SHORT COMMUNICATION

Scaphisomatini (Coleoptera: Staphylinidae: Scaphidiinae) from two biosphere reserves in eastern China, with descriptions of two new species

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Abstract. Members of the scaphidiine tribe Scaphisomatini collected recently in Tianmushan Biosphere Reserve (Zhejiang) and Wuyishan National Nature Reserve (part of Wuyishan Biosphere Reserve, Fujian), China, are studied. Two species, Scaphisoma krali Löbl, sp. nov. and Scaphisoma sekerkai Löbl, sp. nov., are described from Wuyishan. Baeocera franzi (Löbl, 1973) and Scaphisoma mutator Löbl, 2000 are recorded for the first time from Zhejiang province, and Scaphisoma binhanum (Pic, 1922) and Scaphoxium intermedium Löbl, 1984 are recorded for the first time from Fujian province.

Key words. Coleoptera, Staphylinidae, Scaphidiinae, shining fungus beetles, taxonomy, new species, distribution, East China, Palaearctic Region

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Introduction

The worldwide distributed tribe Scaphisomatini is a major group of the shining fungus beetles, or Scaphidiinae, in terms of species diversity. The knowledge of the Chinese Scaphisomatini notably increased in the past decades, as exhibited by the number of described and/or recorded species. At present, ten Scaphisomatini genera comprising 178 species are known to occur in the country (Löbl 2018b,c,d, 2019a,b), while only four Chinese Scaphisomatini species were known 50 years ago (see Par 1954, Löbl 1965). Members of Scaphisoma Leach, 1815, the most species-rich genus of the Scaphidiinae, account for a substantial part of the Chinese taxa (104 species, i.e., 13.2 % of the global richness). Nevertheless, the knowledge of these mycophagous and myxomycetophagous beetles is still inadequate, as highlighted by new collections continuously yielding new species (e.g., Löbl 2018a, 2019a). The present paper dealing with specimens collected a few years ago by Czech entomologists corroborates the trend. It provides descriptions of two new species, and new records for additional species from the provinces of Fujian and Zhejiang. It is also a contribution to a better knowledge of the Scaphidiinae of Tianmushan Biosphere Reserve (UNESCO 2019a) and Wuyishan Biosphere Reserve (UNESCO 2019b) which are highly interesting Chinese reserves, encompassing exceptional subtropical evergreen and deciduous broadleaf mixed forests. Although those reserves belong to the oldest protected areas and best explored places in China, our knowledge about the diversity of shining fungus beetles in those areas is still fragmentary. A few species of Scaphidiinae from Wuyishan (Guadun) were described by Par (1954), the genus Scaphidium Olivier, 1790 from both reserves was reviewed by Lprü (2008), Tang & Li (2013), Tang et al. (2014) and Tu & Tang (2017), while several Scaphisomatini were described by Löbl (2003, 2019a) and Löbl & Tang (2013). A list of the scaphidiine species known from both reserves is given in the Appendix.

Material and methods

The material studied is deposited in the following institutional collections:
IZCAS Institute of Zoology, Chinese Academy of Sciences, Beijing, China;
The locality data of the type specimens are reproduced verbatim, with data from different labels separated by a slash. The body-length is measured from the anterior pronotal margin to the posterior inner angles of elytra. The length/width ratios of the antennomeres are measured on slide-mounted antennae. The abdominal microsculpture refers to the exposed segments, and not to the intersegmental membranes. The sides of the aedeagi refer to their morphological side with the ostium situated dorsally, while in resting position it is rotated 90°. The dissected body-parts are embedded in Euparal and fixed on a separate card on the same pin as the respective specimen.

Taxonomy

Scaphisoma krali Löbl, sp. nov.
(Figs 1, 3–4)

Type locality. China: Fujian Prov., Wuyishan Mts. NNR, 4.8 km SW Tongmu-Sangang, Xiaofeng Mt., 27°42.661′N, 117°39.131′E.

Type material. HOLOTYPE : CHINA: FUJIAN Prov., Wuyishan Mts. NNR, 4.8 km SW Tongmu-Sangang, Xiaofeng Mt., 27°42.661′N, 117°39.131′E, D. Král & J. Růžička lgt. / (W13) 27.v.2018, 1170 m, sift #07, mixed broad-leaved forest with bamboo (IZCAS). PARATYPES: 1 & 2 CHINA: FUJIAN Prov., Wuyishan Mts. NNR, 0.5 km SE Tongmu-Guadun, 27°43.981′N, 117°38.375′E, D. Král & J. Růžička lgt. / (W09) 25.v.2018, 1230 m, sift #05, detritus with mycelia, dense short bamboo forest with intermixed high evergreen trees (MHNG, NMPC).

Description. Length 1.60–1.78 mm, width 1.10–1.18 mm. Head, pronotum and elytra blackish-brown, venter of thorax somewhat paler, apex of abdomen yellowish, femora and tibiae reddish-brown, tarsi and antennae yellowish (Fig. 1).


Pronotum not microsculptured, with lateral margins evenly rounded, lateral margin carinae not or hardly visible in dorsal view, lateral margin carinae impunctate, discal punctuation fine, sparse, most puncture intervals about 4 to 6 times as large as puncture diameters, punctures shallow, not well delimited, clearly visible at 30 times magnification. Exposed point of scutellum minute.

Elytra not microsculptured, with lateral margins nearly evenly rounded, apical margins rounded, lateral margin carinae exposed in dorsal view, lateral margin striae impunctate in basal third, finely and densely punctate posterior to basal third, inner apical angles not prominent, situated posterior to level of outer apical angles, marginal crenulation absent, strialia shallow, bent at bases and extending laterally to form basial striae evanescent in outer third of basal width, stitialia parallel except for near apices, in apical third of sutural length converging posteriorly, adsduratal areas flat, each with single, very fine puncture row, discal punctures fairly coarse and dense, coarser than pronotal or adsubtural punctures, not forming rows, puncture intervals mostly slightly larger to three times larger than puncture diameters.

Exposed tergites not microsculptured, punctuation on base of pygidium dense and fine, becoming sparser and finer apically.

Hypomera not microsculptured, very finely punctate. Mesepimeron about 2.5 times as long as wide and as long as interval to metacoxa. Metaventrite not microsculptured. Median part of metaventrite weakly convex, flattened apically, lacking distinct impressions near metacoxae; punctuation distinct, sharply delimited, sparse and fine on centre, dense and fairly coarse on apical area, punctures on metacoxal process about as large as puncture intervals. Lateral parts of metaventrite lacking antecoxal puncture rows, with punctuation very fine and sparse. Submesocoxal area 0.06 mm long, about half of shortest interval to metacoxa, Submesocoxal line convex, densely punctate. Metanepisterna slightly convex, impressed along nearly straight suture, slightly narrowed anteriorly. Tibiae straight.

Abdomen lacking microsculpture. Ventrite I with distinct basomedian punctures, very finely punctate on prevailing surface, submetacoxal area 0.08 mm long, two thirds of interval to apical margin of ventrite. Following ventrites very finely and sparsely punctate.

Male characters. Protarsomeres I to III weakly widened, mesostarosomeres not widened. Lobe of ventrite VI obtuse, about 0.05 mm long. Aedeagus (Figs 3, 4) 0.55–0.60 mm.

Differential diagnosis. This species possesses characters of the Scaphisoma subapicalim, as defined in Löbl (1970). It may be distinguished by the body length about 1.6–1.8 mm, the antennomere IV elongate, very narrow, the antennomere XI about 1.3 times as long as the antennomere X, the elytra with the basal striae broadly separated from the lateral striae, the abdomen not microsculptured, the submesocoxal and submetacoxal lines convex, the submesocoxal area as long as 3/4 of the submetacoxal area, the aedeagus symmetrical, with the apical process narrow, parameres arcuate in dorsal view, in mesal 2/3 weakly sclerotized, the internal sac with a robust, weekly bent cylindrical rod followed by a membranous tube bearing minute denticles.

The median lobe and the structure of the internal sac are similar to those of members of the S. subapicalim group, as defined in Löbl (1970), while the mesally weakly sclerotized parameres are distinctive. The shape of the median lobe and the internal sac with a basal tubular rod suggest relationships of this new species with S. subapicalim. S. subapicalim Löbl, 2019, known so far only from China: Yunnan province. In addition to the distinctive parameres, S. krali sp. nov. may be distinguished from S. subapicalim by the abdomen lacking microsculpture and the proximal membranes of the internal sac lacking particular structures.

Collection circumstances. At the type locality, the new species was collected in mixed broad-leaved forest with bamboo (Fig. 9); the sifting was performed under dense bamboo bush and in drifts of leaves under evergreen trees, along a small path on a steep slope (Fig. 10). In Guadun, Scaphisoma krali sp. nov. was sifted in short bamboo forest with intermixed high evergreen trees (Fig. 11); the microhabitat represents a bamboo bush along a small path.

MHNG: Muséum d’histoire naturelle, Genève, Switzerland;
NMPC: National Museum, Praha, Czech Republic;
SNUC: Shanghai Normal University, Shanghai, China.

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above a tea plantation, overgrown with large trees (Fig. 12); sifted small bamboo leaves were covered with white mycelia (J. Růžička, pers. comm.).

**Etymology.** Patronymic. The species is named in honour of one of its collectors, our friend and colleague David Král (Charles University, Prague, Czech Republic).

**Distribution.** So far known only from two very close localities in the Wuyishan Mts. NNR, Fujian, China.
Scaphisoma sekerkai Löbl, sp. nov.  
(Figs 2, 5–8)

**Type locality.** China: Fujian Prov., Wuyishan Mts. NNR, Guandan vill. env., 27°44.6’N, 117°38.1’E, 1335 m J. Hájek, D. Král, J. Růžička & L. Sekerka lgt. (IZCAS). **Paratypes:** 1 ♀: with the same data as the holotype (NMPC); 2 ♂♂: CHINA: FUJIAN Prov. 29.v.2018 Wuyishan Mts. NNR, Guandan vill. env., mixed forest with flowering Castanopsis, individually from vegetation, dead wood, fungi, 27°44.6’N, 117°38.1’E, 1335 m J. Hájek, D. Král, J. Růžička & L. Sekerka lgt. (IZCAS). **Paratypes:** 2 ♀♀: CHINA: FUJIAN Prov. 23.v.–3.vi.2018 Wuyishan Mts. NNR. Sangang 27°45.0’N, 117°40.7’E, 720 m; mixed forest + bamboo; on vegetation Hájek, Král, Růžička & Sekerka lgt. (MHNG, NMPC).

**Description.** Length 1.51–1.67 mm, width 0.95–1.05 mm. Head blackish. Pronotum entirely dark brown to blackish, or somewhat lighter to ochraceous along lateral margin. Hypomeron ochraceous. Elytra reddish-brown, each slightly to strongly darkened along suture, with dark brown to blackish base, apices, and transverse band situated anterior to elytral midlength, latter reaching to or separated from sutural stria. Metaventrite with transversely striate microsculpture. Mesoevolute and metaventrite with anepisterna and epimera dark brown to blackish, ventrites light brown to yellowish, exposed abdominal tergites and appendages yellowish.


Pronotum not microsculptured, with lateral margins nearly evenly rounded, lateral margin carinae exposed in dorsal view, lateral margin carinae finely and densely punctate, discal punctuation fine and dense, most punctuation intervals slightly larger to three times larger than puncture diameters, punctures well delimited, clearly visible at 15 times magnification. Exposed point of scutellum minute. Elytra not microsculptured, with lateral margins rounded in basal third, oblique posteriad, apical margins rounded, lateral margin carinae exposed in dorsal view, lateral margin striae finely and densely punctate, inner apical angles not prominent, about on level with outer apical angles, marginal crenulation very prominent, about on level with outer apical angles, marginal striae absent, discal punctures fairly evenly and densely punctate, inner apical angles not distinctly separated from elytral surface. Metaventrite with distinctly separated impressions near metacoxae, with punctation distinct, sharply delimited, sparse on centre, fairly densely punctate on apical area. Lateral parts of metaventrite each with dense antecoxal punctuation row, punctuation very fine and sparse on remaining surface. Submesocoxal area 0.04 mm long, about fourth of shortest interval to metacoxa; submesocoxal line convex, densely punctate. Metanepisterna slightly convex, impressed along arcuate suture, narrowed anteriad. Abdomen with transversely striate microsculpture. Ventrite I with few distinct basomedian punctures, very finely punctate on prevailing surface, submetacoxal area 0.08 mm long, about half of interval to apical margin of ventrite. Following ventrites very finely and sparsely punctate.

Probolite straight, mesotibial and metatibial weakly bent. **Male characters.** Protarsomer I distinctly widened, II slightly widened, III hardly widened. Mesotarsomer I weakly widened, II and III hardly widened. Apex of ventrite VI gradually narrowed to form about 0.05 mm long triangle. Aedeagus (Figs 5–8) 0.67–0.70 mm long.

**Differential diagnosis.** Member of the Scaphisoma rouyeri group, as defined in Löbl (1981a) and subsequently extended to include species lacking parameral lobes (e.g., Löbl & Ogra 2016). The species is characterized by the following features, in combination: the elytra are darkened at bases, on the transverse stripe posterior to midlength and at the apices, the elytral punctuation is not arranged to form distinct striae, the sutural striae start near pronotal lobe, the submesocoxal areas are about as long as one fourth of the shortest interval between them and the metacoxae, the submesocoxal areas are twice as long as the submesocoxal areas and half as long as the shortest intervals between them and the apical margin of the ventrite I, the metaventrites have dense antecoxal punctuation rows, the ventrite I is very finely punctate except for its basomedian area, the apical process of the median lobe is curved and tapered, the parameres are strongly expanded near bases and sinuate in dorsal view and lack medial lobes, the internal sac is tubular, striulate in proximal section, and bears rows of marginal denticles. This new species falls in the key to the Chinese Scaphisoma (Löbl, 2019a) under the couplet 54, to S. delictum Löbl, 1981. It may be readily distinguished from the latter by the elytral colour pattern, the elytra lacking coarse punctuation rows, and the parameres lacking medial lobes. The parameres of this new species are similar to those of S. ruzickai Löbl, 2019. These two species differ notably in their elytral colour pattern and punctuation (much finer in S. sekerkai sp. nov.), and the structures of the internal sac (with a median tuft of robust teeth in S. ruzickai, with long marginal rows of short denticles and a striate basal tube in S. sekerkai sp. nov.).

**Collection circumstances.** At the type locality, Scaphisoma sekerkai sp. nov. was collected on the border of tea plantation and mixed forest with flowering Castanopsis sp. (Fig. 13); the precise collection circumstances are not known.

**Etymology.** Patronymic. The species is named in honour of one of its collectors, the well-known leaf beetle expert Lukáš Sekerka (NMPC).

**Distribution.** So far known only from two very close localities in the Wuyishan Mts. NNR, Fujian, China.

**New records**

_Baeocera cooteri_ Löbl, 1999

Comments. The species was described from Tianmushan reserve, Zhejiang, and subsequently recorded also from Anhui, Fujian, Hong Kong, Jiangxi and Taiwan (Löbl 2003, 2012).

*Baeocera franzi* (Löbl, 1973)


Figs 9–13. Habitat of *Scaphisoma* Leach, 1815 in Wuyishan Mts. 9–10 – Xiaofeng Mountain; 11–13 – Guadun. 9 – general view of broad-leaved forest with bamboo; 10 – detail of sifted microhabitat; 11 – general view of short bamboo forest with intermixed high evergreen trees; 12 – detail of sifted bamboo bush; 13 – border of tea plantation and mixed forest with flowering *Castanopsis* sp.
Comments. The species was described from Thailand and subsequently recorded from Fujian, Hubei, Jiangsu, Shaanxi, Sichuan and Yunnan provinces of China (Löbl 1999, 2003). First record from Zhejiang.

Kasibaeocera mussardi (Löbl, 1971)


Comments. Widely distributed Oriental species described from Sri Lanka and subsequently recorded from India, Nepal, Bhutan, China and Thailand (Löbl 2018b).

Scaphisoma binhanum (Pic, 1922)


Comments. The species was based on specimens coming from Vietnam, and subsequently reported from India, Nepal, Thailand, Indonesia, and China (see Löbl 2018b). At present, it is known from the Chinese provinces of Guangxi, Hainan and Jiangxi (Löbl 2019a). First records from Fujian.

Scaphisoma geminatum Löbl, 1986

Material examined. 28 spec.: Fujian Prov., Wuyishan Mts. NNR, 0.5 km SE Tongmu-Guadun, 27°43.981′N, 117°38.375′E, 1230 m, (W09) sift #05, detritus with mycelia, dense short bamboo forest with inter-mixed high evergreen trees, 25.v.2018, D. Král & J. Růžička leg. (IZCAS, NMPC); 10 spec., Fujian Prov., Wuyishan Mts. NNR, 4.8 km SW Tongmu-Sangang, Xiaofeng Mt., 27°42.707′N, 117°39.128′E, 1150 m, (W14) sift #08, detritus under dense shrubs, mixed broad-leaved forest with bamboo, 27.v.2018, D. Král & J. Růžička leg. (NMPC); 1 ♀: Fujian Prov., Wuyishan Mts. NNR, 1.3 km E Legaduc vill., Yaoyuanyu valley, 27°43.693′N, 117°43.056′E, (W18) 640 m, sift #11, detritus along path, mixed broad-leaved forest with Cunninghamia, 28.v.2018, D. Král & J. Růžička leg. (NMPC).

Comments. This species was described from Meghalaya, northern India, and was subsequently reported from Fujian, Guangdong and Jiangxi provinces of China (Löbl 2000, 2003).

Scaphisoma mutator Löbl, 2000

Material examined. 1 ♀: Zhejiang Prov., Lin’an county, West Tianmushan Nat. Res., 100 m SE below of top of Immortal Peak, 30.349′N, 119.424′E, 1470 m, (WT13) sift #07, dwarf bamboo, under bamboo and shrubs, near water source, 28.vi.2017, J. Hájek & J. Růžička leg. (NMPC); 1 ♀: same data but 350 m NWW of Original Temple of Lion Sect, 30.342′6′N, 119.430′2′E, 1190 m, (WT14) sift #13, broad-leaved deciduous forest, detritus along rocks and fallen logs near brook, 2.vii.2017 (NMPC); 1 ♀, 1 ♂: same data but 400 m N Tianmu vill., 30.315′7′N, 119.444′1′E, 340–350 m, (WT02) sift #01, mixed broad-leaved forest with Cunninghamia and Liquidambar near brook, 23.vii.2017 (MHNG, NMPC).

Comments. This species was based on specimens found in Sichuan, and was subsequently reported from Guangdong, Guangxi and Shaanxi provinces of China (Löbl 2019a). First records from Zhejiang.

Scaphoxium intermedium Löbl, 1984

Material examined. 1 ♀: Fujian Prov., Wuyishan Mts. NNR, Tongmu-Sangang, 27°44.9′N, 117°40.8′E, 800–860 m, (W01) sift #14, slope with mixed forest along path, 30.v.2018, L. Sekerka leg. (NMPC).

Comments. The species was based on North Indian specimens and subsequently recorded from Thailand and China. It is known from the following Chinese provinces: Anhui, Guangxi, Hainan, Yunnan, and Zhejiang (Löbl 1999, 2003, 2018a). First record from Fujian.

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References


LÖBL I. 2018a: On the Chinese species of *Scaphobaecera* Csiki, 1909, and new records of *Scaphoxium* Löbl, 1979 and *Toxidium* Le Conte,
Appendix

Species of the subfamily Scaphidiinae recorded from Tianmushan and Wuyishan Biosphere Reserves. Species described from the area are marked with an asterisk.

Tianmushan Biosphere Reserve:

Scaphidini

Scaphidium biwenxuani Tang & Li, 2008
Scaphidium comes Löbl, 1968
Scaphidium delatouchei Achard, 1920
*Scaphidium jinningi Tang, Li & He, 2014
*Scaphidium klapperichi Pic, 1954
Scaphidium sinense Pic, 1954
Scaphidium stigmatinotum Löbl, 1999
*Scaphidium varfasciatum Tang, Li & He, 2014
*Scaphidium wayongxiangi He, Tang & Li, 2008

Scaphisomatini

*Baeocera cooteri Löbl, 1999
Baeocera franzi (Löbl, 1973)
Kasibaeocera mussardi (Löbl, 1971)
Scaphisoma adustum, Löbl, 1980
Scaphisoma atronotatum Pic, 1920
Scaphisoma mutator Löbl, 2000
Scaphisoma tetrastictum Champion, 1927
*Scaphisoma timidum Löbl, 2019
*Scaphisoma wrusei Löbl, 2019
Scaphobaeocera nuda Löbl, 1979
Scaphoxium intermedium Löbl, 1984

Wuyishan Biosphere Reserve:

Scaphini

*Aschaphium minor Pic, 1954
*Aschaphium sinense Pic, 1954

Scaphidini

*Scaphidium ahrensi Tu & Tang, 2017
Scaphidium cartinense Achard, 1920
Scaphidium connexum Tang, Li & He, 2014
Scaphidium crypticum Tang, Li & He, 2014
Scaphidium formosanum Pic, 1915
*Scaphidium fukienense Pic, 1954
Scaphidium grande Gestro, 1880
*Scaphidium klapperichi Pic, 1954
*Scaphidium robustum Tang, Li & He, 2014
Scaphidium sauteri Miwa & Mitono, 1943
*Scaphidium sinense Pic, 1954
*Scaphidium vernicatum (Pic, 1954)
Scaphidium vicinum Pic, 1915
Scaphidium wayongxiangi He, Tang & Li, 2008

Scaphisomatini

Baeocera cooteri Löbl, 1999
Baeocera franzi (Löbl, 1973)
*Baeocera fujiana Löbl, 2019
Baeocera kubani Löbl, 1999
*Baeocera lasciva Löbl, 2003
*Baeocera proseminata Löbl, 2003
*Pseudobironium fujianum Löbl & Tang, 2013
*Pseudobironium sinicum Pic, 1954
Scaphisoma binauman (Pic, 1922)
Scaphisoma geminatum Löbl, 1986
Scaphisoma haemorrhoidale Reitter, 1877
*Scaphisoma krali Löbl, sp. nov.
*Scaphisoma morator Löbl, 2019
*Scaphisoma prostratum Löbl, 2003
*Scaphisoma sekerrai Löbl, sp. nov.
*Scaphobaeocera fujiana Löbl, 2003
Scaphobaeocera nobilis Löbl, 1984
Scaphobaeocera spinigera Löbl, 1979
Scaphoxium intermedium Löbl, 1984