ISSN 1804-6487 (online) - 0374-1036 (print)

www.aemnp.eu

SHORT COMMUNICATION

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

Ivan LÖBL¹⁾ & Jiří HÁJEK²⁾

Accepted: 21st November 2021 Published online: 30th December 2021 **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

Zoobank: http://zoobank.org/urn:lsid:zoobank.org:pub:700409CA-7C46-4D0B-9D32-7205D1664BA9 © 2021 The Authors. This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Licence.

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 Pic 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 Pic (1954), the genus Scaphidium Olivier, 1790 from both reserves was reviewed by HE et al. (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;



¹⁾ Muséum d'histoire naturelle, Case postale 6434, CH-1211 Geneva 6, Switzerland; e-mail: ivan.lobl@bluewin.ch

²⁾ Department of Entomology, National Museum, Cirkusová 1740, CZ-19300 Praha 9 – Horní Počernice, Czech Republic; e-mail: jiri.hajek@nm.cz

MHNG Muséum d'histoire naturelle, Genève, Switzerland; NMPC National Museum, Praha, Czech Republic; SNUC Shanghai Normal University, Shanghai, 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)

 $\label{thm:condition} \textbf{Type locality.} \ China: \ Fujian \ Prov., \ Wuyishan \ Mts. \ NNR, \ 4.8 \ km \ SW \ Tongmu-Sangang, \ Xiaofeng \ Mt., \ 27°42.661'N, \ 117°39.131'E.$

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).

Length/width ratios of antennomeres as follows: III 15/9: IV 35/6: V 42/7: VI 38/8: VII 53/16: VIII 38/12: IX 49/17: X 47/17: XI 62/19.

Pronotum not microsculptured, with lateral margins evenly rounded, lateral margin carinae not or hardly visible in dorsal view, lateral margin carinae impunctate, discal punctation 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, sutural striae shallow, bent at bases and extending laterally to form basal striae evanescent in outer third of basal width, sutural striae parallel except for near apices, in apical third of sutural length converging posteriad, adsutural areas flat, each with single, very fine puncture row, discal punctures fairly coarse and dense, coarser than pronotal or adsutural punctures, not forming rows, puncture intervals mostly slightly larger to three times larger than puncture diameters.

Exposed tergites not microsculptured, punctation on base of pydigium dense and fine, becoming sparser and finer apicad.

Hypomera not microsculptured, very finely punctate. Mesepimeron about 2.5 times as long as wide and as long as interval to mesocoxa. Metaventrite not microsculptured. Median part of metaventrite weakly convex, flattened apically, lacking distinct impressions near metacoxae; punctation 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 punctation 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 anteriad. 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, mesotarsomeres 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 subalpinum group, 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. subalpinum* group, established 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. subapicale* 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. subapicale* by the abdomen lacking microsculpture and the proximal membranes of the internal sac lacking particular structures.

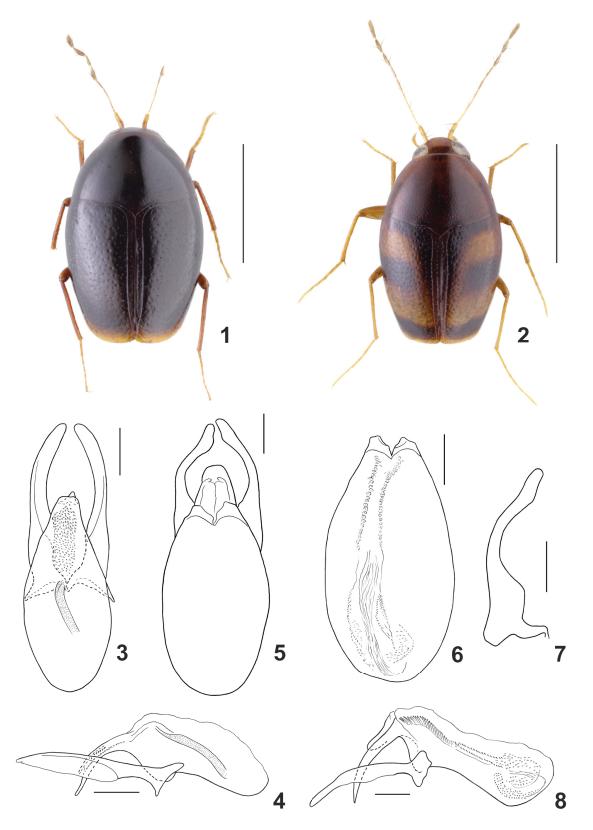
Collection circumstances. At the type locality, the new species was collected in mixed broad-leaved forest with bamboo (Fig. 9); the sifting was performed under dense bamboo bush and in drifts of leaves under evergreen trees, along a small path on a steep slope (Fig. 10). In Guadun, *Scaphisoma krali*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

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.



Figs 1–8. Scaphisoma Leach, 1815 from Wuyishan Mts. 1, 3-4 – Scaphisoma krali sp. nov.; 2, 5-8 – Scaphisoma sekerkai sp. nov. 1–2 – habitus in dorsal view; 3, 5 – aedeagus in dorsal view; 4, 8 – aedeagus in lateral view; 6 – basal bulb and internal sac in dorsal view; 7 – paramere in ventral view. Scale bars: Figs 1–2 = 1 mm; 3-8 = 0.1 mm.

Scaphisoma sekerkai Löbl, sp. nov.

(Figs 2, 5-8)

Type locality. China: Fujian Prov., Wuyishan Mts. NNR, Guadun vill. env., 27°44.6′N, 117°38.1′E, 1335 m.

Type material. Holotype ♂: CHINA: FUJIAN Prov. 29.v.2018 Wuyishan Mts. NNR, Guadun 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: 1 ♀: with the same data as the holotype (NMPC); 2 ♂♂ 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. Hypomera 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. Mesoventrite and metaventrite with anepisterna and epimera dark brown to blackish, ventrites light brown to yellowish, exposed abdominal tergites and appendages yellowish.

Length/width ratios of antennomeres as: III 14/9: IV 28/8: V 48/8: VI 43/8: VII 50/12: VIII 42/10: IX 58/12: X 50/12: XI 60/12.

Pronotum not microsculptured, with lateral margins nearly evenly rounded, lateral margin carinae exposed in dorsal view, lateral margin carinae finely and densely punctate, discal punctation fine and dense, most puncture 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 fine, sutural striae shallow, not or hardly bent at bases, parallel in basal halves, converging posteriad, adsutural areas flat, each with single puncture row, basal striae absent, discal punctures fairly fine and dense, coarser than pronotal or adsutural punctures, not forming rows, puncture intervals mostly about two to three times as large as puncture diameters.

Exposed tergites with few very fine punctures.

Hypomera with longitudinally striate microsculpture, appearing impunctate. Mesepimeron about 5 times as long as wide and 2.0 to 2.5 times as long as interval to mesocoxa. Metaventrite with transversely striate microsculpture. Median part of metaventrite weakly convex, slightly impressed apically, lacking separate impressions near metacoxae, with punctation distinct, sharply delimited, sparse on centre, fairly dense on apical area. Lateral parts of metaventrite each with dense antecoxal puncture row, punctation 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.

Protibiae straight, mesotibiae and metatibiae weakly bent. *Male characters*. Protarsomeres I distinctly widened, II slightly widened, III hardly widened. Mesotarsomeres 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 rouveri group, as defined in Löbl (1981a) and subsequently extended to include species lacking parameral lobes (e.g., LÖBL & OGAWA 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 punctation 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 submetacoxal 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 metaventrite has dense antecoxal puncture rows, the ventrite I is very finely punctate except for its basomedian area, the apical process of the median lobe is curved and tapering, the parameres are strongly expanded near bases and sinuate in dorsal view and lack mesal lobes, the internal sac is tubular, strigulate 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 puncture rows, and the parameres lacking mesal 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 punctation (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

Material examined. 1 ♂: 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 ♀: Zhejiang Prov., Lin'an county, West Tianmushan Nat. Res., 30.3248°N, 119.4404°E, 440–450 m, (WT05) sift #03, mixed forest, bamboo bushes above Chanyuan Temple, 24.vi.2017, J. Hájek & J. Růžička leg. (NMPC).

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)

Material examined. 1 \circlearrowleft : Zhejiang Prov., Lin'an county, West Tianmushan Nat. Res., 30.3255°N, 119.4406°E, 430 m, (WT04) sift #02, large bamboo, bushes above Chanyuan Temple, 24.vi.2017, J. Hájek & J. Růžička leg. (NMPC).



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)

Material examined. 1 spec.: Zhejiang Prov., Lin'an county, West Tianmushan Nat. Res., 30.3255°N, 119.4406°E, 430 m, (WT04) sift #02, large bamboo, bushes above Chanyuan Temple, 24.vi.2017, J. Hájek & J. Růžička leg. (NMPC).

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, 640 m, (W18) sift #11, detritus along path, mixed broad-leaved forest with *Cunninghamia*, 28.v.2019, 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, 30.3491°N, 119.4244°E, 1470 m, (WT13) sift #07, dwarf forest, 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, 30.3426°N, 119.4302°E, 1190 m, (WT14) sift #13, broad-leaved deciduous forest, detritus along rocks and fallen logs near brook, 2.vii.2017 (NMPC); 1 $\$: same data but 400 m N Tianmu vill., 30.3157°N, 119.4441°E, 340–350 m, (WT02) sift #01, mixed broad-leaved forest with *Cunninghamia* and *Liquidambar* near brook, 23.vi.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.

Acknowledgements

We are obliged to Jan Růžička (Czech University of Life Sciences Prague, Prague, Czech Republic) for photos and detailed information about collecting new Scaphisoma in Wuyishan. Christina Lehmann-Graber (Geneva, Switzerland) kindly assisted technically. The junior author would also like to thank Ming Bai (IZCAS) for arranging the trip to Wuyishan reserve, Liang Tang and Ziwei Yin (both SNUC) for arranging the trip to Tianmushan reserve, Yuanyuan Lu and Yandong Chen (both IZCAS) for the excellent organisation of the Wuyishan trip in the field, and David Král, Jan Růžička and Lukáš Sekerka for their company during the 2017 and/or 2018 China trips. The work was supported by the National Science & Technology Fundamental Resources Investigation Program of China (Grant No. 2019FY100400), Wuyishan National Park Biological Resources Background Investigation Project, National Natural Science Foundation of China (No. 31961143002), GDAS Special Project of Science and Technology Development (No. 2020GDASYL-20200102021, 2020GDASYL-20200301003), and Ministry of Culture of the Czech Republic (DKRVO 2019-2023/5.I.c, National Museum, 00023272).

References

- HE W.-J., TANG L. & LI L.-Z. 2008: A review of the genus *Scaphidium* Oliver (Coleoptera, Staphylinidae, Scaphidiinae) from Tianmushan, East China. *Zootaxa* **1898**: 55–62.
- LÖBL I. 1965: Beitrag zur Kenntnis des *Scaphosoma*-Arten Chinas (Coleoptera, Scaphidiidae). *Reichenbachia* 6: 25–31.
- LÖBL I. 1970: Revision der paläarktischen Arten der Gattungen Scaphisoma Leach und Caryoscapha Ganglbauer der Tribus Scaphisomini (Col. Scaphidiidae). Revue Suisse de Zoologie 77: 727–799.
- LÖBL I. 1981: Über die Arten-Groupe *Rouyeri* der Gattung *Scaphisoma* Leach (Coleoptera Scaphidiidae). *Archives de Sciences* **34**: 153–168.
- LÖBL I. 1999: A review of the Scaphidiinae (Coleoptera: Staphylinidae) of the People's Republic of China, I. Revue Suisse de Zoologie 106: 691–744.
- LÖBL I. 2003: A supplement to the knowledge of the scaphidiines of China (Coleoptera: Staphylininae). *Mitteilungen der Münchner Entomologischen Gesellschaft* **93**: 61–76.
- LÖBL I. 2012: On Taiwanese species of *Baeocera* Erichson (Coleoptera: Staphylinidae: Scaphidiinae). *Zoological Studies* **51**: 118–130.
- LÖBL I. 2018a: On the Chinese species of Scaphobaeocera Csiki, 1909, and new records of Scaphoxium Löbl, 1979 and Toxidium Le Conte,

- 1860 (Coleoptera: Staphylinidae: Scaphidiinae). Russian Entomological Journal 27: 123-134.
- LÖBL I. 2018b: World Catalogue of Insects. Volume 16. Coleoptera: Staphylinidae: Scaphidiinae. Brill, Leiden/Boston, XVI + 418 pp.
- LÖBL I. 2018c: On the Baeocera monstrosa group (Coleoptera: Staphylinidae: Scaphidiinae), with description of a new species from China. *Klapalekiana* **54**: 233–237.
- LÖBL I. 2018d: Supplement to the knowledge of the genera Baeocera Erichson, 1845 and Scaphobaeocera Csiki, 1909 (Coleoptera, Staphylinidae, Scaphidiinae) of the People's Republic of China. Linzer Biologische Beiträge 50: 1295-1303.
- LÖBL I. 2019a: New species and records of Scaphisoma Leach (Coleoptera: Staphylinidae: Scaphidiinae) from the People's Republic of China. Annales Zoologici 69: 241-292.
- LÖBL I. 2019b: Supplement to the knowledge of the Chinese and Southeast Asian species of Cypariini and Scaphisomatini (Coleoptera. Staphylinidae: Scaphidiinae). Mitteilungen der Münchner Entomologischen Gesellschaft 109: 5-11.
- LÖBL I. & OGAWA R. 2016: On the Scaphisomatini (Coleoptera, Staphylinidae, Scaphidiinae) of the Philippines, IV: the genera Sapitia

- Achard and Scaphisoma Leach. Linzer Biologische Beiträge 48:
- LÖBL I. & TANG L. 2013: A review of the genus Pseudobironium Pic (Coleoptera: Staphylinidae: Scaphidiinae). Revue Suisse de Zoologie 120: 665-734.
- PIC M. 1954: Coléoptères nouveaux de Chine. Bulletin de la Société Entomologique de Mulhouse 1954: 53-59.
- TANG L. & LI L.-Z. 2013. More data on Chinese Fauna of Scaphidium Olivier with description of a new species (Coleoptera: Staphylinidae: Scaphidiinae). In: Memory of Mr. Wenhsin Lin. Formosa Ecological Company, Taiwan, pp. 173-181.
- TANG L., LI L.-Z. & HE W.-J. 2014: The genus Scaphidium Olivier in East China (Coleoptera, Staphylinidae, Scaphidiinae). ZooKeys 403: 47-96.
- TU Y.-Y. & TANG L. 2017: Supplement to the knowledge of the genus Scaphidium Olivier of East China (Coleoptera: Staphylinidae: Scaphidiinae). Zootaxa 4268: 593-596.

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:

Scaphidiini

Scaphidium biwenxuani Tang & Li, 2008

Scaphidium comes Löbl, 1968

Scaphidium delatouchei Achard, 1920

- *Scaphidium jinmingi Tang, Li & He, 2014
- *Scaphidium klapperichi Pic, 1954

Scaphidium sinense Pic, 1954

Scaphidium stigmatinotum Löbl, 1999

- *Scaphidium varifasciatum Tang, Li & He, 2014
- *Scaphidium wuyongxiangi 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 tumidum Löbl, 2019
- *Scaphisoma wrasei Löbl, 2019

Scaphobaeocera nuda Löbl, 1979

Scaphoxium intermedium Löbl, 1984

Wuyishan Biosphere Reserve:

Scaphiini

- *Ascaphium minor Pic, 1954
- *Ascaphium sinense Pic, 1954

Scaphidiini

*Scaphidium ahrensi Tu & Tang, 2017 Scaphidium carinense 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 wuyongxiangi He, Tang & Li, 2008

Scaphisomatini

Baeocera cooteri Löbl, 1999

Baeocera franzi (Löbl, 1973)

*Baeocera fujiana Löbl, 2018

Baeocera kubani Löbl, 1999

*Baeocera lasciva Löbl, 2003

- *Baeocera proseminata Löbl, 2003
- *Pseudobironium fujianum Löbl & Tang, 2013
- *Pseudobironium sinicum Pic, 1954

Scaphisoma binhanum (Pic, 1922)

Scaphisoma geminatum Löbl, 1986

Scaphisoma haemorrhoidale Reitter, 1877

- *Scaphisoma krali Löbl, sp. nov.
- *Scaphisoma morator Löbl, 2019
- *Scaphisoma prostratum Löbl, 2003
- *Scaphisoma sekerkai Löbl, sp. nov.
- *Scaphobaeocera fujiana Löbl, 2003

Scaphobaeocera nobilis Löbl, 1984

Scaphobaeocera spinigera Löbl, 1979

Scaphoxium intermedium Löbl, 1984