

## Contributions to the Knowledge of the “*Staphylinus*-complex” (Coleoptera, Staphylinidae, Staphylinini) of China

### Part 5. The Genus *Protocypus* J. MÜLLER, 1923

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**Abstract** The paper deals with the species of the genus *Protocypus* known to occur at present on the territory of the People's Republic of China. Twelve species are treated, of which ten are described as new: *P. vulpes* (Shaanxi: Qin Ling Shan), *P. wrasei* (Shaanxi: Daba Shan), *P. canis* (Hubei: Daba Shan); *P. lupus* (Gansu, Hubei, Shaanxi, Sichuan), *P. meles* (Shaanxi: Daba Shan), *P. felis* (Shaanxi: Daba Shan), *P. pilifer* (Shaanxi: Daba Shan; Hubei: Daba Shan); *P. latro* (Hubei: Da Shennongjia range), *P. lativentris* (Shaanxi: Daba Shan), *P. puer* (Hubei: Da Shennongjia range). *Protocypus fulvotomentosus* and *P. beckeri* are redescribed and the lectotype for *P. beckeri* is designated. Each species is described, illustrated and all available distributional and bionomic data are given. A key to the Chinese species of *Protocypus* is given.

### Introduction

This is the fifth of a series of papers dealing with the genera of the “*Staphylinus*-complex” (see SMETANA and DAVIES, 2000) of the People's Republic of China. It treats the members of the genus *Protocypus* J. MÜLLER, 1923. The genus *Protocypus* was recently removed from synonymy with *Pseudocypus* MULSANT et REY, 1876, redefined and elevated to a generic status by SMETANA (2003, 130), who provided all necessary taxonomic, nomenclatorial and historical information on the genus. This information is not repeated here and the reader is referred to the above paper. However, several additional character states were discovered during the work, and those are briefly mentioned below.

There is no doubt that additional species of the genus will be discovered in mainland China.

The next comprehensive paper of this series will treat the numerous Chinese species of the subgenus *Pseudocypus* of the genus *Ocypus* LEACH, 1819.

### Materials and Methods

In this paper, all species of *Protocypus* presently known to occur on the territory of the People's Republic of China are treated. The specimens, on which this paper is based, come from many sources and the material (over 800 specimens) is believed, as that of previous papers, to include most of the specimens recently collected in China. Many specimens were collected by the author, others were collected by numerous European and Japanese coleopterists, the names of which appear in "Type material" or "Additional material studied" under each species. The material is deposited in various collections, both institutional and private. The holotypes that are said to be housed at present in the collection of the author will be eventually deposited in the Muséum d'histoire naturelle, Genève, Switzerland.

Most features on the aedeagus are described as seen in ventral view. The ventral view of the aedeagus is interpreted as the face of the aedeagus to which the paramere is attached. It is absolutely necessary to view the aedeagus in straight ventral view, in which the basal bulbus, and particularly the basal portion of the paramere, are exactly horizontal. If the base of the paramere is slanted to either side, the shapes of the apical portions of both the median lobe and the paramere will be possibly quite different from the way they are described and illustrated.

The symbols used in the text, when referring to the depositions are as follows:

- APC Collection of ANDREAS PÜTZ, Eisenhüttenstadt, Germany
- ASC Collection of ALEŠ SMETANA, Ottawa, Canada
- MDC Collection of MIROSLAV DVOŘÁK, Praha, Czech Republic
- MCS Collection of MICHAEL SCHÜLKE, Berlin, Germany
- NMW Collection of the Naturhistorisches Museum, Wien, Austria
- YSC Collection of YASUTOSHI SHIBATA, Tokyo, Japan

The number of paratypes, if applicable, is given for each locality behind the geographical data, followed by the acronym of the collection in which the paratype(s) are deposited in brackets. All data are presented in full for holotypes and allotypes.

### Genus *Protocypus* J. MÜLLER, 1923

*Protocypus* J. MÜLLER, 1923, 136 (as subgenus of *Staphylinus*).

*Ascialinus* BERNHAUER, 1933, 34 (as subgenus of *Staphylinus*).

Type species of *Protocypus*: *Ocybus fulvotomentosus* EPPELSHEIM, 1889.

Type species of *Ascialinus*: *Staphylinus beckeri* BERNHAUER, 1933.

The taxonomic, nomenclatorial and historic information on this genus was provided by SMETANA (2003, 130), therefore only some additional notes and comments are presented here.

The aedeagus of all species is to various extent asymmetrical and along with this asymmetry goes the character state of the paramere being located on the median lobe variably asymmetrically, in extreme cases tending to be more or less wrapped around the left margin of the median lobe in ventral view (*P. felis*, Fig. 46). As a result, the

right margin of the paramere (viewing the underside of the paramere, after the paramere was removed from the median lobe) is variably curled inwards (result of the paramere being wrapped around the left margin of the median lobe – see above), and the apical portion of the paramere becomes markedly asymmetrical. In addition, and also apparently due to the twisting of the paramere, the fine setae that usually are bilaterally present at some distance below the apex of paramere, seem to be absent on the curled right margin of the paramere in most species; or rarely they are reduced and appear close to the apex in front of the curled right margin (*P. wrasei*, Fig. 23; *P. canis*, Fig. 30; *P. puer*, Fig. 76), or they appear in the apical field of sensory peg setae (*P. fulvotomentosus*, Fig. 7; *P. lativentris*, Fig. 69). The sensory peg setae on the underside of the paramere are in all species black and relatively small.

The variably triangular, pigmented apical portion of tergite 10 of the female genital segment is markedly differentiated (Figs. 51, 58, 70) in all species; this character state provides yet another synapomorphy of the genus *Protocypus*.

#### Key to the Chinese Species of *Protocypus*

1. Antenna short, when reclined, tip of third segment distinctly not reaching posterior margin of eye, segments 3 and 4 only slightly longer than wide (ratio for segment 4 up to 1.30)..... 2
- Antenna long, when reclined, tip of third segment reaching variably beyond posterior margin of eye, segments 3 and 4 distinctly longer than wide (ratio for segment 4 at least 1.45; if rarely less [*P. puer*], then size small [not over 17.0 mm] and abdominal tergites with spots of yellowish tomentose pubescence)..... 4
2. Legs at least partially darkened, dark brunneous to brunneopiceous. Each elytron with vague, slightly elevated area in middle behind scutellum. Pronotal hypomeron extensively and relatively densely setose. Aedoeagus as in Figs. 15–17. Length 18.5 mm. Chongqing: Jinfo Shan. .... *P. beckeri* (BERNHAEUER, 1933)
- Legs entirely reddish. Each elytron without elevated area in middle behind scutellum. Pronotal hypomeron not extensively and densely setose. Aedoeagi different. .... 3
3. Apical portion of median lobe of aedoeagus relatively narrow (Figs. 3, 5), paramere smaller with apical portion shorter and with apex wider (Fig. 6). Aedoeagus (Figs. 3–7) in general only moderately large (on average 2.3 mm long). Smaller, less robust species. Length 14.5–17.0 mm. Gansu. .... *P. fulvotomentosus* (EPPELSHEIM, 1889)
- Apical portion of median lobe of aedoeagus wider and of different shape (Fig. 11), paramere distinctly larger with apical portion longer and with apex narrower (Fig. 12). Aedoeagus (Figs. 9–13) in general markedly larger (on average 3.0 mm). Larger, more robust species. Length 18.0–20.0 mm. Shaanxi (Qin Ling Shan). .... *P. vulpes* sp. nov.
4. Visible abdominal tergites 4 and 5 each with a patch of golden-yellow tomentose

- pubescence in middle. . . . . 5
- Visible abdominal tergites 4 and 5 with uniform, dark pubescence, each missing a patch of golden-yellow pubescence in middle. . . . . 7
5. Small, slender species, body length not exceeding 17.0 mm. Aedoeagus as in Figs. 72–76. Length 13.0–17.0 mm. Shaanxi: Dashennongjia range. . . . . *P. puer* sp. nov.
- Markedly larger, robust species, body length at least 19.0 mm (range 19.0–23.0 mm). Aedoeagi different. . . . . 6
6. Apex of median lobe of aedoeagus in ventral view acute (Figs. 32, 33, 35); apex of paramere narrowly arcuate to subacute (Figs. 36, 37), sensory peg setae on underside of paramere arranged as in Figs. 37, 38. Length 19.0–23.0 mm. Gansu, Shaanxi (Qin Ling Shan), W-Hubei (Daba Shan), Sichuan. . . . . *P. lupus* sp. nov. (pars)
- Apex of median lobe of aedoeagus in ventral view obtuse, widely rounded to subtruncate (Figs. 40, 42); apical portion of paramere wide, with apex obtuse to widely rounded (Figs. 40, 43, 44), sensory peg setae on underside of paramere arranged as in Figs. 43, 44. Length 18.0–23.0 mm. Shaanxi: Daba Shan. . . . . *P. meles* sp. nov. (pars)
7. Pronotal hypomerion with numerous setiferous punctures distributed over major portion of hypomerion. . . . . 8
- Pronotal hypomerion with only a few setiferous punctures. . . . . 13
8. Aedoeagus in ventral view with apical portion of paramere conspicuously wrapped around left side of median lobe, with prominent longitudinal carina; apical portion of median lobe subacute, right side of median lobe below apex conspicuously, arcuately dilated (Fig. 46). Length 18.0–20.0 mm. Shaanxi: Daba Shan. . . . . *P. felis* sp. nov.
- Aedoeagus in ventral view with apical portions of both paramere and median lobe markedly different in shape. . . . . 9
9. Apical portion of median lobe of aedoeagus in ventral view with distinct, more or less acute triangular apex (Figs. 19, 21, 32, 33, 35). . . . . 10
- Apical portion of median lobe of aedoeagus in ventral view with apex of different shape, with no more than minute, sharp dent in middle (Figs. 26, 28, 40, 42, 46, 48). . . . . 11
10. Apical portion of paramere of aedoeagus markedly asymmetrical, with subacute apex (Figs. 22, 23). Aedoeagus as in Figs. 19–23. Smaller species: length 16.5–17.5 mm. Shaanxi: Daba Shan. . . . . *P. wrasei* sp. nov.
- Apical portion of paramere of aedoeagus not appreciably asymmetrical (Figs. 32, 33). Aedoeagus as in Figs. 32–38. Larger species: length 19.0–23.0 mm. Gansu, W-Hubei, Shaanxi, Sichuan. . . . . *P. lupus* sp. nov. (pars)
11. Apex of median lobe of aedoeagus in ventral view with minute, sharp projection in middle (Figs. 26, 28). Aedoeagus as in Figs. 26–30. Smaller species: length 16.0–17.5 mm. Hubei: Daba Shan. . . . . *P. canis* sp. nov.
- Apex of median lobe of aedoeagus in ventral view without minute, sharp projec-

- tion in middle, either simple (Figs. 40, 42), or with oblique double carina splitting apical portion (Figs. 53, 55). Larger species: length 18.0–23.0 mm. . . . . 12
12. Apical portion of median lobe of aedoeagus in ventral view simple, without oblique double carinae (Figs. 40, 42). Aedoeagus as in Figs. 40–44. Length 18.0–23.0 mm. Shaanxi: Daba Shan. . . . . *P. meles* sp. nov. (pars)
- Apical portion of median lobe of aedoeagus in ventral view with oblique double carinae splitting apical portion (Figs. 53, 55). Aedoeagus as in Figs. 53–57. Length 18.0–20.0 mm. Shaanxi, Hubei. . . . . *P. pilifer* sp. nov.
13. Apex of median lobe of aedoeagus subtruncate, with oblique, medially sinuate subapical carina with apex not extended into subapical tooth (Fig. 67). Apical portion of paramere relatively narrow, almost symmetrical (Figs. 68, 69). Aedoeagus as in Figs. 65–69. Large, robust species with wide abdomen, abdomen markedly dilated to posterior margin of third visible tergite. Length 19.0–23.0 mm. Shaanxi: Daba Shan. . . . . *P. lativentris* sp. nov.
- Apex of median lobe of aedoeagus arcuate, with similar subapical carina but with apex extended into acute subapical tooth (Fig. 61). Apical portion of paramere wide, markedly asymmetrical (Figs. 62, 63). Aedoeagus as in Figs. 59–63. Relatively slender species with slender abdomen, abdomen only moderately dilated to posterior margin of third visible tergite, as usual. Length 17.0–20.0 mm. Hubei: Da Shennongjia range. . . . . *P. latro* sp. nov.

***Protocypus fulvotomentosus* (EPPELSHEIM, 1889)**

(Figs. 1–7)

*Staphylinus fulvotomentosus* EPPELSHEIM, 1889, 172.

*Staphylinus (Protocypus) fulvotomentosus*: J. MÜLLER, 1923, 196.

*Staphylinus hauseri* BERNHAUER, 1933, 32.

*Ocybus (Pseudocybus) fulvotomentosus*: SMETANA & DAVIES, 2000, 33, 44.

*Protocypus fulvotomentosus*: SMETANA, 2003, 130.

**Diagnosis.** Medium-sized species with short antenna (see description), with testaceous pubescence of dorsal side of body, pale coloration of appendages (see description), only a few fine setiferous punctures on pronotal hypomerion, and with spots of both black and golden-yellowish tomentose pubescence on the abdominal tergites absent.

**Description.** Piceous-black, abdomen with apical portions of visible tergites 4–6 usually inconspicuously paler; maxillary and labial palpi testaceous, antennae and legs rufobrunneous; pubescence of dorsal side of body testaceous to brunneotestaceous, most distinctive on elytra and abdominal tergites; visible abdominal tergites 1–3 each without appreciable pair of small, inconspicuous spots of black tomentose pubescence, visible tergites 4 and 5 each without spot of golden-yellowish tomentose pubescence in middle. Head of rounded quadrangular shape, with entirely rounded posterior angles, wider than long (ratio 1.26), eyes small and rather flat, tempora markedly longer than

eyes from above (ratio 1.6), dorsal surface of head relatively finely, densely punctate and pubescent, narrow interspaces between punctures without appreciable microsculpture. Dorsal side of neck with punctation similar to that on head. Antenna short, when reclined tip of third segment distinctly not reaching posterior margin of eye, segment 3 slightly longer than segment 2 (ratio 1.15), segments 3 and 4 only slightly longer than wide (ratio for segment 4 about 1.25), segments 5 to 7 slightly longer than wide, becoming gradually shorter, outer segments about as long as wide, last segment short, markedly shorter than two preceding segments combined. Pronotum as long as wide to vaguely longer than wide (ratio 1.08), almost parallel-sided to slightly narrowed anteriorly, narrow marginal groove disappearing downwards mostly around middle of pronotal length; pronotum with inconspicuous, narrow, impunctate midline in posterior fourth; punctation and pubescence similar to that on head but slightly denser, interspaces between punctures without appreciable microsculpture. Pronotal hypomeron with a few very fine setiferous punctures. Scutellum finely punctate and setose, surface with very fine, rudimentary submeshed microsculpture. Elytra quite short, at suture considerably (ratio 0.59), at sides distinctly (ratio 0.77) shorter than pronotum at midline; punctation fine and very dense, finely asperate, interspaces between punctures with fine, dense, granulate microsculpture, elytra therefore appearing dull. Wings each reduced to minute, non-functional stump. Abdomen with fifth visible tergite lacking pale apical seam of palisade setae; tergite 2 (in front of first visible tergite) entirely, rather densely and finely punctate and pubescent; all tergites finely, evenly and densely punctate, punctation finer than that on elytra, gradually becoming inconspicuously sparser toward apex of abdomen; interspaces with very fine, submeshed microsculpture of rudimentary striae becoming gradually coarser toward lateral margin of each tergite.

Male. Sternite 8 with moderately wide, shallow, subarcuate medioapical emargination. Genital segment with sternite 9 narrowly, rather deeply emarginate apically (Fig. 2). Tergite 10 relatively wide, triangular with subacute apex, moderately densely setose (Fig. 1). Aedoeagus moderately large (on average 2.3 mm long), as in Figs. 3–7; median lobe with distinctly asymmetrical, acute apex with oblique bisinuate carina on face adjacent to paramere (paramere removed); paramere situated on median lobe markedly asymmetrical, with large and long basal portion, apical portion asymmetrical, with narrowly arcuate apex distinctly not reaching apex of median lobe; underside of paramere with numerous sensory peg setae, situated on apical portion as shown in Figs. 6, 7, and with several minute setae, situated as in Figs. 6, 7, two of setae shifted from right lateral margin to the apical field of sensory peg setae (Fig. 7).

Length: 14.5–17.0 mm.

*Type material.* EPPELSHEIM (l. c.) described the species from several specimens collected in “Kan-ssu”. I was able to study one male specimen of the original series, deposited in the Naturhistorisches Museum in Wien, Austria, and designated it as the lectotype (see SMETANA and DAVIES, 2000, 33 for all details).

*Additional material studied.* [Gansu]: Xinglongshan b. Yuzhong, 2500–3000 m

(loc. Yangzhai), 22.–26.VII.1993, Heinz leg., 3♂♂, 2♀♀ (ASC); ca 25 km E Xiahe (Wagatan Timber), 2700–2900 m, 30.VII.–2.VIII.1993, Heinz leg., 2♀♀ (ASC); Umg. Xiahe, 3000–3200 m, 28.VII.–3.VIII.1993, Heinz leg., 2♂♂, 1♀ (ASC); Xinlong Schan, 60 km of Lanzhou, 3300 m, 22.7.2001, A. Wrzecionko leg., 2♂♂ (ASC, MSC); “Dogcanglhamo” env. (spelling??), 4200 m, 12.–17.V.1990, J. Kaláb leg., 2♀♀ (MSC).

*Geographical distribution.* *Protocypus fulvotomentosus* is at present known only from the province of Gansu.

*Bionomics.* Nothing is known about the habitat requirements of this species. Most specimens studied were taken from pitfall traps set at elevations from about 2,500 to 4,200 m.

*Recognition and comments.* *Protocypus fulvotomentosus* may be fairly easily recognized, in addition to the shape of the aedoeagus, by the moderate size, the short antenna (see the description), by the pale coloration of the appendages, by the testaceous pubescence of dorsal side of the body, and by the uniform pubescence of the abdominal tergites.

### *Protocypus vulpes* sp. nov.

(Figs. 8–14)

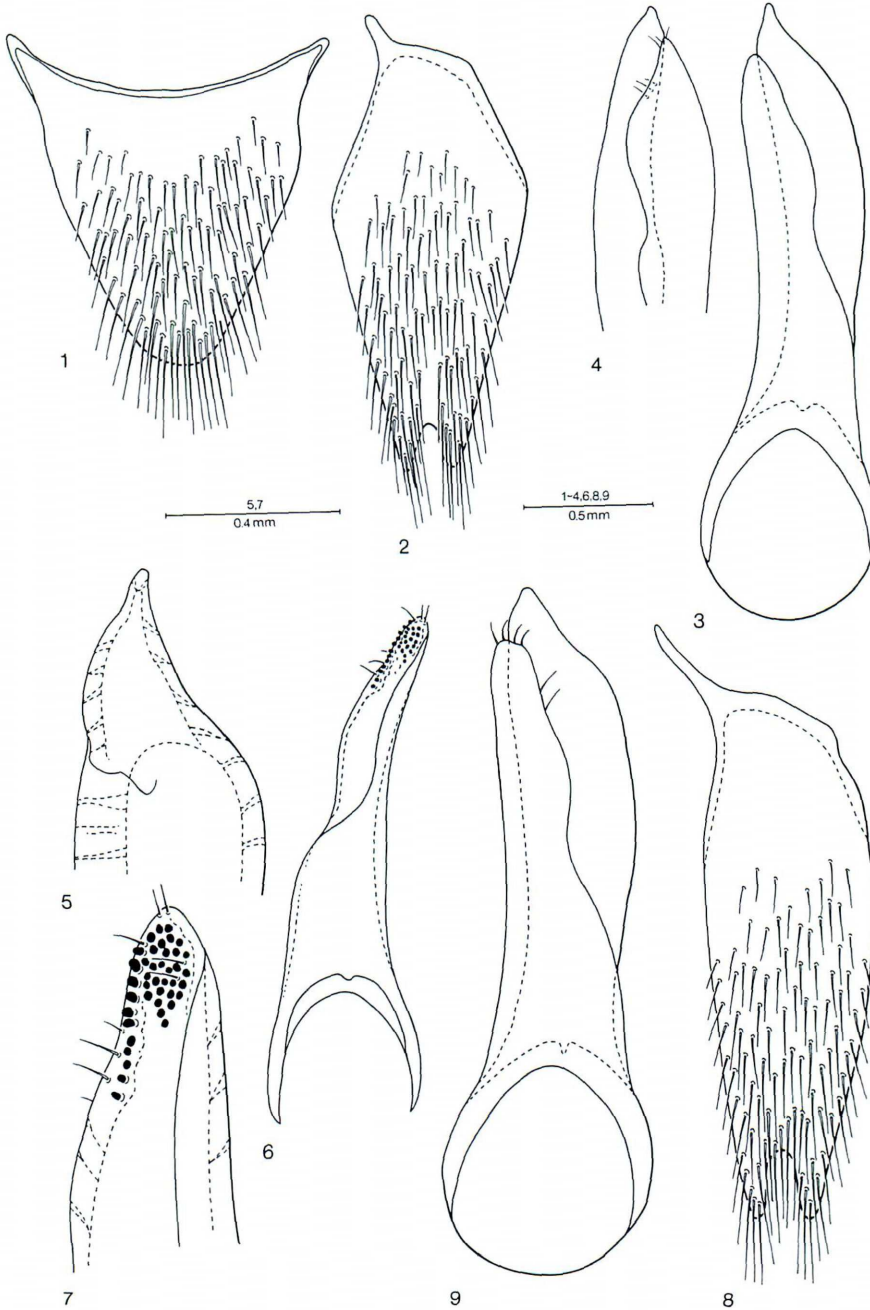
*Diagnosis.* Large, rather robust species, sharing most character states with *P. fulvotomentosus*, but differing from it by differently shaped aedoeagus, and by some external characters, as given in the description.

*Description.* Size larger, body shape distinctly more robust. Pubescence of dorsal side of body predominantly rusty. Antennae stouter, with middle segments longer, particularly in males (ratio length/width for segment 4 about 1.28). Pronotal hypomeron with setiferous punctures more numerous, situated mainly on front half of hypomeron.

*Male.* Sternite 8 with moderately wide and deep, obtusely triangular medioapical emargination. Genital segment with sternite 9 similar to that of *P. fulvotomentosus*, but narrower and longer, with deeper apical emargination (Fig. 8); tergite 10 similar, but larger. Aedoeagus (Figs. 9–13) similar to that of *P. fulvotomentosus*, but markedly larger, on average 3.0 mm long; apical portion of median lobe wider and of different shape with similar, but less bisinuate carina on face adjacent to paramere (paramere removed) (Fig. 11); paramere markedly larger, with apical portion longer and with apex narrower; sensory peg setae on underside of paramere situated in a similar way as those of *P. fulvotomentosus* (Figs. 12, 13); setae situated as in Fig. 13, pair of setae within apical field of sensory peg setae, present in *P. fulvotomentosus*, missing.

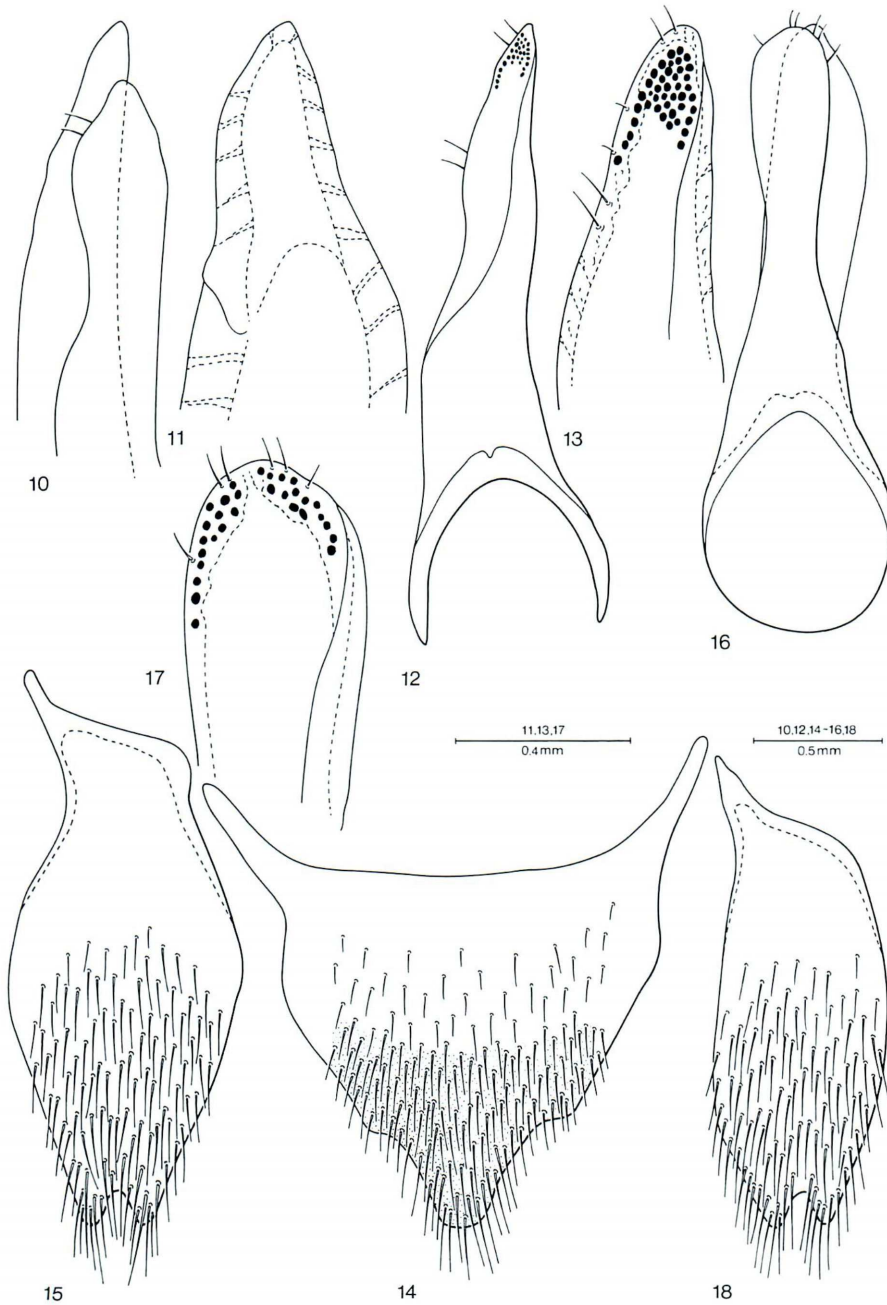
Length: 18.0–20.0 mm.

*Type material.* Holotype (male) and allotype (female): China: “China: Shaanxi, Qin Ling Shan 110.06E, 34.27N Hua Shan Mt. N Valley, 1200–1400 m, 118 km E Xian, sifted 18./20.08 1995, leg. A. Pütz. Holotype in the PÜTZ collection,



Figs. 1-9. — 1-7. *Protocypus fulvotomentosus*: 1, tergite 10 of male genital segment; 2, sternite 9 of male genital segment; 3, aedeagus, ventral view; 4, apical portion of aedeagus, lateral view; 5, apical portion of median lobe, ventral view, paramere removed; 6, underside of paramere; 7, apical portion of underside of paramere. — 8-9. *Protocypus vulpes*: 8, sternite 9 of male genital segment; 9, aedeagus, ventral view.





Figs. 10–18. — 10–14. *Protocypus vulpes*: 10, apical portion of aedeagus, lateral view; 11, apical portion of median lobe, ventral view, paramere removed; 12, underside of paramere; 13, apical portion of underside of paramere; 14, tergite 10 of female genital segment. — 15–17. *Protocypus beckeri*: 15, sternite 9 of male genital segment; 16, aedeagus, ventral view; 17, apical portion of underside of paramere. — 18. *Protocypus wasei*: 18, sternite 9 of male genital segment.

Eisenhüttenstadt, Germany. Allotype in the SMETANA collection, Ottawa, Canada.

Paratypes: [Shaanxi]: same data as holotype, 20 ♂♂, ♀♀, (APC, ASC); same data as holotype, but collected by Wrase, 21 ♂♂, ♀♀, (ASC, MSC); same data as holotype, but collected by M. Schülke, 1 ♂ (MSC).

Additional two specimens, from locality listed above, were not designated as paratypes. They were provided with the determination label "Protocypus vulpes Smetana det A. Smetana 2004".

*Geographical distribution.* *Protocypus vulpes* is at present known only from the type locality in Qin Ling Shan in Shaanxi.

*Bionomics.* The locality labels of most specimens of the original series bear a note "sifted". However, the condition of the specimens clearly indicates (perhaps with the exception of the two specimens collected by SCHÜLKE) that they were taken from pitfall traps. The habitat is unknown, but it likely was deciduous forest at fairly low elevation of 1,200–1,400 m.

*Recognition.* *Protocypus vulpes* may be confused only with *P. fulvotomentosus*. It may be distinguished, in addition to the male sexual characters (aedeagus, sternite 9 of male genital segment), by the characters given in the description.

*Etymology.* The specific epithet is the Latin noun *vulpes*, *-is*, f. (fox) in apposition.

### *Protocypus beckeri* (BERNHAEUER, 1933)

(Figs. 15–17)

*Staphylinus (Ascialinus) beckeri* BERNHAEUER, 1933, 34.

*Protocypus beckeri*: SMETANA, 2003, 131.

*Diagnosis.* Medium-sized species with short antenna, with piceous pubescence of dorsal side of body, predominantly dark coloration of the appendages (see description), numerous fine setiferous punctures on pronotal hypomeron, the vague, slightly elevated area in the middle of each elytron behind scutellum, and with spots of both black and golden-yellowish tomentose pubescence on the abdominal tergites absent.

*Description.* Entirely black, dull; maxillary and labial palpi piceous, antennae piceous-black, gradually becoming paler toward apex, legs piceous to piceous-black, with slightly paler front tarsi; pubescence of dorsal side of body uniformly piceous, visible abdominal tergites 1–3 each without a pair of spots of black tomentose pubescence. Head of rounded quadrangular shape, with obtusely rounded posterior angles, wider than long (ratio 1.29), eyes small and rather flat, tempora markedly longer than eyes from above (ratio 1.75), dorsal surface of head finely and densely punctate and pubescent, punctation becoming somewhat sparser anteriorly, narrow impunctate midline present in front of posterior margin, narrow interspaces between punctures with fine, subgranulose microsculpture. Dorsal side of neck with punctation similar to that on head. Antenna short, when reclined tip of third segment distinctly not reaching posterior margin of eye, segment 3 longer than segment 2 (ratio 1.25), segments 3 and 4

only slightly longer than wide (ratio for segment 4 about 1.25), segments 5 to 7 slightly longer than wide, becoming gradually shorter, outer segments about as long as wide, last segment short, markedly shorter than two preceding segments combined. Pronotum vaguely longer than wide (ratio 1.10), vaguely narrowed posteriad, narrow marginal groove disappearing downwards anteriorly of middle of pronotal length; disc with narrow, impunctate midline in posterior third; punctation, pubescence and microsculpture on interspaces between punctures similar to that on head. Pronotal hypomeron rather extensively, finely punctate and setose. Scutellum finely punctate and setose, except for short lateroapical and apical area, surface with very fine, rudimentary submeshed microsculpture. Elytra quite short, at suture considerably (ratio 0.55), at sides distinctly (ratio 0.68) shorter than pronotum at midline; each elytron with vague, slightly elevated area in middle behind scutellum; punctation fine and very dense, finely asperate, becoming distinctly sparser on each elevated area, interspaces between punctures with traces of granulose microsculpture, except on elevated areas. Wings each reduced to minute, non-functional stump. Abdomen with fifth visible tergite lacking pale apical seam of palisade setae; tergite 2 (in front of first visible tergite) entirely, rather densely and finely punctulate and pubescent; all tergites finely, densely punctate, punctation finer than that on elytra, gradually becoming inconspicuously sparser toward apex of each tergite; interspaces with very fine, submeshed microsculpture of rudimentary striae becoming gradually coarser toward lateral margin of each tergite.

Male. Sternite 8 with moderately wide and deep, subarcuate medioapical emargination. Genital segment with sternite 9 wide, with tapered basal portion, markedly emarginate apically (Fig. 15). Tergite 10 wide, triangular with slightly differentiated apical portion with obtusely arcuate apex, densely setose. Aedoeagus as in Figs. 16, 17; median lobe with short apical portion with subacute apex; paramere situated on median lobe markedly asymmetrically, with large and long basal portion, attenuate around middle, apical portion fairly symmetrical, with obtusely arcuate apex about reaching apex of median lobe; underside of paramere with numerous, sensory peg setae, situated on apical portion as shown in Fig. 17, and with several minute setae, situated as in Fig. 17.

Length: 18.5 mm.

*Type material.* BERNHAUER (1933, 34) described the species from two specimens collected in "Kinfushan", Sichuan. I was able to study one male specimen of the original series, deposited in the Naturhistorisches Museum in Wien, Austria. It is labelled as follows: "♂"/"Kinfushan Prov. Szechuen West-China IV/V 29. Coll. H. Becker"/"gehört dem Ing. Kaiser"/"Beckeri Brh. Cotypus"/"ex Coll. O. Kaiser"/"COTYPUS *Ascialinus* Beckeri Bernhauer". The specimen comes from the SCHEERPELTZ collection but is undoubtedly the one BERNHAUER (1933, 35) in the original description referred to as being deposited "in der Sammlung des Herrn Ing. Kaiser". The specimen is in perfect shape; it was dissected, and the genital segment and the aedoeagus were mounted into Canada balsam on two transparent plates at-

tached to the pin with the specimen. To assure the stability of the nomenclature of the genus *Protocypus*, the specimen is hereby designated as the lectotype of *Ascialinus beckeri*; the label "LECTOTYPE *Ascialinus beckeri* Brnh. A. Smetana des. 2003" was attached to the pin with the specimen.

*Geographical distribution.* *Protocypus beckeri* is at present known only from Jinfo Shan in Chongqing.

*Bionomics.* Nothing is known about the habitat requirements of this species.

*Recognition and comments.* *Protocypus beckeri* may be recognized, in addition to the characteristic shape of the aedoeagus, by the antenna with the middle segments (4–6) only moderately longer than wide and the outer segments about as long as wide, by the rather extensively, finely punctate and setose pronotal hypomerion, by the uniform, piceous pubescence of the body, including the absence of spots of both black and golden-yellowish tomentose pubescence on the abdominal tergites, by the vague, slightly elevated area in the middle of each elytron behind scutellum, and by the predominantly dark appendages.

In addition to the two following species, *P. beckeri* shares some character states with *P. pilifer*; see under the latter species for distinguishing characters.

No modern specimens of this species were collected so far. It seems to be quite rare; it may be endemic to Jinfo Shan.

### *Protocypus wrasei* sp. nov.

(Figs. 18–23)

*Diagnosis.* *Protocypus wrasei* shares most character states, including the rather extensively setose pronotal hypomerion, with *P. beckeri*, but differs from it by the differently shaped aedoeagus, and by some external characters, as given in the description.

*Description.* Size slightly smaller, body shape narrower. Front tarsi brunneous, dorsal face of front tibiae, and to less extent that of middle tibiae paler, brunneo-testaceous. Antennae more slender, with middle segments slightly longer (ratio length/width for segment 4 about 1.30). Punctuation of head and pronotum markedly finer, narrow impunctate midline in front of posterior margin less developed. Each elytron without vague, slightly elevated area in middle behind scutellum, punctuation of elytra finer and denser, interspaces between punctures with denser and somewhat coarser microsculpture. Visible abdominal tergites 1–3 each with a pair of minute, inconspicuous spots of black tomentose pubescence.

*Male.* Sternite 8 with moderately wide and deep, obtusely triangular medioapical emargination. Genital segment with sternite 9 moderately elongate, with long, tapered basal portion, markedly emarginate medioapically (Fig. 18). Tergite 10 wide, triangular with slightly differentiated apical portion with narrowly arcuate apex, densely setose. Aedoeagus as in Figs. 19–23; median lobe with short, simple apical portion

with acute apex, lacking any carinae; paramere with quite characteristically shaped asymmetrical apical portion, situated on median lobe markedly asymmetrically, subacute apex distinctly not reaching apex of median lobe; with numerous sensory peg setae situated on apical portion of underside of paramere as shown in Fig. 23; minute apical setae situated as in Fig. 23, one minute seta present in front of curled portion of right margin.

Length: 16.5–17.5 mm.

*Type material.* Holotype (male): China: “CHINA, (S-Shaanxi) Daba Shan mount. range N pass 22 km NW Zhenping, N-slope, 2850 m 32°01' / 109°21' (nr. mount. top / *Abies* bushes-sifted) 13.VII.2001 Wrase [12]” / “Sammlung M. Schülke Berlin”. In the SCHÜLKE collection, Berlin, Germany.

Paratypes: [Shaanxi]: same data as holotype, 2♂♂, in the SCHÜLKE and SMETANA collections.

*Geographical distribution.* *Protocypus wrasei* is at present known only from the type locality in Daba Shan in Shaanxi.

*Bionomics.* The specimens of the original series were taken in a remnant of a mature *Abies* forest with lush undergrowth on a northern slope of a mountain ridge, by sifting various forest floor debris.

*Recognition and comments.* *Protocypus wrasei* is one of the medium-sized species. It resembles externally *P. beckeri*, but it differs easily, in addition to the differently shaped aedoeagus, by the characters given above. It is also quite similar to *P. canis* of a similar size, occurring in another section of the Daba Shan in western Hubei, but it differs by a markedly different aedoeagus (Figs. 19, 26), particularly by the differently shaped paramere (Figs. 23, 30).

The pronotum is slightly damaged (cracked) in one of the two paratypes.

*Etymology.* Patronymic, the species was named in honor of my friend David WRASE, Berlin, Germany, who collected the specimens of the original series, and who provided exciting, unforgettable companionship during our field work in China in 2001, as well as in 2003.

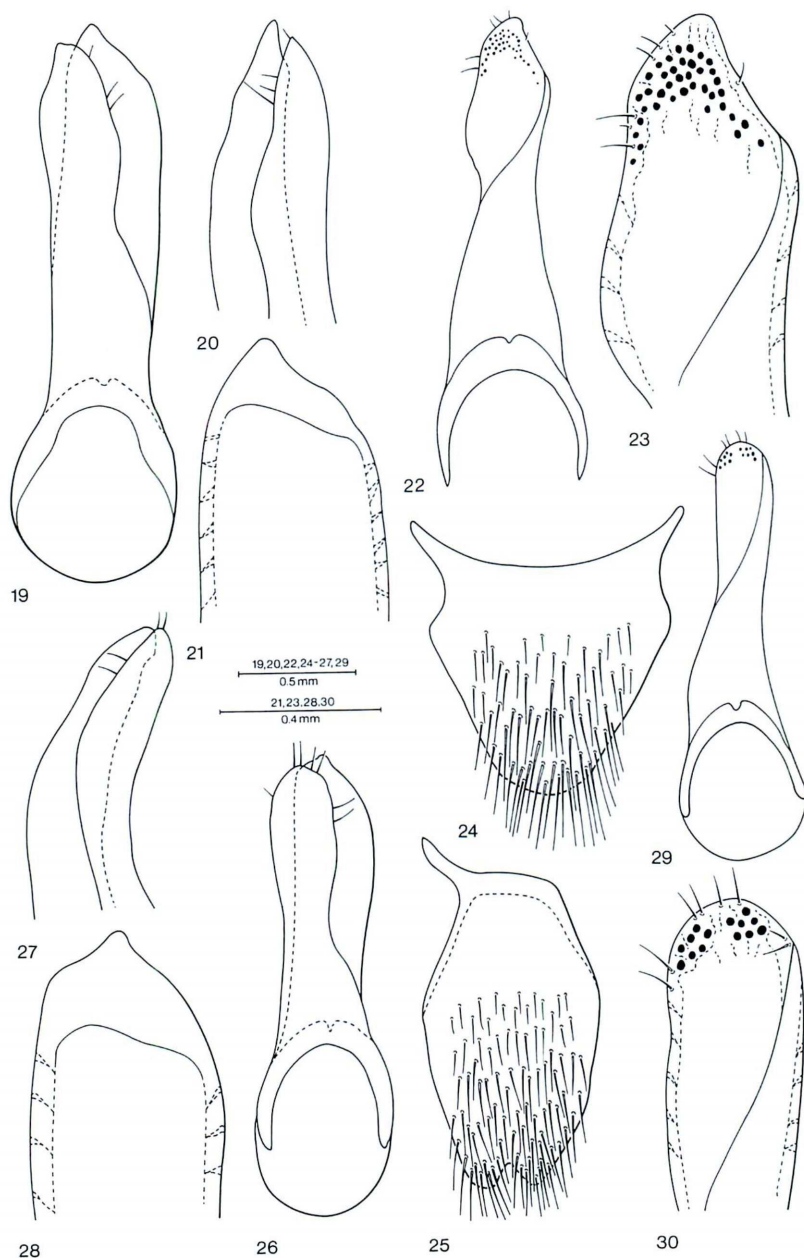
### ***Protocypus canis* sp. nov.**

(Figs. 24–30)

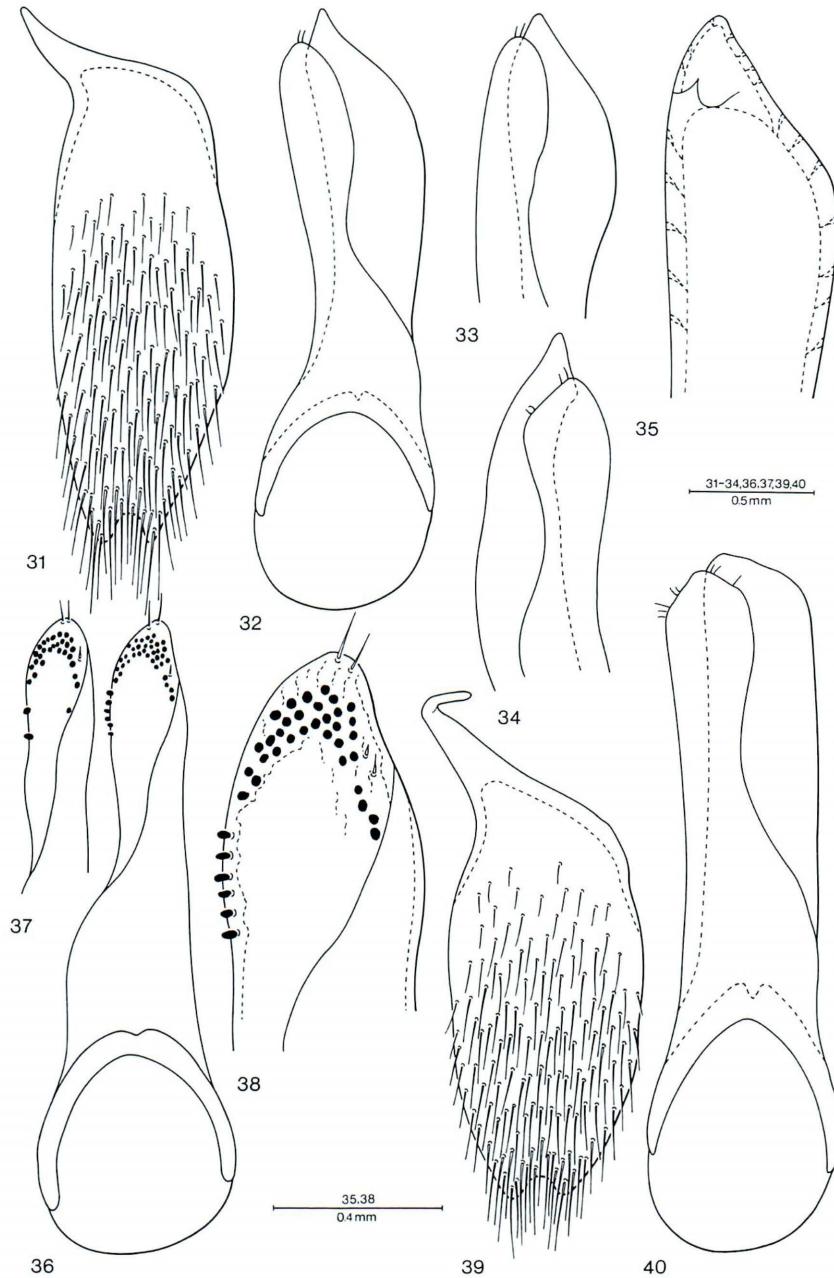
*Diagnosis.* *Protocypus canis* shares all character states with *P. wrasei* and differs from it mainly by the differently shaped aedoeagus.

*Description.* In all character states quite similar to *P. wrasei* and different only by the differently shaped aedoeagus and sternite 9 of male genital segment.

Male. Genital segment with sternite 9 smaller, shorter and markedly wider (Fig. 25). Tergite 10 as in Fig. 24. Aedoeagus (Figs. 26–30) markedly smaller than that of *P. wrasei*, median lobe with apical portion differently shaped, with minute, subacute apex; paramere with apical portion differently shaped, almost symmetrical; sensory



Figs. 19–30. — 19–23. *Protocypus wrasei*: 19, aedeagus, ventral view; 20, apical portion of aedeagus, lateral view; 21, apical portion of median lobe, ventral view, paramere removed; 22, underside of paramere; 23, apical portion of underside of paramere. — 24–30. *Protocypus canis*: 24, tergite 10 of male genital segment; 25, sternite 9 of male genital segment; 26, aedeagus, ventral view; 27, apical portion of aedeagus, lateral view; 28, apical portion of median lobe, ventral view, paramere removed; 29, underside of paramere; 30, apical portion of underside of paramere.



Figs. 31–40. — 31–38. *Protocypus lupus*: 31, sternite 9 of male genital segment; 32, aedoeagus, ventral view; 33, apical portion of aedoeagus, ventral view; 34, apical portion of aedoeagus, lateral view; 35, apical portion of median lobe, ventral view, paramere removed; 36, underside of paramere; 37, 38, apical portions of undersides of parameres. — 39–40. *Protocypus meles*: 39, sternite 9 of male genital segment; 40, aedoeagus, ventral view.

peg setae on underside of paramere less numerous, forming two small groups below apex of paramere, most apical setae stronger and longer, two minute setae present in front of curled portion of right margin.

Length: 16.0–17.5 mm.

*Type material.* Holotype (male): China: “CHINA: W-Hubei Daba Shan pass E Mt. Da Shennongjia 12 km NW Muyuping 1950 m”/“31°30N 110°21E 16–22.VII.01 pitfall traps A. Smetana [C 105]”. In the SMETANA collection, Ottawa, Canada.

Allotype (female): China: “CHINA (W-Hubei) Daba Shan pass E Mt. Da Shennongjia 12 km NW Muyuping 31°30N 110°21E 1950 m (dry creek vall./mix. decid. forest) 16–22.VII.2001 Wrase [13]”. In the SCHÜLKE collection, Berlin, Germany.

Paratypes: [Hubei]: same data as holotype, but elevation 2050 m and date 19–22.VII.01, [C114], 1 ♂ (ASC); same data as allotype, 3 ♂♂, 1 ♀ (ASC, MSC).

*Geographical distribution.* *Protocypus canis* is at present known only from the type locality in Daba Shan in Hubei.

*Bionomics.* The specimens of the original series were taken from pitfall traps set in a secondary, mixed deciduous forest with plenty of rotting wood and other debris on the forest floor.

*Recognition and comments.* *Protocypus canis* differs from *P. beckeri* by the same set of characters as given for *P. wrasei*, and by the differently shaped aedoeagus (Figs. 16, 26) and sternite 9 of male genital segment (Figs. 15, 25). One of the male paratypes is missing the entire left hind leg.

*Etymology.* The specific epithet is the Latin noun *canis*, -is, m. (dog), in apposition.

### *Protocypus lupus* sp. nov.

(Figs. 31–38)

*Diagnosis.* Large species with long antenna, with predominantly dark brownish-piceous pubescence of dorsal side of body, dark coloration of appendages (see description), large number of fine setiferous punctures on pronotal hypomeron, and with spots of golden-yellowish tomentose pubescence on the abdominal tergites present or absent.

*Description.* Entirely black, elytra dark brownish in some specimens, dull; maxillary and labial palpi piceous, each with last segment at least partially paler, antennae piceous-black, legs piceous to piceous-black, with slightly paler front tarsi, and with dorsal face of front tibiae pale brunneous; pubescence of dorsal side of body mostly dark brownish piceous but becoming dark rusty brownish on lateral portions of head, lateral and apical portions of elytra, and on lateral portions of abdominal tergites; visible abdominal tergites 1–3 each with a pair of small, inconspicuous spots of black tomentose pubescence, visible tergites 4 and 5 each with variably developed spot of golden-yellowish tomentose pubescence in middle, or without such pubescence. Head of rounded quadrangular shape, with obtusely rounded posterior angles, markedly



wider than long (ratio 1.69), eyes small and rather flat, tempora markedly longer than eyes from above (ratio 1.87), dorsal surface of head finely and densely punctate and pubescent, punctation becoming somewhat sparser anteriorly, trace of narrow impunctate midline present in front of posterior margin in most specimens, narrow interspaces between punctures with traces of rudimentary wavy microsculpture. Dorsal side of neck with punctation similar to that on head. Antenna moderately long, segment 3 longer than segment 2 (ratio 1.30), segments 3 and 4 distinctly longer than wide (ratio for segment 4 about 1.50), segments 4 to 7 longer than wide, becoming gradually shorter, outer segments about as long as wide, last segment short, markedly shorter than two preceding segments combined. Pronotum vaguely longer than wide (ratios 1.04–1.07), slightly narrowed anteriorly, narrow marginal groove disappearing downwards almost at anterior third of pronotal length; disc with narrow, impunctate midline in posterior third; punctation, pubescence and microsculpture on interspaces between punctures similar to that on head, but punctation slightly finer and denser. Pronotal hypomeron with numerous, fine setiferous punctures. Scutellum finely punctate and setose, except for narrow lateroapical and apical area, with very fine, rudimentary submeshed microsculpture absent from impunctate area. Elytra quite short, at suture considerably (ratio 0.53), at sides distinctly (ratio 0.73) shorter than pronotum at midline; punctation fine and very dense, finely asperate, interspaces between punctures with traces of granulate microsculpture. Wings each reduced to minute, non-functional stump. Abdomen with fifth visible tergite lacking pale apical seam of palisade setae; tergite 2 (in front of first visible tergite) entirely, rather densely and finely punctate and pubescent; all tergites finely, densely punctate, punctation finer than that on elytra, gradually becoming inconspicuously sparser toward apex of each tergite; interspaces with fine, submeshed microsculpture of rudimentary striae becoming gradually coarser toward lateral margin of each tergite.

Male. Sternite 8 with moderately wide and deep, obtusely triangular medioapical emargination. Genital segment with sternite 9 rather elongate, with long, tapered basal portion, markedly emarginate apically (Fig. 31). Tergite 10 wide, triangular, with obtusely arcuate apex, densely setose. Aedoeagus moderately large, elongate, as in Figs. 32–38; median lobe with apical portion markedly curved toward left, with apex in ventral view acute and rather wide basally, with oblique, deeply bisinuate carina on face adjacent to paramere (paramere removed) (Fig. 35); right side of median lobe below apex variably, mostly markedly, arcuately widened (Figs. 32, 33); paramere with apical portion situated on median lobe markedly asymmetrically, apical portion rather narrow, fairly symmetrical (Figs. 36, 37), with obtusely rounded apex to variable extent not reaching apex of median lobe (Figs. 32, 33); underside of paramere with numerous sensory peg setae, situated on apical portion as shown in Figs. 36–38; two apical setae at apex, two setae at left lateral margin below apex mostly missing (Figs. 36–38), or markedly reduced (Fig. 34), one seta (sometimes accompanied by additional minute seta in front of curled right margin (Figs. 36–38).

Length: 18.0–23.0 mm.

*Type material.* Holotype (male) and allotype (female): China: “Shaanxi, Qing Ling Shan, Hou Zen Zi vill. to Taibai Shan, 2500m mixed forest 27.–29.VI.1998 O. Šafránek & M. Trýzna”. In the SMETANA collection, Ottawa, Canada.,

Paratypes: [Shaanxi]: same data as holotype, 6♂♂, ♀♀; same data, but 3000 m, 29.VI.–2.VII.1998, fir forest, 2♂♂ (ASC, MSC); Qinling mts., 2600 m, Houzhenzi, 7.7.1996, lgt. M. Janata, 2♀♀ (ASC); Qinling mts., NW of Houzhenzi, 33°35'N 107°43'E, 2600 m, VII.1996, Dr. M. Häckel, 1 (ASC); Qinling Shan, Taibaishan range, Houzhenzi env., 1900 m, 33°53'N 107°49'E, 1.–12.8.1999, Siniavev & Plutenko, 18♂♂, ♀♀ (ASC, MSC); same data but 1500–2000 m, 33°52'N 107°44'E, V.–VI.2000, Plutenko, 16♂♂, ♀♀ (ASC, MSC); Taibai Shan, 1500 m, 33°53'N 107°49'E, VI.2000, leg. A. Plutenko, 1♂, 1♀ (ASC, MSC); Qinling Shan, Houzhenzi env., 1350–2000 m, 14.–24.VI.1999, leg. S. Murzin, 1♀ (MSC); Zhouzhi, Houzhenzi, 1200 m, 18.–25.7.1998, Dr. Vlad. Beneš leg, 3♂♂, 2♀♀ (MDC); Qin Ling range, Taibaishan mount. env. Haozhenzi village, 1800 m, 1.VI.1999, 5♂♂ ♀♀ (ASC, YSC); Foping Nat. Res., Panda area, 1600 m, 33°45'N 107°48'E, 20.4.–11.5.1999, leg. Sinaiev & Plutenko, 6♂♂, ♀♀ (ASC, MSC); Qinling Shan, pass on rd. Zhouzhi–Foping, 105km SW Xi'an, N slope 1990 m, 33°44'N/107°59'E, 2–4.VII.2001, Wrase, 5♂♂, ♀♀ (ASC, MSC); same data, but [C90], A. Smetana, 4♂♂, ♀♀ (ASC); 65 km S Xi'an, 2200–2500 m, VII. 1997, P. V. Cavazzuti, 3♂♂, ♀♀ (ASC); Qin Ling Shan, 33°58'N 108°47'E, mtn W pass autoroute km 70, 47 km S Xian, 2500–2600 m, 26.–29.VIII. 1995, Wrase, 1♂, 1♀ (MSC); Qin Ling Shan, mtn. range W pass on road Xi'an–Shagoujie, 45 km SSW Xi'an, 33°52'N 108°46'E, 2675 m, 25.VII.2001, Wrase, 4♂♂, ♀♀ (MSC); Daba Shan, mountain range N pass 22 km NW Zhenping, NW slope, 2685 m, 32°01'N 109°21'E, 13.VII. 2001, [C102], A. Smetana, 1 (ASC); Defile of river Mayi He, SE Baoji Xian, 1300 m, 12.V.93, Y. Imura leg., 2 (ASC, YSC); near headwaters of river Laoyu He, SW of Hu Xian, 2000 m, 11.V.93, Y. Imura lg., 1♂, 1♀ (ASC, YSC); pass btw. Bangfangzi & Xindian r., 2000 m, 21.–23.V.1993, Isura, Fan, Koiwaya lg., 1 (YSC); Maijieshi, SW Chang'an Xian, 2410–2760 m, 16.–17.V. 1993, Koiwaya & Fan leg., 1 (YSC); [Gansu]: Min Shan, 2300–3300 m 33°33'N, 104°35'E, 27.VII.–14.VIII.2000 leg. A. Plutenko, 18♂♂, ♀♀ (ASC, MSC); Min Shan Mts., 70 km NW Wudo, 2100 m, 25.VII.2000, A. Gorodinski leg., 2♂♂, 3♀♀ (ASC, YSC); Têwo Co., Têwo env., 2000 m, 27.6.–5.7.1998, VI. Beneš lgt, 15♂♂, ♀♀ (ASC, MDC). [Hubei]: Shennongjia Co., Yanzi pass, 31°41' / 110°28', 2200 m, 23.–26.6.95, L.+R. Businský lgt., 6♂♂, ♀♀ (ASC, MDC); Daba Shan, pass E Mt. Da Shennongjia, 12 km NW Muyuping, 1900 m, 31°30'N 110°21'E, 16.–22.VII.2001 [C105], A. Smetana, 7♂♂, ♀♀ (ASC); same data, but M. Schülke or D. Wrase leg., 15♂♂, ♀♀ (ASC, MSC); same data, but 19.–21.VII.2001 [C114], A. Smetana, 1♂, 1♀ (ASC); Daba Shan, creek valley 11 km NW Muyuping, 1960 m, 31°30'N 110°22'E, 18.VII.2001, [C109], A. Smetana, 1 (ASC); E Chongqing Shirugan, pass 5 km NW Taiyanghe, ca. 1700 m, 30°65'N 109°5'E, 1.–9.7. 2003, leg. J. Turna, 5♂♂, 3♀♀ (ASC, NMW); road Xingshan–Badong, saddle 5 km N Gaucho, ca 1500 m, 31°2'N 110°5'E, 22.6.–17.7.2003, leg. J. Turna, 4♂♂, 3♀♀ (ASC, NMW); road Badong–Yesanguan, Tiechanghuhang, ca

1300 m, 30°75'N 110°3'E, 27.6.–11.7. 2003, leg. J. Turna, 3 ♂♂, 2 ♀♀ (ASC, NMW). [Sichuan]: Jiuzhaigou, 12.6.–16.6.95, Beneš, 1 ♂ (MDC).

Additional 211 specimens, from localities listed above, were not designated as paratypes. They were provided with the determination label “*Protocypus lupus* Smetana det. A. Smetana 2004”.

*Geographical distribution.* *Protocypus lupus* is widely distributed; it is at present known from the provinces of Gansu, Hubei, Shaanxi and Sichuan.

*Bionomics.* No details are known about the habitat requirements of this species. Most specimens were taken from pitfall traps set in deciduous forests and forest openings at elevations between 1,600–3,300 m (but mostly at moderate elevations below 2,500 m). Some specimens were sifted from various deciduous forest floor litter.

*Recognition and comments.* *Protocypus lupus* may be best recognized, among the large species of *Protocypus* with long antenna, by the shape of the apical portion of median lobe and of the paramere of the aedoeagus, in combination with the rather elongate sternite 9 of the male genital segment (Figs. 32, 33, 35–38).

Most specimens of *P. lupus* have the spots of golden-yellowish tomentose pubescence on the abdominal tergites. The spots are present in all specimens of the populations in Qinling Shan in Shaanxi and in most specimens from near Tewo in Gansu; the spots tend to be distinctly reduced in specimens of the latter population.

The shape of the apical portion of the median lobe and the paramere of the aedoeagus varies to some extent (Figs. 32, 33, 36–38); however, the variability does not in any way hinder the positive recognition of the species.

The reduction of the number of setae on apical portion of paramere seems to be characteristic of *P. lupus*.

*Etymology.* The specific epithet is the Latin noun *lupus*, -i, m. (wolf), in apposition.

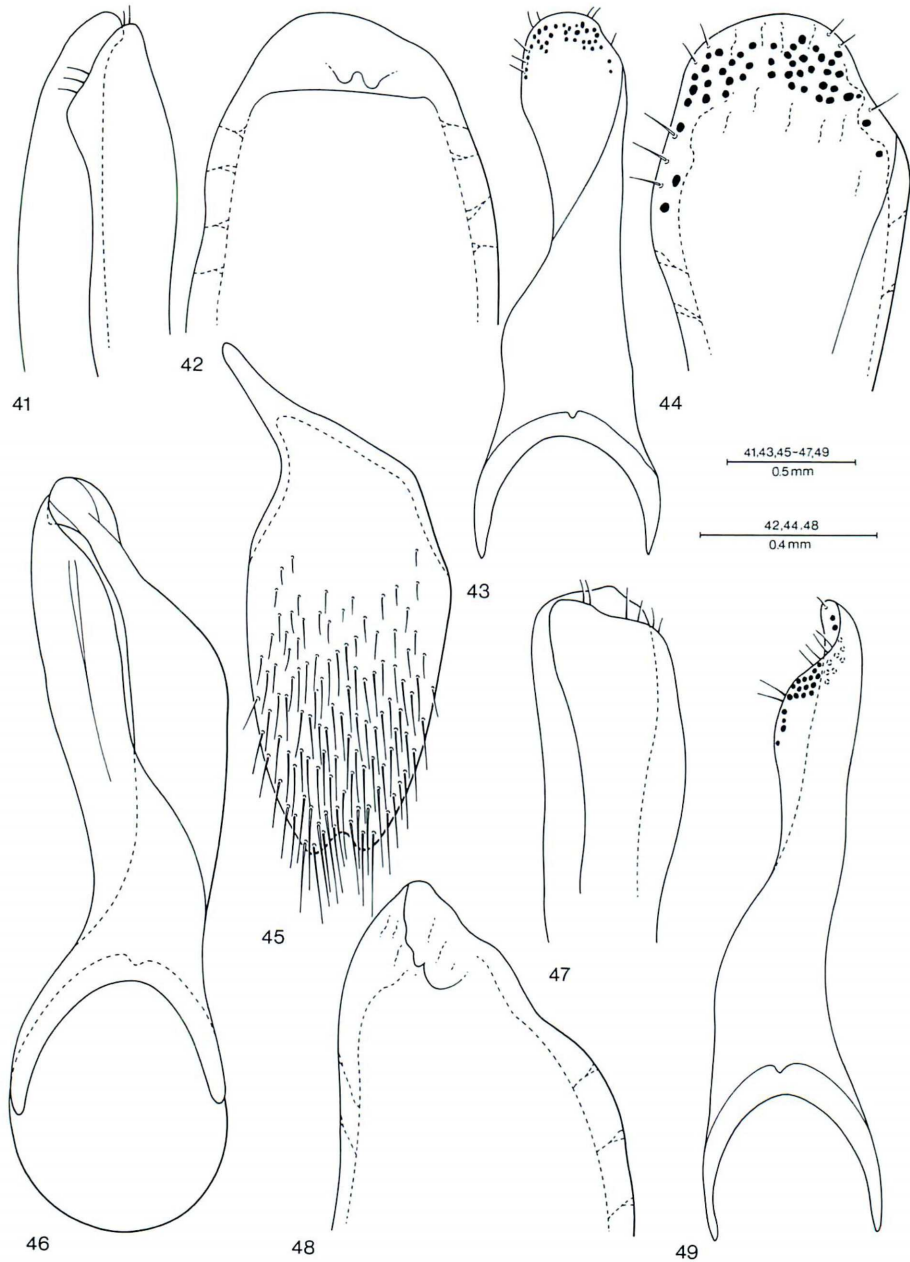
### ***Protocypus meles* sp. nov.**

(Figs. 39–44)

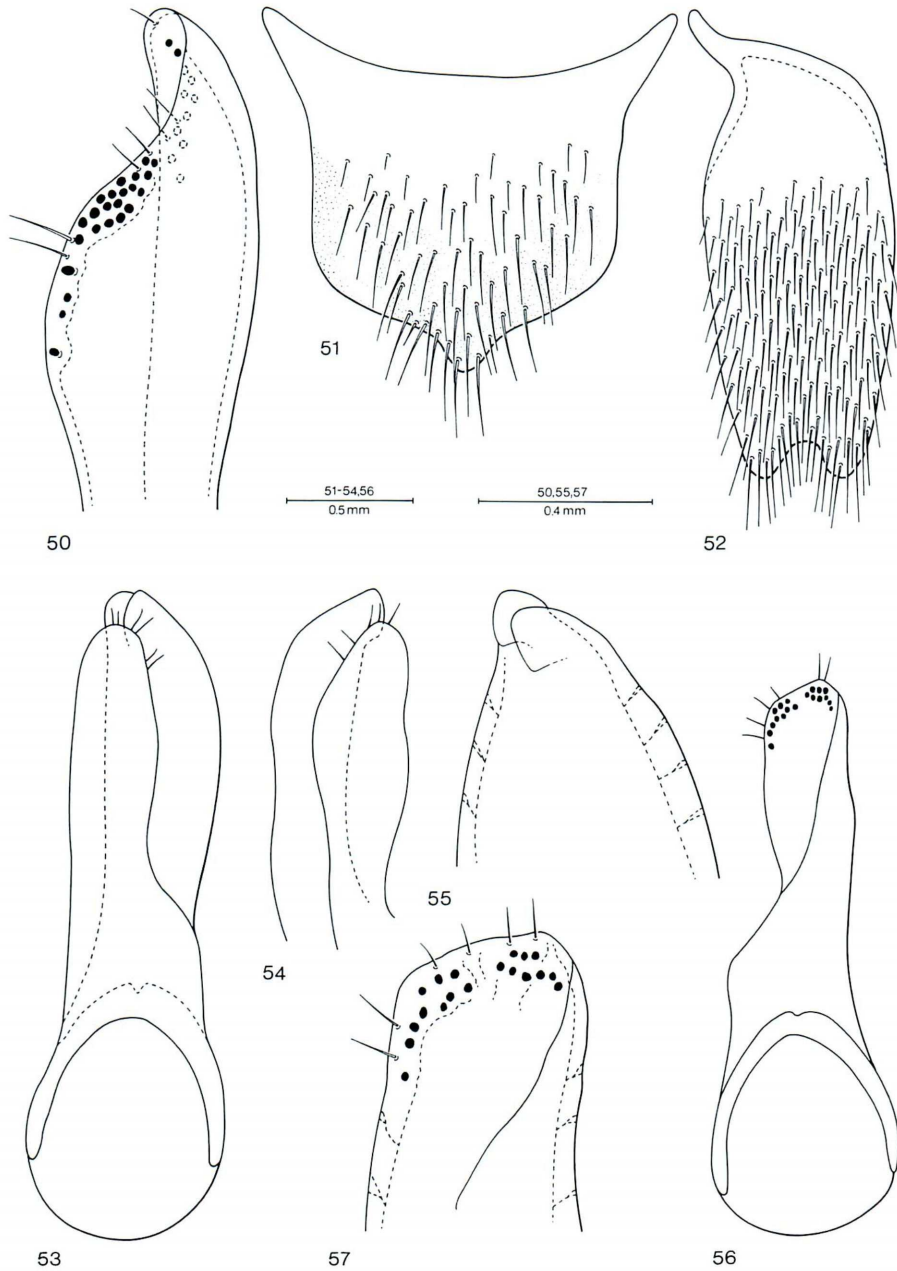
*Diagnosis.* *Protocypus meles* shares all character states with specimens of *P. lupus* with the patches of golden-yellow tomentose pubescence on the abdominal tergites absent, but differs from them by the differently shaped aedoeagus and sternite 9 of the male genital segment.

*Description.* In all character states quite similar to specimens of *P. lupus* with the patches of golden-yellow tomentose pubescence on the abdominal tergites absent and different only by the differently shaped aedoeagus and sternite 9 of the male genital segment.

*Male.* Sternite 9 of genital segment shorter and wider (Fig. 39). Aedoeagus (Figs. 40–44) moderately large, in general rather parallel-sided; apical portion of median lobe in ventral view slightly asymmetrical, without oblique carina but with two



Figs. 41–49. — 41–44. *Protocypus meles*: 41, apical portion of aedeagus, lateral view; 42, apical portion of median lobe, ventral view, paramere removed; 43, underside of paramere; 44, apical portion of underside of paramere. — 45–49. *Protocypus felis*: 45, sternite 9 of male genital segment; 46, aedeagus, ventral view; 47, apical portion of aedeagus, lateral view; 48, apical portion of median lobe, ventral view, paramere removed; 49, underside of paramere.



Figs. 50–57. — 50–51. *Protocypus felis*: 50, apical portion of underside of paramere; 51, tergite 10 of female genital segment. — 52–57. *Protocypus pilifer*: 52, sternite 9 of male genital segment; 53, aedeagus, ventral view; 54, apical portion of aedeagus, lateral view; 55, apical portion of median lobe, ventral view, paramere removed; 56, underside of paramere; 57, apical portion of underside of paramere.

small tubercles in front of basal margin; apex obliquely obtuse to subtruncate, right margin of median lobe below apex rather straight; paramere rather short, apical portion with apex variably obtuse; apex of paramere not quite reaching apex of median lobe; sensory peg setae on underside of paramere situated as in Figs. 43, 44; four very fine setae at apical margin, two or three stronger setae at left lateral margin below apex, and one seta in front of curled right margin (Figs. 43, 44).

Length: 18.0–23.0 mm.

*Type material.* Holotype (male) and allotype (female): China: Shaanxi (Daba Shan) 1800 m 15 km S Shou-Man vill., 32°08'N, 108°37'E 25.V.–14.VI.2000, Siniaev & Plutenko". Holotype in the SCHÜLKE collection, allotype in the SMETANA collection.

Paratypes: [Shaanxi]: same data as holotype, 83 ♂♂, ♀♀ (ASC, MSC); 15 km S Shou-Man vill., Daba Shan, 1800 m 32°08'N 108°37'E, 25.5.–14.6.2000, 8 ♂♂, 7 ♀♀ (ASC, MSC).

Additional 31 specimens, from locality listed above, were not designated as paratypes. They were provided with the determination label "Protocypus meles Smetana det A. Smetana 2004".

*Geographical distribution.* *Protocypus meles* is at present known only from the type locality in Daba Shan in southern Shaanxi, where it occurs together with *P. felis* and *P. lativentris*. The presence of three externally quite similar species in the same habitat of the type locality in western portion of Daba Shan is remarkable. The specimens of all three species were presumably taken from the same pitfall traps set in the same habitat (see below, and under *P. felis* and *P. lativentris*).

*Bionomics.* No details are known about the habitat requirements of this species. The pitfall traps (see above) were set at a fairly low elevation of 1,800 m, presumably in a forest habitat.

*Recognition and comments.* The shape of the aedeagus is instrumental for recognition of *P. meles*, particularly in view of the fact that the species apparently shares the same habitat with two other habitually similar species (see above).

*Etymology.* The specific epithet is the Latin noun *meles*, *-is*, m. (badger), in apposition.

### *Protocypus felis* sp. nov.

(Figs. 45–51)

*Diagnosis.* *Protocypus felis* shares all character states with specimens of *P. lupus* with the patches of golden-yellow tomentose pubescence on the abdominal tergites absent, but differs from them by the markedly different aedeagus.

*Description.* In all character states quite similar to specimens of *P. lupus* with the patches of golden-yellow tomentose pubescence on the abdominal tergites absent and different only by the markedly differently shaped aedeagus.

Male. Sternite 9 of genital segment as in Fig. 45. Aedeagus (Figs. 46–50)

moderately large with apical portion of quite conspicuous appearance (Fig. 46); median lobe in ventral view (paramere removed) with apex of apical portion subacute, with long, oblique, irregular carina; right side of median lobe below apex conspicuously, arcuately dilated; paramere long, apical portion conspicuously wrapped around left side of median lobe, with prominent longitudinal carina, apex of paramere not quite reaching apex of median lobe; sensory peg setae on underside of paramere situated as in Fig. 50, apical setae situated as in Fig. 50.

Female. Tergite 10 of genital segment as in Fig. 51.

Length: 18.0–20.0 mm.

*Type material.* Holotype (male) and allotype (female): China: Shaanxi (Daba Shan) 1800 m 15 km S Shou-Man vill., 32°08'N, 108°37'E 25.V.–14.VI.2000, Siniaev & Plutenko”. Holotype in the SCHÜLKE collection, allotype in the SMETANA collection.

Paratypes: [Shaanxi]: same data as holotype, 4♂♂ (ASC, MSC).

*Geographical distribution.* *Protocypus felis* is at present known only from the type locality in Daba Shan in southern Shaanxi, where it occurs together with *P. lativentris* sp. nov.

*Bionomics.* No details are known about the habitat requirements of this species. Specimens were taken from pitfall traps set at a fairly low elevation of 1,800 m, presumably in a forest habitat.

*Recognition and comments.* *Protocypus felis* may be best recognized, among the species with pronotal hypomeron bearing numerous setiferous punctures, by the quite characteristic shape of the aedeagus. The sympatric *P. lativentris* sp. nov. differs from *P. felis*, in addition to the shape of the aedeagus, by the pronotal hypomeron bearing only a few setiferous punctures, and by the wider abdomen that is markedly dilated to posterior margin of the third visible tergite.

Two of the paratypes of *P. felis* are missing almost, or entirely, the right antenna, and another of the paratypes lost left antenna except for four basal segments and right antenna except for the first segment. This is apparently due to the extended exposure to the liquids in the pitfall traps.

*Etymology.* The specific epithet is the Latin noun *felis*, -is, f. (cat), in apposition.

### *Protocypus pilifer* sp. nov.

(Figs. 52–58)

*Diagnosis.* Large-sized species with relatively long antenna, with piceous pubescence of dorsal side of body, dark coloration of appendages (see description), large number of fine setiferous punctures on pronotal hypomeron, and with spots of both black and golden-yellowish tomentose pubescence on the abdominal tergites absent.

*Description.* Entirely black, dull; maxillary and labial palpi dark brownish to piceous, each with last segment slightly paler apically, antennae piceous-black, legs piceous to piceous-black, usually with slightly paler front tarsi, and with dorsal faces

of front tibiae more or less paler; pubescence of dorsal side of body uniformly piceous to brownish-piceous, particularly on elytra and abdominal tergites, visible abdominal tergites 1–3 each without appreciable pair of small, inconspicuous spots of black tomentose pubescence, visible tergites 4 and 5 each without distinct spot of golden-yellowish tomentose pubescence in middle. Head of rounded quadrangular shape, with rounded posterior angles, wider than long (ratio 1.28), eyes small and rather flat, tempora considerably longer than eyes from above (ratio 2.28), dorsal surface of head densely and finely punctate and pubescent, punctation becoming somewhat sparser anteriorly, not even a trace of narrow impunctate midline in front of posterior margin; narrow interspaces between punctures with fine, rudimentary, subgranulose microsculpture. Dorsal side of neck with punctation similar to that on head. Antenna slender, moderately long, segment 3 longer than segment 2 (ratio 1.20), segments 4 to 8 longer than wide (ratio length/width for segment 4 about 1.25), becoming gradually shorter, outer two segments about as long as wide, last segment short, markedly shorter than two preceding segments combined. Pronotum about as long as wide, almost parallel-sided, narrow marginal groove disappearing downwards just past middle of pronotal length; disc with a short remnant of narrow, impunctate midline in front of posterior margin; punctation, pubescence and microsculpture on interspaces between punctures similar to those on head. Pronotal hypomeron extensively covered with numerous setiferous punctures. Scutellum finely punctate and setose, except for narrow lateroapical and apical areas, surface with very fine, rudimentary submeshed microsculpture absent from the impunctate area. Elytra quite short, slightly dilated posteriorly, at suture considerably (ratio 0.60), at sides distinctly (ratio 0.82) shorter than pronotum at midline; punctation fine and very dense, finely asperate, interspaces between punctures with traces of granulose microsculpture. Wings each reduced to minute, non-functional stump. Abdomen with fifth visible tergite lacking pale apical seam of palisade setae; tergite 2 (in front of first visible tergite) entirely, rather densely and finely punctate and pubescent; all tergites finely, densely punctate, punctation finer than that on elytra, gradually becoming inconspicuously sparser toward apex of each tergite; interspaces with very fine, submeshed microsculpture of rudimentary striae becoming gradually coarser and distinctly meshed toward lateral margin of each tergite.

**Male.** Sternite 8 with moderately wide and deep, obtusely triangular apical emargination. Genital segment with sternite 9 moderately long and wide, with moderately long, tapered basal portion, markedly emarginate apically (Fig. 52). Tergite 10 wide, triangular with obtusely subangulate apex, densely setose. Aedoeagus in general short, as in Figs. 53–57; median lobe with apical portion with oblique double carinae splitting apical portion (Figs. 53, 55); paramere with apical portion situated on median lobe markedly asymmetrically, of characteristic shape (Fig. 56); apical portion with obtusely, slightly irregularly arcuate to obliquely subtruncate apex not reaching apex of median lobe; underside of paramere with numerous sensory peg setae, situated on apical portion as shown in Figs. 56, 57; with four, minute apical setae set far apart, and with two somewhat stronger setae at left margin far below apex (Fig. 57).



Female. Tergite 10 of genital segment as in Fig. 58.

Length: 18.0–20.0 mm.

*Type material.* Holotype (male) and allotype (female): China: “CHINA, W-HUBEI, XINGSHAN–W env. 31°16′/110°36′, 1300–1600, 6.–8.7.95 L.+R. BUSINKÝ lgt.”. In the SMETANA collection, Ottawa, Canada.

Paratypes: [Hubei]: same data as holotype, 24♂♂, ♀♀ (ASC, MDC); Daba Shan, creek valley 8 km NW Muyuping, 31°29′N 110°22′E, 1540 m, 18.VII.2001, Wrase, 1♂ (MSC). [Shaanxi]: Daba Shan, pass 20 km SSE Zhenping, 1700–1800 m, 31°44′N 109°35′E, 9.–12.VII.2001, M. Schülke, 1♂, 2♂♂ (ASC, MSC); same data, leg. Wrase, 1♀ (ASC); Muyuping S env., 31°45′N 110°4′E, 1300 m, 20.6.–1.7.2003, leg. J. Turna, 10♂♂, 3♀♀ (ASC, NMW); Guanmenshan, 31°45′N 110°4′E, ca 1500 m, 21.6.–13.7.2003, leg. J. Turna, 27♂♂, ♀♀ (ASC, NMW).

Additional 32 specimens, from localities listed above, were not designated as paratypes. They were provided with a determination label “*Protocypus pilifer* Smetana det. A. Smetana 2004”.

*Geographical distribution.* *Protocypus pilifer* is at present known only from three localities in Daba Shan, from southwestern Shaanxi to western Hubei.

*Bionomics.* Almost all specimens were taken from pitfall traps set at rather low elevations of 1,300–1,800 m. No details are known about the habitat requirements of specimens from near Xingshan. Specimens collected by SCHÜLKE and WRASE were taken in forest habitats, mostly in small creek valleys, or along edges of forests.

*Recognition and comments.* *Protocypus pilifer* may be best recognized by the quite characteristic shape of the aedoeagus, in combination with the pronotal hypomeron extensively covered with setiferous punctures, the rather long antennae, and by the lack of the spots of tomentose pubescence on the abdominal tergites. It shares the character state of the pronotal hypomeron extensively covered with setiferous punctures, and the lack of patches of tomentose pubescence on the abdominal tergites, with *P. beckeri*. However, *P. beckeri* differs by the quite differently shaped aedoeagus, by the shorter antenna, by the presence of vague, slightly elevated area in middle behind scutellum on each elytron, as well as by its apparently endemic occurrence in Jinfo Shan in Chonqing. Several other species with the pronotal hypomeron extensively covered with setiferous punctures differ from *P. pilifer* by the differently shaped aedoeagi.

*Etymology.* The specific epithet is derived from the Latin noun *pilis,- is, m.* (hair, fur) and the verb *fero* (to carry, to possess). It refers to the dense pubescence of the dorsal side of the body of this species.

*Protocypus latro* sp. nov.

(Figs. 59–63)

*Diagnosis.* *Protocypus latro* shares all character states with *P. pilifer* and differs from it mainly by the pronotal hypomeron bearing only a few setiferous punctures and by the differently shaped aedoeagus.

*Description.* In all character states quite similar to *P. pilifer* and different only by the pronotal hypomeron bearing only a few setiferous punctures and by the differently shaped aedoeagus. Punctuation of head, pronotum, elytra and abdominal tergites similar, but slightly finer and less dense in most specimens; average size slightly smaller.

*Male.* Aedoeagus as in Figs. 59–63; apex of median lobe arcuate, apical portion with oblique, medially sinuate subapical carina with apex extended into acute subapical tooth (Fig. 61); apical portion of paramere wide, markedly asymmetrical (Figs. 62, 63) with apex somewhat irregularly, obliquely subtruncate, apex of paramere about reaching apex of median lobe; sensory peg setae on underside of paramere situated as in Figs. 62, 63; apical setae minute, smaller and finer than those of *P. pilifer*, situated as in Fig. 63.

Length: 17.0–20.0 mm.

*Type material.* Holotype (male) and allotype (female): China: “China occ. Hubei Dashennongjia massif 28.6.–3.7.1995 31°24–27′/110°17–20′ L. & R. Businský legit”. In the SMETANA collection, Ottawa, Canada.

Paratypes: [Hubei]: same data as holotype, 21 ♂♂, ♀♀ (ASC, MDC); same data, but 2500–2900 m, 3 ♀♀; same data, but 1300–2000 m, e-slope, 31°24–30′/110°21–24′, 28.6.–5.7.95, 2 ♂♂, 2 ♀♀ (ASC, MDC); Dashennongjia mts., 31°5′N 110°3′E, 2500–2900 m, 23.6.–14.7.2003, leg. J. Turna, 1 ♂, 3 ♀♀ (ASC, NMW); same data but 2500–3000 m and date 21.–24.VI.2001, 2 ♂♂, 5 ♀♀ (ASC, YSC).

*Geographical distribution.* *Protocypus latro* is at present known only from the Da Shennongjia range in western Hubei.

*Bionomics.* No details are known about the habitat requirements of this species. Specimens were taken from pitfall traps set at rather low to moderately high elevations of 1,300–2,900 m.

*Recognition and comments.* *Protocypus latro* may be best recognized by the shape of the aedoeagus, in combination with the character state of pronotal hypomeron bearing only a few setiferous punctures, and the absence of spots of both black and yellow tomentose pubescence on the abdominal tergites.

The punctures on pronotal hypomeron of *P. latro* are difficult to see, because they are very fine and very few; in addition, their presumably very fine hairs were subsequently lost due to the prolonged exposure to the fluids in pitfall traps.

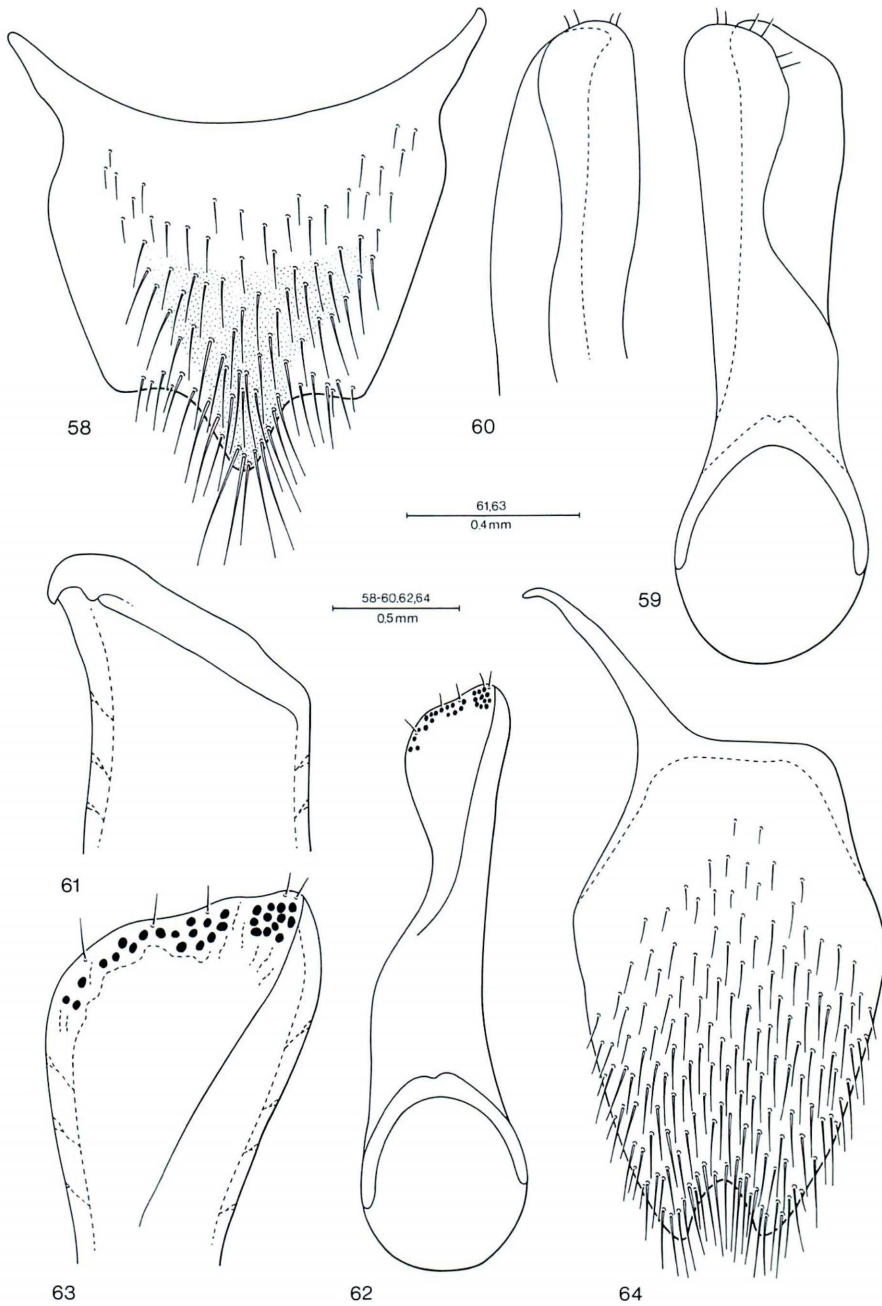
*Etymology.* The specific epithet is the Latin noun *latro*, *-onis*, m. (robber) in apposition.

*Protocypus lativentris* sp. nov.

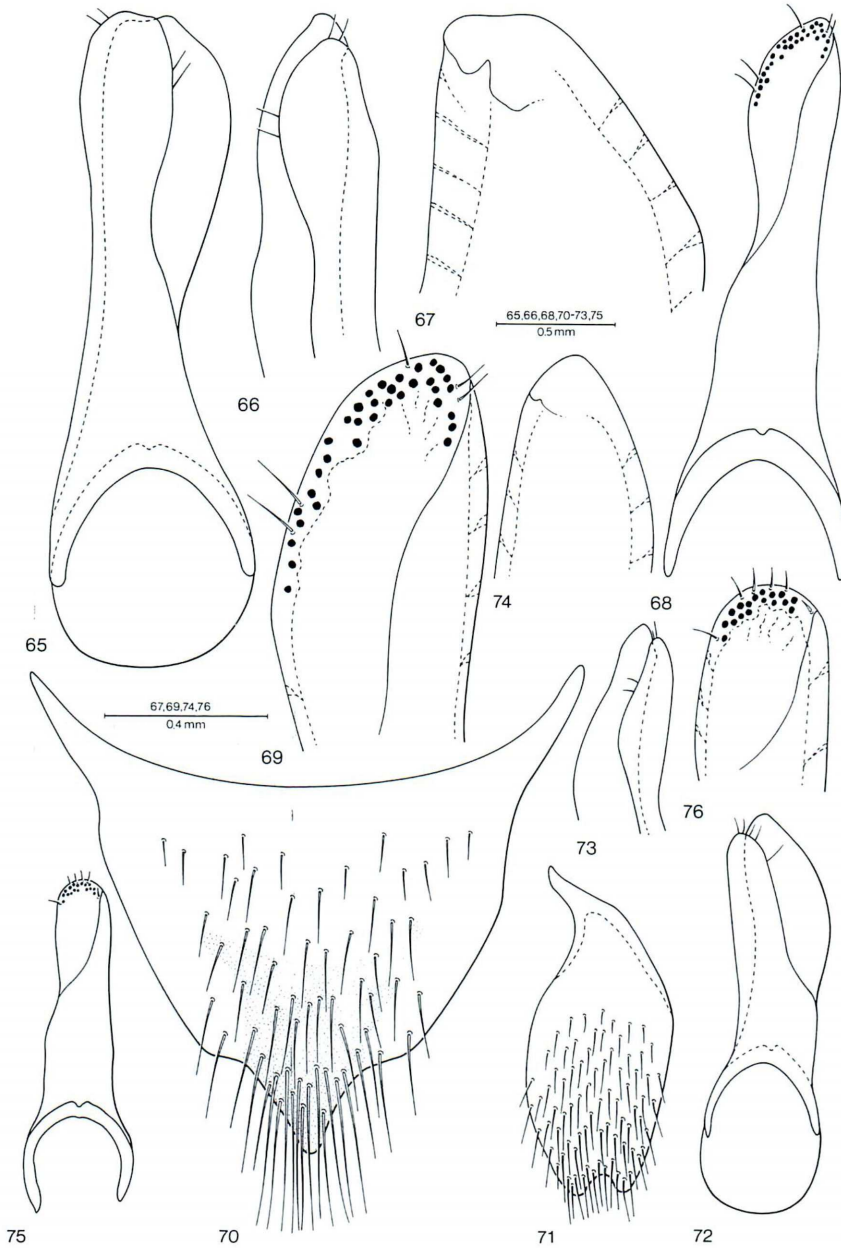
(Figs. 64–70)

*Diagnosis.* *Protocypus lativentris* is characterized, in addition to the shape of the aedoeagus, by the large size, the pronotal hypomeron with only a few fine setiferous punctures, the absence of the spots of golden-yellowish tomentose pubescence in the middle of the first three visible abdominal tergites, and by the relatively wide abdomen, markedly dilated to posterior margin of third visible tergite and then narrowed toward apex.

*Description.* Entirely black, elytra dark brownish in some specimens, dull; maxillary and labial palpi brownish-piceous to piceous, each with last segment at least partially paler, antennae piceous-black, legs piceous to piceous-black, with slightly paler front tarsi, and with dorsal face of front tibiae and to less extent also middle tibiae pale brunneous; pubescence of dorsal side of body dark brownish-piceous to piceous; visible abdominal tergites 1–3 each with a pair of small, inconspicuous spots of black tomentose pubescence, visible tergites 4 and 5 each without spots of golden-yellowish tomentose pubescence in middle. Head of rounded quadrangular shape, with obtusely rounded posterior angles, wider than long (ratio 1.33), eyes small and rather flat, tempora considerably longer than eyes from above (ratio 2.75), dorsal surface of head very finely and densely punctate and pubescent, punctation becoming somewhat sparser anteriorly, no appreciable trace of narrow impunctate midline in front of posterior margin in most specimens, narrow interspaces between punctures with fine wavy microsculpture. Dorsal side of neck with punctation similar to that on head. Antenna slender, moderately long, segment 3 longer than segment 2 (ratio 1.20), segments 4 to 8 longer than wide, becoming gradually shorter, outer two segments about as long as wide, last segment short, markedly shorter than two preceding segments combined. Pronotum about as long as wide, more or less parallel-sided, lateral margins vaguely sinuate in front of posterior angles, narrow marginal groove disappearing downwards almost at anterior third of pronotal length; disc with narrow, impunctate midline in posterior third; punctation, pubescence and microsculpture on interspaces between punctures similar to that on head, but punctation slightly finer and denser. Pronotal hypomeron with only a few, fine setiferous punctures. Scutellum entirely, finely punctate and setose, surface between punctures with extremely fine, rudimentary microsculpture. Elytra quite short, at suture considerably (ratio 0.63), at sides distinctly (ratio 0.75) shorter than pronotum at midline; punctation fine and very dense, finely asperate, interspaces between punctures with dense granulose microsculpture. Wings each reduced to minute, non-functional stump. Abdomen relatively wide, evenly dilated to posterior margin of third visible tergite and then markedly narrowed toward apex, with fifth visible tergite lacking pale apical seam of palisade setae; tergite 2 (in front of first visible tergite) entirely, rather densely and finely punctate and pubescent; all tergites evenly, finely and densely punctate, punctation finer than that on elytra, gradually becoming inconspicuously sparser toward apex of each tergite; interspaces with fine, submeshed



Figs. 58–64. — 58. *Protocypus pilifer*: tergite 10 of female genital segment. — 59–63. *Protocypus latro*: 59, aedeagus, ventral view; 60, apical portion of aedeagus, lateral view; 61, apical portion of median lobe, ventral view, paramere removed; 62, underside of paramere; 63, apical portion of underside of paramere. — 64. *Protocypus lativentris*: sternite 9 of male genital segment.



Figs. 65–76. — 65–70. *Protocypus lativentris*: 65, aedeagus, ventral view; 66, apical portion of aedeagus, lateral view; 67, apical portion of median lobe, ventral view, paramere removed; 68, underside of paramere; 69, apical portion of underside of paramere; 70, tergite 10 of female genital segment. — 71–76. *Protocypus puer*: 71, sternite 9 of male genital segment; 72, aedeagus, ventral view; 73, apical portion of aedeagus, lateral view; 74, apical portion of median lobe, ventral view, paramere removed; 75, underside of paramere; 76, apical portion of underside of paramere.

microsculpture of rudimentary striae becoming gradually coarser toward lateral margin of each tergite.

**Male.** Sternite 8 with moderately wide and deep, subarcuate medioapical emargination. Genital segment with sternite 9 large and wide, with very long, tapered basal portion, markedly emarginate apically (Fig. 64). Tergite 10 wide, triangular, with obtusely arcuate apex, densely setose. Aedoeagus large, robust, as in Figs. 65–69; apex of median lobe subtruncate, with oblique, medially sinuate subapical carina with apex not extended into subapical tooth (Fig. 67); paramere with apical portion situated on median lobe markedly asymmetrically, shaped as in Figs. 65, 68, 69, apical portion relatively narrow, almost symmetrical, apex about reaching apex of median lobe; underside of paramere with numerous sensory peg setae, situated on apical portion as shown in Figs. 68, 69; with three or four minute apical setae, and with two stronger setae at left lateral margin far below apex.

**Female.** Tergite 10 of genital segment as in Fig. 70.

Length: 19.0–23.0 mm.

*Type material.* Holotype (male) and allotype (female): China: “CHINA: Shaanxi (Daba Shan) 1800 m, 15 km S Shou-Man vill., 32°08'N 108°37'E 25.V.–14.VI.2000, Simiaev & Plutenko”. Holotype in the SCHÜLKE collection, Berlin. Allotype in the SMETANA collection, Ottawa, Canada.

**Paratypes:** [Shaanxi]: same data as holotype, 30♂♂, ♀♀ (ASC, MSC); 15 km S Shou-Man vill., Daba Shan, 1500 m 32°08'N 108°37'E, 25.5.–14.6.2000, 2♂♂, 6♀♀ (ASC, MSC).

*Geographical distribution.* *Protocypus lativentris* is at present known only from the type locality in Daba Shan in southern Shaanxi. It is one of the three sympatric species, occurring apparently in the same habitat of the type locality (see under *P. meles*).

*Bionomics.* No details are known about the habitat requirements of this species. Specimens were taken from pitfall traps set at a fairly low elevation of 1,800 m, presumably in a forest habitat.

*Recognition and comments.* *Protocypus lativentris* may be best recognized, in addition to the shape of the aedoeagus and the large, apically deeply emarginate sternite 9 of the male genital segment (Fig. 64), by the characters mentioned in the diagnosis, particularly by the large size and the rather wide abdomen (see above).

The first three antennal segments are somewhat paler and/or the paler coloration of middle tibiae is more extensive in some paratypes.

One of the female paratypes is somewhat teneral, with the elytra and abdominal segments extensively brownish.

*Etymology.* The specific epithet is a combination of the Latin adjective *latus*, -a, -um (wide), and the noun *venter*, -tris, m (abdomen). It refers to the shape of the abdomen of this species.

*Protocypus puer* sp. nov.

(Figs. 71–76)

*Diagnosis.* Small, slender species with moderately long antenna, with moderately numerous setiferous punctures on pronotal hypomeron, and with the patches of yellow tomentose pubescence on the abdominal tergites present.

*Description.* Entirely black, dull; maxillary and labial palpi piceous, each with last segment at least partially paler, antennae piceous-black, legs piceous to piceous-black, with slightly paler front tarsi, and with dorsal faces of front tibiae and lateral faces of middle and hind (less distinctly so) tibiae pale brunneous; pubescence of dorsal side of body uniformly piceous, visible abdominal tergites 1–3 each with a pair of small, inconspicuous spots of black tomentose pubescence, visible tergites 4 and 5 each with distinct spot of golden-yellowish tomentose pubescence in middle. Head of rounded quadrangular shape, with rounded posterior angles, wider than long (ratio 1.23), eyes small and rather flat, tempora markedly longer than eyes from above (ratio 1.74), dorsal surface of head densely and very finely punctate and pubescent, punctation becoming somewhat sparser anteriorly, not even a trace of narrow impunctate midline in front of posterior margin, narrow interspaces between punctures with fine, rudimentary, subgranulose microsculpture. Dorsal side of neck with punctation similar to that on head. Antenna slender, moderately long, segment 3 longer than segment 2 (ratio 1.20), segments 4 to 7 longer than wide (ratio length/width for segment 4 about 1.35), becoming gradually shorter, outer segments about as long as wide, last segment short, markedly shorter than two preceding segments combined. Pronotum vaguely longer than wide (ratio 1.08), almost parallel-sided, narrow marginal groove disappearing downwards at about middle of pronotal length; disc with a short remnant of narrow, impunctate midline in front of posterior margin; punctation, pubescence and microsculpture on interspaces between punctures similar to that on head. Pronotal hypomeron with numerous setiferous punctures on apical half. Scutellum finely punctate and setose, except for narrow lateroapical and apical area, surface with very fine, rudimentary submeshed microsculpture absent from the impunctate area. Elytra quite short, slightly dilated posteriorly, at suture considerably (ratio 0.59), at sides distinctly (ratio 0.80) shorter than pronotum at midline; punctation fine and very dense, finely asperate, interspaces between punctures with traces of granulose microsculpture. Wings each reduced to minute, non-functional stump. Abdomen with fifth visible tergite lacking pale apical seam of palisade setae; tergite 2 (in front of first visible tergite) entirely, rather densely and finely punctate and pubescent; all tergites finely, densely punctate, punctation finer than that on elytra, gradually becoming inconspicuously sparser toward apex of each tergite; interspaces with very fine, submeshed microsculpture of rudimentary striae becoming gradually coarser toward lateral margin of each tergite; visible tergites 1–3 each with a pair of small, inconspicuous spots of black tomentose pubescence in middle, visible tergites 4 and 5 with distinct patch of yellow tomentose pubescence in middle.

Male. Sternite 8 with moderately wide and deep, subarcuate medioapical emargination. Genital segment with sternite 9 rather short and wide, with moderately long, tapered basal portion, markedly emarginate apically (Fig. 71). Tergite 10 wide, triangular with obtusely subangulate apex, densely setose. Aedoeagus in general short, as in Figs. 72–76; median lobe with apical portion markedly curved toward left, with narrowly arcuate apex bearing fine, oblique bisinuate carina; paramere with apical portion situated on median lobe markedly asymmetrically, shaped as in Figs. 72, 75, 76, apical portion symmetrical, with obtusely arcuate apex distinctly not reaching apex of median lobe; underside of paramere with moderately numerous sensory peg setae, situated on apical portion as shown in Fig. 76; with four minute setae at apex, one similar seta at left lateral margin, and a smaller seta in front of curled right margin (Fig. 76).

Length: 13.0–17.0 mm.

*Type material.* Holotype (male) and allotype (female): China: “CHINA: W-Hubei, 2002 Dashennongjia mts. 2100–2900 m, 10.–14.6 31.5N 110.3E, leg. J. Turna”. In the collection of the Naturhistorisches Museum, Wien, Austria.

Paratypes: [Hubei]: same data as holotype, 27 ♂♂, ♀♀ (ASC, NMW); same data, but 2500–2900 m, 23.6.–14.7.2003, 58 ♂♂, ♀♀ (ASC, NMW).

Additional 86 specimens, from locality listed above, were not designated as paratypes. They were provided with a determination label “*Protocypus puer* Smetana det A. Smetana 2004”.

*Geographical distribution.* *Protocypus puer* is at present known only from the Dashennongjia range in western Hubei and may be endemic to this mountain system.

*Bionomics.* No details are known about the habitat requirements of this species. Specimens were taken from pitfall traps set at elevations 2100–2900 m, most likely in forest habitats.

*Recognition and comments.* *Protocypus puer* is one of the smallest species of the genus and may be rather easily recognized by the presence of the patches of the golden tomentose pubescence on the abdominal tergites, in combination with the other characters mentioned in the diagnosis.

*Etymology.* The specific epithet is the Latin noun *puer*, *-is*, m. (a boy) in apposition. It refers to the small, slender body form of the species.

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I thank all colleagues, who supported my work by kindly putting the material in their care at my disposition and in particular to those who allowed me to keep the specimens in my collection. Their names are included under “Type material” or “Additional material studied”. I wish to name specifically Miroslav DVOŘÁK (Praha, Czech Republic), Harald SCHILLHAMMER (Naturhistorisches Museum, Wien, Austria) and Michael SCHÜLKE (Berlin, Germany) who, as in previous instances, provided particularly numerous material. Without the support of all of them, it would have been impossible to publish this paper.



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## 要 約

A. SMETANA : 中国産ダイミヨウハネカクシ属群に関する知見. 5. *Protocypus* 属. —— 中国からこれまでに見つかった, *Protocypus* 属のハネカクシ類をまとめた. 12 種に分類されたうちの 10 種が新種で, 主として湖北, 四川, 陝西, 甘肅の 4 省から知られている. 既知の 2 種も基準標本に基づいて再記載し, 全種を探索表に示した.

## References

- BERNHAEUER, M., 1933. Neuheiten der chinesischen Staphylinidenfauna. *Wiener ent. Ztg.*, **50**: 25–48.
- EPPELSHEIM, E., 1889. Insecta, a Cl. G. N. POTANIN in China et in Mongolia novissime lecta. V. Neue Staphylinen. *Horae Soc. ent. ross.*, **23**: 169–184.
- LEACH, W. E. 1819: [New genera]. In: G. SAMOUELLE, The entomologist's useful compendium, or an introduction to the knowledge of British insects, comprising the best means of obtaining and preserving them, and a description of the apparatus generally used; together with the genera of LINNÉ, and the modern method of arranging the classes Crustacea, Myriapoda, spiders, mites and insects, from their affinities and structure, according to the views of Dr. LEACH. Also an explanation of the terms used in entomology; a calendar of the times of appearance and usual situations of 3,000 species of British insects; with instructions for collecting and fitting up objects for the microscope. 496 pp. Longman, Hurst, Rees, Orme, Brown & Green, London
- MÜLLER, J., 1923. Contributo alla conoscenza del genere *Staphylinus*. *Boll. Soc. ent. ital.*, **55**: 135–144.
- MULSANT, E., & C. REY, 1876. Histoire naturelle des Coléoptères de France. Tribu des brévipennes. Staphyliniens. *Annls. Soc. Linnéenne Lyon*, (5), **8**: 145–856.
- SMETANA, A., 2001. Contributions to the knowledge of the genera of the “*Staphylinus-complex*” (Coleoptera: Staphylinidae) of China. Part 1. The review of the genus *Miobdelus*. *Folia Heyrovskyana*, **9**: 161–201.
- 2003. Contributions to the knowledge of the genera of the “*Staphylinus-complex*” (Coleoptera: Staphylinidae) of China. Part 4. Key to Chinese genera of the complex, treatment of *Collocypus* gen. n., *Ocychinus* gen. n., *Sphaerobulbus* gen. n., *Aulacocypus* stat. n. and *Apecholinus* stat. n., and comments on the genus *Protocypus*. *Ibid.*, **11**: 57–136.
- & A. DAVIES, 2000. Reclassification of the north temperate taxa associated with *Staphylinus* sensu lato, including comments on relevant subtribes of Staphylinini (Coleoptera: Staphylinidae). *Amer. Mus. Novit.*, (3287), 88 pp.