

## LIMNICHIDAE: II. Taxonomic revision of the genus *Cephalobyrrhus* PIC (Coleoptera)

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### Abstract

The limnichid genus *Cephalobyrrhus* PIC (Coleoptera: Limnichidae) is revised. Ten new species from China and one new species from Nepal are described: *C. bertiae* sp.n. (Yunnan), *C. brevipalpis* sp.n. (Yunnan), *C. emeishanensis* sp.n. (Sichuan), *C. jaechi* sp.n. (Sichuan), *C. jiangxiensis* sp.n. (Jiangxi), *C. jinggangshanensis* sp.n. (Jiangxi), *C. longipalpis* sp.n. (Jiangxi), *C. nepalensis* sp.n. (Nepal), *C. schillhammeri* sp.n. (Sichuan), *C. schuelkei* sp.n. (Sichuan), *C. sichuanensis* sp.n. (Sichuan). Lectotypes are designated for *C. gibbicollis* CHAMPION, *C. japonicus* CHAMPION and *C. latus* PIC.

**Key words:** Coleoptera, Limnichidae, Cephalobyrrhinae, *Cephalobyrrhus*, new species, revision, taxonomy, China, Nepal.

### Introduction

The subfamily Cephalobyrrhinae is mainly distinguished by the following external characters: 1) body elongate and oval, dorsally weakly convex; 2) eyes large, distance between their inner margins approximately equal to the diameter of one eye; 3) base of pronotum incised; 4) base of elytra incised; 5) metacoxae transverse; 6) hind tibiae exteriorly smooth; 7) all tarsi 5-jointed.

The following genera are attributed to this subfamily: *Cephalobyrrhus* PIC, 1923, *Jaechobyrrhinus* PÜTZ, 1991, *Parathroscinus* WOOLDRIDGE, 1984 and *Throscinus* LECONTE, 1874. *Cephalobyrrhus* (4 species) and *Parathroscinus* (5 species) are distributed in the southeastern Palearctic and the Oriental region. *Jaechobyrrhinus* (1 species) is currently known only from Asia Minor. *Throscinus* (7 species) is the only genus present in the New World.

During a joint coleopterological expedition in May and June 1997 together with M. Schülke (Berlin) and D.W. Wrase (Berlin) in the Chinese province of Sichuan two species of *Cephalobyrrhus* were collected. In order to clarify their identities the type material of all known taxa of the genus was examined. In contrast to the taxa described by CHAMPION (1925), it was not possible to interpret the taxa described by PIC (1923) with certainty because of the extremely short original descriptions. A comparison with the types of the known taxa showed that our material from Sichuan contained two new species. Dr. M.A. Jäch (NMW) and Dr. W. Schawaller (MNS) kindly provided numerous additional specimens of Chinese and Nepalese *Cephalobyrrhus* for the revision. This material yielded a total of eleven undescribed species.

### Material, acronyms and CWBS localities

Altogether 145 specimens were examined in the course of the present revision. The material is deposited in the following museums and private collections:

BML	The Natural History Museum, London
CASS	Chinese Academy of Sciences, Institute of Applied Ecology, Shenyang
MHNP	Muséum national d'Histoire naturelle, Paris
MNS	Staatliches Museum für Naturkunde, Stuttgart
NMW	Naturhistorisches Museum, Wien
CPE	Coll. Pütz, Eisenhüttenstadt

CWBS loc. 50: **Sichuan Province**; Leshan Prefecture; Emei Shan, ca. 15 km W Emei City; 1000 - 2500 m a.s.l.: 21. - 23.VI.1994; leg. Schillhammer; (see JACH & Ji 1995: Fig. 15).

CWBS loc. 52: **Sichuan Province**; Leshan Prefecture; Emei Shan, ca. 15 km W Emei City; small stream, ca. 1 m wide, schist, 1530 m a.s.l.; 22.VI.1994; leg. Schillhammer.

CWBS loc. 55: **Sichuan Province**; Leshan Prefecture; Emei Shan, ca. 15 km W Emei City; gorge below Hongchun Terrace; stream, ca. 1 - 2 m wide, limestone, 860 m a.s.l.; 23.VI.1994; leg. Schillhammer & Ji; (see JACH & Ji 1995: Fig. 18).

CWBS loc. 233: **Sichuan Province**; Yaan City Region; Tianqian County; ca. 57 km W Yaan City, 4 km W Xingou Village; at foot of Erlang Shan; small stream, ca. 1 - 2 m wide, cold and fast flowing through secondary forest, large stones, leaf packs, unpolluted, ca. 1600 m a.s.l.; 13.VI.1996; leg. Ji & Wang.

Total body length was measured from the anterior margin of the clypeus to the clytral apex, the total width of elytra was measured at their broadest point.

All labels listed in the text are cited in their original form.

### Acknowledgements

I am very grateful to N. Berti (MHNP), M. Brendell (BML), S. Kortenhaus (Gießen), L. Lehmann (Eisenhüttenstadt), Prof. M. Satô (Nagoya), Dr. W. Schawaller (MNS) and to my friends and expedition companions M. Schülke (Berlin) and D.W. Wrase (Berlin).

Special thanks are due to Dr. M.A. Jäch (NMW) who suggested and supported this revision.

### Genus *Cephalobyrrhus* PIC, 1923

*Cephalobyrrhus* PIC 1923: 4; CHAMPION 1925: 174-176; WOOLDRIDGE 1977: 29-30; 1984: 121-122; PUTZ 1991: 132-133.

Type species: *Cephalobyrrhus latus* PIC, 1923: 4.

DIAGNOSIS: Total length: 2.25 - 4.37 mm. Habitus: body small, elongate, of oval outline, dorsally weakly convex. Disc of pronotum weakly convex. Elytra oval, anteriorly usually more or less parallel-sided, widest near the shoulders, gradually tapering towards apex.

Head: labrum trapezoid, separated from the clypeus by a fine suture; clypeus semi-circular; anterior margin straight. Eyes large, oblongly oval, strongly convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into V-shaped furrow. Antennae 11-jointed, length of antennae with sexual dimorphism. Frons slightly impressed between eyes. Labial palpi 3-jointed. Maxillary palpi 4-jointed. Mentum transverse, trapezoid; anterior margin straight.

Pronotum: transverse; anterior margin convex, slightly arched, finely carinate; lateral margins carinate; hind angles shortly protruding posteriorly; basal margin centrally with trapezoid emargination, laterally straight, serrate and carinate. Disc distinctly domed, gradually sloping towards base, with a very shallow paramedian impression before base.

Prosternum: anterior margin concave, process parallel-sided, before apex with broad and deep

median furrow; apex convex with a short median tooth.

Scutellum: triangular, on plane below that of elytra.

Elytra: elongate, oval, broader than pronotum, in lateral view weakly vaulted, gradually sloping posteriorly, lateral margins anteriorly usually parallel, completely and finely carinate, lateral margin near the middle somewhat broader. Basal margin with deep median trapezoid impression, laterally straight, serrate and carinate. Anterior angles of elytra each with a very short tooth, shoulders usually distinct. Elytra with a very fine and complete sutural stria and with not more than two very short, posteriorly reduced basal striae and a very short humeral stria. Macropterous.

Mesosternum: transverse, flat; anterior margin with a deep impression which occupies nearly a third of mesosternum.

Metasternum: in lateral view convex, centrally with a fine longitudinal furrow; metasternal process short.

Legs: Tibiae longer than femora, mostly weakly dilated anteriorly. Tarsi 5-jointed, length of tarsi sexually dimorphic; tarsomeres I to IV very shortly lobate; tarsomere V longest, not lobate; claws long, bent.

Abdominal sternites: with 5 visible segments; segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex truncated, before apex with a small semicircular, more strongly punctate depression (not distinct in all species!) in both sexes.

Aedeagus: phallobasis long, apex with right half arcuately excised, and with a very short thread-like process. Parameres and median lobe only half as long as phallobasis; parameres longer than median lobe. Median lobe oblongly triangular; base occasionally weakly dilated distally; apex pointed.

Sexual dimorphism: body of male smaller than female; segments of antennae and tarsi longer and more slender in male than in female.

REMARKS: Most species of *Cephalobyrrhus* cannot be reliably identified based on external characters alone, and a study of larger material showed that intraspecific variation may be enormous. In addition, a distinct sexual dimorphism often renders a safe identification of the females difficult. A distinction of the species is mainly based on the morphology of the aedeagus. In species with similar male sexual characters, the shape of the maxillary palpi was found to be of diagnostic value. In view of the virtual absence of significant differences in external morphology, a key is refrained from.

BIONOMICS: There is only one published observation by CHAMPION (1925), which refers to *C. gibbicollis* CHAMPION: numerous specimens of *C. gibbicollis* were observed running over wet moss at river banks.

According to own observations, *C. sichuanensis* lives at sandy river banks on algae and moss, not only in open places, but also in moderately shady situations under *Salix*-bushes with a thin litter layer. Like most of the ripicolous coleoptera, all *Cephalobyrrhus* species possess fully developed hindwings and are good flyers. *Cephalobyrrhus sichuanensis* was observed flying from sifted sample of moss-humus sift.

At Diaolin (Yunnan), at least two and at Ciping (Jiangxi) and Emei Shan (Sichuan) at least three species of *Cephalobyrrhus* occur sympatrically. The material examined was recorded in altitudes of 860 to 2400 m.

DISTRIBUTION (Fig. 19): India, Nepal, China, Japan.

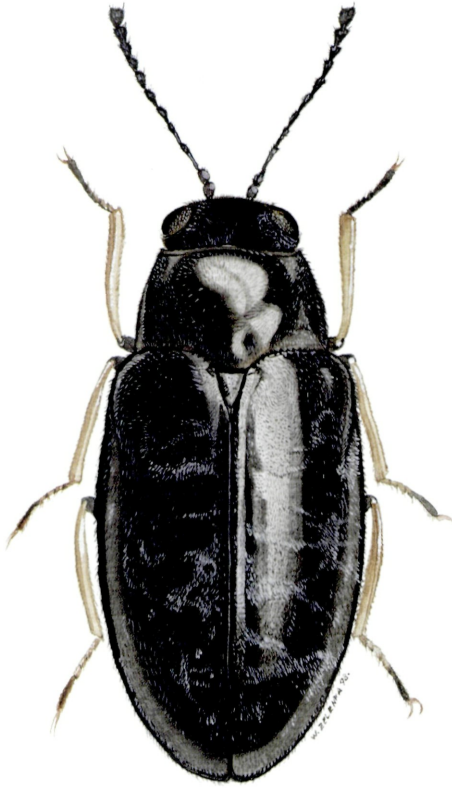


Fig. 1: *Cephalobyrrhus jinggangshanensis*, habitus.

### Check list of *Cephalobyrrhus*

- |                                      |                                    |                                   |
|--------------------------------------|------------------------------------|-----------------------------------|
| 1. <i>bertiae</i> sp.n.              | 6. <i>japonicus</i> CHAMPION, 1925 | 11. <i>nepalensis</i> sp.n.       |
| 2. <i>brevipalpis</i> sp.n.          | 7. <i>jiangxiensis</i> sp.n.       | 12. <i>schillhameri</i> sp.n.     |
| 3. <i>emeishanensis</i> sp.n.        | 8. <i>jinggangshanensis</i> sp.n.  | 13. <i>schuelkei</i> sp.n.        |
| 4. <i>gibbicollis</i> CHAMPION, 1925 | 9. <i>latus</i> PIC, 1923          | 14. <i>sichuanensis</i> sp.n.     |
| 5. <i>jaechi</i> sp.n.               | 10. <i>longipalpis</i> sp.n.       | 15. <i>subelongatus</i> PIC, 1923 |

### *Cephalobyrrhus bertiae* sp.n.

Type locality: Diaolin, 100 km W Kunming, Yünnan, China.

**Holotype** ♂: "CHINA-Yunnan 22.5.-2.6. 100 km W Kunming Diaolin Nat. Res., 1993 E.Jendek & O. Šauša leg." / "HOLOTYPUS, *Cephalobyrrhus bertiae* sp.n., det. A. Pütz, 1998" (red) (NMW). **Paratypes**: 19 exs. with same locality data as the holotype, and "PARATYPUS, *Cephalobyrrhus bertiae* sp.n., det. A. Pütz, 1998" (red) (CPE, NMW, CASS).

Length: 2.87 - 3.00 mm, width: 1.21 - 1.25 mm.

Colouration: blackish-brown; mouthparts except terminal segments of maxillary and labial palpi, femora, tibiae and claws as well as apex of fifth sternite reddish-brown; antennal segment II reddish brightened.

Head: with short, decumbent, slightly bent, brass-coloured hairs; frons with short, slightly raised, silver-grey and brass-coloured hairs. Labrum trapezoid, separated from clypeus by a fine suture; anterior margin brightly shining, centrally narrow, reddish-yellow, carinate; upper surface with dense punctation, distances of punctures shorter than their diameters, weakly shining. Clypeus semicircular; anterior margin straight, with much stronger punctation than labrum. Eyes large, oblongly oval, strongly convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into a V-shaped furrow. Antennae 11-jointed; scapus and pedicellus short, with grey, decumbent pubescence, otherwise with short, dark, decumbent and occasionally erected hairs; scapus carinate, weakly dilated anteriorly; pedicellus shorter than scapus; segment III longest, as long as scapus and pedicellus together, weakly dilated anteriorly; segment IV shorter than segment III and more strongly built; segment V as long as, but broader than segment IV; segments VI to XI with contracted base, strongly dilated anteriorly, obliquely truncated at apex; segment XI evenly truncate; antennae of females shorter than of males. Frons deeply impressed between eyes. Labial palpi 3-jointed; segment I very short, triangular; segment II much larger than segment I, contracted at base, strongly dilated anteriorly; segment III very large, bell-shaped. Maxillary palpi 4-jointed; segment I very small; segment II long, dilated anteriorly; segment III shorter, but broader than segment II; segment IV large, spindle-shaped. Mentum transverse, trapezoid; anterior margin straight, finely yellow emarginate; upper surface strongly shagreened, dull, with very short, grey, decumbent pubescence.

Pronotum: transverse; anterior margin convex, slightly arched, carinate; lateral margins clearly carinate; hind angles shortly protruding posteriorly; basal margin centrally with trapezoid emargination, laterally sometimes finely incised, straight. Upper surface of pronotum with decumbent, fine, brass-coloured hairs; densely punctate, distances of punctures longer than their diameters, shining. Disc domed, gradually sloping towards base, with a very shallow paramedian impression before base.

Prosternum: anterior margin concave; process parallel-sided, before apex with a broad and deep median furrow, lateral margins arched, apex convex with a short, median tooth. Upper surface with grey, decumbent pubescence, shagreened, weakly shining.

Scutellum: triangular, on plane below that of elytra; with short, decumbent, gold-brown hairs, finely punctate.

Elytra: elongate, broader than pronotum, in lateral view weakly vaulted, gradually sloping posteriorly, lateral margins anteriorly parallel, completely and finely carinate, lateral margin near the middle somewhat broader. Basal margin with deep median trapezoid impression, laterally straight, occasionally finely serrate and carinate. Anterior angles of elytra each with a short tooth. Shoulders distinct. Elytra with a very fine and complete sutural stria and two posteriorly reduced basal striae, and a posteriorly reduced humeral stria; pubescence consisting of a brass-coloured basic tomentose pubescence and short, silver-grey hairs, which form numerous, narrow, transverse lines; very finely punctate, weakly shining. Macropterous.

Mesosternum: transverse, flat; anterior margin with a deep impression which occupies nearly a third of mesosternum; upper surface strongly shagreened, dull.

Metasternum: in lateral view convex, centrally with a fine longitudinal furrow; metasternal process short, centrally split; upper surface with fine, decumbent, grey hairs, densely punctate, distances of punctures longer than their diameters, shining.

Legs: reddish-brown, fine, decumbent pubescent. Tibiae longer than femora. Tarsi 5-jointed; tarsomeres I to IV very shortly lobate; tarsomere V longest, not lobate; claws long, scarcely bent.

Abdominal sternites: segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex broadly

evenly truncated, before apex with a small semicircular, more strongly punctate, reddish depression; all sternites with fine, decumbent, grey hairs, finely shagreened, weakly shining.

Aedeagus (Fig. 2): phallobasis long, at apex much narrower than anteriorly, apex with right half arcuately excised, and with a very short thread-like process. Parameres and median lobe less than half as long as phallobasis; parameres very broad at base; longer than median lobe, interior margins only very weakly concavely excised before apex; apices slightly arched interiorly. Median lobe oblongly triangular; base weakly dilated distally; apex acute.

Differential diagnosis: *Cephalobyrrhus bertiae* is distinguished by a short, compact and parallel-sided habitus and is similar to *C. emeishanensis* and *C. jiangxiensis*. In contrast, the upper surface of *C. emeishanensis* has a monochrome, brass-coloured pubescence without any trace of markings. *Cephalobyrrhus jiangxiensis* is more elongate than *C. bertiae*. All three species can be distinguished safely by the aedeagus. The aedeagus of *C. bertiae* is similar to *C. latus*. In both species the phallobasis is considerably broader at its base than at the apex.

Distribution (Fig. 19): So far known only known from the type locality.

Etymology: Named after Mrs. Nicole Berti (MHNP) for loaning the types from the Pic collection.

### *Cephalobyrrhus brevivalpis* sp.n.

Type locality: Diaolin, 100 km W Kunming, Yunnan, China.

**Holotype** ♂: "CHINA-Yunnan 22.5.-2.6. 100 km W Kunming Diaolin Nat. Res., 1993 E.Jendek & O. Sausa leg." / "HOLOTYPUS, *Cephalobyrrhus brevivalpis* sp.n., det. A. Pütz, 1998" (red) (NMW).

Length: 3.37 mm, width: 1.50 mm.

Colouration: blackish-brown; mouthparts, antennal segments I and II, femora, tibiae and claws as well as apex of fifth sternite reddish-brown.

Head: with short, decumbent, brass-coloured hairs; frons with short, slightly raised, silver-grey and brass-coloured hairs which are always slightly arched. Labrum trapezoid, separated from clypeus by a fine suture; anterior margin narrow, centrally very broad, reddish-yellow carinate; upper surface with dense punctation, distances of punctures shorter than their diameters, weakly shining. Clypeus semicircular; anterior margin straight, with a slightly stronger punctation than labrum. Eyes large, oblongly oval, strongly convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into a V-shaped furrow. Antennae 11-jointed; scapus and pedicellus short, with grey, decumbent pubescence, otherwise with short, dark, decumbent and occasionally erected hairs; scapus carinate, dilated anteriorly; pedicellus shorter than scapus; segment III longest, as long as scapus and pedicellus together, weakly dilated anteriorly; segment IV shorter than segment III and more strongly built; segment V as long as, but broader than segment IV; segments VI to XI with contracted base, strongly dilated anteriorly, obliquely truncated at apex; segment XI evenly truncated at apex. Frons slightly impressed between eyes. Labial palpi 3-jointed; segment I very short, triangular; segment II much larger than segment I, contracted at base, strongly dilated anteriorly; segment III very large, bell-shaped. Maxillary palpi 4-jointed; segment I very small; segment II long, dilated anteriorly; segment III shorter, but much stronger and more strongly dilated than segment II; segment IV large, spindle-shaped (Fig. 14). Mentum transverse, trapezoid; anterior margin straight, finely yellow emarginate; upper surface finely shagreened, dull, with very short, grey, decumbent pubescence.

Pronotum: transverse; anterior margin convex, slightly arched, carinate; lateral margins clearly carinate; hind angles shortly protruding posteriorly; basal margin centrally with trapezoid emargination, laterally straight. Upper surface of pronotum with decumbent, fine, brass-coloured

hairs; very densely punctate, distances of punctures longer than their diameters, shining. Disc domed, gradually sloping towards base, with a very shallow paramedian impression before base.

Prosternum: anterior margin concave; process parallel-sided, before apex with a broad and deep median furrow, apex convex with a short, median tooth. Upper surface with dark or gold-brown, decumbent pubescence, strongly shagreened, dull.

Scutellum: triangular, on plane below that of elytra; with short, decumbent, brass-coloured hairs, very finely punctate.

Elytra: elongate, broader than pronotum, in lateral view weakly vaulted, gradually sloping posteriorly, lateral margins anteriorly parallel, completely and finely carinate, lateral margin near the middle somewhat broader. Basal margin with deep median trapezoid impression, laterally straight, occasionally coarsely serrate and carinate. Anterior angles of elytra each with a very short tooth. Shoulders distinct. Elytra with a very fine and complete sutural stria and each with a visible posteriorly reduced basal stria, and humeral stria; pubescence consisting of a dark or brass-coloured basic tomentose pubescence and short, silver-grey hairs, which form narrow, transverse lines and spots; very finely punctate, weakly shining. Macropterous.

Mesosternum: transverse, flat; anterior margin with a deep impression which occupies nearly a third of mesosternum; upper surface finely shagreened, shining.

Metasternum: in lateral view convex, centrally with a fine longitudinal furrow; metasternal process short, centrally split; upper surface with fine, decumbent, dark pubescence, densely punctate, distances of punctures longer than their diameters, shining.

Legs: reddish-brown, fine, decumbent pubescent. Femora surpassing body length in angled condition. Tibiae longer than femora. Tarsi 5-jointed; tarsomeres I to IV very shortly lobate; tarsomere V longest, not lobate; claws long, scarcely bent.

Abdominal sternites: segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex evenly truncated, before apex with a more strongly punctate, reddish depression protruding anteriorly at the margins as a narrow fascia; all sternites with fine, decumbent, grey hairs, finely shagreened, weakly shining.

Aedeagus (Fig. 3): phallobasis long, parallel-sided anteriorly, detracted towards apex; apex with right half arcuately excised, and with a very short thread-like process. Parameres and median lobe less than half as long as phallobasis; parameres longer than median lobe; interior margins weakly concavely excised before apex; apices finely carinate, slightly arched interiorly. Median lobe oblongly triangular; base slightly dilated distally; apex weakly acute.

Differential diagnosis: *Cephalobyrrhus brevipalpis* is similar to the species with an elongate, oval outlined habitus and is related to *C. longipalpis* in view of the genitalia. The aedeagi of both species are similar. The parameres of the new species are broader, but the terminal segment of the maxillary palpi is shorter and more strongly built.

Distribution (Fig. 19): So far known only known from the type locality.

Etymology: the name *brevipalpis* refers to the comparatively short and somewhat cumbersome fourth segment of the maxillary palpi.

### *Cephalobyrrhus emeishanensis* sp.n.

Type locality: Emei Shan, Sichuan, China.

**Holotype** ♂: "CHINA: Sichuan Emeishan 160km SSW Chengdu / 860m 23.6.1994 leg. Ji (6)" (CWBS loc. 55) / "HOLOTYPE, *Cephalobyrrhus emeishanensis* sp.n., det. A. Pütz, 1998" (red) (CASS).

Length: 2.93 mm, width: 1.25 mm.

Colouration: blackish-brown; mouthparts, antennal segment II, femora, tibiae and claws as well as apex of fifth sternite reddish-brown.

Head: with short, decumbent, brass-coloured hairs; frons with short, slightly raised, silver-grey and brass-coloured hairs which are always slightly arched. Labrum trapezoid, separated from clypeus by a fine suture; anterior margin broadly shining, centrally narrow, reddish-yellow carinate; upper surface with strong, dense punctation, distances of punctures shorter than their diameters, weakly shining. Clypeus semicircular; anterior margin straight, with even stronger punctation than labrum. Eyes large, oblongly oval, strongly convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into a V-shaped furrow. Antennae 11-jointed; scapus and pedicellus short, with grey, decumbent pubescence, otherwise with short, dark, decumbent and occasionally erected hairs; scapus carinate, dilated anteriorly; pedicellus shorter than scapus; segment III longest, as long as scapus and pedicellus together, weakly dilated anteriorly; segment IV much shorter than segment III and more strongly built; segment V as long as, but broader than segment IV; segments VI to XI with contracted base, strongly dilated anteriorly, obliquely truncated at apex; segment XI evenly truncated at apex. Frons deeply impressed between eyes. Labial palpi 3-jointed; segment I very short, triangular; segment II much larger than segment I, contracted at base, strongly dilated anteriorly; segment III very large, bell-shaped. Maxillary palpi 4-jointed; segment I very small; segment II long, dilated anteriorly; segment III shorter, but broader than segment II; segment IV large, spindle-shaped. Mentum transverse, trapezoid; anterior margin straight, finely yellow emarginate; upper surface finely shagreened, dull, with very short, grey, decumbent pubescence.

Pronotum: transverse; anterior margin convex, slightly arched, carinate; lateral margins finely carinate; hind angles shortly protruding posteriorly; basal margin centrally with trapezoid emargination, laterally straight, occasionally incised. Upper surface of pronotum with decumbent, fine, brass-coloured hairs; very densely punctate, distances of punctures much longer than their diameters, shining. Disc domed, gradually sloping towards base, with a very shallow paramedian impression before base.

Prosternum: anterior margin concave; process parallel-sided, before apex with a broad and deep median furrow, apex convex with a short, median tooth. Upper surface with dark or gold-brown, decumbent pubescence, strongly shagreened, dull.

Scutellum: triangular, on plane below that of elytra; with short, decumbent, brass-coloured hairs, scarcely punctate.

Elytra: elongate, broader than pronotum, in lateral view weakly vaulted, gradually sloping posteriorly, lateral margins anteriorly parallel, completely carinate, lateral margin near the middle somewhat broader. Before apex laterally shortly sinuate, but without a distinct apical tooth. Basal margin with deep median trapezoid impression, laterally straight, occasionally finely serrate and carinate. Anterior angles of elytra each with a short tooth. Shoulders distinct. Elytra with a very fine and complete sutural stria and a posteriorly reduced humeral stria; pubescence consisting of a brass-coloured basic tomentose pubescence and short, silver-grey hairs, which form a small, silver-grey spot on each side before the declivity; very finely punctate, weakly shining. Macropterous.

Mesosternum: transverse, flat; anterior margin with a deep impression which occupies nearly a third of mesosternum; upper surface strongly shagreened, dull.

Metasternum: in lateral view convex, centrally with a deep, fine longitudinal furrow; metasternal process short, centrally split; upper surface with fine, decumbent, grey pubescence, very densely punctate, distances of punctures longer than their diameters, shining.



Legs: reddish-brown, fine, decumbent pubescent. Tibiae longer than femora. Tarsi 5-jointed; tarsomeres I to IV very shortly lobate; tarsomere V longest, not lobate; claws long, scarcely bent.

Abdominal sternites: segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex evenly truncated, before apex with a larger, semicircular, weakly punctate, reddish depression protruding centrally up to segment IV; all sternites with fine, decumbent, dark hairs, finely shagreened, weakly shining.

Aedeagus (Fig. 4): phallobasis long, parallel-sided; apex with right half arcuately excised, and with a very short thread-like process. Parameres and median lobe less than half as long as phallobasis; parameres slightly longer than median lobe; interior margins very weakly concavely excised before apex; apices scarcely arched interiorly. Median lobe oblongly triangular; base dilated distally; apex weakly acute.

Differential diagnosis: *Cephalobyrrhus emeishanensis* is superficially similar to *C. bertiae* and *C. jiangxiensis*. This species is especially characterised by its chocolate-brown body with brass-coloured tomentose pubescence and by its specific aedeagus. The aedeagus of *Cephalobyrrhus emeishanensis* is similar to *C. jiangxiensis*, but it is distinctly broader built. The aedeagus of *Cephalobyrrhus emeishanensis* is similar to numerous species with a more or less parallel-sided phallobasis.

Distribution (Fig. 19): So far known only known from the type locality.

Etymology: Named after Emei Shan (Sichuan), one of the five holy mountains of the Chinese Buddhists.

### *Cephalobyrrhus gibbicollis* CHAMPION, 1925

*Cephalobyrrhus gibbicollis* CHAMPION 1925: 175; SATO 1965: 123.

Type locality: Gori Valley, Kumaon, Uttar Pradesh, India.

**Lectotype** ♂ (here designated): "SYN-TYPE" (round, light blue framed label) / "Type H. T." (round, red framed label) / "Specimen figured" / "Gori Valley, Kumaon, India, 7 000 ft. H. G. C." / "G. C. Champion, Brit. Mus., 1925-42." / "Cephalobyrrhus gibbicollis Ch., det. G. C. C." / "Cephalobyrrhus gibbicollis Ch. Type" (in handwriting with ink) / "E. M. M. 1925, det. G. C. C." / "LECTOTYPUS, *Cephalobyrrhus gibbicollis* Champion, 1925, des. A. Pütz, 1998" (red) (BML). **Paralectotypes** 5 ♂♂, 7 ♀♀: "SYN-TYPE" (round, light blue framed label) / "Gori Valley, Kumaon, India, 7 000 ft. H. G. C." / "Cephalobyrrhus gibbicollis Ch., det. G. C. C." / "H. G. Champion Coll., B. M. 1953-156." (2 ♂♂, 3 ♀♀) / "C. G. Champion, Brit. Mus., 1925-42." (3 ♂♂, 4 ♀♀) / "E. M. M. 1925, det. G. C. C." (3 ♂♂, 4 ♀♀) and: "Specimen figured" (for 1 ♂ which was glued on upside down); "Specimen directed by Waterston" (in handwriting with ink for 1 ♂, 2 ♀♀) / "PARALECTOTYPUS, *Cephalobyrrhus gibbicollis* Champion, 1925, des. A. Pütz, 1998" (red) (BML).

The first male of the syntype series was selected as lectotype. This specimen bears the label "*Cephalobyrrhus gibbicollis* Ch. Type" (in handwriting with ink). One male and one female of the paralectotype series are partly destroyed (crushed), all extremities and antennae are missing. In one male paralectotype the left antenna is missing. The rest of the types are in good condition.

Length: 2.37 - 3.50 mm, width: 1.25 - 1.81 mm.

Colouration: head and pronotum blackish-brown; Elytra and underside reddish-brown; shinig; mouthparts, antennal segments I to III and legs reddish-yellow; apex of femora brownish darkened.

Head: frons and vertex with short, brass-coloured and silver-grey hairs; genae with longer, decumbent, silver-grey hairs; brass-coloured hairs always slightly arched. Labrum trapezoid, separated from clypeus by a fine suture; anterior margin narrow, reddish, smoothly carinate; upper surface with dense punctation, shining. Clypeus semicircular; anterior margin straight,

with much stronger punctation than labrum. Eyes large, oblongly oval, convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into a V-shaped furrow. Antennae 11-jointed (see CHAMPION 1925: Fig. 4d); scapus elongate, slightly thickened, weakly dilated anteriorly; pedicellus much shorter than scapus; segment III longest, weakly dilated anteriorly; segment IV shorter than segment III; segment V somewhat longer and stronger than segment IV; segments VI to XI with contracted base, strongly dilated anteriorly, obliquely truncated at apex; segment XI evenly truncated at apex. Antennae of females shorter than of males. Frons somewhat impressed between eyes. Labial palpi 3-jointed; segment I very short, triangular; segment II much larger than segment I, contracted at base, strongly dilated anteriorly; segment III very large, bell-shaped. Maxillary palpi 4-jointed; segment I very small; segment II long, dilated anteriorly; segment III shorter, but broader than segment II; segment IV large, spindle-shaped, longer than segments II and III together.

Pronotum: transverse; anterior margin convex, strongly carinate; lateral margins carinate; hind angles shortly protruding posteriorly; basal margin centrally with trapezoid emargination, laterally finely incised, straight. Upper surface of pronotum predominantly with decumbent, fine, brass-coloured hairs; very densely punctate. Disc distinctly domed, with a very shallow paramedian impression before base.

Prosternum: anterior margin concave; process parallel-sided, before apex with a broad and deep median furrow, apex convex with a short, median tooth. Upper surface with sparse, decumbent, grey pubescence, shagreened, weakly shining.

Scutellum: triangular, on plane below that of elytra; with sparse, decumbent, brass-coloured pubescence, shining.

Elytra: elongate, oval, broader than pronotum, widest near the shoulders, towards apex acute, lateral margins completely carinate, lateral margin near the middle somewhat broader. Basal margin with deep median trapezoid impression, laterally straight, finely serrate and carinate. Shoulders strongly distinct. Elytra with a very fine and complete sutural stria and two posteriorly reduced humeral striae; pubescence consisting of a light, brass-coloured basic tomentose pubescence and short, silver-grey hairs, which form some narrow transverse lines; very finely punctate, in between slightly shagreened. Macropterous.

Mesosternum: transverse, flat; anterior margin with a deep pyramidoid impression which occupies nearly a third of mesosternum; upper surface shagreened, weakly shining.

Metasternum: in lateral view convex, centrally with a deep, fine longitudinal furrow; metasternal process short, centrally split; upper surface with fine, decumbent, grey pubescence, very densely punctate, distances of punctures much longer than their diameters, shining.

Legs: femora surpassing body length in angled condition. Tibiae longer than femora. Tarsi 5-jointed; tarsomeres I to IV very shortly lobate; tarsomere V longest, not lobate; claws long, scarcely bent.

Abdominal sternites: segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex evenly truncated. According to CHAMPION (1925: Fig. 4b) the males of *C. gibbicollis* are supposed to have a small fovea at the apex of segment V. A distinct fovea could not be detected during the examination of the type series. It is rather an apically protruding, reddish lightened, very flat depression, which is much stronger punctate and so appears to be slightly fovea-like.

Aedeagus (CHAMPION 1925: Fig. 5d): phallobasis elongate, at apex narrower than at base; apex with right half arcuately excised, and with a short thread-like process. Parameres and median lobe only half as long as phallobasis; parameres slightly longer than median lobe; interior margins very finely concavely excised before apex. Median lobe oblongly slender; base weakly dilated distally; apex narrow.

Differential diagnosis: *Cephalobyrrhus gibbicollis* is characterised by a short, apically acute habitus. A similar short, but more weakly acute habitus is only seen in *C. subelongatus*. The aedeagus of *C. gibbicollis* is similar to the group of species with basally broader phallobasis like *C. bertiae* and *C. jiangxiensis*.

Distribution (Fig. 19): N India.

Bionomics: According to CHAMPION (1925) numerous specimens of *C. gibbicollis* ran over wet moss at river banks together with a very common metallic *Stenus* sp. (Staphylinidae).

### *Cephalobyrrhus jaechi* sp.n.

Type locality: Xingou, ca. 60 km W Ya'an, Sichuan, China (CWBS loc. 233).

**Holotype** ♂: "CHINA: Sichuan, 13.6.1996 ca. 60 km W Ya'an, 1600m, 4 km W Xingou Village leg. Ji & Wang" (CWBS loc. 233)" / "HOLOTYPE, *Cephalobyrrhus jaechi* sp.n., det. A. Pütz, 1998" (red) (CASS). **Paratype** ♀: with the same locality data as the holotype, and "PARATYPE, *Cephalobyrrhus jaechi* sp.n., det. A. Pütz, 1998" (red) (NMW).

Length: 3.06 - 3.25 mm, width: 1.31 - 1.43 mm.

Colouration: blackish-brown; mouthparts except segment IV of maxillary palpi, antennal segments I and II, femora, tibiae and claws as well as apex of fifth sternite reddish-brown.

Head: with short, decumbent, brass-coloured hairs; frons with short, slightly raised, silver-grey hairs; brass-coloured hairs always slightly arched. Labrum trapezoid, separated from clypeus by a fine suture; anterior margin narrow, centrally somewhat broader, reddish-yellow carinate; upper surface with dense punctation, distances of punctures shorter than their diameters, weakly shining. Clypeus semicircular; anterior margin straight, with a much stronger punctation than labrum. Eyes large, oblongly oval, strongly convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into a V-shaped furrow. Antennae 11-jointed; scapus and pedicellus short, with yellowish, decumbent pubescence, otherwise with short, brass-coloured, decumbent and occasionally erected hairs; scapus carinate, slightly thickened, weakly dilated anteriorly; pedicellus only slightly shorter than scapus; segment III longest, longer than scapus and pedicellus together, weakly dilated anteriorly; segment IV shorter than segment III; segment V somewhat longer and stronger than segment IV; segments VI to XI with contracted base, strongly dilated anteriorly, obliquely truncated at apex; segment XI evenly truncated at apex. Frons not so deeply impressed between eyes. Labial palpi 3-jointed; segment I very short, triangular; segment II much larger than segment I, contracted at base, strongly dilated anteriorly; segment III very large, bell-shaped. Maxillary palpi 4-jointed; segment I very small; segment II long, dilated anteriorly; segment III shorter, but broader than segment II; segment IV large, spindle-shaped (Fig. 16), longer than segments II and III together. Mentum transverse, trapezoid; anterior margin straight, yellowish brightened, lateral margins very finely emarginate; upper surface shagreened, dull, with very short, grey, decumbent pubescence.

Pronotum: transverse; anterior margin weakly convexly arched, carinate; lateral margins distinctly carinate; hind angles very shortly protruding posteriorly; basal margin centrally with trapezoid emargination, laterally straight. Upper surface of pronotum with decumbent, fine, brass-coloured hairs; very densely punctate, distances of punctures longer than their diameters, shining. Disc very weakly distinctly domed, with a very shallow paramedian impression before base.

Prosternum: anterior margin concave; process parallel-sided and with a broad and deep median furrow, lateral margins strongly arched; apex convex with a short, median tooth. Upper surface with dark-brown, decumbent pubescence, strongly shagreened, dull.

Scutellum: triangular; with, short, decumbent, gold-brown pubescence, less densely punctate.

Elytra: elongate, broader than pronotum, in lateral view weakly vaulted, gradually sloping posteriorly, lateral margins parallel, completely and finely carinate, lateral margin near the middle somewhat broader. Basal margin with deep median trapezoid impression, laterally straight, coarsely serrate and carinate. Anterior angles of elytra each with a very short tooth. Shoulders weakly developed. Elytra with a very fine and complete sutural stria and with a posteriorly reduced humeral stria; pubescence consisting of a dark or brass-coloured basic tomentose pubescence and short, silver-grey hairs, which form irregular spots; very finely punctate, weakly shining. Macropterous.

Mesosternum: transverse, flat; anterior margin with a deep impression which occupies nearly a third of mesosternum; upper surface shagreened, dull.

Metasternum: in lateral view convex, centrally with a distinct, fine longitudinal furrow; basal margin centrally split; upper surface with fine, decumbent, grey-brown pubescence, densely punctate, distances of punctures as long as or sometimes shorter than their diameters, shining.

Legs: reddish-brown, fine, decumbent pubescent. Femora surpassing body length in angled condition. Tibiae longer than femora. Tarsi 5-jointed; tarsomeres I to IV very shortly lobate; tarsomere V longest, not lobate; claws long, scarcely bent.

Abdominal sternites: segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex broadly evenly truncated, before apex with a small, semicircular, stronger punctate, reddish depression; all sternites with fine, decumbent, grey-brown hairs, finely shagreened, weakly shining.

Aedeagus (Fig. 5): phallobasis about three times longer than parameres, at apex broader than at base; apex with right half arcuately excised, and with a very short thread-like process. Parameres narrow, somewhat longer than median lobe; interior margins gape open before apex. Median lobe oblongly triangular; base dilated distally; apex acute.

Differential diagnosis: *Cephalobyrrhus jaechi* is similar to the species with an elongate, oval outlined habitus and is related to *C. schillhammeri* in view of its typical genitalia. Very remarkable is the long aedeagus with its very long and somewhat bulbous phallobasis. The terminal segment of the maxillary palpi of the new species is more slender and much more elongate in contrast to *C. schillhammeri*.

Distribution (Fig. 19): So far known only known from the type locality.

Etymology: I dedicate this species to Dr. Manfred A. Jäch (NMW) who provided me with the biggest part of the examined material and who supported me in many ways.

### *Cephalobyrrhus japonicus* CHAMPION, 1925

*Cephalobyrrhus japonicus* CHAMPION 1925: 176; SATÔ 1966: 62; PÜTZ 1991: 132.

Type locality: "Kashiwagi" [= near Odaigahara, ca. 50 km S Nara City, Nara Prefecture, Kii Peninsula], Japan.

**Lectotype** ♂ (here designated): "½ SYN-TYPE" (round light blue framed label, ½ in handwriting with ink) / "Type H. T." (round red framed label) / "Kashiwagi, 15.VI.-24.VI.81" / "Japan, G. Lewis" / "Sharp Coll., 105-313." / "Cephalobyrrhus japonicus Ch., det. G. C. C." / "E. M. M. 1925, det. G. C. C." / "Cephalobyrrhus japonicus Ch., Type" (in handwriting with ink) / "LECTOTYPUS, Cephalobyrrhus japonicus CHAMPION, 1925, des. A. Pütz, 1998" (red) (BML). **Paralectotypes** 1 ♂, 1 ♀: with the same labels as the lectotype except: "Type H. T." (round red framed label) and: "SYN-TYPE" (round light blue framed label 2/3 in handwriting with ink) / "Specimen directed by Waterston" (in handwriting with ink for 1 ♂) / "PARALECTOTYPUS, Cephalobyrrhus japonicus CHAMPION, 1925, des. A. Pütz, 1998" (red) (BML).

One male paralectotype is partly destroyed (crushed), all extremities and antennae are missing.

**Additional material:**

JAPAN: "Koganezawa-Rindô, Yamanashi-Pref, 29.VI. 1975, S. TSUYUKI leg." (1 ♂, 1 ♀ CPE); "EHIME Pr., West Ravine of Mt. Shiratsue, Matsuyama City, VI-10\_11, 1972, MASAHIRO SAKAI leg." (1 ♀ CPE).

Length: 2.81 - 4.0 mm, width: 1.43 - 1.87 mm.

Colouration: blackish-brown; mouthparts except segment IV of maxillary palpi, antennal segments I and II, femora, tibiae and claws as well as apex of fifth sternite reddish-brown.

Head: frons with short, mostly decumbent, silver-grey hairs; vertex with short, brass-coloured and silver-grey hairs; brass-coloured hairs always slightly arched; genae with longer, decumbent, silver-grey hairs. Labrum trapezoid, separated from clypeus by a fine suture; anterior margin broadly reddish-yellow, finely carinate; upper surface with fine, dense punctation, shagreened, weakly shining. Clypeus semicircular; anterior margin straight, with stronger punctation. Eyes large, oval, strongly convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into a V-shaped furrow. Antennae 11-jointed (CHAMPION 1925: Fig. 4e); besides the short, decumbent, dark basic pubescence with some longer, erected hairs; scapus long, dilated anteriorly; pedicellus oval, shorter than scapus; segment III longest, as long as scapus and pedicellus together, almost parallel-sided, weakly dilated anteriorly; segment IV much shorter than segment III, weakly dilated towards apex; segments V to XI with contracted base, dilated anteriorly, obliquely truncated at apex; antennae of females shorter than of males. Frons deeply impressed between eyes. Labial palpi 3-jointed; segment I very short, triangular; segment II much larger than segment I, contracted at base, strongly dilated anteriorly; segment III very large, bell-shaped. Maxillary palpi 4-jointed; segment I very small; segment II long, dilated anteriorly; segment III shorter, but broader than segment II; segment IV large, spindle-shaped. Mentum transverse, trapezoid; anterior margin straight; upper surface finely shagreened, dull, with very short, grey, decumbent pubescence.

Pronotum: transverse; anterior margin convex, arched, carinate; lateral margins finely carinate; hind angles shortly protruding posteriorly; basal margin centrally with trapezoid emargination, laterally straight. Upper surface of pronotum with decumbent, fine, laterally silver-grey, on disc scarce, gold-brown hairs; shining, very densely punctate, distances of punctures longer than their diameters. Disc distinctly domed, abruptly/steeply sloping towards base, with a very shallow paramedian impression before base.

Prosternum: anterior margin slightly concave; process parallel-sided, before apex with a broad and deep median furrow, apex convex with a short, median tooth. Upper surface with grey, decumbent pubescence, strongly shagreened, dull.

Scutellum: triangular, on plane below that of elytra; with short, decumbent, dark-brown hairs, very densely punctate.

Elytra: elongate, broader than pronotum, lateral margins parallel, completely and finely carinate, lateral margin near the middle somewhat broader. Basal margin with deep median trapezoid impression, laterally straight, strongly serrate and carinate. Anterior angles of elytra each with a very short, hook-like tooth. Shoulders distinct. Elytra with a complete sutural stria and with a posteriorly reduced humeral stria; pubescence consisting of a brass-coloured basic tomentose pubescence and short, silver-grey hairs, which form narrow, transverse lines and some spots; very finely punctate, weakly shining. Macropterous.

Mesosternum: transverse, flat; anterior margin with a deep impression which occupies nearly a third of mesosternum; upper surface strongly shagreened, shining.

Metasternum: in lateral view convex, centrally with a fine longitudinal furrow; metasternal process short, centrally split; upper surface with fine, decumbent, dark pubescence, densely punctate, distances of punctures longer than their diameters, shining.

Legs: reddish-brown, fine, decumbent pubescent. Femora surpassing body length in angled condition. Tibiae longer than femora. Tarsi 5-jointed; tarsomeres I to IV very shortly lobate; tarsomere V longest, not lobate; claws long, scarcely bent.

Abdominal sternites: segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex evenly truncated, before apex with a small, semicircular, strongly punctate, reddish depression; all sternites with fine, decumbent, dark hairs, finely shagreened, weakly shining.

Aedeagus (CHAMPION 1925: Fig. 5h and SATÒ 1966: Fig. 22): phallobasis elongate, in first third before apex broadest, tapering towards base; apex with right half arcuately excised, and with a very short thread-like process. Parameres and median lobe only half as long as phallobasis; parameres slightly longer than median lobe; interior margins shortly concavely excised before apex. Median lobe oblongly somewhat broader; base slightly dilated distally; apex acute.

Differential diagnosis: Externally and genitally, *Cephalobyrrhus japonicus* is similar to *C. schuelkei*. The elytra are distinctly silver-grey striated or spotted in contrast to *C. schuelkei*. The phallobasis of the aedeagus is much more slender in *C. japonicus*.

Distribution (Fig. 19): Japan.

### *Cephalobyrrhus jiangxiensis* sp.n.

Type locality: Jinggang Shan, Jiangxi, China.

**Holotype** ♂: "CHINA Jiangxi W JINGGANG SHAN Ciping env. 2-14.VI.1994" / "HOLOTYPUS, *Cephalobyrrhus jiangxiensis* sp.n., det. A. Pütz, 1998" (red) (NMW). **Paratypes**: 26 exs. with the same locality data as the holotype, and "PARATYPUS, *Cephalobyrrhus jiangxiensis* sp.n., det. A. Pütz, 1997" (red) (CPE, NMW, CASS).

Length: 3.06 - 4.37 mm, width: 1.31 - 1.37 mm.

Colouration: blackish-brown; mouthparts except segment IV of maxillary palpi, antennal segments I and II, femora, tibiae and claws as well as apex of fifth sternite reddish-brown.

Head: with short, decumbent, silver-grey hairs; frons with short, slightly raised, silver-grey and brass-coloured hairs which are always slightly arched. Labrum trapezoid, separated from clypeus by a fine suture; anterior margin narrow, centrally broader, reddish-yellow, carinate; upper surface with strong, dense punctation, distances of punctures shorter than their diameters, weakly shining. Clypeus semicircular; anterior margin straight, with stronger punctation than labrum. Eyes large, oblongly oval, strongly convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into a V-shaped furrow. Antennae 11-jointed; scapus and pedicellus short, with grey, decumbent pubescence, otherwise with short, dark, decumbent and occasionally erected hairs; scapus elongate, strongly dilated anteriorly; pedicellus shorter than scapus, not dilated; segment III longest, as long as scapus and pedicellus together, weakly dilated anteriorly; segment IV shorter than segment III and more strongly built; segment V as long as, but broader than segment IV; segments VI to XI with contracted base, strongly dilated anteriorly, obliquely truncated at apex; segment XI evenly truncated at apex, antennae of females shorter than of males. Frons deeply impressed between eyes. Labial palpi 3-jointed; segment I very short, triangular; segment II much larger than segment I, contracted at base, strongly dilated anteriorly; segment III very large, bell-shaped. Maxillary palpi 4-jointed; segment I very small; segment II long, dilated anteriorly; segment III shorter, but broader than segment II; segment IV large, spindle-shaped. Mentum transverse, trapezoid; anterior margin straight, finely yellow emarginate; upper surface finely shagreened, dull, with very short, grey, decumbent pubescence.

Pronotum: transverse; anterior margin slightly convex, slightly arched, carinate; lateral margins finely carinate; hind angles shortly protruding posteriorly; basal margin centrally with trapezoid

emargination, laterally straight. Upper surface of pronotum with decumbent, fine, grey or brass-coloured hairs; very densely punctate, distances of punctures longer than their diameters, shining. Disc distinctly domed, gradually sloping towards base, with a very shallow paramedian impression before base.

Prosternum: anterior margin concave; process parallel-sided, before apex with a broad and deep median furrow, apex convex with a short, median tooth. Upper surface with dark-brown, decumbent pubescence, shagreened, weakly shining.

Scutellum: triangular, on plane below that of elytra; with short, decumbent, brass-coloured hairs, very densely punctate.

Elytra: elongate, broader than pronotum, in lateral view weakly vaulted, gradually sloping posteriorly, lateral margins anteriorly parallel, completely finely carinate, lateral margin near the middle somewhat broader. Apices very shortly protruding. Basal margin with deep median trapezoid impression, laterally straight, coarsely serrate and carinate. Anterior angles of elytra each with a very short tooth. Shoulders distinct. Elytra with a very fine and complete sutural stria and a posteriorly reduced humeral stria; pubescence consisting of a brass-coloured basic tomentose pubescence and short, silver-grey hairs, which form some small spots; very finely punctate, weakly shining. Macropterous.

Mesosternum: transverse, flat; anterior margin with a deep impression which occupies nearly a third of mesosternum; upper surface strongly shagreened, dull.

Metasternum: in lateral view convex, centrally with a deep, fine longitudinal furrow; metasternal process short, centrally split; upper surface with fine, decumbent, dark pubescence, densely punctate, distances of punctures longer than their diameters, shining.

Legs: reddish-brown, fine, decumbent pubescent. Femora surpassing body length in angled condition. Tibiae longer than femora. Tarsi 5-jointed; tarsomeres I to IV very shortly lobate; tarsomere V longest, not lobate; claws long, scarcely bent.

Abdominal sternites: segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex evenly truncated, before apex with a small, semicircular, stronger punctate, reddish depression; all sternites with fine, decumbent, dark hairs, shagreened, weakly shining.

Aedeagus (Fig. 6): phallobasis long, wide at base, tapering towards apex; apex with right half arcuately excised, and with a very short thread-like process. Parameres and median lobe only half as long as phallobasis; parameres longer than median lobe; interior margins very weakly concavely excised before apex; apices indistinctly rounded, slightly arched interiorly. Median lobe oblongly triangular; base dilated distally; apex acute.

Differential diagnosis: Externally, *Cephalobyrrhus jiangxiensis* resembles *C. bertiae* and *C. emeishanensis*. *Cephalobyrrhus jiangxiensis* possesses the most elongate aedeagus in this group. The aedeagus of *C. emeishanensis* is the most similar, and belongs to a group of species with a more or less parallel-sided phallobasis.

Distribution (Fig. 19): So far known only known from the type locality.

Etymology: named after the Chinese province of Jiangxi.

### *Cephalobyrrhus jinggangshanensis* sp.n.

Type locality: Jinggang Shan, about 290 km SW Nanchang, Jiangxi, China.

Holotype ♂: "CHINA Jiangxi W JINGGANG SHAN Ciping env. 2-14.VI.1994" / "HOLOTYPE, Cephalobyrrhus

jinggangshanensis sp.n., det. A. Pütz, 1998" (red) (NMW). **Paratypes:** 50 exs. with the same locality data as the holotype, and "PARATYPUS, *Cephalobryrhus jinggangshanensis* sp.n., det. A. Pütz, 1997" (red) (CPE, NMW, CASS).

Length: 3.85 - 4.18 mm, width: 1.45 - 1.93 mm.

Colouration: blackish-brown; mouthparts, antennal segments I and II, femora, tibiae, tarsi except apex of the fifth segment and claws as well as apex of fifth sternite reddish-brown.

Head: with short, decumbent, brass-coloured hairs; frons with short, slightly raised, silver-grey and brass-coloured hairs which are always slightly arched. Labrum trapezoid, separated from clypeus by a fine suture; anterior margin narrowly reddish-yellow carinate; upper surface with very fine, dense punctation, distances of punctures shorter than their diameters, weakly shining. Clypeus semicircular; anterior margin straight, with much stronger punctation than labrum. Eyes large, oblongly oval, strongly convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into a V-shaped furrow. Antennae 11-jointed; scapus and pedicellus short, with grey, decumbent pubescence, otherwise with short, dark, decumbent and occasionally erected hairs; scapus dilated anteriorly; pedicellus shorter than scapus; segment III longest, as long as scapus and pedicellus together, weakly dilated anteriorly; segment IV shorter than segment III and more strongly built; segment V as long as, but broader than segment IV; segments VI to XI with contracted base, strongly dilated anteriorly, obliquely truncated at apex; segment XI evenly truncated at apex, antennae of females shorter than of males. Frons deeply impressed between eyes. Labial palpi 3-jointed; segment I very short, triangular; segment II much larger than segment I, contracted at base, strongly dilated anteriorly; segment III very large, bell-shaped. Maxillary palpi 4-jointed; segment I very small; segment II long, dilated anteriorly; segment III shorter, but broader than segment II; segment IV large, spindle-shaped. Mentum transverse, trapezoid; anterior margin straight, broadly yellowish emarginate; upper surface finely shagreened, dull, with very short, grey, decumbent pubescence.

Pronotum: transverse, vaulted; anterior margin convex, arched, carinate; lateral margins distinctly carinate; hind angles shortly protruding posteriorly; basal margin centrally with trapezoid emargination, laterally finely incised, straight. Upper surface of pronotum with decumbent, fine, brass-coloured hairs; very densely punctate, distances of punctures longer than their diameters, shining. Disc distinctly domed, gradually sloping towards base, with a very shallow paramedian impression before base.

Prosternum: anterior margin concave; process parallel-sided, before apex with a broad and deep median furrow, apex convex with a short, median tooth. Upper surface with grey, decumbent pubescence, strongly shagreened, dull.

Scutellum: triangular, on plane below that of elytra; with short, decumbent, brass-coloured hairs, densely punctate.

Elytra: elongate, broader than pronotum, in lateral view weakly vaulted, gradually sloping posteriorly, lateral margins anteriorly parallel, completely finely carinate, lateral margin near the middle somewhat broader. Apices very shortly protruding. Basal margin with deep median trapezoid impression, laterally straight, occasionally coarsely serrate and carinate. Anterior angles of elytra each with a very short tooth. Shoulders weakly developed. Elytra with a very fine and complete sutural stria and a posteriorly reduced, very shallow humeral stria; pubescence consisting of a dark or brass-coloured basic tomentose pubescence and short, silver-grey hairs, which form some small narrow transverse grooves which can also be missing; very finely punctate, weakly shining. Macropterous.

Mesosternum: transverse, flat; anterior margin with a deep impression which occupies nearly a third of mesosternum; upper surface strongly shagreened, dull.

Metasternum: in lateral view convex, centrally with a deep, fine longitudinal furrow; metasternal



process short, centrally split; upper surface with fine, decumbent, dark pubescence, densely punctate, distances of punctures longer than their diameters, shining.

Legs: reddish-brown, fine, decumbent pubescent. Femora surpassing body length in angled condition. Tibiae longer than femora. Tarsi 5-jointed; tarsomeres I to IV very shortly lobate; tarsomere V longest, not lobate; claws long, scarcely bent.

Abdominal sternites: segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex evenly truncated, before apex with a small, semicircular, stronger punctate, reddish depression; all sternites with fine, decumbent, dark hairs, finely shagreened, weakly shining.

Aedeagus (Fig. 7): phallobasis long, parallel-sided, at apex somewhat broader than at base; apex with right half arcuately excised, and with a very short thread-like process. Parameres and median lobe only half as long as phallobasis; parameres longer than median lobe; interior margins concavely excised before apex; apices slightly acute, arched interiorly. Median lobe oblongly triangular; base weakly dilated distally; apex weakly acute.

Differential diagnosis: *Cephalobyrrhus jinggangshanensis* is one of the largest species in this genus together with *C. schuelkei* which it resembles externally. The tomentose pubescence seems to be very variable, the silver-grey transverse striae can be missing occasionally. The aedeagus of the new species belongs to the group of species with more or less parallel-sided phallobasis. *Cephalobyrrhus jinggangshanensis* is the largest and most compactly built species of this group.

Distribution (Fig. 19): So far known only known from the type locality.

Etymology: This species is named after the type locality.

### *Cephalobyrrhus latus* Pic, 1923

*Cephalobyrrhus latus* Pic 1923: 4; CHAMPION 1925: 174-176; SATÔ 1965: 123-124; PUTZ 1991: 132.

Type locality: "Formosa" [= Taiwan].

**Lectotype** ♂ (here designated): "Taiwan, Formosa, IV. (in handwriting with ink)" / "Type" (in handwriting with ink) / "TYPE" (red) / "Museum Paris, Coll. M. Pic, 9304" (number on the underside) / "LECTOTYPUS, *Cephalobyrrhus latus* Pic, 1923, des. A. Pütz, 1997" (red) (MHNP). **Paralectotypes** 2 ♀♀: with the same label data as lectotype and: "Cephalobyrrhus n gen latus n sp" (in handwriting with ink for 1 ♀) / "PARALECTOTYPUS, *Cephalobyrrhus latus* Pic, 1923, des. A. Pütz, 1997" (red) (MHNP).

The only male of the syntype series was selected as lectotype. This specimen is slightly damaged, the body is a bit crushed and the elytra gap open unnaturally.

Additional material:

TAIWAN: "Nihonmatsu, Hokuko, Byoritsu-ken, 10. iV. 1967, T. Shirozu" [= Song-an, Tai-an Hsiang, Miaoli County] (3 exs. CPE); "Wulai, Taipei Hsien, 17. V. 1972, M. Sakai leg." (1 ♂ CPE).

Length: 3.43 - 3.93 mm, width: 1.37 - 1.75 mm.

Colouration: blackish-brown; mouthparts, except segment IV of maxillary palpi, femora, tibiae and claws as well as apex of fifth sternite reddish-brown.

Head: frons with short, mostly decumbent, silver-grey hairs; vertex with short, brass-coloured and silver-grey hairs; genae with longer, decumbent, silver-grey hairs; brass-coloured hairs always slightly arched. Labrum trapezoid, separated from clypeus by a fine suture; anterior margin broadly reddish-yellow, smoothly carinate; upper surface with very fine, dense punctation, shagreened, weakly shining. Clypeus semicircular; anterior margin straight. Eyes large, oval, strongly convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into a V-shaped furrow. Antennae 11-jointed; besides the short, decumbent,

dark pubescence, with some longer, erected hairs; scapus elongate, dilated anteriorly; pedicellus oval, shorter than scapus; segment III longest, as long as scapus and pedicellus together, nearly parallel-sided, weakly dilated anteriorly; segment IV shorter than segment III, scarcely dilated towards apex; segments V to XI with contracted base, dilated anteriorly, obliquely truncated at apex; antennae of females shorter than of males. Frons deeply impressed between eyes. Labial palpi 3-jointed; segment I very short, triangular; segment II much larger than segment I, contracted at base, strongly dilated anteriorly; segment III very large, bell-shaped. Maxillary palpi 4-jointed; segment I very small; segment II long, dilated anteriorly; segment III shorter, but broader than segment II; segment IV large, spindle-shaped. Mentum transverse, trapezoid; anterior margin straight; upper surface finely shagreened, dull, with very short, grey, decumbent pubescence.

Pronotum: transverse; anterior margin convex, arched, carinate; lateral margins finely carinate; hind angles shortly protruding posteriorly; basal margin centrally with a weak trapezoid emargination, laterally straight. Upper surface of pronotum with decumbent, fine, laterally silver-grey, on the disc scarce, gold-brown hairs; shining, densely punctate, distances of punctures as long as their diameters. Disc distinctly domed, abruptly/steeply sloping towards base, with a shallow paramedian impression before base.

Prosternum: anterior margin slightly concave; process parallel-sided, before apex with a broad and deep median furrow, apex convex with a short, median tooth. Upper surface with dark-brown, decumbent pubescence, strongly shagreened, dull.

Scutellum: triangular, on plane below that of elytra; with short, decumbent, gold-brown hairs, densely punctate.

Elytra: elongate, broader than pronotum, lateral margins anteriorly parallel, completely carinate, lateral margin near the middle somewhat broader. Apices shortly protruding. Basal margin with deep median trapezoid impression, laterally straight, finely serrate and carinate. Anterior angles of elytra each with a short, hook-like tooth. Shoulders distinct. Elytra with a complete sutural stria and each with a posteriorly reduced basal and humeral stria; pubescence consisting of a brass-coloured basic tomentose pubescence and short, silver-grey hairs, which form numerous, narrow longitudinal and transverse striae; very finely punctate, weakly shining. Macropterous.

Mesosternum: transverse, flat; anterior margin with a deep impression which occupies nearly a third of mesosternum; upper surface strongly shagreened, dull.

Metasternum: in lateral view convex, centrally with a deep, fine longitudinal furrow; metasternal process short, centrally split; upper surface with fine, decumbent, dark pubescence, densely punctate, distances of punctures longer than their diameters, shining.

Legs: reddish-brown, fine, decumbent pubescent. Femora surpassing body length in angled condition. Tibiae longer than femora. Tarsi 5-jointed; tarsomeres I to IV very shortly lobate; tarsomere V longest, not lobate; claws long, scarcely bent.

Abdominal sternites: segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex evenly truncated, before apex with a semicircular, stronger punctate, reddish depression; all sternites with fine, decumbent, dark hairs, very densely punctate, distances of punctures longer than their diameters, finely shagreened, weakly shining.

Aedeagus (Fig. 8): phallobasis elongate, in first third before apex broadest, gradually tapering towards apex; apex with right half arcuately excised, and with a very short thread-like process. Parameres and median lobe only half as long as phallobasis; parameres somewhat longer than median lobe; interior margins shortly concavely excised before apex; median lobe oblongly slender; base weakly dilated distally; apex acute.

Differential diagnosis: *Cephalobyrrhus latus* is characterised by a long, compact and parallel-

sided habitus. Externally, *C. latus* resembles *C. bertiae*, *C. emeishanensis* and *C. jiangxiensis*. It can safely be distinguished from all other species by its aedeagus. The aedeagus is similar to *C. bertiae*. The phallobasis is distinctly broader at the base than at the apex in both species, in *C. jiangxiensis* the base of the phallobasis is only insignificantly broader, the same in *C. gibbicollis*.

Distribution (Fig. 19): Taiwan. According to M.-L. Jeng (e-mail of 7.XI.1997) this species is "very common in Taiwan", at elevations from 200 - 2000 m a.s.l.

### *Cephalobyrrhus longipalpis* sp.n.

Type locality: Jिंगgang Shan, Jiangxi, China.

**Holotype** ♂: "CHINA Jiangxi W JINGGANG SHAN Ciping env. 2-14.VI.1994" / "HOLOTYPUS, *Cephalobyrrhus longipalpis* sp.n., det. A. Pütz, 1998" (red) (NMW).

Length: 3.06 mm, width: 1.37 mm.

Colouration: blackish-brown; mouthparts except segment IV of maxillary palpi, antennal segment II, femora, tibiae and claws as well as apex of fifth sternite reddish-brown.

Head: with short, decumbent, brass-coloured hairs; frons with short, slightly raised, silver-grey and brass-coloured hairs which are always slightly arched. Labrum trapezoid, separated from clypeus by a fine suture; anterior margin narrow, centrally somewhat broader, reddish-yellow carinate; upper surface with very fine, dense punctation, distances of punctures shorter than their diameters, weakly shining. Clypeus semicircular; anterior margin straight, with much stronger punctation than labrum. Eyes large, oblongly oval, strongly convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into a V-shaped furrow. Antennae 11-jointed; scapus and pedicellus short, with grey, decumbent pubescence, otherwise with short, dark, decumbent and occasionally erected hairs; scapus elongate, dilated anteriorly; pedicellus shorter than scapus; segment III longest, as long as scapus and pedicellus together, weakly dilated anteriorly; segment IV shorter than segment III and more strongly built; segment V as long as, but broader than segment IV; segments VI to XI with contracted base, strongly dilated anteriorly, obliquely truncated at apex; segment XI evenly truncated at apex. Frons deeply impressed between eyes. Labial palpi 3-jointed; segment I very short, triangular; segment II much larger than segment I, contracted at base, strongly dilated anteriorly; segment III very large, bell-shaped. Maxillary palpi 4-jointed; segment I very small; segment II long, weakly dilated anteriorly; segment III much shorter, but more robust than segment II; segment IV elongate, spindle-shaped (Fig. 17). Mentum transverse, trapezoid; anterior margin straight, finely yellowish emarginate; upper surface finely shagreened, dull, with very short, grey, decumbent pubescence.

Pronotum: transverse; anterior margin convex, slightly arched, carinate; lateral margins carinate; hind angles shortly protruding posteriorly; basal margin centrally with trapezoid emargination, laterally straight. Upper surface of pronotum with decumbent, fine, brass-coloured hairs; very densely punctate, distances of punctures longer than their diameters, shining. Disc weakly domed, gradually sloping towards base, with a very shallow paramedian impression before base.

Prosternum: anterior margin concave; process parallel-sided, before apex with a broad and deep median furrow, apex convex with a short, median tooth. Upper surface with dark-brown, decumbent pubescence, shagreened, dull.

Scutellum: triangular, on plane below that of elytra; with short, decumbent, brass-coloured hairs, densely punctate.

Elytra: elongate, broader than pronotum, in lateral view weakly vaulted, gradually sloping posteriorly, lateral margins anteriorly parallel, completely finely carinate, lateral margin near

the middle somewhat broader. Apices very shortly protruding. Basal margin with deep median trapezoid impression, laterally straight, occasionally coarsely serrate and carinate. Anterior angles of elytra each with a very short tooth. Shoulders weakly developed. Elytra with a fine, at the base more distinct and complete sutural stria and a posteriorly reduced humeral stria; pubescence consisting of a brass-coloured basic tomentose pubescence and short, silver-grey hairs, which form some spots; very finely punctate, weakly shining. Macropterous.

Mesosternum: transverse, flat; anterior margin with a deep impression which occupies nearly a third of mesosternum; upper surface shagreened, dull.

Metasternum: in lateral view convex, centrally with a deep, fine longitudinal furrow; metasternal process short, centrally split; upper surface with fine, decumbent, dark pubescence, densely punctate, distances of punctures longer than their diameters, shining.

Legs: reddish-brown, fine, decumbent pubescent. Femora surpassing body length in angled condition. Tibiae longer than femora. Tarsi 5-jointed; tarsomeres I to IV very shortly lobate; tarsomere V longest, not lobate; claws long, scarcely bent.

Abdominal sternites: segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex evenly truncated, before apex with a small, semicircular, stronger punctate, reddish depression; all sternites with fine, decumbent, dark hairs, finely shagreened, weakly shining.

Aedeagus (Fig. 9): phallobasis long, before apex somewhat narrower than at base; apex with right half arcuately excised, and with a very short thread-like process. Parameres and median lobe only half as long as phallobasis; parameres longer than median lobe; interior margins scarcely concavely excised before apex; apices slightly arched interiorly. Median lobe oblongly triangular; base weakly dilated distally; apex weakly acute.

Differential diagnosis: *Cephalobyrrhus longipalpis* resembles the species with an elongate, oval habitus and is related to *C. brevipalpis* in view of its genitalia. The aedeagi of both species are similar. The parameres of the new species are more slender, however the last segment of the maxillary palpi is longer and more slender built.

Distribution (Fig. 19): So far known only from the type locality.

Etymology: The name *longipalpis* refers to the long and slender fourth segment of the maxillary palpi compared to *C. brevipalpis*.

### *Cephalobyrrhus nepalensis* sp.n.

Type locality: Dobang, Myagdi, Nepal.

**Holotype** ♂: "Nepal, 465, Myagdi Distr., Myagdi Khola, Dobang, 2400m, 25.V.1995, MARTENS & SCHAWALLER" / "HOLOTYPUS, *Cephalobyrrhus nepalensis* sp.n., det. A. Pütz, 1997" (red) (NMS). **Paratype** ♀: with the same locality data as holotype and "PARATYPUS, *Cephalobyrrhus nepalensis* sp.n., det. A. Pütz, 1997" (red) (NMS).

Length: 3.00 mm, width: 1.56 mm.

Colouration: blackish-brown; mouthparts except segment IV of maxillary palpi, antennal segment II, femora, tibiae and claws, tarsi with the exception of segments II to V as well as apex of fifth sternite reddish-brown.

Head: with short, mostly decumbent, silver-grey hairs; frons with short, slightly raised, silver-grey and brass-coloured hairs which are always slightly arched. Labrum trapezoid, separated from clypeus by a fine suture; anterior margin narrow, reddish-yellow carinate; upper surface with fine, dense punctation, distances of punctures shorter than their diameters, weakly shining. Clypeus semicircular; anterior margin straight, with much stronger punctation than labrum.

Eyes large, oblongly oval, strongly convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into a V-shaped furrow. Antennae 11-jointed; scapus and pedicellus short, with grey, decumbent pubescence, otherwise with short, dark, decumbent and occasionally erected hairs; scapus elongate, dilated anteriorly; pedicellus shorter than scapus; segment III longest, as long as scapus and pedicellus together, weakly dilated anteriorly; segment IV shorter than segment III and more strongly built; segment V as long as, but broader than segment IV; segments VI to XI with contracted base, strongly dilated anteriorly, obliquely truncated at apex; segment XI evenly truncated at apex. Frons deeply impressed between eyes. Labial palpi 3-jointed; segment I very short, triangular; segment II much larger than segment I, contracted at base, strongly dilated anteriorly; segment III very large, bell-shaped. Maxillary palpi 4-jointed; segment I very small; segment II long, weakly dilated anteriorly; segment III much shorter, but more robust than segment II; segment IV elongate, spindle-shaped. Mentum transverse, trapezoid; anterior margin straight, finely yellow-reddish emarginate; upper surface finely shagreened, dull, with very short, grey, decumbent pubescence.

Pronotum: transverse; anterior margin convex, slightly arched, carinate; lateral margins carinate; hind angles shortly protruding posteriorly; basal margin centrally with trapezoid emargination, laterally straight. Upper surface of pronotum with decumbent, fine, brass-coloured hairs; very densely punctate, distances of punctures longer than their diameters, shining. Disc weakly domed, gradually sloping towards base, with a very shallow paramedian impression before base.

Prosternum: anterior margin concave; process parallel-sided, before apex with a broad and deep median furrow, apex convex with a short, median tooth. Upper surface with dark-brown, decumbent pubescence, shagreened, dull.

Scutellum: triangular, on plane below that of elytra; with short, decumbent, brass-coloured hairs, densely punctate.

Elytra: elongate, broader than pronotum, in lateral view weakly vaulted, gradually sloping posteriorly, lateral margins parallel, completely finely carinate, lateral margin near the middle somewhat broader. Apices distinctly protruding. Basal margin with deep median trapezoid impression, laterally straight, occasionally coarsely serrate and carinate. Anterior angles of elytra each with a very short tooth. Shoulders weakly developed. Elytra with a complete sutural stria and a posteriorly reduced basal and humeral stria, basal stria only weakly visible; pubescence consisting of a brass-coloured basic tomentose pubescence and short, silver-grey hairs, which form some transverse lines; very finely punctate, weakly shining. Macropterous.

Mesosternum: transverse, flat; anterior margin with a deep impression which occupies nearly a third of mesosternum; upper surface shagreened, dull.

Metasternum: in lateral view convex, centrally with a deep, fine longitudinal furrow; metasternal process short, centrally split; upper surface with fine, decumbent, dark pubescence, densely punctate, distances of punctures longer than their diameters, shagreened, weakly shining.

Legs: reddish-brown, fine, decumbent pubescent. Femora surpassing body length in angled condition. Tibiae longer than femora. Tarsi 5-jointed; tarsomeres I to IV very shortly lobate; tarsomere V longest, not lobate; claws long, scarcely bent.

Abdominal sternites: segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex evenly truncated, before apex with a larger, semicircular, stronger punctate, reddish depression; all sternites with fine, decumbent, dark hairs, finely shagreened, weakly shining.

Aedeagus (Fig. 10): phallobasis long, before apex somewhat narrower than at base; apex with right half arcuately excised, and with a very short thread-like process. Parameres and median lobe only half as long as phallobasis; parameres longer than median lobe; interior margins weakly

concavely excised before apex; apices slightly arched interiorly. Median lobe oblongly triangular; base weakly dilated distally; apex weakly acute.

Differential diagnosis: Externally, *Cephalobyrrhus nepalensis* is similar to *C. sichuanensis*. The new species however is on an average smaller and more delicately built. The eyes are much stronger vaulted in *C. nepalensis*.

Distribution (Fig. 19): So far known only known from the type locality.

### *Cephalobyrrhus schillhammeri* sp.n.

Type locality: Emeishan, Sichuan, China.

**Holotype** ♂: "CHINA: Sichuan Emei Shan VI. 1992" / "HOLOTYPUS, *Cephalobyrrhus schillhammeri* sp.n., det. A. Pütz, 1998" (red) (NMW). **Paratypes** 2 ♀: "CHINA: Sichuan Emeishan 160km SSW Chengdu / 1530m (4a) 22.6.1994 leg. Schillhammer (4a)" (CWBS loc. 52) / "PARATYPUS, *Cephalobyrrhus schillhammeri* sp.n., det. A. Pütz, 1998" (red) (NMW, CASS).

Length: 3.31 - 3.75 mm, width: 1.37 - 1.56 mm.

Colouration: blackish-brown; mouthparts except segment IV of maxillary palpi, antennal segment II, femora, tibiae and claws, tarsi with the exception of segments II-V as well as apex of fifth sternite reddish-brown.

Head: with short, decumbent, brass-coloured hairs; frons with short, slightly raised, silver-grey and brass-coloured hairs which are always slightly arched. Labrum trapezoid, separated from clypeus by a fine suture; anterior margin narrow, centrally somewhat broader, reddish-yellow carinate; upper surface with very fine, dense punctation, distances of punctures sometimes shorter than their diameters, weakly shining. Clypeus semicircular; anterior margin straight, with much stronger punctation than labrum. Eyes large, oblongly oval, strongly convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into a V-shaped furrow. Antennae 11-jointed; scapus and pedicellus short, with grey, decumbent pubescence, otherwise with short, dark, decumbent and occasionally erected hairs; scapus elongate, dilated anteriorly; pedicellus shorter than scapus, at the base of the same width as scapus, slightly narrower anteriorly; segment III longest, as long as scapus and pedicellus together, weakly dilated anteriorly; segment IV shorter than segment III and more strongly built; segment V as long as, but broader than segment IV; segments VI to XI with contracted base, strongly dilated anteriorly, obliquely truncated at apex; segment XI evenly truncated at apex; Antennae of females shorter than of males. Frons deeply impressed between eyes. Labial palpi 3-jointed; segment I very short, triangular; segment II much larger than segment I, contracted at base, strongly dilated anteriorly; segment III very large, bell-shaped. Maxillary palpi 4-jointed; segment I very small; segment II long, dilated anteriorly; segment III shorter, but broader than segment II; segment IV very large, spindle-shaped (Fig. 18). Mentum transverse, trapezoid; anterior margin straight, finely yellow-reddish emarginate; upper surface finely shagreened, dull, with very short, grey, decumbent pubescence.

Pronotum: transverse; anterior margin convex, slightly arched, carinate; lateral margins distinctly carinate; hind angles shortly protruding posteriorly; basal margin centrally with trapezoid emargination, laterally straight. Upper surface of pronotum with decumbent, fine, brass-coloured hairs; very densely punctate, distances of punctures longer than their diameters, shining. Disc weakly domed, gradually sloping towards base, with a very shallow paramedian impression before base.

Prosternum: anterior margin concave; process parallel-sided, before apex with a broad and deep median furrow, apex convex with a short, median tooth. Upper surface with dark or gold-brown pubescence decumbent, strongly shagreened, dull.

Scutellum: triangular, on plane below that of elytra; with, short, decumbent, gold-brown pubescence, very densely punctate.

Elytra: elongate, broader than pronotum, in lateral view weakly vaulted, gradually sloping posteriorly, lateral margins parallel, completely and finely carinate, lateral margin near the middle somewhat broader. Basal margin with deep median trapezoid impression, laterally straight, coarsely serrate and carinate. Anterior angles of elytra each with a very short tooth. Shoulders distinct. Elytra with a very fine and complete sutural stria and each with a posteriorly reduced basal and humeral stria; pubescence consisting of a dark or brass-coloured basic tomentose pubescence and short, silver-grey hairs, which form irregular spots; very finely punctate, weakly shining. Macropterous.

Mesosternum: transverse, flat; anterior margin with a deep, impression which occupies nearly a third of mesosternum; upper surface strongly shagreened, dull.

Metasternum: in lateral view convex, centrally with a deep, fine longitudinal furrow; metasternal process short, centrally split; upper surface with fine, decumbent, dark pubescence, densely punctate, distances of punctures as longer than their diameters, shining.

Legs: reddish-brown, fine, decumbent pubescent. Femora surpassing body length in angled condition. Tibiae longer than femora. Tarsi 5-jointed; tarsomeres I to IV very shortly lobate; tarsomere V longest, not lobate; claws long, scarcely bent.

Abdominal sternites: segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex evenly truncated, before apex with a semicircular, stronger punctate, reddish depression; all sternites with fine, decumbent, grey hairs, finely shagreened, weakly shining.

Aedeagus (Fig. 11): phallobasis long, parallel-sided, about 2.5 times as long as parameres, at apex slightly narrowing; apex with right half arcuately excised, and with a very short thread-like process. Parameres and median lobe less than half as long as phallobasis; parameres longer than median lobe; interior margins slightly gape open before apex; apices nearly rounded. Median lobe oblongly triangular, narrow; base weakly dilated distally; apex acute.

Differential diagnosis: *Cephalobyrrhus schillhammeri* resembles the species with an elongate, oval habitus and is related to *C. jaechi* because of its typical genitalia. Very remarkable is the elongate aedeagus with the very long and bulbous phallobasis. The last segment of the maxillary palpi of *C. schillhammeri* is somewhat shorter and more cumbersome compared to *C. jaechi*.

Distribution (Fig. 19): So far known only known from the type locality.

Etymology: Dedicated to the specialist of Staphylinidae, Mr. Harald Schillhammer (NMW) who collected the new species.

### *Cephalobyrrhus schuelkei* sp.n.

Type locality: Opposite slope of Qingcheng Shan, about 65 km NW Chengdu, Sichuan, China.

**Holotype** ♂: "CHINA: Sichuan (16), Qingcheng-Shan, NW Chengdu, 1000-1200m, 30.55N, 103.35E, 3.06.1997, M. Schülke" / "HOLOTYPUS, *Cephalobyrrhus schuelkei* sp.n., det. A. Pütz, 1997" (red) (CPE). **Paratype** ♀: with the same locality data as holotype and "PARATYPUS, *Cephalobyrrhus schuelkei* sp.n., det. A. Pütz, 1997" (red) (CPE).

Length: 3.43 - 4.06 mm, width: 1.50 - 1.75 mm.

Colouration: black-brown; mouthparts, antennal segments I to III, legs except tarsi and apex of fifth sternite reddish-brown.

Head: frons with short, mostly decumbent, silver-grey hairs; vertex with slightly raised, brass-

coloured and silver-grey hairs; brass-coloured hairs always slightly arched. Labrum trapezoid, separated from clypeus by a fine suture; anterior margin narrow, centrally somewhat broader, reddish-yellow, carinate; upper surface with very fine, dense punctation, distances of punctures smaller than their diameters, weakly shining. Clypeus semicircular; anterior margin straight, with much stronger punctation than labrum. Eyes large, elongate oval, strongly convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into a V-shaped furrow. Antennae 11-jointed; scapus and pedicellus short, with decumbent, yellowish hairs otherwise with short, dark, decumbent and sometimes erected hairs; scapus elongate, weakly dilated anteriorly; pedicellus shorter than scapus; segment III longest, as long as scapus and pedicellus together, weakly dilated anteriorly; segment IV shorter than segment III, somewhat stronger built; segment V as long as, but broader than segment IV; segments VI to XI with contracted base, strongly dilated anteriorly, obliquely truncated at apex; segment XI evenly truncated at apex; antenna of female shorter than of male. Frons deeply impressed between eyes. Labial palpi 3-jointed; segment I very short, triangular; segment II much larger than segment I, contracted at base, strongly dilated anteriorly; segment III very large, bell-shaped. Maxillary palpi 4-jointed; segment I very small; segment II long, dilated anteriorly; segment III shorter, but broader than segment II; segment IV large, spindle-shaped. Mentum transverse, trapezoid; anterior margin straight, finely yellowish carinate; upper surface finely shagreened, dull, with very short, grey, decumbent pubescence.

Pronotum: transverse; anterior margin convex, slightly arched, carinate; lateral margins distinctly carinate; hind angles shortly protruding posteriorly; basal margin centrally with trapezoid emargination, laterally straight. Upper surface of pronotum with decumbent, fine, brass-coloured hairs; very densely punctate, distances of punctures longer than their diameters, shining. Disc weakly domed, gradually sloping towards base, with a very shallow paramedian impression before base.

Prosternum: anterior margin concave; process parallel-sided, before apex with a broad and deep median furrow, apex convex with a short, median tooth. Upper surface with dark or gold-brown, decumbent pubescence, strongly shagreened, dull.

Scutellum: triangular, on plane below that of elytra; with short, decumbent, gold-brown hairs, densely punctate.

Elytra: elongate, broader than pronotum, in lateral view weakly vaulted, gradually sloping posteriorly, lateral margins parallel, completely and finely carinate, lateral margin near the middle somewhat broader. Basal margin with deep median trapezoid impression, laterally straight, occasionally coarsely serrate and carinate. Anterior angles of elytra each with a very short tooth. Shoulders distinct. Elytra with a very fine and complete sutural stria and with a posteriorly reduced humeral stria; pubescence consisting of a dark or brass-coloured basic tomentose pubescence and short, silver-grey hairs, which form some narrow, transverse lines; very finely punctate, weakly shining. Macropterous.

Mesosternum: transverse, flat; anterior margin with a deep impression which occupies nearly a third of mesosternum; upper surface strongly shagreened, shining.

Metasternum: in lateral view convex, centrally with a deep, fine longitudinal furrow; metasternal process short, centrally split; upper surface with fine, decumbent, dark pubescence, densely punctate, distances of punctures longer than their diameters, shining.

Legs: reddish-brown, fine, decumbent pubescent. Femora surpassing body length in angled condition. Tibiae longer than femora. Tarsi 5-jointed; tarsomeres I to IV very shortly lobate; tarsomere V longest, not lobate; claws long, scarcely bent.

Abdominal sternites: segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex evenly



truncated, before apex with a semicircular, strongly punctate, reddish depression; all sternites with fine, decumbent, dark hairs, finely shagreened, weakly shining.

**Aedeagus** (Fig. 12): phallobasis long, anteriorly parallel-sided, widening towards apex; apex with right half arcuately excised, and with a very short thread-like process. Parameres and median lobe only half as long as phallobasis; parameres longer than median lobe; interior margins weakly concavely excised before apex; apices broadly rounded, slightly arched interiorly. Median lobe elongate triangular; base dilated distally; apex acute.

**Differential diagnosis:** Externally, *Cephalobyrrhus schuelkei* resembles *C. japonicus*. The new species is the largest known species in the genus. The upper surface is uniformly reddish-brown pubescent in contrast to all other species, the elytra have only very few silver-grey transverse lines. The aedeagus of the new species is characterised by the phallobasis being basally bulbously dilated. The phallobasis of *C. japonicus* is also very broadly and clumsily built, but on the other hand significantly more slender than that of *C. schuelkei*.

**Distribution** (Fig. 19): So far known only known from the type locality.

**Habitat:** The material was presumably collected at a partly shady, about 0.5 m broad creek in a dense secondary forest (bamboo) by sifting damp humus.

**Etymology:** Dedicated to my expedition companion, the Staphylinidae expert, Michael Schülke (Berlin) who collected this species and who generously gave it to me.

### *Cephalobyrrhus sichuanensis* sp.n.

**Type locality:** river bank, approximately 30 m wide, covered by *Salix*-bushes and consisting of very fine alluvial sand, 2100 m a.s.l., ca. 1 km above camp I, Hailougou Glacier Park, about 11 km east of Moximian, Sichuan, China.

**Holotype** ♂: "China, Sichuan, Daxue Shan, Gongga Shan Mt., Hailougou Glacier Park, 102.04E, 29.36N, river valley ca. 1 km above Camp I, 2100 m, 28./31.V.1997, leg. A. Pütz" / "HOLOTYPE, *Cephalobyrrhus sichuanensis* sp.n., det. A. Pütz, 1997" (red) (CPE). **Paratypes:** with the same locality data as holotype (2 ♂♂, 1 ♀ CPE); "CHINA: Sichuan Emeishan 160km SSW Chengdu / Fairy Peak Mon. 1700m, 21.6.1994 leg. Schillhammer (3)" (CWBS loc. 50) (1 ♂ NMW); "CHINA: Sichuan Emeishan 160km SSW Chengdu / 860m 23.6.1994 leg. Ji (6)" (CWBS loc. 55) (1 ♀ CASS) / "PARATYPEPUS, *Cephalobyrrhus sichuanensis* sp.n., det. A. Pütz, 1998" (red).

**Length:** 3.21 - 4.06 mm, width: 1.31 - 1.75 mm.

**Colouration:** blackish-brown; mouthparts except segment IV of maxillary palpi, antennal segments I and II, legs, pedicellus and apex of fifth sternite reddish-brown.

**Head:** with short, slightly raised, silver-grey hairs; vertex with short, brass-coloured and silver-grey hairs, brass-coloured hairs always slightly arched. Labrum trapezoid, separated from clypeus by a fine suture; anterior margin narrow, yellowish carinate; upper surface with dense punctation, distances of punctures shorter than their diameters. Clypeus semicircular; anterior margin straight, with stronger punctation than labrum. Eyes large, oblongly oval, strongly convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into a V-shaped furrow. Antennae 11-jointed; shortly, black, decumbent and occasionally erected pubescent; scapus elongate, dilated anteriorly, pedicellus shorter than scapus, segment III longest, as long as scapus and pedicellus together, nearly parallel-sided, weakly dilated anteriorly; segment IV much shorter than segment III; segments V and VI as long as, but broader than segment IV; segments VII to XI with contracted base, dilated anteriorly, obliquely truncated at apex; antennae of females shorter than of males. Frons deeply impressed between eyes. Labial palpi 3-jointed; segment I very short, triangular; segment II much larger than segment I, contracted at base, strongly dilated anteriorly; segment III very large, bell-shaped. Maxillary palpi 4-jointed; segment I very small; segment II long, dilated anteriorly; segment III shorter, but broader than

segment II; segment IV large, spindle-shaped. Mentum transverse, trapezoid; anterior margin straight; upper surface finely shagreened, dull, with very short, grey, decumbent pubescence.

Pronotum: transverse; anterior margin convex, arched, carinate; lateral margins distinctly carinate; hind angles shortly protruding posteriorly; basal margin centrally with trapezoid emargination, laterally straight. Upper surface of pronotum with decumbent, fine, laterally silver-grey, on disc gold-brown hairs; shining, densely punctate, distances of punctures as long as or longer than their diameters. Disc distinctly domed, abruptly/steeply sloping towards base, with a very shallow paramedian impression before base.

Prosternum: anterior margin slightly concave; process parallel-sided, before apex with a broad and deep median furrow, apex convex with a short, median tooth. Upper surface with dark-brown, decumbent pubescence, strongly shagreened, dull.

Scutellum: triangular, on plane below that of clytra; with short, decumbent, gold-brown pubescence, densely punctate.

Elytra: elongate, broader than pronotum, in lateral view weakly vaulted, gradually sloping posteriorly, lateral margins anteriorly parallel, completely finely carinate, lateral margin near the middle somewhat broader. Apices very shortly protruding. Basal margin with deep median trapezoid impression, laterally straight, finely serrate and carinate. Anterior angles of clytra each with a short tooth. Shoulders distinct. Elytra with a very fine and complete sutural stria and a posteriorly reduced humeral stria; pubescence consisting of a brass-coloured basic tomentose pubescence and short, silver-grey hairs, which form numerous, narrow transverse lines; very finely punctate, weakly shining. Macropterous.

Mesosternum: transverse, flat; anterior margin with a deep impression which occupies nearly a third of mesosternum; upper surface strongly shagreened, dull.

Metasternum: in lateral view slightly convex, centrally with a deep, complete longitudinal furrow; metasternal process short, centrally split; upper surface with fine, decumbent, grey pubescence, very densely punctate, distances of punctures longer than their diameters, shining.

Legs: reddish-brown, fine, decumbent pubescent. Femora surpassing body length in angled condition. Tibiae longer than femora. Tarsi 5-jointed; tarsomeres I to IV very shortly lobate; tarsomere V longest, not lobate; claws long, scarcely bent.

Abdominal sternites: segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex evenly truncated, before apex with a larger, semicircular, stronger punctate, reddish depression; all sternites with fine, decumbent, grey hairs, finely shagreened, weakly shining.

Aedeagus (Fig. 13): phallobasis long, more or less parallel-sided; apex with right half arcuately excised, and with a very short thread-like process. Parameres and median lobe half as long as phallobasis; parameres longer than median lobe; interior margins slightly concavely excised before apex; apices rounded, arched interiorly. Median lobe oblongly triangular; base weakly dilated distally; apex weakly acute.

Differential diagnosis: Externally, *Cephalobyrrhus sichuanensis* resembles *C. nepalensis*. The new species is on average more largely and compactly built. The eyes are less strongly convex in *C. sichuanensis*.

Distribution (Fig. 19): Recorded from Sichuan (Gongga Shan and Emei Shan). Both localities are only about 130 km bee-line away from each other.

Habitat: The specimens were observed at Gongga Shan running on a broad, sandy river bank also at shady places.

Etymology: Named after the Chinese province of Sichuan.

***Cephalobyrrhus subelongatus* PIC, 1923***Cephalobyrrhus subelongatus* PIC 1923: 4; CHAMPION 1925: 174-176.

Type locality: Sikkim.

**Holotype** ♂: "Sikkim, März, April, II. Fruhstorfer" / "Type" (in handwriting with ink) / "TYPE" (red) / "Museum Paris, Coll. M. Pic, 9304" (number on underside) / "Cephalobyrrhus n gen subelongatus n sp" (in handwriting with ink) / "HOLOTYPE, *Cephalobyrrhus subelongatus* Pic, 1923, des. A. Pütz, 1997" (red) (MHNP).

Additional material:

NEPAL (Mechi): "351, Taplejung Distr., Yamputhin, cultural land, open forest, 1650-1800 m, 26. Apr - 1. May 1988, J. MARTENS &amp; W. SCHAWALLER leg." (1 ♂ MNS).

Length: 3.12 - 3.18 mm, width: 1.31 - 1.37 mm.

Colouration: blackish-brown; mouthparts except terminal segments of maxillary palpi, antennal segment II, legs and apex of fifth sternite reddish-brown; legs infusate.

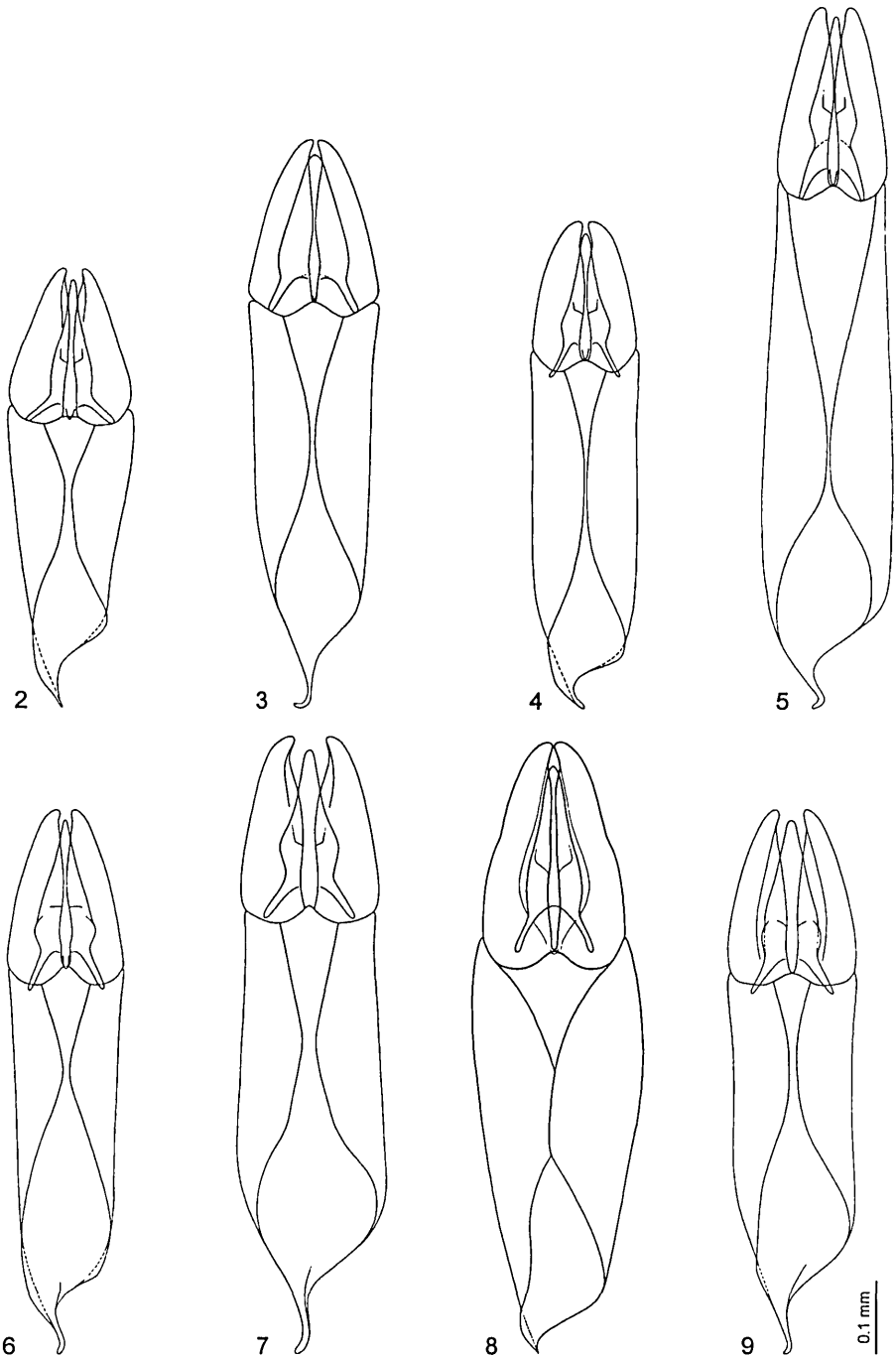
Head: frons and vertex with short, brass-coloured and silver-grey hairs; genae with longer, decumbent, silver-grey hairs; brass-coloured hairs always slightly arched. Labrum trapezoid, separated from clypeus by a fine suture; anterior margin narrow, yellowish, smoothly carinate; upper surface with very dense punctation, shagreened, weakly shining. Clypeus semicircular; anterior margin straight. Eyes large, oval, strongly convex. Antennae inserting before frons, at some distance from the eyes, insertion anteriorly extending into a V-shaped furrow. Antennae 11-jointed; besides the short, decumbent, dark basic pubescence with some longer, erected hairs; scapus elongate, dilated anteriorly; pedicellus oval, shorter and narrower than scapus; segment III longest, as long as scapus and pedicellus together, nearly parallel-sided, weakly dilated anteriorly; segment IV and V shorter than segment III, slightly dilated towards apex; segments VI to XI with contracted base, dilated anteriorly, obliquely truncated at apex. Frons somewhat impressed between eyes. Labial palpi 3-jointed; segment I very short, triangular; segment II much larger than segment I, contracted at base, strongly dilated anteriorly; segment III very large, bell-shaped. Maxillary palpi 4-jointed; segment I very small; segment II long, dilated anteriorly; segment III shorter, but broader than segment II; segment IV large, spindle-shaped. Mentum transverse, trapezoid; anterior margin straight; upper surface finely shagreened, dull, with very short, decumbent, grey pubescence.

Pronotum: transverse; anterior margin convex, finely arched, carinate; lateral margins finely carinate; hind angles shortly protruding posteriorly; basal margin centrally with weak trapezoid emargination, laterally straight. Upper surface of pronotum with decumbent, fine, laterally silver-grey, on disc scarce gold-brown hairs; shining, densely punctate, distances of punctures longer than their diameters. Disc distinctly domed, abruptly/steeply sloping towards base, with a very shallow paramedian impression before base.

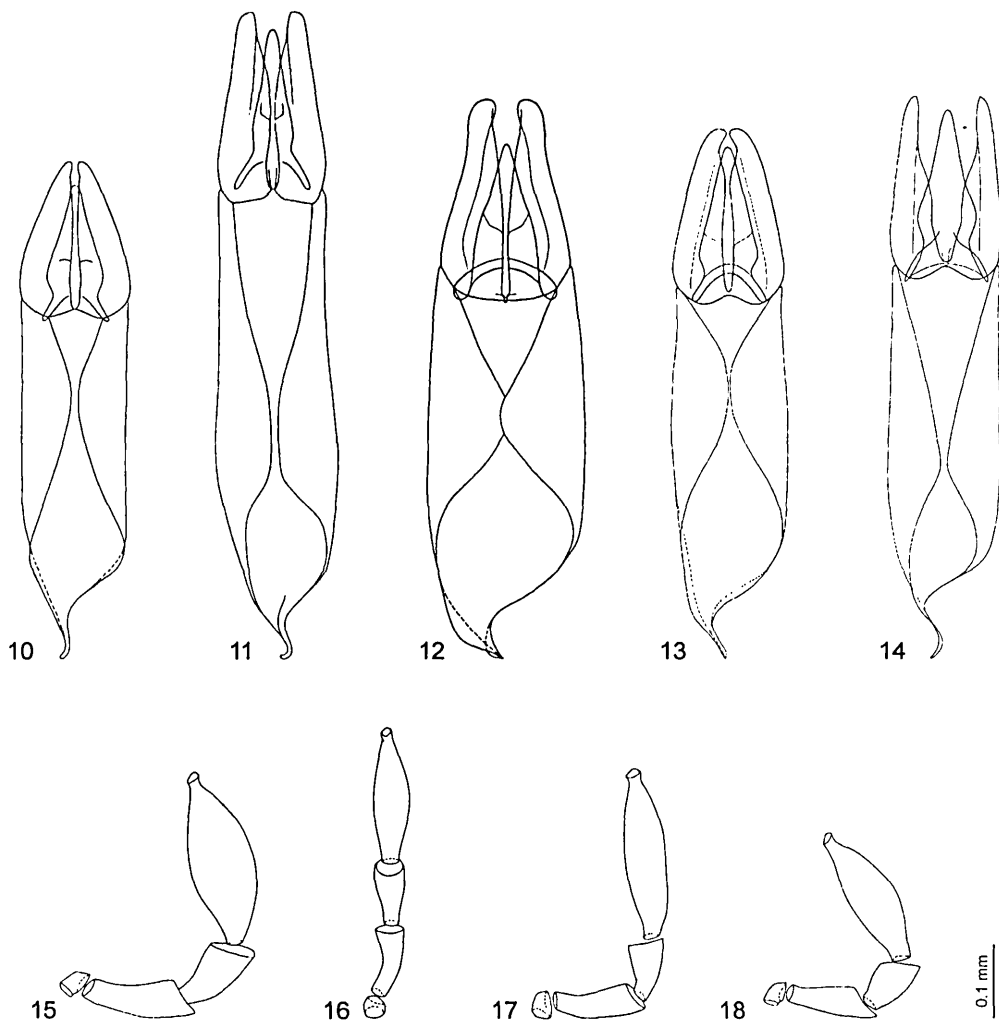
Prosternum: anterior margin slightly concave; process parallel-sided, before apex with a broad and deep median furrow, apex convex with a short, median tooth. Upper surface with fine, decumbent, dark-brown pubescence, strongly shagreened, dull.

Scutellum: triangular, on plane below that of clytra; with short, decumbent, dark-brown hairs, densely punctate.

Elytra: elongate, broader than pronotum, lateral margins parallel, completely and finely carinate, lateral margin near the middle somewhat broader. Basal margin with deep median trapezoid impression, laterally straight, finely serrate and carinate. Anterior angles of elytra each with a very short, hook-like tooth. Shoulders distinct. Elytra with a very fine, posteriorly partly inconspicuous sutural stria and with a posteriorly reduced, distinct humeral stria; pubescence consisting of a brass-coloured basic tomentose pubescence and short, silver-grey hairs, which form numerous, narrow, transverse lines; very finely punctate, weakly shining. Macropterous.



Figs. 2 - 9: Acedeagus, dorsal view of 2) *Cephalobyrrhus bertiae*, holotype, 3) *C. brevipalpis*, holotype, 4) *C. emeishanensis*, holotype, 5) *C. jaechi*, holotype, 6) *C. jiangxiensis*, holotype, 7) *C. jinggangshanensis*, holotype, 8) *C. latus*, lectotype, 9) *C. longipalpis*, holotype.



Figs. 10 - 14: Aedeagus, dorsal view of 10) *Cephalobyrrhus nepalensis*, holotype, 11) *C. schillhammeri*, holotype, 12) *C. schuelkei*, holotype, 13) *C. sichuanensis*, holotype, 14) *C. subelongatus* holotype.

Figs. 15 - 18: 15) *Cephalobyrrhus brevipalpis*, left maxillary palp of holotype, 16) *C. jaechi*, right maxillary palp of holotype, 17) *C. longipalpis*, left maxillary palp of holotype, 18) *C. schillhammeri*, right maxillary palp of holotype.

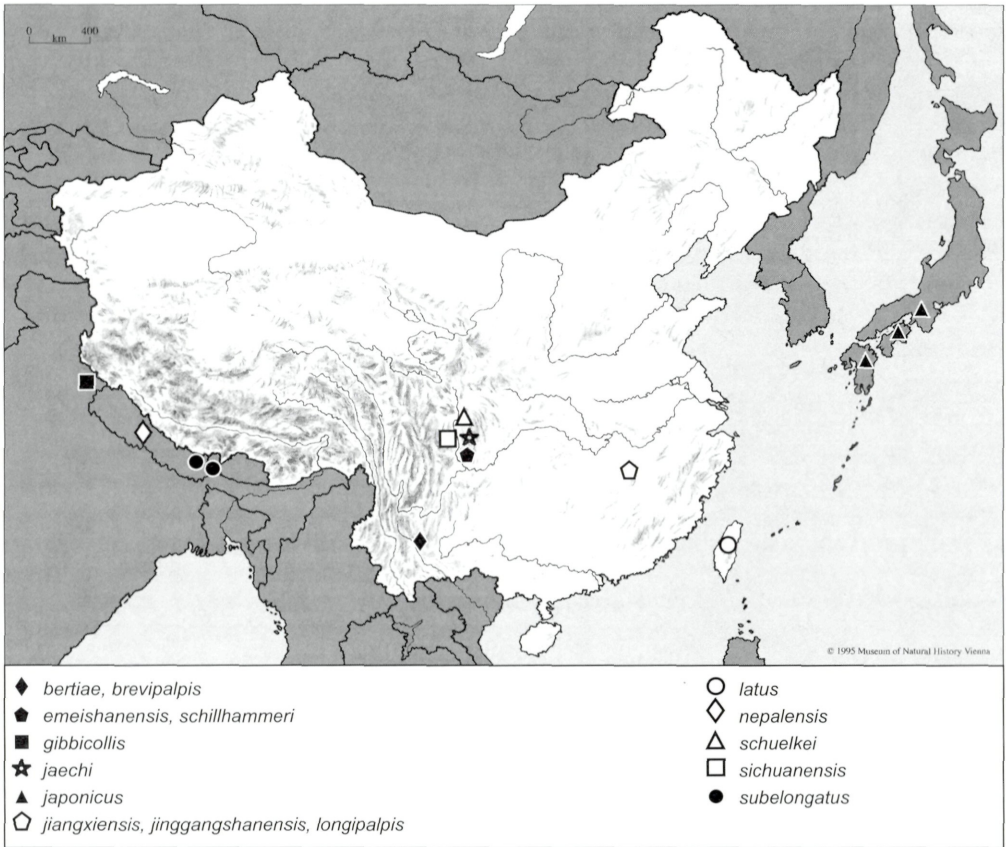


Fig. 19: Geographical distribution of the known species of *Cephalobyrrhus*.

Mesosternum: transverse, flat; anterior margin with a deep impression which occupies nearly a third of mesosternum; upper surface strongly shagreened, dull.

Metasternum: in lateral view convex, centrally with a deep and complete longitudinal furrow; metasternal process short, centrally split; upper surface with fine, decumbent, dark pubescence, densely punctate, distances of punctures longer than their diameters, shining.

Legs: reddish-brown, fine, decumbent pubescent. Femora surpassing body length in angled condition. Tibiae longer than femora. Tarsi 5-jointed; tarsomeres I to IV very shortly lobate; segment V longest, not lobate; claws long, scarcely bent.

Abdominal sternites: segment I at anterior margin with median carina; segments II and III of equal length; segment IV slightly shorter than segments II and III; segment V at apex evenly truncated, before apex with a small, semicircular, strongly punctate, reddish depression; all sternites with fine, decumbent, dark hairs, finely shagreened, weakly shining.

Aedeagus (Fig. 14): phallobasis slender, parallel-sided; apex with right half arcuately excised, and with a longer, thread-like process. Parameres and median lobe only half as long as phallobasis; parameres slightly longer than median lobe; interior margins straight before apex. Median lobe elongate, triangular; base weakly dilated distally; apex acute.

Differential diagnosis: *Cephalobyrrhus subelongatus* is similar to *C. gibbicollis* because of its short, posteriorly tapering habitus. *Cephalobyrrhus subelongatus* can be distinguished from *C. gibbicollis* by the aedeagus; phallobasis in *C. gibbicollis* broadest at the base but more or less parallel-sided in *C. subelongatus*.

Distribution (Fig. 19): India (Sikkim), Nepal (Mechi).

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