

NEW TAXA AND DISTRIBUTION DATA OF CLAUSILIIDAE (GASTROPODA: PULMONATA) FROM SOUTHEASTERN CHINA

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Abstract From the provinces Guangxi, Guizhou, Hunan, Sichuan and Yunnan the following taxa are described as new: *Grandinenia pallidissima ooharai subsp. nov.*, *Synprosphyra aegrota sp. nov.*, *S. basilissa ishabei subsp. nov.*, *S. hosodai sp. nov.*, *S. ookuboi sp. nov.*, *S. pallgergelyi sp. nov.*, *S. wanshinensis monachorum subsp. nov.*, *Oospira minutissima sp. nov.*, *O. ootayoshinari sp. nov.*, *O. truncatula sp. nov.*, *Formosana abscedens sp. nov.*, *Minatoia gen. nov.* with type species *M. inopinata sp. nov.*, *Miraphaedusa gregoi sp. nov.*, *Serriphaedusa (S.) ishabei sp. nov.*, *S. (S.) ootanii sp. nov.*, *S. (Nannophaedusa) diaphana sp. nov.*, *S. (N.) fusiformis sp. nov.*, *Bathyptychia aplostoma ookuboi subsp. nov.*, *B. beresowskii eremita subsp. nov.*, *B. martensi immersa subsp. nov.*, *Selenophaedusa dentifera sp. nov.*, *Phaedusa matejkoi ooharai subsp. nov.*, *Euphaedusa (Papilliphaedusa) latens sp. nov.*, and *E. (P.) sericea sp. nov.* The taxonomic positions of some of the mentioned genera are discussed, and novel zoogeographical data of some little-known taxa are provided.

Key words Clausiliidae, taxonomy, zoogeography, China

INTRODUCTION

The turn of the 19th and 20th centuries was a very productive period of studies on Chinese Clausiliidae, resulting in seminal publications by Oskar Boettger, Vinzenz Gredler, Pierre M. Heude, Otto Möllendorff and Bernhard Schmacker. These authors relied mainly on scarce material obtained from a few accessible sites along the Changjiang (Yangtze) and the southern coastal provinces, thus in large parts of southeastern China the fauna remained poorly researched. Difficult periods of most of the last century were followed by a renewed interest in this uniquely diverse and zoogeographically important region, leading to taxonomic revisions and the description of more than 150 new clausiliid taxa from the 1980s (see, for instance: Chen & Zhang, 1999; Nordsieck, 2001, 2003, 2005, 2007, 2012; Grego & Szekeres, 2011). The present study is based on material that was collected in the provinces Guangxi, Guizhou, Hunan, Sichuan and Yunnan between 2004 and 2015.

The type material of the new taxa is deposited in the collections of the Hungarian Natural History Museum, Budapest (HNHM), the Natural History Museum, London (NHMUK), the Naturhistorisches Museum, Vienna (NHMW), as well as the private collections Jozef

Grego, Banská Bystrica (GR), András Hunyadi, Budapest (HU), Takashi Ishibe, Tokyo (IS), Kenji Ohara, Kawanishi (OH), Kanji Okubo, Tokyo (OK), Jamen Uiriamu Otani, Koka (OT), and Miklós Szekeres, Szeged (SZ).

The type localities of the new taxa are shown in the schematic map of Fig. 1. In order to avoid distortions, most Chinese geographical names are given without translation. Some common Chinese terms used in the text are: zhou (prefecture), shi (municipality or city), xian (county), qu (district), xiang or zhen (township), cun (village), shan (mountain or hill), dong (cave), pubu (waterfall).

SYSTEMATICS

Family Clausiliidae
Subfamily Garnieriinae

Grandinenia Minato & Chen, 1984

Type species: *Steatonenia mirifica* Chen & Gao, 1982; OD.

This genus, with a centre of diversity in Guangxi Province, is represented by multiple species from western Guangdong Province to central Vietnam (Nge An and Quang Binh Provinces) and southern Laos (Champasak Province) (Nordsieck, 2012; Grego *et al.*, 2014).



Figure 1 Schematic map of southeastern China showing the type localities of the new taxa. 1: *Grandinenia pallidissima ooharai* subsp. nov., 2: *Synprosphyra aegrota* sp. nov., 3: *Synprosphyra basilissa ishabei* subsp. nov. and *Bathypytichia aplostoma ookuboi* subsp. nov., 4: *Synprosphyra hosodai* sp. nov. and *Serriphaedusa (S.) ootanii* sp. nov., 5: *Synprosphyra ookuboi* sp. nov., *Oospira minutissima* sp. nov., *Oospira ootayoshinari* sp. nov., *Serriphaedusa (Nannophaedusa) diaphana* sp. nov. and *Bathypytichia beresowskii eremita* subsp. nov., 6: *Synprosphyra pallgergelyi* sp. nov., 7: *Synprosphyra wanshinensis monachorum* subsp. nov. and *Oospira truncatula* sp. nov., 8: *Formosana abscedens* sp. nov., 9: *Miraphaedusa gregoi* sp. nov., 10: *Serriphaedusa (Nannophaedusa) fusiformis* sp. nov. and *Bathypytichia martensi immersa* subsp. nov., 11: *Serriphaedusa (S.) ishabei* sp. nov., 12: *Minatoia inopinata* sp. nov., 13: *Selenophaedusa dentifera* sp. nov.; 14: *Phaedusa matejkoi ooharai* subsp. nov. and *Euphaedusa (Papilliphaedusa) latens* sp. nov., 15: *Euphaedusa (Papilliphaedusa) sericea* sp. nov.

Grandinenia pallidissima Nordsieck, 2010

The two known subspecies of this species occur in central Guangxi Province, in the neighbouring Shanglin Xian and Xingbin Qu of Nanning and Laibin Shi, respectively. The type locality of *G. pallidissima* is Guangxi, Chongzuo Shi, Longzhou Xian, Jinlong Xiang (Nordsieck, 2010), which appears to have been based on a doubtful record

(Nordsieck, 2012), and the type material may actually originate from Shanglin Xian.

Grandinenia pallidissima ooharai subsp. nov.

Fig. 2a

Diagnosis The new subspecies differs from the nominotypical subspecies by its non-decollated shell and coarser sculpture, whereas from both

this and *G. p. albescens* Nordsieck, 2012 by the stronger, irregular neck ribs, more pronounced basal crest, less steeply descending lamella subcolumellaris, and the well developed anterior part of the plica basalis.

Type material Holotype: Guangxi, Nanning Shi, Binyang Xian, Zouxu Zhen, Baida Cun (23°24'30.5" N 108°53'45.2" E, 100m), leg. Y. Nakahara, K. Ohara & J. U. Otani 14.11.2004 (NHMUK 20150079). Paratypes: same locality and collection data (OH/12, OK/4, SZ/2).

Description The very light brown, spindle-shaped, non-decollated shell consists of 8½ to 9½ whorls. Its dull surface is covered by strong, regular striae, which become less distinct toward the broad apex, and strong, sharp, undulate ribs at the neck. The neck has a strong basal crest and weak reddish-brown streaks along the lines of the plica principalis and the lunella. The light brown peristome is circular, with flattened, slightly reflexed margin. The lamella superior is sharp, its height decreases towards its smooth transition into the lamella spiralis. The lamella inferior has a stretch of uniform height before reaching the peristome. The lamella subcolumellaris is well visible in front view. The plica principalis starts laterally, right above the broadly-arched, lateral-dorsolateral plica superior-lunella complex. Fused to the basis of the lunella, the plica basalis has well-developed anterior and only residual posterior parts. The clausilium plate with a pointed tip is almost entirely visible through the aperture.

Measurements Holotype: shell height 25.2mm, shell width 5.8mm, aperture height 5.2mm, aperture width 5.3mm. Paratypes (n=14): shell height 22.5–29.0mm, mean ±standard deviation (SD) 25.3±2.11mm; shell width 5.8–6.6mm, mean ±SD 6.2±0.29mm; aperture height 5.0–5.8mm, mean ±SD 5.4±0.25mm; aperture width 4.9–6.9mm, mean ±SD 5.5±0.60mm.

Etymology The new subspecies is dedicated to Kenji Ohara, who contributed valuable material and information to this study.

Remarks *Grandinenia p. ooharai* subsp. nov. is closest related to *G. p. albescens*, from which it differs by its strong, irregular ribs and reddish-brown streaks at the neck, more pronounced

basal crest, less steeply descending lamella subcolumellaris, and strong anterior part of the plica basalis. From *G. p. pallidissima* it can be distinguished by the smaller, non-decollated shell. The new subspecies was discovered about 30km east of Wushan Xiang, the type locality of *G. p. albescens* Nordsieck.

Subfamily Phaedusinae
Synprosphyra Wagner, 1920

Type species: *Clausilia suilla* Bavay & Dautzenberg, 1909; SD Lindholm, 1924.

Synprosphyra aegrota sp. nov.
Fig. 2b

Diagnosis Medium-size *Synprosphyra* species with prominent respiratory tube formed between the lamella superior and the extended plica principalis. It differs from the nearby-occurring *S. cervicalis* (Bavay & Dautzenberg, 1909) by its pointed apex and weaker neck ribs.

Type material Holotype: Yunnan, Honghe Zhou, Pingbian Xian, Pingbian Daweishan (22°54'50.1" N 103°41'57.5" E, 2090m), leg. A. Hunyadi 27.03.2011 (NHMUK 20150080). Paratypes: same locality and collection data (GR/1, HU/7, SZ/1).

Description The tumid, spindle-shaped, light ochre-coloured shell consists of 8½ to 9½ whorls. The apical part gradually tapers toward the pointed tip. The bulging whorls are glossy, their fine striae become stronger, rib-like at the apex and the neck. The basis has a prominent crest. The aperture is wide, whitish, with detached margin. Inside the lamella superior is high at the front, lowering toward its transition into the lamella spiralis. The lamella inferior is well emerged and becomes somewhat swollen around its lower end. The lamella subcolumellaris is retracted, its terminal part is only barely visible through the aperture. Starting from the lateral side, the plica principalis reaches near the peristome margin, getting close to and forming a respiratory tube with the lamella superior. The lunella is dorso-lateral, almost straight, only its uppermost part bends inward at its fusion with the short plica superior. At its lower end the lunella is fused to the basalis that has short posterior and a rudimentary anterior parts. The clausilium plate,

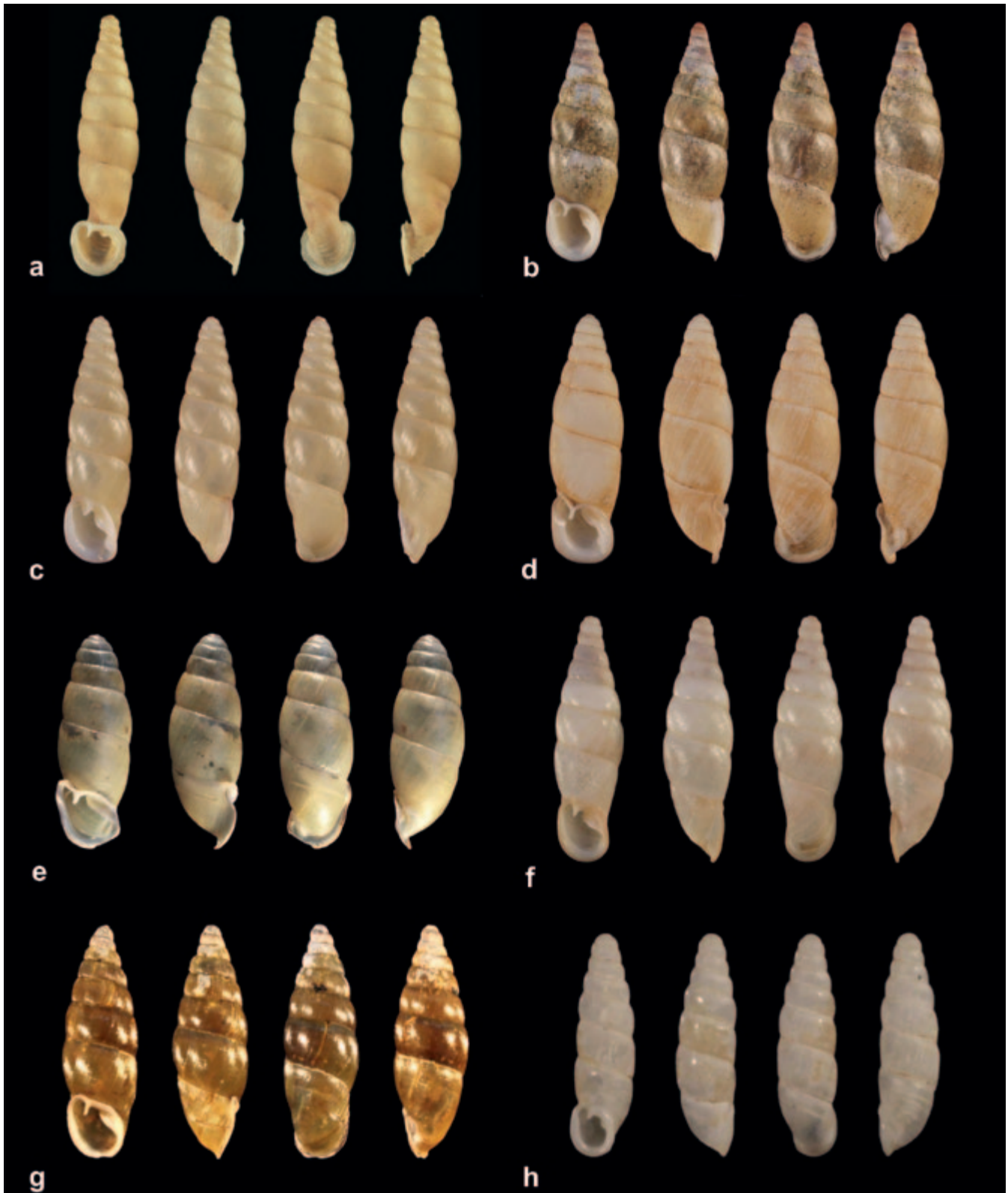


Figure 2 (a) *Grandinenia pallidissima ooharai* subsp. nov., holotype (NHMUK 20150079, 25.2mm); (b) *Synprosphyra aegrota* sp. nov., holotype (NHMUK 20150080, 24.3mm); (c) *Synprosphyra basilissa ishabei* subsp. nov., holotype (NHMUK 20150081, 25.4mm); (d) *Synprosphyra hosodai* sp. nov., holotype (NHMUK 20150082, 25.2mm); (e) *Synprosphyra ookuboi* sp. nov., holotype (NHMUK 20150083, 24.1mm); (f) *Synprosphyra pallgergelyi* sp. nov., holotype (NHMUK 20150085, 24.9mm); (g) *Synprosphyra wanshinensis monachorum* subsp. nov., holotype (NHMUK 20150084, 14.3mm); (h) *Oospira minutissima* sp. nov., holotype (NHMUK 20150086, 9.0mm).

with a pointed tip, is partly visible through the aperture.

Measurements Holotype: shell height 24.3mm, shell width 7.2mm, aperture height 6.4mm, aperture width 5.7mm. Paratypes (n=8): shell height 24.0–26.7mm, mean \pm SD 25.0 \pm 0.85mm; shell width 6.9–8.1mm, mean \pm SD 7.7 \pm 0.41mm; aperture height 6.3–7.3mm, mean \pm SD 6.8 \pm 0.35mm; aperture width 5.2–5.7mm, mean \pm SD 5.5 \pm 0.21mm.

Etymology The name of the new species refers to the eroded shell of the live-collected specimens.

Remarks The shell features of *S. aegrota* sp. nov. show superficial resemblance to those *S. suilla* (Bavay & Dautzenberg, 1909) from northwestern Vietnam, but differ by the presence of the characteristic respiratory tube and a strong basal crest. From *S. cervicalis*, also possessing a respiratory tube, it can be distinguished by the pointed apex and the absence of strong, wrinkle-like neck ribs. The new species was collected as the only clausiliid from fallen tree trunks of damp primary forest in a non-limestone region.

Synprosphyra basilissa (Boettger & Schmacker, 1894)

The nominotypical subspecies of *S. basilissa* is known from the Emei Shan and Tiantai Shan, whereas *S. b. planicollis* Nordsieck, 2007 occurs in the Qingcheng Shan (Nordsieck, 2007).

Synprosphyra basilissa ishabei subsp. nov.

Fig. 2c

Diagnosis Differs from *S. b. basilissa* and *S. b. planicollis* by its smaller size, stronger basal crest, and long plica basalis.

Type material Holotype: Sichuan, Panzhihua Shi, Yanbian Xian, Qinghe Pubu (27°3'50.0" N 101°23'36.7" E, 1410m), leg. T. Hosoda, T. Ishibe, K. Okubo & J. U. Otani 12.09.2013 (NHMUK 20150081). Paratypes: same locality and collection data (OK/9, SZ/1); same locality, leg. K. Okubo 21.10.2010 (OK/2), leg. A. Hunyadi & M. Szekeres 09.06.2015 (HNHM 99688/1, NHMW 110175/1, HU/24, SZ/6).

Description The translucent shell of light yellowish colour and convex outline consists of 8½

to 9½ whorls. The broad apex ends abruptly in a pointed tip. The surface is glossy, finely and densely striate, except for the neck where the striae gradually become wider-spaced wrinkles. The basal crest is very strong, so that it expands the lower columellar margin of the aperture. The diagonally elongated aperture has a broad, whitish, narrowly attached margin. The lamella superior decreases in height till its smooth transition into the spiralis, which then again becomes higher before tapering off inward. The strongly emerged lamella inferior bends downward at its ending near the peristome margin. Very conspicuous in front view, the strong lamella subcolumellaris reaches the peristome margin, terminating close to the end of the inferior. The plica principalis spans from the lateral side to the middle of the neck. The weakly and evenly bent lunella is fused to a strong basalis of equally long anterior and posterior parts. The plica superior is residual or absent. The clausilium plate with a pointed tip is almost entirely visible through the aperture.

Measurements Holotype: shell height 25.4mm, shell width 6.7mm, aperture height 7.1mm, aperture width 5.1mm. Paratypes (n=20): shell height 23.6–28.5mm, mean \pm SD 26.0 \pm 1.33mm; shell width 6.2–7.2mm, mean \pm SD 6.8 \pm 0.23mm; aperture height 6.2–7.6mm, mean \pm SD 7.0 \pm 0.35mm; aperture width 5.1–6.2mm, mean \pm SD 5.6 \pm 0.33mm.

Etymology The new subspecies is dedicated to Takashi Ishibe, a much valued participant of the field work.

Remarks The other two subspecies of *S. basilissa* are known from central Sichuan. The new subspecies extends the distribution range of the species by more than 300km toward southwest. The type material of *S. b. ishabei* subsp. nov. was collected from damp leaf litter, together with *Bathyptrychia aplostoma ookuboi* subsp. nov. and *Euphaedusa (E.) buccinella* (Heude, 1886).

Synprosphyra hosodai sp. nov.

Fig. 2d

Diagnosis Medium-size *Synprosphyra* differing from all other species of the genus by its large, retracted and pointed sinulus, prominent lump of the parietal peristome margin opposite to the

lamella superior, and marginally ending lamella subcolumellaris.

Type material Holotype: Sichuan, Panzhihua Shi, Miyi Xian, Baima Xiang, Longtan Pubu (27°0'2.1" N 102°12'26.4" E, 1090m), leg. T. Hosoda, T. Ishibe, K. Okubo & J. U. Otani 11.09.2013 (NHMUK 20150082). Paratypes: same locality and collection data (OK/3, SZ/1); same locality, leg. K. Okubo 20.10.2010 (OK/1).

Description The tumid, spindle-shaped shell of 8 to 8½ whorls has very light yellowish colour. The apex is short, wide, more or less conical. The whorls have a dim, finely and densely striate surface, except for the neck where the striae gradually become wider-spaced fine ribs. The basal crest is short but strong. The aperture is detached, with broad, flat, whitish margin, which is drawn up and backward to form a large, pointed sinulus. The lamella superior is high and short, makes a smooth transition into the spiralis. The lamella inferior is well emerged, bends downward and terminates in a thick branch at the peristome near the subcolumellaris. The lamella subcolumellaris is prominently emerged, its end reaches the peristome margin. The plica principalis runs from the dorsolateral side to close behind the aperture. Its outer end is not connected to the lower-positioned parietal lump of the peristome. The dorsal lunella is almost straight. A slight inward bending at its upper end results from its fusion with the residual plica superior. The basalis has only its anterior part, which is also fused to the lunella. The clausilium plate, with a pointed tip, is almost entirely visible through the aperture.

Measurements Holotype: shell height 25.2mm, shell width 7.4mm, aperture height 7.2mm, aperture width 6.4mm. Paratypes (n=6): shell height 25.1–27.5mm, mean ±SD 26.3±0.80mm; shell width 7.4–7.7mm, mean ±SD 7.6±0.10mm; aperture height 7.2–7.9mm, mean ±SD 7.6±0.32mm; aperture width 6.0–6.7mm, mean ±SD 6.5±0.28mm.

Etymology The new subspecies is dedicated to Takashi Hosoda, who participated in the Sichuan field work.

Remarks Live specimens of the type material were collected from moist leaf litter of broad-leaf evergreen forest, together with *Serriphaedusa* (*S.*)

ootanii spec. nov. and *Euphaedusa* (*E.*) *steetzneri* (Pilsbry, 1919).

Synprosphyra ookuboi sp. nov.

Fig. 2e

Diagnosis Medium-size *Synprosphyra* with ovoid shell, very large aperture, and retracted lamella subcolumellaris that is not visible in front view.

Type material Holotype: Sichuan, Chengdu Shi, Dujiangyan Shi, Qingcheng Shan, Baiyun Cun, Wanfo Dong (30°56'49.0" N 103°28'56.2" E, 1510m), leg. T. Hosoda, T. Ishibe, K. Okubo & J. U. Otani 16.09.2013 (NHMUK 20150083). Paratypes: same locality and collection data (SZ/1); same locality, leg. K. Okubo 19.06.2014 (OK/5); same locality, leg. K. Okubo 25.10.2014 (OK/2); same locality, leg. A. Hunyadi, T. Ishibe, K. Okubo, J. U. Otani & M. Szekeres 04.06.2015 (HU/1, OT/1).

Description The light yellowish, ovoid shell consists of 6⅓ to 6⅔ whorls. The height of the last whorl is more than half of that of the entire shell. Fine and very dense striation of the whorls and the neck give the surface a silky shine. The basal crest is strong. The detached, whitish aperture is very wide, its parietal margin is drawn up and backward to form a large, pointed sinulus. The high lamella superior makes a smooth transition into the less emerged spiralis. The lamella inferior is strong, descends to near the peristome margin in an almost straight line. The lamella subcolumellaris is retracted, but a long part of it is visible in slanted view at the aperture. The plica principalis starts dorsolaterally and ends close to the peristome. The weakly and evenly arched lunella is dorsal-dorsolateral, its upper end widens before becoming fused to the very short plica superior. The basalis, fused to the lower end of the lunella, is comprised of short anterior and a much longer posterior parts. The wide clausilium plate with a blunt tip is almost entirely visible through the aperture.

Measurements Holotype: shell height 24.1mm, shell width 8.5mm, aperture height 7.7mm, aperture width 7.3mm. Paratypes (n=10): shell height 22.8–26.9mm, mean ±SD 23.8±1.42mm; shell width 7.2–8.8mm, mean ±SD 7.8±0.45mm; aperture height 6.7–8.9mm, mean ±SD

7.6±0.80mm; aperture width 6.1–7.3mm, mean ±SD 6.4±0.56mm.

Etymology The new species is dedicated to Kanji Okubo, who has made substantial contribution to this work and the study of Chinese clausiliids.

Remarks The type material of *S. ookuboi* sp. nov. was collected from among stones of a leaf litter-covered scree in deciduous forest, together with *S. basilissa planicollis* Nordsieck, 2007.

Synprosphythma pallgergelyi sp. nov.

Fig. 2f

Diagnosis Medium-size *Synprosphythma* with attached peristome, weak basal crest, deep lamella subcolumellaris, and broadly-bent plica superior-lunella complex.

Type material Holotype: Guangxi, Nanning Shi, Wuming Xian, Daming Shan, 1500m, leg. 06.2011, ex Gao Mingzhu (NHMUK 20150085). Paratypes: same locality and collection data (GR/1, HU/1, SZ/1).

Description The light yellowish, spindle-shaped shell consists of 8½ to 8⅔ whorls. The apical part is somewhat extended toward the tip. The surface, including that of the neck, is finely and very densely striate. The basal crest is weak. The peristome is thickened, its upper margin is broadly attached. The strong lamella superior lowers gradually toward its smooth transition into the spiralis. The well-emerged lamella inferior terminates at mid-height of the aperture, behind the peristome. The lamella subcolumellaris is deep, its end is barely visible through the aperture. The plica principalis stretches from the lateral side to close behind the peristome. The lunella is dorso-lateral, weakly bent, but forms a broadly-curved fusion complex with the long plica superior. The basalis, with short anterior and longer posterior branches, is connected to the lunella at an angle. The narrow and pointed clausilium plate is partly visible through the aperture.

Measurements Holotype: shell height 24.9mm, shell width 7.0mm, aperture height 6.7mm, aperture width 5.2mm. Paratypes (n=3): shell height 23.7–25.2mm, mean ±SD 24.8±0.72mm; shell width 6.4–7.1mm, mean ±SD 6.9±0.31mm; aperture height 6.4–6.7mm, mean ±SD 6.5±0.13mm;

aperture width 5.0–5.3mm, mean ±SD 5.2±0.14mm.

Etymology The new species is dedicated to Barna Páll-Gergely, a colleague and valued friend who contributed to this study with helpful discussions.

Remarks The new species seems closest related to the *Synprosphythma* species that occur farther west in southern China and northern Vietnam. In comparison, *S. fistulata* (Bavay & Dautzenberg, 1909) has more elongate and strongly striate shell, detached aperture, and more dorsal lunella. *Synprosphythma babeensis* (Bavay & Dautzenberg, 1899) has exposed lamella subcolumellaris, *S. auricoma* (Bavay & Dautzenberg, 1899) is larger and has straighter lunella, whereas both these species possess much narrower-attached peristome and less deep-positioned lunella.

Synprosphythma wanshinensis (Blume, 1927)

This small *Synprosphythma* was described by Blume (1927) from material collected by the Stötzner Sichuan-Expedition in Wanshien (likely: Wanxian, presently Wanzhou Qu in Chongqing).

Synprosphythma wanshinensis monachorum

subsp. nov.

Fig. 2g

Diagnosis Differs from the nominotypical subspecies of *S. wanshinensis* by its smaller size, convex outline, less deep lunella, and the more reduced plicae superior and basalis.

Type material Holotype: Sichuan, Leshan Shi, Eshan Zhen, Emei Shan, Taiziping (29°31'37.0" N 103°19'55.1" E, 2950m), leg. Y. Nakahara, K. Ohara, K. Okubo & J. U. Otani 13.07.2007 (NHMUK 20150084). Paratype: same locality and collection data (OT/1).

Description The ochre-coloured, thin-walled shell of 8 to 8½ whorls is tumid, with convex contour. Its surface is glossy, with weak and indistinct ribs at the last two whorls but stronger and denser sculpture toward the apex. The neck is finely costate, its basal crest is weak. The whitish peristome is detached, its margin is thin and narrow. The height of the strong lamella superior decreases gradually toward its smooth

transition into the spiralis. The lamella inferior is only moderately emerged, it descends straight and forms a small lump before reaching the peristome. Ending deep, the lamella subcolumellaris is barely visible through the aperture. The plica principalis is short, spanning only one-quarter of a whorl from the dorsolateral side. The straight lunella is dorsal-dorsolateral. At its upper and lower ends slight curvatures in- and outward, respectively, result from fusions with barely recognizable residues of the plica superior and the anterior part of the basalis. The wide, blunt-ended clausilium plate is partly visible through the aperture.

Measurements Holotype: shell height 14.3mm, shell width 4.6mm, aperture height 3.9mm, aperture width 3.5mm. Paratype: shell height 15.9mm, shell width 4.8mm, aperture height 4.1mm, aperture width 3.5mm.

Etymology The name of the new subspecies refers to the monks housed in a dormitory near the type locality.

Remarks Morphological similarity seems to justify only subspecies level separation of the new taxon from *S. w. wanshinensis*, which has larger shell with somewhat elongate apex, narrower aperture, deeper (dorsolateral) lunella, clearly recognizable plica superior, and well developed basalis with anterior and posterior parts. *Synprosphyra w. monachorum* subsp. nov. was found in moist litter of a sparse fir forest with rich undergrowth, together with *Oospira truncatula* sp. nov.

Oospira Blanford, 1872

Type species: *Clausilia philippiana* Pfeiffer, 1847; OD.

Oospira minutissima sp. nov.

Fig. 2h

Diagnosis Very small *Oospira* with colourless, pupoid shell and retracted lamella subcolumellaris.

Type material Holotype: Sichuan, Chengdu Shi, Dujiangyan Shi, Qingcheng Shan, Jinbian Yan (30°55'14.0" N 103°29'29.0" E, 930m), leg. K. Okubo 23.10.2010 (NHMUK 20150086). Paratypes: same locality and collection data

(OK/1), same locality, leg. A. Hunyadi & M. Szekeres 07.06.2015 (HU/2, SZ/1).

Description The very small, colourless shell with convex outline is comprised of $7\frac{1}{2}$ to $7\frac{3}{4}$ whorls. The surface of the bulging whorls and the rounded neck is smooth and glossy. The ovoid aperture has thickened, attached margin. The lamella superior is moderately strong, inward it makes smooth transition into the spiralis. The lamella inferior is variably emerged, but always visible in front view of the aperture. The lamella subcolumellaris is deep, its end cannot be viewed without opening the shell wall. The plica principalis starts on the lateral side and reaches, weakening gradually, close to the aperture. Below it, on the lateral side, there are three to five wide-spaced palatal plicae. The broad, rounded clausilium plate with blunt tip is not visible through the aperture.

Measurements Holotype: shell height 9.0mm, shell width 2.4mm, aperture height 2.2mm, aperture width 1.8mm. Paratypes (n=4): shell height 7.5–8.8mm, mean \pm SD 8.1 \pm 0.53mm; shell width 2.2–2.4mm, mean \pm SD 2.3 \pm 0.10mm; aperture height 2.1–2.3mm, mean \pm SD 2.2 \pm 0.10mm; aperture width 1.8–1.9mm, mean \pm SD 1.9 \pm 0.06mm.

Etymology The name refers to the shell size, which is the smallest among the known *Oospira* species.

Remarks Based on its shell characteristics the new species is placed conditionally in the vast and highly diverse *Oospira* genus, as assessed by Nordsieck (2007). In contrast to other species in this group that live above ground, live specimens of *O. minutissima* sp. nov. have been found in narrow soil crevices. This and the colourless shell seem to indicate a subterranean life style. One specimen of this clausiliid was also collected 150km northeast of the type locality in Sichuan, Mianyang Shi, Jiangyou Shi, near Jinguang Dong (31°51'11.2" N 104°36'9.1" E, 1370m) (leg. A. Hunyadi & M. Szekeres).

Oospira ootayoshinari sp. nov.

Fig. 3a

Diagnosis Slender, dark-coloured *Oospira* with retracted lamella subcolumellaris and ventrolateral palatal plicae.

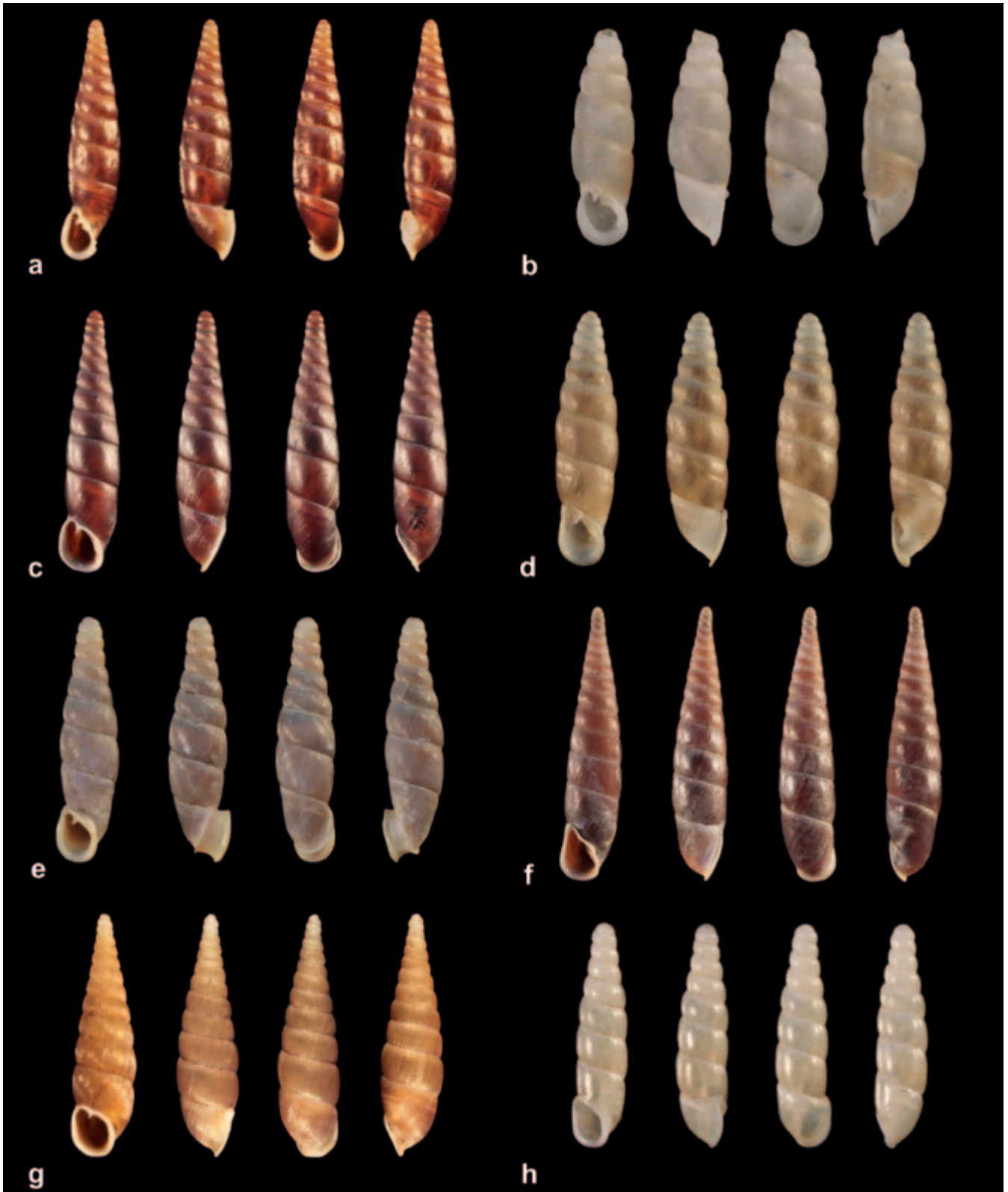


Figure 3 (a) *Oospira ootayoshinari* sp. nov., holotype (NHMUK 20150087, 19.7mm); (b) *Oospira truncatula* sp. nov., holotype (NHMUK 20150088, 14.9mm); (c) *Formosana abscedens* sp. nov., holotype (NHMUK 20150414, 31.4mm); (d) *Minatoia inopinata* sp. nov., holotype (SZ 201567, 19.8mm); (e) *Miraphaedusa gregoi* sp. nov., holotype (NHMUK 20150089, 15.6mm); (f) *Serriphaedusa* (S.) *ishibei* sp. nov., holotype (NHMUK 20150091, 30.8mm); (g) *Serriphaedusa* (S.) *ootanii* sp. nov., holotype (NHMUK 20150092, 19.6mm); (h) *Serriphaedusa* (Nannophaedusa) *diaphana* sp. nov., holotype (NHMUK 20150090, 8.5mm).

Type material Holotype: Sichuan, Chengdu Shi, Dujiangyan Shi, Qingchen Shan, Baiyun Cun, Guanyin Dong (30°56'54.2" N 103°28'46.1" E, 1350m), leg. K. Okubo 25.10.2014 (NHMUK 20150087). Paratypes: same locality and collection data (OK/1, SZ/1); same locality, leg. A. Hunyadi, T. Ishibe, K. Okubo, J. U. Otani & M. Szekeres 04.06.2015 (GR/1, HU/19, IS/24, OK/56, OT/11, SZ/3).

Description The dark-coloured, slender, spindle-shaped shell is comprised of 10 to 11½ whorls. The surface is smooth and glossy at the last two whorls, but becomes increasingly striate toward the apex, and finely, regularly costate at the neck. The projected, elongate-ovoid peristome has wide, whitish margin. The lamella superior makes straight transition into the somewhat less emerged spiralis. The broadly-bent lamella inferior ends higher than half height of the aperture, far behind the peristome margin. The retracted lamella subcolumellaris cannot be viewed through the aperture. The long plica principalis initiates deeper than the ventral side and spans an entire whorl before terminating behind the peristome. Of three to four strong, comparably long palatal plicae the uppermost reaches to the ventral side, whereas the others are ventrolateral. The clausilium plate is not visible through the aperture.

Measurements Holotype: shell height 19.7mm, shell width 4.4mm, aperture height 3.9mm, aperture width 3.0mm. Paratypes (n=20): shell height 18.0–21.2mm, mean ±SD 19.6±0.72mm; shell width 3.8–4.5mm, mean ±SD 4.1±0.18mm; aperture height 3.8–4.3mm, mean ±SD 4.0±0.15mm; aperture width 2.9–3.6mm, mean ±SD 3.1±0.24mm.

Etymology The new species is dedicated to Yoshinari Ota, a close friend of Kanji Okubo, the discoverer.

Remarks In the Qingcheng Shan region the new species was also collected at the Sanlong Dong (30°55'2.3" N 103°29'39.7" E, 1090m), the Baizhang Bridge (30°56'17.9" N 103°28'38.7" E, 1450m), and near the Fangning Bridge (30°54'19.8" N 103°33'22.0" E, 1120m) (leg. A. Hunyadi, T. Ishibe, K. Okubo, J. U. Otani & M. Szekeres). Live specimens were found under and between stones at moist habitats, at the type locality together with *Bathypytchia beresowskii eremita* subsp. nov.

Oospira truncatula sp. nov.

Fig. 3b

Diagnosis Small *Oospira* with decollated shell and marginally ending lamella subcolumellaris.

Type material Holotype: Sichuan, Leshan Shi, Eshan Zhen, Emei Shan, Taiziping (29°31'37.0" N 103°19'55.1" E, 2950m), leg. Y. Nakahara, K. Ohara, K. Okubo & J. U. Otani 13.07.2007 (NHMUK 20150088). Paratype: same locality and collection data (OK/1).

Description The decollated shell of 5½ to 6½ whorls is thin-walled, almost colourless, with slight reddish-brown tint. The surface, including that of the neck, is very finely and evenly costate. The aperture is ovoid, with somewhat thickened margin that is only barely detached from the adjacent whorl. The thin, moderately emerged lamella superior makes smooth transition into the spiralis, which then increases in height before ending deeper inside. The lamella inferior is well visible in front view, its terminal part bends downward and reaches the peristome margin near the strong, also marginally ending subcolumellaris. The plica principalis starts laterally and ends one-quarter of a whorl behind the aperture. Under it, on the lateral side, there are three strong, evenly-spaced palatal plicae of similar lengths. The clausilium plate is not visible through the aperture.

Measurements Holotype: shell height 14.9mm, shell width 4.4mm, aperture height 4.0mm, aperture width 3.6mm. Paratype: shell height 15.1mm, shell width 4.3mm, aperture height 4.1mm, aperture width 3.4mm.

Etymology The name refers to the decollated shell of the new species.

Remarks *Oospira truncatula* sp. nov. does not show close resemblance to any known species of *Oospira* but, based on the formation of the lamellae and plicae, it is placed tentatively in this highly diverse genus. The type material was collected together with *Synprosphyra wanshinensis monachorum* subsp. nov. in a coniferous forest growing on acidic igneous rock ground. In this environment the shells of both species became strongly eroded.

Formosana Boettger, 1877

Type species: *Clausilia swinhoei* Pfeiffer, 1865; OD.

Formosana abscedens sp. nov.

Fig. 3c

Diagnosis Large, dark coloured, sinistral *Formosana* with thick, costate apex and marginally-ending lamella subcolumellaris.

Type material Holotype: Sichuan, Yaan Shi, Shimian Xian, Lianghekou (29°28'4.3" N 102°10'7.4" E, 1120m), leg. A. Hunyadi & M. Szekeres 09.06.2015 (NHMUK 20150414). Paratypes: same locality and collection data (HU/6, SZ/1).

Description The large, sinistral, violet-brown shell with thick apex consists of 11½ to 13½ whorls. The surface is densely striate at the last two whorls and the neck, but gradually the striae become wider spaced fine ribs toward the apex. The whitish aperture is detached but not projected, with somewhat expanded columellar margin. The lamella superior increases in height inward before gradually lowering and making smooth transition into the spiralis. The lamella inferior descends very steeply in a straight line, then bends slightly toward the aperture before ending at the peristome. Close to its end terminates the lamella subcolumellaris, which reaches the rim of the peristome. Starting from the lateral side the plica principalis spans half a whorl. Its inner end is only slightly deeper than the six to seven well developed palatal plicae, of which the upper- and lowermost are longer than the ones in between. The clausilium plate is only barely visible through the aperture.

Measurements Holotype: shell height 31.4mm, shell width 6.9mm, aperture height 7.1mm, aperture width 5.5mm. Paratypes (n=6): shell height 31.3–39.8mm, mean ±SD 34.1±3.35mm; shell width 6.5–7.6mm, mean ±SD 7.1±0.40mm; aperture height 7.2–7.7mm, mean ±SD 7.4±0.19mm; aperture width 5.3–5.8mm, mean ±SD 5.4±0.23mm.

Etymology The name alludes to the recent flood destruction of much of the forest around the type locality by a hydroelectric dam.

Remarks *Formosana abscedens* sp. nov. was collected at a small segment of the old road along

the Dadu He that remained above water level. Live specimens were found under stones and leaf litter near the river bank, together with *Bathypytichia beresowskii beresowskii* (Möllendorff, 1902). The new species differs from *F. artifina* (Heude, 1885) and *F. schawalleri* Nordsieck, 2001 by its thicker apex with stronger sculpture (costate, rather than striate), from the latter and *F. malleolata* Nordsieck, 2012 by the less deep-ending plica superior (lateral, rather than ventrolateral) that barely reaches beyond the palatal plicae, and from all these species by the more exposed, marginally ending lamella subcolumellaris.

Minatoia gen. nov.

Type species: *Minatoia inopinata* sp. nov.

Diagnosis The diagnostic characters of the new genus are those of the type species.

Etymology The new genus is dedicated to Hiroshi Minato, the author of several important publications on Asiatic clausiliids. In 2002 he and Takashi Takagi discovered new clausiliids (Nordsieck, 2003) in the mountains where the type species of *Minatoia* gen. nov. was collected.

Minatoia inopinata sp. nov.

Fig. 3d

Diagnosis Tumid clausiliid with wide apex, simple, detached peristome, recessed lamellae inferior and subcolumellaris, and dorsolateral palatal plicae of which the upper- and lowermost are longer than those between them.

Type material Holotype: Sichuan, Mianyang Shi, Jiangyou Shi, Wudu Zhen; Guanwushan Forest Farm (31°56'38.8" N 104°44'1.1" E, 1590m), leg. A. Hunyadi & M. Szekeres 21.06.2015 (SZ 2015066, to be deposited at HNHM). Paratype: same locality and collection data (HU/1).

Description The tumid, ochre-colour shell with short and broad apex consists of 9½ to 10½ bulging whorls. The surface of the last whorl is very finely striate, almost smooth, but the sculpture becomes stronger, densely striate to costate, toward the apex and at the neck. The ovoid, whitish aperture is detached, with narrow, reflexed margin. The lamella superior is strong, its height decreases at the straight transition into the

spiralis. The lamella inferior descends in a steep spiral, converging to and reaching the columella at the peristome, remaining mostly hidden in front view of the aperture. Between the lamellae superior and inferior a conspicuous white callus is formed along the columella. The end of the lamella subcolumellaris is barely visible through the aperture. The plica principalis spans from the ventrolateral side to the peristome. Dorsolaterally there are six to seven palatal plicae, of which the upper- and lowermost are longer than those in between. These internal plicae tend to get fused into stronger, downward-curved plicae, or even a lunella-like ridge. The clausilium plate is partly visible through the aperture.

Measurements Holotype: shell height 19.8mm, shell width 4.9mm, aperture height 4.8mm, aperture width 3.5mm. Paratype: shell height 20.8mm, shell width 5.1mm, aperture height 5.0mm, aperture width 3.9mm.

Etymology The name denotes that finding this unique clausiliid in northern Sichuan was unexpected.

Remarks Shell features of *M. inopinata* sp. nov. cannot provide sufficient ground for clarifying the relation of this species to other Chinese clausiliids. Apparently, its characteristics do not fit in, or indicate clear affiliation to, any of the known genera. The phylogenetic position and relationships of *Minatoia* gen. nov., like those of a number of other Asiatic clausiliid genera, remain to be elucidated. Live specimens of the new species were found at the roots of herbaceous plants in the dump undergrowth of a mixed coniferous-deciduous forest.

Miraphaedusa Nordsieck, 2005

Type species: *Miraphaedusa takagii* Nordsieck, 2005; OD.

So far only two species of this genus have been described. *M. takagii* and *M. pretiosa* Nordsieck, 2012 are known from Guilin Shi and Hechi Shi of northeastern Guangxi Province, respectively. The dextral genus *Falsiluna* Grego & Szekeres, 2011 was considered by Nordsieck (2012) a sub-genus of *Miraphaedusa*. In our opinion, however, *Miraphaedusa* does not seem closely related to *Falsiluna*, and distinctive shell characters (e.g.

marked differences in shape, structure of the lamella inferior, position and number of the palatal plicae) sufficiently justify their classification as distinct genera.

Miraphaedusa gregoi sp. nov.

Fig. 3e

Diagnosis Small *Miraphaedusa* with deep-ending lamella inferior and few, ventrolateral palatal plicae.

Type material Holotype: Guizhou, Qiannan Zhou, Libo Xian, Shuipu Cun, along the dirt road to Dongbei Dong (25°28'55.3" N 107°53'50.2" E, 570m), leg. A. Hunyadi & M. Szekeres 15.09.2013 (NHMUK 20150089). Paratypes: same locality and collection data (HU/6, OK/1, SZ/1).

Description The small, spindle-shaped, chestnut-brown shell with thick apical part consists of 9 to 10 $\frac{2}{3}$ whorls. The entire surface is densely striate. The whitish, ovoid aperture is projected, the peristome is conspicuously duplicated, its margin is swollen. The lamella superior, highest at the middle of its length, terminates before reaching the spiral. The lamellae inferior and subcolumellaris are retracted, their ends are barely visible through the aperture. The long plica principalis starts deeper than the ventral side and reaches close to the aperture. Below it there are three to five strong, ventrolaterally-positioned palatal plicae. The clausilium plate cannot be viewed through the aperture.

Measurements Holotype: shell height 15.6mm, shell width 3.9mm, aperture height 3.7mm, aperture width 3.0mm. Paratypes (n=8): shell height 15.9–18.9mm, mean \pm SD 17.4 \pm 1.00mm; shell width 3.9–4.3mm, mean \pm SD 4.1 \pm 0.13mm; aperture height 3.6–4.0mm, mean \pm SD 3.8 \pm 0.13mm; aperture width 2.6–3.0mm, mean \pm SD 2.8 \pm 0.13mm.

Etymology The new species is dedicated to Jozef Grego, a colleague and close friend who has made valuable contribution to the studies of Asiatic clausiliids.

Remarks *Miraphaedusa gregoi* sp. nov. was found, accompanied by *Formosana libonensis* (Li, Luo & Chen, 2003), in deep and moist layers of leaf litter that accumulated on cliff surfaces. Its habitat

was very similar to that of *Miraphaedusa takagii* at its type locality.

Serriphaedusa Nordsieck, 2001

Type species: *Clausilia serrata* Deshayes, 1870;
OD.

Serriphaedusa has a narrow distribution range, so far with all verified occurrences in Sichuan Province. Based on apparent differences in shell characters between the known species the genus is divided in two subgenera: *S.* (*Serriphaedusa*) Nordsieck, and *S.* (*Nannophaedusa*) Nordsieck, 2012.

Serriphaedusa (*S.*) *ishibei* sp. nov.

Fig. 3f

Diagnosis Large *Serriphaedusa* with strongly reduced lamellae, short plica principalis, and largely fused lateral-ventrolateral palatal plicae.

Type material Holotype: Sichuan, Liangshan Zhou, Yanyuan Xian, Baiwu Zhen, Kedeng Rongdong (27°43'6.2" N 101°31'1.3" E, 2620m), leg. T. Hosoda, T. Ishibe, K. Okubo & J. U. Otani 13.09.2013 (NHMUK 20150091). Paratypes: same locality and collection data (OK/1, SZ/1).

Description The large, dark purple-brown, gradually widening shell consists of 13½ to 14 whorls. The surface is smooth and glossy at the last whorl, but toward the apex it becomes densely striate, then finely costate. The neck is densely striate behind the aperture, the wide basis is rounded. The triangular aperture has light brown, detached margin that is drawn upward at the sinulus. The lamella superior is reduced to a weak, diffuse lump. The outer end of the lamella spiralis is barely visible through aperture. The indistinct lamella inferior descends straight and terminates at quarter height of the peristome, behind the margin. The lamella subcolumellaris cannot be viewed through the aperture. The short plica principalis starts ventrally and ends before reaching the dorsal side. Lateral-ventrolaterally there are six to seven largely fused plicae. Of these the uppermost is longest, the lowest much shorter, whereas the ones between them are very short and diffuse. The clausilium plate is not visible through the aperture.

Measurements Holotype: shell height 30.8mm, shell width 5.8mm, aperture height 6.4mm, aperture width 4.4mm. Paratypes: shell height 27.5–27.8mm, shell width 5.8–6.3mm, aperture height 5.8–6.5mm, aperture width 3.7–4.6mm.

Etymology See at *Synprosophyma basilissa ishabei* subsp. nov.

Remarks Among the large-size *Serriphaedusa* species, *S.* (*S.*) *ishibei* sp. nov. can be distinguished from *S.* (*S.*) *boisseaui* Grego & Szekeres, 2011 by its strongly reduced lamellae and less deep palatal plicae, whereas from *S.* (*S.*) *marteli* (Dautzenberg, 1915) by both of these features, the smooth last whorl, and the absence of plicae at the peristome. The type material was collected in sparse deciduous forest near a cave entrance.

Serriphaedusa (*S.*) *ootanii* sp. nov.

Fig. 3g

Diagnosis Medium-size *Serriphaedusa* with densely costate, conical shell, thin apex, and retracted lamellae inferior and subcolumellaris.

Type material Holotype: Sichuan, Panzhihua Shi, Miyi Xian, Baima Zhen, Longtan Pubu (27°0'2.1" N 102°12'26.4" E, 1090m), leg. T. Hosoda, T. Ishibe, K. Okubo & J. U. Otani 11.09.2013 (NHMUK 20150092). Paratypes: same locality and collection data (OK/22, SZ/1); same locality, leg. K. Okubo 20.10.2010 (OK/2); same locality, leg. A. Hunyadi & M. Szekeres 08.06.2015 (HU/1).

Description The light to dark brown, conical shell consists of 12¼ to 13½ bulging whorls that taper gradually toward the thin apex. The last two whorls are densely costate, but the ribs become stronger and wider-spaced at the apex and the neck. The large, ovoid aperture with wide sinulus is detached, the narrow whitish peristome is not swollen. The basis is broad, rounded. The weakly emerged lamella superior reaches deep but remains distant from the spiralis. The lamellae inferior and subcolumellaris are recessed, their termini are visible only in slanted view at the aperture. The plica principalis starts ventrally and ends dorsally. Below it there are four to five distinct plicae at the ventrolateral side. Of these the uppermost is about twice longer than the others. The clausilium plate is not visible through the aperture.

Measurements Holotype: shell height 19.6mm, shell width 5.2mm, aperture height 4.2mm, aperture width 3.5mm. Paratypes (n=25): shell height 19.4–22.8mm, mean \pm SD 21.4 \pm 0.99mm; shell width 4.6–5.1mm, mean \pm SD 4.8 \pm 0.13mm; aperture height 4.1–5.1mm, mean \pm SD 4.6 \pm 0.22mm; aperture width 3.4–4.0mm, mean \pm SD 3.6 \pm 0.15mm.

Etymology The new subspecies is dedicated to Jamen Uiriamu Otani, who has made substantial contribution to this work and the study of Chinese clausiliids.

Remarks Compared to other medium-size species of its genus, *S. (S.) ootanii* sp. nov. has smaller, subtler shell with thinner apex than *S. (S.) elamellata* (Boettger & Schmacker, 1894) and *S. (S.) kangdingensis* (Chen & Zhang, 1999), whereas more conical shell and less exposed lamellae inferior and subcolumellaris than *S. (S.) serrata* (Deshayes, 1870) and *S. (S.) violacea* Grego & Szekeres 2011. The new species was found in leaf litter of deciduous forest near a waterfall.

Serriphaedusa (Nannophaedusa) Nordsieck, 2012

Type species: *Nannophaedusa acicula* Nordsieck, 2012; OD.

Nannophaedusa was described by Nordsieck (2012) as a monotypic genus for *N. acicula*, with an assumed type locality in Guangxi Province. The diagnostic shell characters of *Nannophaedusa*, however, can also be found in *Serriphaedusa draesekei* (Blume, 1925) from Omi (corrected as Wenchuan Xian in Sichuan; see: Nordsieck, 2003) and a new species from Chengdu and Xichang Shi, Sichuan. These distinctive features, namely the small, slender shell, separate lamellae superior and spiralis, retracted lamella inferior, and two deep palatal plicae with a lunella-like plica in between (Nordsieck, 2012), delineate a group of species and indicate subgeneric status for *Nannophaedusa* within *Serriphaedusa*.

Serriphaedusa (Nannophaedusa) diaphana sp. nov.
Fig. 3h

Diagnosis Very small species with colourless, translucent shell, attached peristome, and reduced lamella superior.

Type material Holotype: Sichuan, Chengdu Shi, Dujiangyan Shi, Qingcheng Shan, underneath Woyun Si (30°54'20.4" N 103°33'24.1" E, 1110m), leg. K. Okubo 24.10.2014 (NHMUK 20150090). Paratypes: same locality and collection data (OH/2, OK/6, OT/1, SZ/1); same locality, leg. K. Okubo 11.10.2007 (OH/3, OK/2); same locality, leg. A. Hunyadi, T. Ishibe, K. Okubo, J. U. Otani & M. Szekeres 06.06.2015 (HU/1, OK/2, SZ/1).

Description The very small, colourless and translucent shell consists of 8 to 8½ whorls. The surface is smooth, glossy, only the neck is striate. The basis is wide, rounded. The aperture is relatively large, attached, its margin is drawn upward at the columellar side and the wide sinus. The lamella superior is weak, lump-like, separate from the spiralis. The vertically descending lower part of the lamella inferior is barely visible through the aperture, but its end reaches the peristome margin. The lamella subcolumellaris also terminates marginally. The plica principalis starts ventrolaterally and spans half a whorl toward the aperture. The palatal plicae are also ventrolateral. The longer upper plica, reaching as deep as the principalis, is connected to the short lower one through two rudimentary internal plicae that form a lunella-like structure. The clausilium plate is not visible through the aperture.

Measurements Holotype: shell height 8.5mm, shell width 2.0mm, aperture height 2.0mm, aperture width 1.5mm. Paratypes (n=12): shell height 7.4–9.3mm, mean \pm SD 8.5 \pm 0.55mm; shell width 1.8–2.3mm, mean \pm SD 2.0 \pm 0.15mm; aperture height 1.7–2.1mm, mean \pm SD 1.9 \pm 0.11mm; aperture width 1.3–1.6mm, mean \pm SD 1.4 \pm 0.08mm.

Etymology The name refers to the translucent shell of the new species.

Remarks *Serriphaedusa (N.) diaphana* sp. nov. differs from the other species in its subgenus by the very small, colourless shell. In addition to the type locality, it was also collected in Sichuan at Dujiangyan Shi, Qingcheng Shan, Taian Zhen, Sanlong Dong (30°55'2.3" N 103°29'39.7" E, 1090m, leg. K. Okubo), and Liangshan Zhou, Xichang Shi, Lushan Scenic Area (27°50'0.4" N 102°15'53.7" E, 1820m, leg. A. Hunyadi & M. Szekeres). In each case it was found deep in moist, decaying leaf litter, at the type locality together with *Oospira ootayoshinari* sp. nov. and

Synprosphyra gibbosula (Deshayes, 1870). Based on its habitat and very small, colourless shell it is assumed to be a subterranean clausiliid.

In addition to *S. (N.) acicula* and *S. (N.) draesekei*, likely the little known *Clausilia binaria* Heude, 1886 from "Ta-li fou" (approximately the present Dali Shi in Yunnan) also belongs to *S. (Nannophaedusa)*. Of this species no type material is available, therefore its status is difficult to assess. However, the description and figure published by Heude (1886, 1890) suggest its close relation to the species of this subgenus, and particularly to *S. (N.) diaphana* sp. nov.

***Serriphaedusa (N.) fusiformis* sp. nov.**

Fig. 4a

Diagnosis A *Serriphaedusa (Nannophaedusa)* species with ventricose body, elongate, strongly costate apex, and very low, marginally ending lamella inferior.

Type material Holotype: Sichuan, Liangshan Zhou, Xichang Shi, Lushan Scenic Area (27°50'0.4" N 102°15'53.7" E, 1820m), leg. A. Hunyadi & M. Szekeres 12.06.2015 (SZ 2015067, to be deposited at HNHM). Paratype: same locality and collection data (HU/1).

Description The small, light purple-brown shell of 14¼ to 14½ whorls is slender, spindle-shaped, with narrow, elongate tip, ventricose body, and small aperture. The surface of the shell is finely, densely costate at the last two whorls, but the ribs become stronger and wider-spaced toward the apex. The oval to somewhat angular aperture is detached, its margin is somewhat thickened. The weakly emerged lamella superior is distant from the spiralis. The lamella inferior descends steeply before making a sharp turn and reaching the peristome margin. Only its nearly horizontal terminal part is visible in front view of the aperture. The lamella subcolumellaris ends close to the inferior, also at the peristome rim. The plica principalis starts ventral-ventrolaterally and extends to close behind the aperture. It becomes weak and diffuse from the dorsal side to its outer end. The ventrolateral plica superior is parallel to the principalis. Below and separated from it lies the straight, slightly inward-slanted lunella. The barely recognizable basal plica is fused to the lunella. The clausilium plate is not visible through the aperture.

Measurements Holotype: shell height 16.6mm, shell width 3.7mm, aperture height 3.2mm, aperture width 2.2mm. Paratype: shell height 16.4mm, shell width 3.8mm, aperture height 3.2mm, aperture width 2.4mm.

Etymology The name refers to the characteristic spindle-shape of the shell.

Remarks The new species resembles *S. (N.) draesekei* (Blume), from which it differs by its costate apical and ventricose lower whorls, the deeper lunella, and the almost complete absence of the plica basalis. *Serriphaedusa (N.) fusiformis* sp. nov. was found in moist, decaying leaf litter of mixed deciduous forest, accompanied by *Serriphaedusa (N.) diaphana* sp. nov., *Bathyptychia martensi immersa* subsp. nov. and *Synprosphyra xichangensis* (Chen & Zhang, 1999).

***Bathyptychia* Lindholm, 1925**

Type species: *Clausilia aplostoma* Heude, 1885; OD.

***Bathyptychia aplostoma* (Heude, 1885)**

This species was described by Heude (1885) from Tchen-k'eu (= Chengkou Xian in Chongqing).

***Bathyptychia aplostoma ookuboi* subsp. nov.**

Fig. 4b

Diagnosis Differs from the nominotypical subspecies by its less fusiform shell and less deep-positioned palatal plicae.

Type material Holotype: Sichuan, Panzhihua Shi, Yanbian Xian, Qinghe Pubu (27°3'50.0" N 101°23'36.7" E, 1410m), leg. T. Hosoda, T. Ishibe, K. Okubo & J. U. Otani 12.09.2013 (NHMUK 20150093). Paratypes: same locality and collection data (OK/4, SZ/1); same locality, leg. K. Okubo 21.10.2010 (OK/2); same locality, leg. A. Hunyadi & M. Szekeres 09.06.2015 (HU/1).

Description The slender, spindle-shaped, dark yellowish-brown shell consists of 10¾ to 12 whorls. The surface at the widest penultimate whorl is smooth and glossy, but toward the apex it becomes indistinctly striate. The last whorl is costate from the lateral side toward the aperture, with strongest and widest-spaced ribs at the middle of the neck. The light brownish, oblong-ovoid

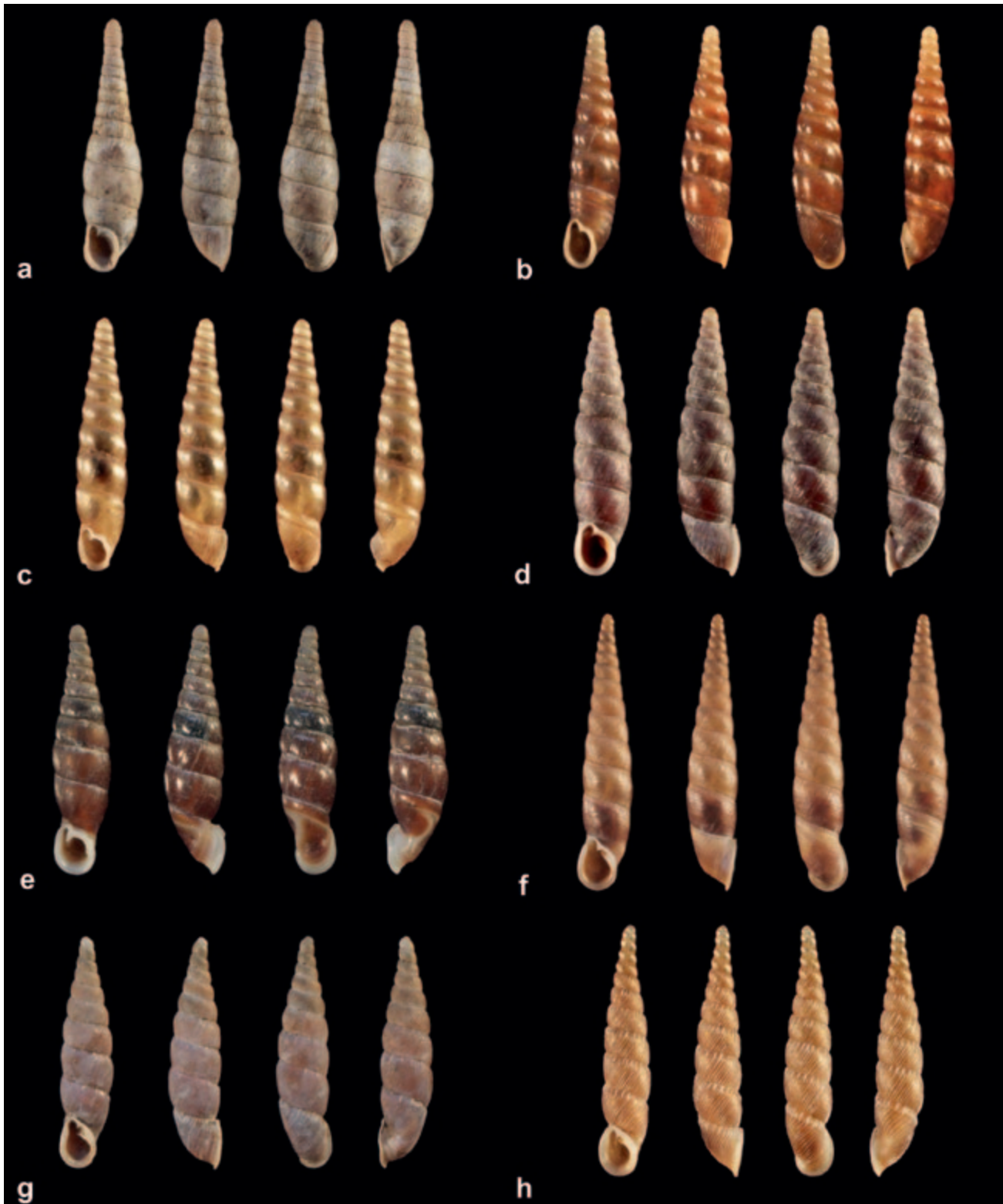


Figure 4 (a) *Serriphaedusa* (*Nannophaedusa*) *fusiformis* sp. nov., holotype (SZ 2015066, 16.6mm); (b) *Bathyptychia* *aplostoma* *ookuboi* subsp. nov., holotype (NHMUK 20150093, 13.3mm); (c) *Bathyptychia* *beresowskii* *eremita* subsp. nov., holotype (NHMUK 20150415, 11.6mm); (d) *Bathyptychia* *martensi* *immersa* subsp. nov., holotype (NHMUK 20150416, 16.5mm); (e) *Selenophaedusa* *dentifera* sp. nov., holotype (NHMUK 20150094, 14.7mm); (f) *Phaedusa* *matejkoi* *ooharai* subsp. nov., holotype (NHMUK 20150095, 23.7mm); (g) *Euphaedusa* (*Papilliphaedusa*) *latens* sp. nov., holotype (NHMUK 20150096, 11.1mm); (h) *Euphaedusa* (*Papilliphaedusa*) *sericea* sp. nov., holotype (NHMUK 20150418, 14.6mm).

peristome is detached. The weakly-emerged lamella superior makes straight transition into the spiralis. The lamella inferior is only barely, whereas the subcolumellaris is not at all visible through the aperture. The plica principalis starts ventrally and terminates dorsally. Underneath there are three well developed, evenly-spaced ventrolateral plicae, of which the upper one is longest and the central is shortest. The clausilium plate is not visible through the aperture.

Measurements Holotype: shell height 13.3mm, shell width 2.9mm, aperture height 2.7mm, aperture width 1.8mm. Paratypes (n=7): shell height 12.3–14.3mm, mean \pm SD 13.0 \pm 0.71mm; shell width 2.6–3.2mm, mean \pm SD 2.9 \pm 0.20mm; aperture height 2.6–3.1mm, mean \pm SD 2.8 \pm 0.21mm; aperture width 1.8–2.2mm, mean \pm SD 2.1 \pm 0.15mm.

Etymology See at *Synprosphyra ookuboi* sp. nov.

Remarks This clausiliid is tentatively classified as a subspecies of *B. aplostoma*. Nominotypical *B. a. aplostoma* also has only few, deeper than lateral palatal plicae, which distinguish it and *B. a. ookuboi* subsp. nov. from all other *Bathyptychia*. There is, however, nearly 900km distance between the localities of the two taxa, thus it cannot be excluded that the similarity in shell structure does not reflect close phylogenetic relationship. The new subspecies was collected together with *Synprosphyra basilissa ishabei* subsp. nov. and *Euphaedusa (E.) buccinella* (Heude).

Bathyptychia beresowskii beresowskii
(Möllendorff, 1902)

The type locality of *B. beresowskii* is “Tapa am Tung” (=Daba Cun along the Dadu River in Sichuan, Garze Zhou) (Möllendorff, 1902). Recently its nominotypical subspecies has also been found at the following localities in Sichuan (leg. A. Hunyadi & M. Szekeres): Yaan Shi, Shimian Xian, Lianghekou (29°28'4.3" N 102°10'7.4" E, 1120m), Leshan Shi, Jinkouhe Xian, Jinhe Zhen (29°18'12.9" N 103°6'47.2" E, 610m), and Leshan Shi, Ebian Xian, mouth of the Guanmiao He near Caopinggang (29°14'3.7" N 103°12'29.5" E, 770m). At Caopinggang it was collected together with *Phaedusa potanini pretiosa* Nordsieck, 2001 and *Euphaedusa (E.) krejci* Nordsieck, 2001.

Bathyptychia beresowskii eremita subsp. nov.

Fig. 4c

Diagnosis Differs from *B. b. beresowskii* by its smaller, lighter-coloured shell and deeper plica principalis.

Type material Holotype: Sichuan, Chengdu Shi, Dujiangyan Shi, Qingcheng Shan, Baiyun Cun, Guanyin Dong (30°56'54.2" N 103°28'46.1" E, 1350m), leg. A. Hunyadi, T. Ishibe, K. Okubo, J. U. Otani & M. Szekeres 04.06.2015 (NHMUK 20150415). Paratypes: same locality and collection data (HU/3, OK/1, SZ/1).

Description The small, slender, light yellowish-brown shell consists of 10 to 11½ bulging whorls. The surface at the last three whorls is glossy, almost smooth, but becomes increasingly striate toward the apex. The neck is densely costate, tapering at the basis. The small aperture has narrow, detached peristome. The lamella superior decreases in height before making straight transition into the spiralis. The lamella inferior is not visible in front view, the lamella subcolumellaris is barely visible even in slanted view at the aperture. The plica principalis starts ventrally and ends a quarter of a whorl behind the aperture. Underneath there are 7 to 9 distinct, dorsolateral plicae of varying, but more or less equal length. The clausilium plate cannot be viewed through the aperture.

Measurements Holotype: shell height 11.6mm, shell width 2.4mm, aperture height 2.1mm, aperture width 1.4mm. Paratypes (n=4): shell height 11.8–12.4mm, mean \pm SD 12.1 \pm 0.28mm; shell width 2.0–2.6mm, mean \pm SD 2.3 \pm 0.29mm; aperture height 2.1–2.3mm, mean \pm SD 2.2 \pm 0.08mm; aperture width 1.3–1.5mm, mean \pm SD 1.4 \pm 0.10mm.

Etymology The name refers to the vicinity to cave shrines to the type locality.

Remarks The new subspecies differs from *B. b. beresowskii* by its smaller, smoother, lighter coloured shell with less spindle-like shape, narrower peristome margin, and deeper plica principalis. It stands closest to *B. b. flavida* Nordsieck, 2005 from the Diancang Shan (Yunnan, Dali Shi) (Nordsieck, 2005), from which it can be distinguished by the considerably smaller size and the

plica principalis that initiates much deeper than the palatal plicae. Clarifying whether *B. b. flavida* and the new taxon indeed belong to *B. beresowskii* or represent a distinct species will require phylogenetic analyses deeper than those relying merely on shell characters. *Bathyptychia b. eremita* subsp. nov. was collected together with *Oospira ootayoshinarii* sp. nov.

***Bathyptychia martensi* Nordsieck, 2001**

Bathyptychia martensi has been described by Nordsieck (2001) from the Emei Shan (Sichuan, Leshan Shi).

***Bathyptychia martensi immersa* subsp. nov.**

Fig. 4d

Diagnosis Differs from *B. m. martensi* by its deep-initiating plica principalis and deeper-positioned palatal plicae.

Type material Holotype: Sichuan, Liangshan Zhou, Xichang Shi, near the entrance of the Lushan Scenic Area (27°50'7.5" N 102°16'11.4" E, 1610m), leg. A. Hunyadi & M. Szekeres 12.06.2015 (NHMUK 20150416). Paratypes: same locality and collection data (HNHM 99689/2, NHMUK 20150417/1, NHMW 110176/2, GR/2, HU/58, IS/2, OH/2, OK/2, OT/2, SZ/17).

Description The dark, violet-brown shell of 10¼ to 11½ whorls is relatively wide, with only weakly elongated apex. The surface is covered by dense striae that become stronger and less regular over the neck. The ovoid, detached aperture has strong, light brownish margin. The lamella superior is continuous with the spiralis but lowers before the straight transition. The end of the deep lamella inferior is visible in frontal, whereas the lamella subcolumellaris only in slanted view at the aperture. The plica principalis spans half a whorl starting from the ventrolateral side. Dorsolateral to laterally there are 7 to 10 distinct, somewhat disorderly plicae. Of these the uppermost is longest, the others are more or less of similar length. The clausilium plate is not visible through the aperture.

Measurements Holotype: shell height 16.5mm, shell width 3.6mm, aperture height 3.1mm, aperture width 2.5mm. Paratypes (n=20): shell height 13.9–17.5mm, mean ±SD 15.5±0.93mm;

shell width 3.2–3.9mm, mean ±SD 3.5±0.21mm; aperture height 2.9–3.4mm, mean ±SD 3.2±0.16mm; aperture width 2.2–2.8mm, mean ±SD 2.6±0.15mm.

Etymology The name refers to the palatal plicae that are deeper positioned than those of the nominotypical subspecies.

Remarks Near its type locality the new subspecies was also found at another point of the Lushan Scenic Area (27°50'0.4" N 102°15'53.7" E, 1820m; leg. A. Hunyadi & M. Szekeres), together with *Serriphaedusa* (N.) *diaphana* sp. nov., *Serriphaedusa* (N.) *fusiformis* sp. nov., and *Synprospyhma xichangensis* (Chen & Zhang).

***Selenophaedusa* Lindholm, 1924**

Type species: *Clausilia porphyrostoma* Bavay & Dautzenberg, 1909; OD.

***Selenophaedusa dentifera* sp. nov.**

Fig. 4e

Diagnosis Small, spindle-shaped *Selenophaedusa* with unique tooth-like lump at the parietal wall behind the aperture.

Type material Holotype: Hunan, Yongzhou Shi, Ningyuan Xian, Jiuyishan Senlin Gongyuan (25°21'12.0" N 111°58'41.8" E, 450m), leg. A. Hunyadi 11.11.2010 (NHMUK 20150094). Paratypes: same locality and collection data (GR/1, HU/34, OK/1, SZ/2).

Description The small, slender, spindle-shaped shell of 10 to 11¼ whorls has dark chestnut-brown colour. The surface is smooth, glossy, at the neck indistinctly wrinkled. The rounded ovoid peristome is detached, its projected whitish margin is duplicated. The lamella superior is strongly emerged, inward it is continuous with the much lower spiralis. The lamella inferior descends parallel and close to the spiralis, then bends down before turning toward and terminating at the peristome margin. The final part of the lamella subcolumellaris runs parallel to the inferior and ends close to it, also reaching the margin. The plica principalis starts laterally and reaches close to the peristome. Under its outer end at the parietal wall there is a conspicuous, tooth-like lump. The dorsal-dorsolateral lunella

is fused to, and forms a broad arch with, the plica superior. The plica basalis has long anterior and short posterior parts, which meet perpendicularly at their connection with the lunella. The clausilium plate is almost entirely visible through the aperture.

Measurements Holotype: shell height 14.7mm, shell width 3.4mm, aperture height 3.1mm, aperture width 2.5mm. Paratypes (n=39): shell height 14.3–15.8mm, mean \pm SD 15.2 \pm 0.38mm; shell width 3.2–3.8mm, mean \pm SD 3.5 \pm 0.14mm; aperture height 2.6–3.3mm, mean \pm SD 3.1 \pm 0.14mm; aperture width 2.2–2.7mm, mean \pm SD 2.5 \pm 0.15mm.

Etymology The name refers to the unique tooth-like formation deep in the aperture.

Remarks *Selenophaedusa billeti polydonella* Nordsieck, 2005 from southwestern Guangxi Province (Chongzuo Shi, Jinglin Scenic Area) (Nordsieck, 2005) shows superficial resemblance to the new species, but can be easily distinguished from it by the better emerged and less steeply descending, non-marginal lamella inferior that is not parallel at its end to the subcolumellaris, the angular fusion between the plica superior and the lunella, the much weaker anterior plica basalis, and the absence of the parietal tooth. Live specimens of *S. dentifera* sp. nov. were found under moist litter of a broad-leaf evergreen forest, together with *Formosana dextrogyra* (Bavay & Dautzenberg, 1909), *Formosana splendens* Nordsieck, 2005, and *Margaritiphaedusa ziyuanensis* (Chen & Zhang, 1999).

Phaedusa Adams & Adams, 1855

Type species: *Clausilia corticina* Pfeiffer, 1842; SD Martens in Albers, 1860.

Phaedusa matejkoi Grego & Szekeres, 2011

This species that had been described from central Guangxi (Hechi Shi, Dahua Xian) (Grego & Szekeres, 2011) was considered by Nordsieck (2012) a subspecies of *P. elisabethae* (Möllendorff, 1881). In the authors' opinion, however, the distinctive features of *P. matejkoi*, (slender shell, deep-reaching lamella superior, narrowly-bent lamella inferior) support its classification as an independent species.

Phaedusa matejkoi ooharai subsp. nov.

Fig. 4f

Diagnosis Smaller and more slender than *P. m. matejkoi*, with stronger developed, dorsolateral (rather than lateral) palatal plicae.

Type material Holotype: Guangxi, Bose Shi, Leye Xian, Dashitong Tiankeng (24°48'23.2'' N 106°26'51.8'' E, 1400m), leg. Y. Nakahara, K. Ohara, K. Okubo & J. U. Otani 12.07.2006 (NHMUK 20150095).

Description The slender, dark yellowish-brown shell consists of 13 whorls. Indistinct striae and fine perpendicular ridges give the last two whorls a reticulate pattern with silky shine. Toward the apex the surface becomes strongly and densely striate. At the last whorls the suture is densely papillate. The neck has crowded, irregular striae. The relatively small, ovoid aperture has narrow, light brown, detached margin. The lamella superior runs deep, but ends before reaching the spiralis that lies along the same line. The moderately-emerged lamella inferior descends along a narrow spire, then bends downward and terminates at the peristome. The lamella subcolumellaris is visible only at slanted view in the aperture. The plica principalis starts laterally and ends one-third of a whorl behind the aperture. Below it there are 8 well developed, somewhat irregularly aligned dorsolateral plicae, of which the uppermost is longest. The clausilium plate is almost entirely visible through the aperture.

Measurements Holotype: shell height 23.7mm, shell width 4.4mm, aperture height 4.4mm, aperture width 3.3mm.

Etymology See at *Grandinenia pallidissima ooharai* subsp. nov.

Remarks The type locality of *P. m. ooharai* subsp. nov. is 200km northwest of that of *P. m. matejkoi* (also its only known occurrence). The holotype was collected live from leaf litter accumulated at the bottom of limestone cliffs, accompanied by *Acanthophaedusa ookuboi* Nordsieck, 2007.

Euphaedusa (Papilliphaedusa) Nordsieck, 2003

Type species: *Clausilia lorraini* Menke, 1856; OD.

Euphaedusa (Papilliphaedusa) latens sp. nov.

Fig. 4g

Diagnosis Small, spindle-shaped *Euphaedusa (Papilliphaedusa)* with costate, strongly papillate whorls and thin apex.

Type material Holotype: Guangxi, Bose Shi, Leye Xian, Chuandong Tiankeng Scenic Area, path inside Chuandong Tiankeng (24°48'25.8" N 106°29'16.6" E, 1290m), leg. A. Hunyadi & M. Szekeres 09.09.2013 (NHMUK 20150096). Paratypes: same locality and collection data (HU/8, OK/1, SZ/1).

Description The slender, spindle-shaped, yellowish-brown shell of $9\frac{1}{2}$ to $10\frac{2}{3}$ whorls has thin, somewhat protracted apex. The surface of the whorls is indistinctly striate-costate, with denser and sharper ribs toward the apex and at the neck. The elongate-ovoid, light brown peristome has broad, detached margin. The thin lamella superior ends far away from the spiralis. The lamella inferior is strongly emerged, inward it runs close to the inner end of the superior. The lamella subcolumellaris is only barely visible at slanted view in the aperture. The plica principalis starts laterally and terminates about one-third of a whorl behind the aperture. The long uppermost palatal plica also starts laterally, first running parallel to the principalis and then diverging from it. Underneath, already at the dorsolateral side, there are 4 to 5 short plicae merged in a diffuse callus that forms a broad arch together with the uppermost plica. The clausilium plate is only barely visible through the aperture.

Measurements Holotype: shell height 11.1mm, shell width 2.4mm, aperture height 2.3mm, aperture width 1.7mm. Paratypes (n=10): shell height 11.0–13.1mm, mean \pm SD 12.1 \pm 0.62mm; shell width 2.3–2.7mm, mean \pm SD 2.5 \pm 0.13mm; aperture height 2.2–2.8mm, mean \pm SD 2.5 \pm 0.17mm; aperture width 1.6–2.0mm, mean \pm SD 1.9 \pm 0.13mm.

Etymology The name refers to the small, inconspicuous shell of the new species.

Remarks *Euphaedusa (P.) latens* sp. nov. can be distinguished from *E. (P.) porphyrea* (Möllendorff, 1882) by its smaller, strongly papillate shell with

thin apex, whereas from the similarly small *E. (P.) mucronifera* Nordsieck, 1998 of Yang-hu (= Yanghou in Fujian, Nanping Shi; Möllendorff, 1882) by its more slender, stronger papillate shell, shorter upper palatal plica, and the dorsolateral (rather than lateral) fused minor plicae. Of the new species only empty shells were found in moist, thick litter of a deciduous forest, together with *Synprosphyra fistulata* (Bavay & Dautzenberg, 1909) and *Acanthophaedusa ookuboi* Nordsieck.

Euphaedusa (Papilliphaedusa) sericea sp. nov.

Fig. 4h

Diagnosis Slender *Euphaedusa (Papilliphaedusa)* with costate whorls, very thin apex, and high-positioned lamella inferior.

Type material Holotype: Guizhou, Qiannan Zhou, Luodian Xian, Moyang Zhen, Xinzhai (25°32'10.5" N 106°49'18.6" E, 910m), leg. T. Ishibe, J. U. Otani & K. Okubo 08.06.2015 (NHMUK 20150418). Paratypes: same locality and collection data (HU/1, IS/17, OK/17, OT/7, SZ/1).

Description The slender, yellowish-brown shell of $10\frac{1}{3}$ to $12\frac{1}{2}$ whorls has very thin, pointed apex. The bulging whorls are densely and strongly costate, with conspicuous white papillae along the suture. The pattern of the ribs is largely uniform over the entire shell, but the papillae become stronger toward the basis. The whitish, ovoid peristome with broad, flat margin is detached. The lamella superior is weakly emerged or even diffuse, inward it ends much before reaching the spiralis. The lamella inferior ends close to the superior, behind the wide peristome. The lamella subcolumellaris cannot be viewed through the aperture. The plica principalis initiates lateral-ventrolaterally and spans half a whorl. The well-developed uppermost palatal plica runs parallel to the principalis. Its outer part joins an arched, uniform dorsolateral callus formed by the fusion of the residual lower plicae. The clausilium plate is broad, widest at its distal third, not notched at the blunt tip. It is partly visible through the aperture.

Measurements Holotype: shell height 14.6mm, shell width 2.7mm, aperture height 3.0mm, aperture width 2.4mm. Paratypes (n=19): shell height 12.1–15.4mm, mean \pm SD 14.2 \pm 0.88mm;

shell width 2.5–3.1mm, mean \pm SD 2.8 \pm 0.14mm; aperture height 2.4–3.1mm, mean \pm SD 2.7 \pm 0.18mm; aperture width 1.9–2.5mm, mean \pm SD 2.2 \pm 0.14mm.

Etymology The name refers to the silky appearance of the shell surface.

Remarks The new species can be distinguished from *E. (P.) porphyrea* (Mölldorff) by its slender shape and strongly costate, conspicuously papillate whorls. It was also collected at three additional localities in Guizhou, Qiannan Zhou, Luodian Xian (leg. T. Ishibe, J. U. Otani & K. Okubo): at Moyang Zhen, Daxiaoqing Scenic Area, (25°33'43.7" N 106°51'26.0" E, 450m), Moyang Zhen, village opposite to Yangchang Shilin (25°32'8.9" N 106°49'14.3" E, 910m), and Yungan Zhen, near Daguan (25°30'38.9" N 106°45'16.2" E, 810m). *E. (P.) sericea* sp. nov. was found on and under mossy limestone blocks. At the type locality it was the only clausiliid, whereas at the other localities it was accompanied by *Phaedusa lypra latestriata* Nordsieck, 2007.

ZOOGEOGRAPHICAL DATA AND REMARKS

Most of the Chinese clausiliids have been described with vague locality data, often defining only the province or county of origin. Although malacological studies of the past few decades have yielded considerable amount of precise records, still there is no reliable locality or distribution information on several, likely highly endemic taxa, which may be threatened by human impact on their environment. The present study revealed some important occurrence data of species that hitherto had only loosely defined or dubious records of origin, as well as localities that considerably extend the ranges of little-known taxa. In addition to those already given in the taxonomic part, novel data are reported on the following species and subspecies:

Synprosphyra cavicola (Gredler, 1888)
Hubei, Enshi Zhou, Enshi Shi, Taiyanghe Xiang, Suobuya Shilin, Longgong (30°34'51.7" N 109°34'32.6" E, 920m), leg. A. Hunyadi. The specimens were found on limestone cliffs of a pine forest, together with *Synprosphyra franciscana* (Mölldorff, 1885).

Formosana libonensis liujinae (Maassen, 2008)
Guangxi, Hechi Shi, Huanjiang Xian, Mulun Xiang, cliffs above Dongning Cun (25°5'58.2" N 107°57'38.3" E, 500m), leg. A. Hunyadi & M. Szekeres. The specimens were collected together with *Selenophaedusa castanea* Nordsieck, 2012. The taxon, originally described by Maassen (2008) as *Oospira (Formosana) liujinae*, is closely related to and therefore classified as a subspecies of *F. libonensis*, which was described earlier (Li, Luo & Chen, 2003).

Distortiphaedusa imprimata Grego & Szekeres, 2011
Guangxi, Hechi Shi, Tiane Xian, Tiane, Longzhu Park (24°59'1.3" N 107°10'21.8" E, 620m), leg. A. Hunyadi & M. Szekeres. The specimens were collected together with *Phaedusa lypra duanensis* Nordsieck, 2012 and *Euphaedusa (Tauphaedusa) tau* (Boettger, 1877).

Fuchsiana paradoxa (Gredler, 1883)
Hunan, Yongzhou Shi, Lingling Qu, Dengjiachong Cun (26°13'48.5" N 111°35'54.4" E, 130m), leg. Hunyadi. This species was found at a limestone cliff sympatrically with *Euphaedusa (E.) aculus* (Benson, 1842) and *Euphaedusa (Tauphaedusa) tau* (Boettger).

Serriphaedusa violacea Grego & Szekeres, 2011
Sichuan, Chengdu Shi, Dujiangyan Shi, Qingcheng Shan, Shangqinggong (30°54'46.2" N 103°33'42.4" E, 1170m), leg. Y. Nakahara, K. Ohara, K. Okubo & J. A. Otani, and Sichuan, Leshan Shi, Emei Shan, Wannian Si (29°34'52.4" N 103°22'53.1" E, 1000m), leg. A. Hunyadi & M. Szekeres. At the two sites the species was collected from damp leaf litter of deciduous forests, together with *Margaritiphaedusa rusticana amoena* Nordsieck, and at Wannian Si also with *Formosana schawalleri* Nordsieck.

Euphaedusa (Papilliphaedusa) porphyrea (Mölldorff, 1882)
Hunan, Yongzhou Shi, Fujiaqiao Zhen, Danyan, leg. K. Ohara, K. Okubo & J. U. Otani. This is the first Hunan record of the species, which was described from Guangdong Province (Mölldorff, 1882) and has also been known from several localities in Guangxi Province. In the authors' view the form described as *E. (E.) loczyi uniplicata* Nordsieck, 2012 (see: Nordsieck, 2012) also belongs to *E. (P.) porphyrea*.

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