fig. 11)).

**Description.** Body length 12.4–14.9 mm; dorsal side black, shining in males; tibiae dark brown, tarsi brown; ventral side black or dark brown. Males with elytral microsculpture isodiametric. **Head.** Frons and vertex impunctate, sometimes few punctures present in frontal furrows; antennae reaching elytra basal eighth; 3rd antennomere usually glabrous except apical setae, but with few additional setae in some specimens; males with terminal labial palpmere similar to that of females, slightly expanded and truncate. **Pronotum** rounded, widest a little before middle, PW/PL = 1.31–1.42; lateral margins fully rounded near the middle, slightly sinuate just before hind angles; hind angles slightly pointed; one mid-lateral seta present at about anterior third of lateral margins; basal fovea moderately deep, faintly defined; inner groove of basal fovea subparallel to median line, slightly curved to the outside posteriorly, ended at a distance from the posterior margin of pronotum; outer groove of basal fovea about half length as the inner one, as deep as the inner one, reaching the basal margin of pronotum; ridge between outer groove and lateral margin distinct; area between inner and outer basal foveal grooves convex and slightly rugose; basal fovea area densely punctate, some sparser punctures usually present in the area between two basal foveae. **Elytra** with base slightly depressed between 3rd and 5th intervals; elytral shoulders slightly narrowed, humeral teeth small but distinct; intervals feebly convex; striae shallow, with very faint punctures; scutellar striae long, usually incomplete, located between 1st stria and elytral suture; umbilical pore series on 9th interval sparse in the middle, composed of 16–19 pores (6, 2–4, 7–9). **Ventral side.** Proepisterna and metaepisterna densely punctate; terminal sternum of males without special structure. **Legs.** 5th tarsomere usually without seta beneath, rarely one pair of very fine setae present. **Male genitalia.** Median lobe of male genitalia bent at a 90 degrees angle at about basal two-fifths; ventral margin almost straight in the middle, apical part not bent to the ventral side (Figs. 33A, 34A); apical orifice large, slightly turned to the left side, apical lamella twisted to the left (Figs. 33B, 34B); apical lamella laminar, about twice longer than its basal width, apex capitate and rounded, slightly bent to the left (Figs. 41, 42); apex of apical lamella gradually turned to the dorsal side (Fig. 61). Right paramere laminate, elongate and curved, right and left margin subparallel, not narrowed apically, apex truncate or slightly pointed (Figs. 74B–77B). **Female genitalia.** Spermatheca (Fig. 87) with the seminal canal about ten times as long as the receptaculum; spermathecal gland strongly expanded; the seminal canal inserted at the base of common oviduct, base of seminal canal sclerotized (as in Fig. 85). Stylomere 2 with two ensiform setae at the outer margin and three or four at inner margin (Fig. 90).
Diversity. Yulongxueshan, Lijiang (Yunnan); Ta-pin-tze, Dali (Yunnan). The locality "Ta-pin-tze" is only recorded by a male collected about a hundred years ago. Ta-pin-tze (= Dapingdi, N25.91°, E100.24°) is a small village on the ancient way to the peak of Jizushan Mt., Dali District. All the specimens collected in recent years were from Yulongxueshan (=Yulongshan, N27.12°, E100.20°), Lijiang District (Figs. 110, 111).

Variation. A large series of specimens of this species were studied in the present work, so singular individual variations in some characters were discovered: (1) additional setae on 3rd antennomere present in few individuals; (2) elytral 3rd interval may have one additional pore after the posterior pore or the position of pores may change; (3) in one specimen, 5th pro- and mesotarsomeres with a pair of very fine setae beneath; (4) apex of right paramere may vary in different individuals, being truncate or slightly pointed (Figs. 74B–77B).

Remarks. It is curious that the male syntype studied by Tschitschérine has two pairs of fine setae on 5th tarsomeres: "le 5e de tous porte en dessous 2 cils très fins de chaque côté, à peu près au milieu." (Tschitschérine, 1897). But, the female syntype and other specimens examined by us without such setae.

In the present paper, we recognized this species based on a female syntype and other examined specimens. We are confident that these materials from Yulongshan Mountain are identical with the syntype for their accordant external characters and our speculation on the type locality mentioned above.

**Pterostichus (Wraseiellus) pseudodiversus** Shi & Sciaky, new species

(Figures 13, 14, 15, 16, 26, 37, 38, 39, 45–56, 62, 79–84, 85, 89, 92, 103)

**Type locality.** China: Yunnan province, Ninglang County, Luguhu, Guozuandong pass, N27.63205°, E100.81781°, 3367 m.

**Type materials.** **Holotype** (IZAS), male, body length = 11.8 mm, pinned, genitalia dissected and glued on plastic film pinned under specimen, "CHINA, Yunnan, / Lijiang, Ninglang, / Luguhu, Guozuandong / N27.63205, / E100.81781"; "3367m; 2009.VII.19 / SHI H.L., coll. PTF trap / Inst. Of Zoology, CAS / Ninglang county, south of Luguhu lake, Guozuandong pass, 2012.VI.03 day, N27.63215 E100.81777"; "mixed forest with pine and rhododendra, SHI Hongliang, LIU Ye leg. Institute of Zoology, CAS" [Figs. 46, 48, 49, 50]. **Paratypes** (total 40 specimens): **Luguhu**: 3 females (IZAS), the same label data as the holotype, but IOZ(E) database number 1891201–1891203 [Figs. 85, 89, 92]. 3 males (SCAU), "Yunnan, Luguhu, 2002.08, Tian Mingyi leg.", 1 male (IZAS), "CHINA, Yunnan prov., Ninglang county, south of Luguhu lake, Guozuandong pass, 3352m, 2012.VI.03 day, N27.63215 E100.81777"; "mixed forest with pine and rhododendra, SHI Hongliang, LIU Ye leg. Institute of Zoology, CAS" [Figs. 47]. 9 males, 14 females (7 males, 11 females in IZAS; 2 males, 3 females in CRS), "CHINA, Yunnan prov., Ninglang county, south of Luguhu lake, Guozuandong pass, 3352m, 2012.VI.04, N27.63215 E100.81777"; "mixed forest with pine and rhododendra, by pitfall trap, SHI Hongliang, LIU Ye leg. Institute of Zoology, CAS" [Figs. 46, 48, 49, 50]. **Lapang**: 3 males (SCAU), "Yunnan, Nuijiang, Lapang, 3000m, 2002.7.20, Tian Mingyi leg." [Figs. 51, 83]. **Deqin**: 2 males, 1 female (IZAS), "Yunnan, Deqin, Baimangxueshan, (Eslope) 3700m"; "1987.VIII.26, Liao Subai leg." [Figs. 15, 55, 82]. **Zhongdian**: 1 male (CRS), "CHINA-YUNNAN, 16–21.6.94 ZHONGDIAN, lgt. E. Kučera" [Figs. 54, 81]. **Mulci**: 2 males, 1 female (IZAS), "CHINA, Sichuan, Mianbu pass btw. Yanyuan and Mulci, 3244m mixed forest, N27.68638 E101.22335"; "2012.VI.7, pitfall trap, SHI Hongliang, LIU Ye leg. Institute of Zoology, CAS" [Figs. 46, 48, 49, 50].

**Non-type materials examined.** 1 male 2 females (IZAS), "CHINA, Yunnan, Diqing, Weixi, Pantiange, Zhazi; N27.34647, E99.27661"; "3029m; 2009.VII.12, Shi H.L. coll. PTF trap Inst. of Zoology, CAS" [Figs. 13, 14, 38, 52, 53, 80].

**Diagnosis.** From the shape of pronotum and male genital characters, this new species is very similar to *Pterostichus diversus* Fairmaire. From all the other members of this subgenus, these two species can be distinguished by: (1) 5th tarsomere usually without seta beneath; (2) a distinct ridge present between outer basal foveal groove and lateral margin; (3) right paramere long and curved, apex wide.

The new species is difficult to be distinguished from *Pt. diversus* in external characters, but their male genitalia show that they are different species. Compared with *Pt. diversus*, the new species is different in: (1) area between inner and outer basal foveal grooves usually less convex than in *Pt. diversus* (Figs. 102, 103); (2) 3rd antennomere with few additional setae, while in *Pt. diversus* 3rd antennomere usually glabrous except apical ring; (3) right paramere shorter than in *Pt. diversus*, apex rounded or slightly pointed, never truncate (Figs. 79B–84B), but in *Pt. diversus*, right paramere longer and apex usually truncate (truncate in Figs. 74B–76B, rarely slightly pointed in Fig. 77B); (4) in *Pt. pseudodiversus*, median lobe of aedeagus stouter (Figs. 37A–39A), in lateral view, apex not bent to

NEW SUBGENUS WRASEIELLUS FROM CHINA

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the dorsal side (Fig. 62B), apex of apical lamella narrow or slightly truncate, slightly bent to the left side (Figs. 45–56); but in Pt. diversus, median lobe of aedeagus slenderer (Figs. 33A, 34A), in lateral view, apex distinctly bent to the dorsal side (Fig. 61B), apex of apical lamella capitately and not bent to the left side (Figs. 41, 42).

**Description.** Body length 11.8–14.9 mm; dorsal side black or reddish brown, shining in males; legs dark brown, tarsi brown; ventral side black or dark brown. Males with elytral microsculpture isodiametric. **Head.** Frons and vertex impunctate or sparsely punctate; antennae reaching elytra basal eighth; inner margin of 3rd antennomere usually with few additional setae subapically, but glabrous in some specimens; males with the terminal labial palpomere similar as in females, slightly expanded and truncate. **Pronotum** rounded, widest a little before middle, PW/PL = 1.26–1.46; lateral margins fully rounded near the middle, slightly sinuate just before hind angles; hind angles slightly pointed; one mid-lateral seta present at about anterior third; basal fovea moderately deep, faintly defined; inner groove of basal fovea subparallel to median line, slightly curved to the outside posteriorly, ended at a distance from the posterior margin of pronotum; outer groove of basal fovea about half length as inner one, as deep as inner one, reaching or almost reaching the basal margin of pronotum; ridge between outer groove and lateral margin distinct; area between inner and outer basal foveal grooves feebly convex and punctate; basal fovea area punctate, some sparser punctures usually present on the area between two basal foveae. **Elytra** with base slightly depressed between 3rd and 5th intervals; elytral shoulder slightly narrowed, humeral teeth small but distinct; intervals feebly convex; striae moderately deep, with very faint punctures; scutellar striae long, usually incomplete, located between 1st stria and elytral suture; umbilical pore series on 9th interval sparse in the middle, composed of 16–18 pores (6–7, 2–3, 7–8). **Ventral side.** Proepisterna and metaepisterna finely punctate; terminal sternum of males without special structure. **Legs.** 5th tarsomere without seta beneath. **Male genitalia.** Median lobe of male genitalia bent at a 90 degrees angle at about basal two-fifths; ventral margin almost straight in the middle, apical part not bent to the ventral side (Figs. 37A–39A); apical orifice large, slightly turned to the left side, apical lamella slightly twisted to the left (Figs. 37B–39B); apical lamella laminar, 1.1–1.6 times as the basal width, apex bent to the left, rounded or slightly truncate (Figs. 45–56); apex of apical lamella not turned to the dorsal side, ventral surface slightly thickened (Fig. 62B). Right paramere laminar, elongate and curved, right margin curved, narrowed apically, apex rounded or slightly pointed (Figs. 79B–84B). **Female genitalia** similar with Pt. diversus Fairmaire (Fig. 89). Spermatheca with the seminal canal about ten times long as the receptaculum; spermathecal gland strongly expanded; the seminal canal inserted at the base of common oviduct, base of seminal canal sclerotized (Fig. 85). Stylomere 2 with two or three ensiform setae at the outer margin and three or four at inner margin (Fig. 92).

**Distribution.** The distribution range of this species is the widest in the subgenus, including many localities from northwest part of Yunnan: Luguhu (N27.63º, E100.82º), Lanping (N26.46º, E99.25º), Weixi (N27.35º, E99.28º), Deqin (N28.37º, E99.02º), Zhongdian (N27.82º, E99.70º), and Mianbu pass between Muli and Yanyuan (N27.69º, E101.22º) from south Sichuan. **Pt. pseudodiversus** is strictly allopartic with all the other species of this subgenus (Figs. 110, 111).

**Etymology.** The name "pseudodiversus" is the combination of the Greek epithets "pseud-" and "diversus", referring to the similarity of this new species with *Pterostichus* diversus (Fairmaire).

**Remarks.** In this species, the shape of apical lamella of male genitalia varies from individual to individual. In general, specimens from Zhongdian and Deqin have the apex more rounded (Figs. 54, 55), while those from Lanping, Luguhu and Muli more truncate (Figs. 45–53). Moreover, the only examined male from Weixi, which is somewhat different from the others, has the slenderest apical lamella (Fig. 56). But even in the same locality (such as specimens from Luguhu), the shape of apical lamella is not constant, from rounded to slightly truncate, and from rather narrow to somewhat wider (Figs. 45–50). Similar variation also presents in the shape of pronotum, narrower or wider, varying both in population and individual level. Since there is no constant difference both in male genital and external characters among specimens from different localities, we do not try to divide this species into different subspecies in the present paper, and include the majority of examined specimens from five localities (see above) in the type series except those three specimens (1 male and 2 females) from Weixi which were excluded for their slenderer apical lamella (Figs. 39, 56).
Pterostichus (Wraseiellus) stictopleurus stictopleurus (Fairmaire, 1888)
(Figures 11, 35, 43, 63, 64, 72, 104)

Fairmaire 1888: 10 (Original: Omaseus; syntype possibly deposited in MNHN); Tschitschérine 1897: 299
(Feronia(Pterostichus)); Jedlička 1962: 234 (Pterostichus (Morphohaptopterus)); Sciaky 1994: 4 (Pterostichus
(Neoaptopterus)); Bousquet 2003: 510 (Pterostichus (Neoaptopterus)); Lorenz 2005: 278 (Pterostichus
(Neoaptopterus)).

Type locality. No detailed locality but "Yunnan" was mentioned in the original literature. According to our
knowledge of the type materials of other species of Pterostichiini described in the same paper, we believed that
the type series of this species could be collected by Père Delavay from northeast to Dali in Yunnan Province (detailed
discussions are provided in remarks).

Notes on types. This species was described on an uncertain number of specimens, but both sexes were
mentioned in the original description. Later, Tschitschérine (1897) redescribed this species on a male of the type
series. The Fairmaire's collection should be in MNHN, but even after a carefully search in the collection of MNHN
we failed to find any specimen belonging to the type series of this species. The male mentioned by Tschitschérine
(1897) was probably transferred to him from Fairmaire. We have tried to look for it in the collection of ZRAS with
the kind help of Dr. B. Kataev, but failed. The type of this species might be absent both from MNHN and ZRAS.

Non-type materials examined. 1 female (MNHN), "Yunnan, R.P.Delavay". 2 males (MNHN), "Yunnan, Ta-
in-tze, R.P.Delavay"; "Museum Paris Coll. R. Oberthür 1952" [Figs. 11, 35, 43, 63, 64, 72, 104].

Diagnosis. From the subspecies Pterostichus stictopleurus cangshanensis n. ssp., the nominotypical
subspecies is different in the 5th tarsomere glabrous beneath. From other allied species of Pterostichus diversus
species group, Pt. stictopleurus can be easily distinguished by the apex of right paramere narrow and sharp, dird-
from. From the external characters, this species is most similar with Pt. kambaiti Andrewes. Their comparison is
provided in the diagnosis section under Pt. kambaiti. This species is strictly allopatric with other species of this
subgenus except for Pt. diversus. Their differences are provided in the diagnosis section under Pt. diversus.

Description. Body length 10.8–13.1 mm; dorsal side black, shining in males; tibiae dark brown, tarsi brown;
ventral side black or dark brown. Males with elytral microsculpture isodiametric.

Head. Frons and vertex impunctate, few punctures present in frontal furrows; antennae reaching elytra basal eighth; 3rd antennomere
glabrous except apical setae; males with terminal labial palpomere similar as in females, slightly expanded and
truncate. Pronotum rounded, widest at about middle, PW/PL = 1.35–1.40; lateral margins fully rounded near the
middle and then gradually curved posteriorly, almost straight before hind angles; hind angles obtuse, not pointed;
one mid-lateral seta present at about anterior third; basal fovea shallow, faintly defined; inner groove of basal fovea
weak, subparallel to median line, gradually disappeared posteriorly, ended at a distance from the posterior margin
of pronotum; outer groove of basal fovea about two-thirds length as the inner one, somewhat more distinct than the
inner one, reaching the basal margin of pronotum; ridge between outer groove and lateral margin very weak; area
between inner and outer basal foveal grooves slightly convex and slightly rugose; basal fovea area densely
punctate, some sparser punctures usually present on the area between two basal foveae. Elytra with base slightly
depressed between 3rd and 5th intervals; elytral shoulders slightly narrowed, humeral teeth small but distinct;
intervals feebly convex; striae moderately deep, with very faint punctures; scutellar striae long, nearly complete,
located between 1st stria and elytral suture; umbilical pore series on 9th interval sparse in the middle, composed of
16–18 pores (5–7, 3, 7–8). Ventral side. Proepisterna and metaepisterna densely punctate; terminal sternum of
males without special structure. Legs. 5th tarsomere without setae beneath. Male genitalia. Median lobe of male
genitalia bent at a 90 degrees angle at about basal two-fifths, ventral margin almost straight in the middle (Fig.
35A); apical part slightly bent to the ventral side and then the apical lamella gradually bent to the dorsal side (Figs.
63B, 64B); apical orifice large, slightly turned to the left side, apical lamella twisted to the left (Fig. 35B); apical
lamella laminar, about twice as its basal width, apex slightly capitulate and rounded, hardly bent to the left (Fig. 43).
Right paramere dirk-form, elongate and curved, right margin straight, narrowed apically, apex sharp. Female
genitalia not studied.

Distribution. The only known detailed locality of this species is "Ta-pin-tze" (= Dapingdi, N25.91º, E100.24º,
northeast of Erhai lake, near Jizushan Mt.) (Figs 110, 111).

Variation. A male from "Ta-pin-tze" is much smaller and narrower than the other two examined specimens.
But the male genitalia show that they are exactly the same species.
Remarks. Fairmaire (1888) described eight Pterostichini species from Yunnan. We found the types of four of them in the collection of MNHN. The types of two species (Stoebeus collucens, Steropus scuticollis) are clearly labeled as "Yunnan, R.P. Delavay", while the other two (Aurisma delavayi, Steropus forficornis) only have Fairmaire's handwritten labels "yunnan". Based on these, we inferred that most species described in this paper from Yunnan (including Omaseus stictopleurus) were collected by Père Delavay, a famous French missionary and botanist, but Fairmaire ignored the information of collector (as usual he did) when transcribing labels and describing. Moreover, from our examined specimens of these species, we believe that, the type locality of these species could be not far from Delavay's parish, northeastern Dali in Yunnan Province. In the present paper, we recognize this species mainly based on the examination of three specimens from MNHN, which were collected by Père Delavay from Yunnan (probably are topotypes) and accorded with the description of Pt. stictopleurus.

Pterostichus (Wraseiellus) stictopleurus cangshanensis Shi & Sciaky, new subspecies
( Figures 12, 25, 36, 44, 65, 66, 73, 88, 91, 105 )

Type locality. Yunnan: Dali, E. slope of Cangshan Mt. (N25.63º, E100.14º)

Type materials. Holotype (IZAS), male, body length = 12.8 mm, pinned, genitalia dissected and glued on plastic film pinned under specimen, "CHINA, Yunnan prov., / Dali, E. slope of Cangshan Mt., 2008.X.18, / leg. HUANG Rong etc., / NO.2008101801"; "云南大理市点苍山东坡 / 2008.X.18，黄荣等 / NO.2008101801"; "IOZ(E)1891916"; "HOLOTYPE / Pterostichus (Wraseiellus) / stictopleurus cangshanensis / new subspecies / Des. SHI H.L. 2012" [red label] [Figs. 12, 25, 36, 44, 65, 73, 100]. Paratypes (total 18 specimens all from Dali): 3 males and 2 females (IZAS), the same label data as holotype, 2 of them (1 male, 1 female) with different IOZ database label (1891914, 1891915), others without database label. 1 male (IZAS), "CHINA, Yunnan prov., Dali, S. slope of Cangshan Mt., 2008.X.6, leg. LI Yunchun etc., NO.2008090608". 1 male (IZAS), "CHINA, Yunnan prov., Dali, E. slope of Cangshan Mt., 2008.X.6, leg. LI Yunchun etc., NO.2008090608". 1 male (IZAS), "CHINA, Yunnan prov., Dali, E. slope of Cangshan Mt., 2008.X.13, leg. ZHANG Youliang etc., NO.2008091301" [Fig. 66]. 2 males (CRS), "CHINA, Yunnan prov. Dali, 6.7.1993, lgt.S.Becvar". 3 males, 3 females (SCAU), "CHINA, Yunnan prov., Dali, Cangshan Mt., 2009.VI.25, 2600m, leg. YANG Zhenxing, ZHANG Youliang etc., S1986WDm" [Fig. 91]. 1 male, 1 female (SCAU), "CHINA, Yunnan prov., Dali, Cangshan Mt., 2009.VII.8, 2500m, leg. Ma Yanhong, WANG Mingtao etc., S1991EDe" [Fig. 88].

Diagnosis. The new subspecies can be distinguished from all the other species of this subgenus by the combination of the following characters: (1) 5th tarsomere setose beneath; (2) males with elytral microsculpture isodiametric; (3) pronotum hind angles obtuse, not pointed.

Comparing with the nominotypical subspecies, the new subspecies is different in: (1) 5th tarsomere setose beneath (glabrous in the nominotypical subspecies); (2) ridge between outer groove of basal fovea and lateral margin of pronotum stronger than in the nominotypical subspecies (Figs. 104, 105); (3) punctures on proepisterna much finer and sparser than in the nominotypical subspecies; (4) outer margin of right paramere slightly curved (straight in the nominotypical subspecies) (Figs. 72B, 73B); (5) median lobe of male genitalia straight before apical lamella (in lateral view), and slightly bent to the dorsal side at apex (Figs. 65, 66), but in the nominotypical subspecies, median lobe slightly sinuate and then strongly bent to the dorsal side (Figs. 63, 64).

Description. Body length 11.6–13.4 mm; dorsal side black, shining in males; tibiae dark brown, tarsi brown; ventral side black or dark brown. Males with elytral microsculpture isodiametric. Head. Frons and vertex impunctate, few punctures present in frontal furrows; antennae reaching elytra basal eighth; 3rd antennomere glabrous except apical setae; males with the terminal labial palpomer similar as in females, slightly expanded and truncate. Pronotum rounded, widest at about middle, PW/PL = 1.32–1.39; lateral margins fully rounded near the middle and then gradually curved posteriorly, almost straight before hind angles; hind angles obtuse, not pointed; one mid-lateral seta present at about anterior third; basal fovea shallow, faintly defined; inner groove of basal fovea weak, subparallel to median line, gradually disappeared posteriorly, ended at a distance from the posterior margin of pronotum; outer groove of basal fovea about two-third length as inner one, somewhat more distinct than the inner one, reaching the basal margin of pronotum; ridge between outer groove and lateral margin distinct, weakly convex; area between inner and outer basal foveal grooves slightly convex and rugose; basal foveal area densely punctate, some sparse punctures usually present in the area between two basal foveae. Elytra with base slightly
depressed between 3rd and 5th intervals; elytral shoulders slightly narrowed, humeral teeth small but distinct; intervals feebly convex; striae moderately deep, with very faint punctures; scutellar striae complete or incomplete, between 1st stria and elytral suture or between 1st and 2nd striae; umbilical pore series on 9th interval sparse in the middle, composed of 15–17 pores (5–6, 2–3, 7–8). **Ventral side.** Proepisterna finely rugose, usually with sparse and fine punctures at anterior half; metaepisterna finely punctate; terminal sternum of males without special structure. **Legs.** 5th tarsomere with one to three pairs of setae beneath. **Male genitalia.** Median lobe of male genitalia bent at a 90 degrees angle at about basal two-fifth, ventral margin almost straight in the middle (Fig. 36A); apical part straight and then the apical lamella slightly bent to the dorsal side (Figs. 65, 66); apical orifice large, slightly turned to the left side, apical lamella twisted to the left (Fig. 36B); apical lamella laminar, length about twice as its basal width, apex slightly capitate and rounded, hardly bent to the left (Fig. 44). Right paramere dirk-form, elongate and curved, right margin slightly curved, narrowed apically, apex sharp (Fig. 73B). **Female genitalia** (Fig. 88) very similar to those of *Pt. diversus* Fairmaire. Spermatheca with the seminal canal about ten times long as the receptaculum; spermathecal gland strongly expanded; the seminal canal inserted at the base of common oviduct, base of seminal canal sclerotized (as in Fig. 85). Stylocercere 2 with two or three ensiform setae at the outer margin and three or four at inner margin (Fig. 91).

**Distribution.** This subspecies is only known from Cangshan Mt., near Dali (Xiaguan Township) (Figs. 110, 111).

**Etymology.** The Latinized name "cangshanensis" refers to the type locality of the new subspecies, Cangshan Mt., a mountain range located on the west of Dali, Yunnan.

**Remarks.** We propose this new subspecies mainly for the presence of setae on 5th tarsomeres , which is an important character in *Pterostichus*, even on subgenera level. Besides this, the external and genital differences (see diagnosis section) are constant though slight, and its geographical range is isolated from the nominotypical subspecies (Cangshan and Dapingdi belong to mountain ranges isolated by Erhai basin), which support the validity of the new subspecies. But the differences between their male genitalia are so small that we prefer to regard it as a subspecies rather than a different species.

**Pterostichus** **(Wraseiellus) kambaiti** (Andrewes, 1947)  
(Figures 17, 18, 27, 28, 40, 78, 106)

Andrewes 1947: 22 (Original: *Feronia*; holotype deposited in NHRS); Lorenz 2005: 287 (*Pterostichus* (incert. sed.)).  
**Synonym:** *kambaiti* Jedlička 1965: 204 (*Pterostichus* (incert. sed.); holotype deposited in NHRS). Junior secondary homonym of *Pterostichus kambaiti* (Andrewes 1947); Lorenz 1998: 266 (catalogue; synonymized with *kambaiti* Andrewes).

**Type locality.** Myanmar: Kambaiti, 7000 ft. (N25.40º, E98.13º).

**Type materials examined.** **Holotype** of *Feronia kambaiti* Andrewes (examined by photo): female (NHRS), body length = 10.3 mm, board mounted, "N. E. BURMA / Kambaiti, 7000 ft / 19/4 1934 / R. MALAISE"; "Feronia / Kambaiti / Type Andr. / H.E.Andrewes det."; "Typus" [red label]; "5534 / E91 +" [blue label]; "NHRS-COLE / 000008537"; "kambaiti / Andr." [box label] (Figs. 17, 27). **Holotype** of *Pterostichus kambaiti* Jedlička: male (NHRS), body length = 9.9 mm, board mounted, genitalia dissected and glued on mounting board together with specimen, "N. E. BURMA / Kambaiti, 7000 ft. / 19/4 1934 / R. MALAISE"; "4"; "HOLOTYPE" [red label]; "Pterostichus / kambaiti / sp.n. / det. Ing. Jedlička" [pink label]; "5679 / E91 +" [blue label] (Figs. 18, 28, 40, 78, 106).

**Notes on types.** *Feronia kambaiti* Andrewes: The original description indicated that this species was published on two females, and in the preface noted that all the "types" were in Stockholm Museum and the "paratypes" were in the collection of Andrewes and British Museum. So, the one we examined by photo with the help of Dr. J. Bergsten is the holotype of this species (Figs. 17, 27).

**Pterostichus kambaiti** Jedlička: The original description clearly indicated that this species was described on a single male. Therefore, the one we borrowed from NHRS is certainly the holotype of this species (Figs. 18, 28).

**Diagnosis.** In the external characters, this species is most similar to *Pt. stictopleurus* s.str. These two species can be distinguished from other members of this subgenus by the combination of the following characters: (1) 5th tarsomere glabrous beneath; (2) males with isodiametric microsculpture on elytra; (3) pronotum with area between outer basal foveal groove and lateral margin slightly convex, not forming a distinct ridge; (4) lateral margins straight before hind angle, hind angles obtuse, not pointed.
Pt. kambaiti is different from *Pt. stictopleurus* s.str. in: (1) scutellar striae located between 1st and 2nd striae (scutellar striae located between 1st stria and elytral suture in *Pt. stictopleurus* s.str.); (2) metaepisterna impunctate (distinctly punctate in *Pt. stictopleurus* s.str.); (3) body size smaller, 9.9–10.3 mm (usually much larger in *Pt. stictopleurus* s.str., 10.8–13.1 mm); (4) right paramere much wider than in *Pt. stictopleurus* s.str.; (5) apex of median lobe of male genitalia more bent to the dorsal side than in *Pt. stictopleurus* s.str.

**Description.** Body length 9.9–10.3 mm; dorsal side black, elytra somewhat lighter, shining in males. Males with elytral microsculpture isodiametric. **Head.** Frons and vertex impunctate, a few punctures present in frontal furrows; antennae reaching elytra basal eighth; 3rd antennomere glabrous except apical setae. **Pronotum** rounded, widest at about middle, PW/PL = 1.30; lateral margins fully rounded near the middle and then gradually curved posteriorly, almost straight before hind angles; hind angles obtuse, not pointed; one mid-lateral seta present at about anterior fourth; basal fovea shallow, faintly defined; inner groove of basal fovea weak, subparallel to median line, gradually disappeared posteriorly, ended at a distance from the posterior margin of pronotum; outer groove of basal fovea about half length as inner one, somewhat more distinct than the inner one, reaching the basal margin of pronotum; ridge between outer groove and lateral margin slightly convex; area between inner and outer basal foveal grooves hardly convex; some faint punctures present in basal fovea area and the area between the two basal foveae. **Elytra** with base slightly depressed between 3rd and 5th intervals; elytral shoulders slightly narrowed, humeral teeth small; intervals slightly convex; striae distinct, without punctures; scutellar striae nearly complete, located between 1st and 2nd striae; umbilical pore series on 9th interval sparse in the middle, composed of 15 pores (5, 2, 8). **Ventral side.** Proepisterna and metaepisterna impunctate; terminal sternum of male without special structure. **Legs.** 5th tarsomere without seta beneath. **Male genitalia.** Median lobe of male genitalia bent at a 90 degrees angle at about basal two-fifth; ventral margin almost straight in the middle, apical part slightly bent to the ventral side and then the apical lamella gradually bent to the dorsal side (Fig. 40A); apical orifice large, slightly turned to the left side, apical lamella twisted to the left (Fig. 40B); apical lamella laminar, about 1.5 times as its basal width, apex rounded. Right paramere short, apical part triangular and curved, narrowed apically, apex moderately wide (Fig. 78B). Female genitalia not studied.

**Distribution.** Only known from the type locality, Kambaiti, Myanmar (Fig. 110).

**Notes on synonym.** From the collecting data label, the holotypes of *Pt. kambaiti* Jedlička 1965 and *Feronia kambaiti* Andrews 1947 were collected at the same day in the locality of Kambaiti by Malaise. We did not find any significant difference between the two holotypes. So, there is no doubt that *Pt. kambaiti* Jedlička 1965 is both synonym and homonym of *Pt. kambaiti* (Andrewes 1947).

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**Reference**


NEW SUBGENUS WRASEIELLUS FROM CHINA

FIGURES 7–12. Habitus of Pterostichus (Wraseiellus) spp.: scale bar = 2.0 mm; 7, Pt. crassiapex n. sp. holotype; 8, Pt. near crassiapex n. sp., a female from Liziping; 9, Pt. diversus (Fairmaire), a female syntype; 10, Pt. diversus (Fairmaire), a male from Yulongshan; 11, Pt. stictopleurus (Fairmaire), a male from "Ta-pin-tze"; 12, Pt. stictopleurus cangshanensis n.ssp., holotype.
FIGURES 29–34. Median lobe of male genitalia of *Pterostichus* (*Wraseiellus*) spp.: scale bar = 1.0 mm; A, left lateral view of median lobe; B, dorsal view of median lobe. 29, *Pt. andrewesi* Jedlička, a male from Jinfoshan; 30, *Pt. meyeri* Jedlička, a male from "Yunnan"; 31, *Pt. crassiapex* n. sp., holotype; 32, *Pt. comatus* n. sp., holotype; 33, *Pt. diversus* (Fairmaire), a male from Yulongshan; 34, *Pt. diversus* (Fairmaire), a male from "Ta-pin-tze".
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FIGURES 57–66. Apex of median lobe of male genitalia of Pterostichus (Wraseiellus) spp.: scale bar = 0.5 mm; A, dorsal view of apical lamella; B, left lateral view of apical lamella; C, right lateral view of apical lamella; 57, Pt. andrewesi Jedlička, a male from Jinfoshan; 58, Pt. meyeri Jedlička, a male from "Yunnan"; 59, Pt. crassiapex n. sp., holotype; 60, Pt. comatus n. sp., holotype; 61, Pt. diversus (Fairmaire), a male from Yulongshan; 62, Pt. pseudodiversus n. sp., holotype; 63, Pt. stictopleurus (Fairmaire), a male from "Ta-pin-tze"; 64, Pt. stictopleurus (Fairmaire), a male from "Ta-pin-tze"; 65, Pt. stictopleurus cangshanensis n. ssp., holotype; 66, Pt. stictopleurus cangshanensis n. ssp., a paratype from Cangshan.
FIGURES 85–89. Female reproductive system of *Pterostichus* (*Wraseiellus*) spp.: scale bar A = 1.0 mm; scale bar B = 0.5 mm; A, spermatheca; B, receptaculum; 85, internal reproductive system structures (weakly-stained) of *Pt. pseudodiversus n. sp.*, a paratype from Luguhu; 86, *Pt. andrewesi* Jedlička, a female from Jinfoshan; 87, *Pt. diversus* (Fairmaire), a female from Yulongshan; 88, *Pt. stictopleurus cangshanensis n.ssp.*, a paratype from Cangshan; 89, *Pt. pseudodiversus n. sp.*, a paratype from Luguhu. Abbreviations: bc, bursa copulatrix; co, common oviduct; rc, receptaculum; s1, stylomere 1; s2, stylomere 2; sc, seminal canal; sg, spermathecal gland; sp, spermatheca; spc, spermathecal canal.
FIGURES 90–93. Left stylomere of ovipositor of Pterostichus (Wraseiellus) spp.: scale bar = 0.5 mm; A, ventral view; B, dorsal view: 90, Pt. diversus (Fairmaire), a female from Yulongshan; 91, Pt. stictopleurus cangshanensis n.ssp., a paratype from Cangshan; 92, Pt. pseudodiversus n. sp., a paratype from Luguhu. 93, Pt. andrewesi Jedlička, a female from Jinfoshan. Abbreviations: es, ensiform setae; ns, nematiform setae; s1, stylomere 1; s2, stylomere 2.

FIGURES 94–97. Male terminal sternum of Pterostichus (Wraseiellus) spp.: scale bar = 1.0 mm; 94, Pt. andrewesi Jedlička, a male from Jinfoshan; 95, Pt. meyeri Jedlička, a male from "Yunnan"; 96, Pt. crassiapex n. sp., holotype; 97, Pt. comatus n. sp., a paratype from Maoershan.

FIGURES 107–109. Elytral microsculpture of *Pterostichus (Wraseiellus)* spp., sub-basal area of left elytron, interval 3–4; scale bar = 0.2 mm; 107, *Pt. crassiapex* n. sp., male (transverse); 108, *Pt. diversus* (Fairmaire), male (isodiametric, normal); 109, *Pt. diversus* (Fairmaire), female (isodiametric, extraordinary strong).
FIGURES 110–111. Distribution maps for species of subgenus Pterostichus (Wraseiellus): □ Pt. andrewesi Jedlička; « Pt. meyeri Jedlička; ▼ Pt. crassiapex n. sp.; ◆ Pt. comatus n. sp.; ● Pt. diversus (Fairmaire); ○ Pt. pseudodiversus n. sp.; ▲ Pt. stictopleurus stictopleurus (Fairmaire); ▲ Pt. stictopleurus cangshanensis n.ssp.; ■ Pt. kambaiti (Andrewes). 111. shows an enlarged scale of the area in figure 110 marked by the dotted line square.