Koleopterologische Rundschau	82	235–284	Wien, September 2012

Taxonomic revision of *Anacaena* THOMSON, 1859 IX. The People's Republic of China (Coleoptera: Hydrophilidae)

A. KOMAREK

Abstract

The species of *Anacaena* THOMSON, 1859 (Coleoptera: Hydrophilidae) from the People's Republic of China are revised. *Anacaena bulbifera* PU, 1964, and *A. lushanensis* PU, 1964 are transferred to *Paracymus* THOMSON, 1867. *Anacaena hunanensis* PU, 1964 and *A. pseudoyunnanensis* JIA, 1997 are not available and consequently are regarded as nomina nuda. Seven species are redescribed and eight new species are described: *Anacaena brachypenis*, *A. gaoligongshana*, *A. jiafenglongi*, *A. lanzhujii*, *A. pui*, *A. schoenmanni*, *A. sichuana*, and *A. wangi*. A neotype is designated for *A. maculata* PU, 1964. The species described here are all endemic to China. *Anacaena atriflava* JIA, 1997, *A. wangi* and *A. yunnanensis* ORCHYMONT, 1942 are united to form the *A. yunnanensis*-group due to morphological similarities. Twelve species are aquatic, for three species the habitat is still unknown. Diagnostic details are illustrated and a key to the species is presented.

Key words: Coleoptera, Hydrophilidae, *Anacaena*, taxonomy, revision, key to species, new species, China, Eastern Palearctic Region, Oriental Region.

Introduction

Representatives of *Anacaena* THOMSON, 1859 are distributed all over the world. Despite the enormous area of about 6.9 million km^2, very few specimens of this genus have been collected in China before the last decade of the 20th century. "The territory of China remains one of the last 'terrae incognitae' in terms of water beetle research in the Palearctic realm" (JÄCH & JI 1995). This situation began to change in 1992, when the "China Waterbeetle Survey" (CWBS; JÄCH & JI 1995, 1998, 2003), a cooperation between The Chinese Academy of Sciences and the Vienna Natural History Museum, was launched. Since that time many hundreds of *Anacaena* specimens were collected in twelve provinces of China. The sampling sites of the CWBS are mapped in JÄCH & JI (1995, 1998, 2003). Nevertheless, this genus is still unknown from many parts of China.

Up to now, eleven species of *Anacaena* have been described from the People's Republic of China (ORCHYMONT 1942, PU 1963, 1964, JIA 1997). Unfortunately, several types have been lost when the collection of the Zhongshan (= formerly Sun Yat-Sen) University was transferred some years ago. The holotype of *A. hunanensis* PU, 1964 could not be traced at all. In the holotype of *A. pseudoyunnanensis* JIA, 1997 important body parts are missing. Aside from this, the descriptions of both are ambiguous.

Two species of *Anacaena* described by PU (1964) are here transferred to another genus. The remaining seven species have been collected in large numbers in the past twenty years during the CWBS. Males of *A. bushiki* PU, 1963 and of *A. gerula* ORCHYMONT, 1942 are described here for the first time. Both species were previously known only from the female holotypes. In addition to the hitherto known species, eight new species are described in this contribution.

Material and methods

All types of *A. yunnanensis* ORCHYMONT, 1942 and *A. gerula* ORCHYMONT, 1942, and the types described by PU (1963, 1964) and JIA (1997) were examined, as far as they were traced in the CASB and ZUG. Together with about 2000 specimens of *Anacaena*, collected in the past 20 years in China (deposited in nine collections), they were compared with specimens of *Anacaena* from India (KOMAREK 2006), Indonesia (KOMAREK 2010), Taiwan (KOMAREK 2011), and with specimens from Laos, Cambodia, Thailand and Vietnam deposited in the NMW.

Mouthparts, thoracic structures and male genitalia were dissected, placed in concentrated lactic acid and examined several hours later using a binocular Leica MZ 12.5 with diffuse and focused light sources, and a light microscope (Olympus BX 41). Measurements were taken with a micrometric eyepiece and drawings were made using Corel Suite X5. Annotations by the author were put in square brackets. Within the precisely cited label data, a slash ("/") indicates a new line, a backslash ("\") a new label.

Abbreviations

AEZS	A.E.Z. Short Collection, Lawrence (Kansas, USA)
CASB	Chinese Academy of Sciences, Institut of Zoology, Beijing, China (Si-qin Ge)
CASS	Chinese Academy of Sciences, Institute of Applied Ecology, Shenyang, China (Lanzhu Ji)
CWBS	China Water Beetle Survey
E.I.	Elytral index (= largest elytral length / largest elytral width)
ICZN	International Code of Zoological Nomenclature
ISNB	Institut National des Sciences Naturelles, Bruxelles, Belgium (Martina Peeters)
NHM	National History Museum, London, UK (Christine Taylor)
NME	Naturkundemuseum Erfurt, Germany (Matthias Hartmann)
NMP	National Museum Prague, Czech Republic (Martin Fikáček)
NMW	Naturhistorisches Museum Wien, Austria (Manfred A. Jäch)
ZUG	Zhongshan (Sun Yat-Sen) University, Guangzhou, Guangdong, China (Fenglong Jia)

Morphological remarks

The morphological terminology is based on KOMAREK (2004, 2007). The following characters do not differ in the species examined here and will not be mentioned in the specific descriptions below: Microsculpture on head absent. Antennae composed of nine antennomeres. Mentum rather flat, lateral margins convex, with distinct anterior angles; anterior margin projecting, almost semicircular; ventral face with setiferous punctures, lacking microsculpture. Prosternum projecting towards gula medially. Pronotum and elytra without microsculpture. Elytra with distinct anterior and lateral bead; with demarcated anterior declivity; sutural stria present on posterior 2/3–3/4 in dorsal view. All femora partly pubescent; femoral hairlines (= border between pubescent and glabrous portion of ventral face of metafemur) distinct; profemur pubescent on ca. 3/4 of ventral face; mesofemur ventrally almost entirely covered with hydrofuge pubescence. Abdominal ventrites completely covered with hydrofuge pubescence.

List of CWBS localities

The sampling localities are cited after the following sources: locs. 1–140: JÄCH & JI (1995), locs. 141–347: JÄCH & JI (1998), locs. 348–496: JÄCH & JI (2003), descriptions of localities above 497 onwards were provided by M.A. Jäch (pers. comm.).

22. **Hunan Province**; Xiangxi Prefecture; Dayong County; Zhangjiajie Forest National Park, Suoxiyü Nature Reserve, Wulingyüan section (ca. 30 km N Dayong City); ca. 500 m upstream of Shuiraosimen bus station; tributary of Jinbian Xi (= Gold Whip River), slowly flowing, 0.5–1 m wide; 30.X.1993; leg. H. Schönmann, H. Schillhammer & L. Ji; [locality number on label = 3].

28. **Hunan Province**; Huaihua Prefecture; Huitong County; Guangping Township; near Paotuan Village, ca. 1 km from Academia Sinica Research Station; small river, flowing through rice terraces, partly dammed up, slightly polluted, ca. 1 m wide, ca. 350 m a.s.l.; 2.XI.1993; leg. H. Schönmann, H. Schillhammer & L. Ji; [locality number on label = 8].

35. **Hunan Province**; Huaihua Prefecture; Huitong County; Guangping Township; 2 km upstream of loc. 30 (= ca. 15 km W Guangping Township; ca. 5 km N of upper Research Station of Academia Sinica), near Moshao Village; small stream, 0.5–1 m wide, partly canalized, partly vanishing beneath the gravel, ca. 400 m a.s.l.; 7.XI.1993; leg. H. Schönmann, H. Schillhammer & L. Ji; [locality number on label = 14].

36. **Hunan Province**; Huaihua Prefecture; Huitong County; Guangping Township; ca. 5 km NW Guangping Town; small stream, flowing through rice fields, fine shingle, sandstone, ca. 350 m a.s.l.; 7.XI.1993; leg. H. Schönmann, H. Schillhammer & L. Ji; [locality number on label = 15].

37. **Hunan Province**; Huaihua Prefecture; Huitong County; Guangping Township; river, NW tributary to river of 26, slowly flowing with riffle areas, ca. 3–5 m wide, slightly polluted; 350 m a.s.l.; 7.XI.1993; leg. H. Schönmann, H. Schillhammer & L. Ji; [locality number on label = 16]; (see JÄCH & JI 1995. Fig. 12).

179. **Hainan Province**; Qionghai City Region; 6 km W of Qionghai City, ca. 1 km E of loc. 178 (= close to Haikou-Sanya Highway; shallow pool, with aquatic vegetation, probably abandoned fish pond, margins with mud, gravel and sand, 10 m a.s.l.); warm ground water pool, 6 m², margins with mud and grass, ca. 0.5 m deep, bottom with more than 10 cm mud, 10 m a.s.l.; 13.I.1996; leg. L. Ji & M. Wang.

181. **Hainan Province**; Qionghai City Region; 6 km W of Qionghai City, 1 km E of a small village; ground water pool, ca. 5 m², close to rice fields, edges with mud and grass, 10 m a.s.l.; 13.I.1996; leg. L. Ji & M. Wang.

183. **Hainan Province**; Qionghai City Region; Baishiling Scenic Spot, ca. 20 km SW of Qionghai City; close to loc. 182 (= ca. 10 km SW of Qionghai City; small stream, ca. 0.5 m wide, slowly flowing through rubber plantation, granite, sand and gravel, shaded, 20 m a.s.l.); deep ground water pool, 40 m², slightly polluted, margins with mud, shaded, 20 m a.s.l.; 14.I.1996; leg. L. Ji & M. Wang.

185. **Hainan Province**; Qionghai City Region; Baishiling Scenic Spot, ca. 20 km SW of Qionghai City; stream and pools under bridge close to main gate of park area, unshaded, slightly polluted, 15 m a.s.l.; 14.I.1996; leg. L. Ji & M. Wang.

186. **Hainan Province**; Qionghai City Region; Baishiling Scenic Spot, ca. 20 km SW of Qionghai City, 4 km NE of Baishiling; fish pond, > 100 m², edges with aquatic vegetation, margins with mud, 15 m a.s.l.; 14.I.1996; leg. L. Ji & M. Wang.

193. **Hainan Province**; Qiongzhong County; Wuzhi Shan (= Five Finger Mountain) Resort, ca. 2 km from Wuzhi Shan Village, ca. 30 km E Maoyang Town; small stream, ca. 2–3 m wide, shaded, flowing through degraded primary forest, below Wuzhi Shan Resort, ca. 600 m a.s.l.; 17./18.I.1996; leg. M.A. Jäch, L. Ji & M. Wang (see JÄCH & JI 1998, Fig. 3).

195. **Hainan Province**; Qiongzhong County; small, springfed pool, ca. 1 m², margins with grass and mud, close to loc. 193; 18.I.1996; leg. M.A. Jäch, L. Ji & M. Wang.

200. **Hainan Province**; Tongza City Region; Mao'an Town; rice fields, ca. 250 m a.s.l.; 20.I.1996; leg. M.A. Jäch, L. Ji & M. Wang (see JÄCH & JI 1998, Fig. 5).

205. **Hainan Province**; Ledong County; Jianfeng Mountains; Jianfeng Forest Reserve, ca. 5 km NE Tian Chi Village; river, ca. 5 m wide, flowing through very dense primary forest, banks with stones and sand, ca. 800 m a.s.l.; 22.I.1996; leg. M.A. Jäch, L. Ji & M. Wang (see JÄCH & JI 1998, Figs. 7, 9).

208. **Hainan Province**; Ledong County; Jianfeng Mountains; ca. 5 km E Tian Chi Village; two small streams, ca. 3 m wide, flowing through degraded primary forest and shrubs, ca. 800 m a.s.l.; 23.I.1996; leg. M.A. Jäch, L. Ji & M. Wang.

210. **Hainan Province**; Ledong County; Jianfeng Mountains; Tian Chi Botanical Garden; springfed pool, ca. 10 cm deep, 0.5 m² large, shaded, in degraded primary forest, ca. 800 m a.s.l.; 23.I.1996; leg. M.A. Jäch, L. Ji & M. Wang (see JÄCH & JI 1998, Fig. 8).

214. **Hainan Province**; Wanning County; ca. 15 km SW Dongxing Town, ca. 1 km W Jianfeng Village; small stream, ca. 1–2 m wide, probably a tributary of river loc. 215, meandering, water turbid, flowing through cultivated land (rubber plantations, bamboo groves, villages, etc.), ca. 70 m a.s.l.; 25.I.1996; leg. M.A. Jäch, L. Ji & M. Wang.

215. **Hainan Province**; Wanning County; ca. 500 m W of loc. 214; river, ca. 5 m wide, with sand and gravel, flowing through cultivated land, ca. 70 m a.s.l.; 25.I.1996; leg. M.A. Jäch, L. Ji & M. Wang.

216. **Hainan Province**; Wanning County; ca. 8–10 km W Dongxing Town; meandering river, crossing the Dongxing-Jianfeng road three times, ca. 3–6 m wide, slightly turbid, with sand and gravel, flowing through cultivated land (rubber plantations, village gardens, rice fields, bamboo groves), probably being the lower course of loc. 215; ca. 70 m a.s.l.; 26.I.1996; leg. M.A. Jäch, L. Ji & M. Wang (see JÄCH & JI 1998, Fig. 11).

217. **Hainan Province**; Wanning County; ca. 6 km W Dongxing Town; roadside rain water ditches and small man-made ground water pool (ca. 10 m²) in rubber plantation, ca. 50 m a.s.l.; 25.I.1996; leg. M.A. Jäch, L. Ji & M. Wang.

218. **Sichuan Province**; Ya'an City Region; ca. 4 km E Ya'an City; small stream, ca. 0.5 m wide, near rice fields on steep-sloped hill, red soil, partly shaded by shrubs and trees, ca. 600 m a.s.l.; 7.VI.1996; leg. L. Ji & M. Wang.

219. **Sichuan Province**; Ya'an City Region; ca. 4 km E Ya'an City; rice fields near 218; 7.VI.1996; leg. L. Ji & M. Wang.

221. **Sichuan Province**; Ya'an City Region; ca. 14 km N Ya'an City; near road to Shangli Town; river, ca. 5–8 m wide, with large rocks, some of these partly moss-covered, flowing through secondary forest, ca. 800 m a.s.l.; 8.VI.1996; leg. L. Ji & M. Wang.

222. **Sichuan Province**; Ya'an City Region; shallow water pool near loc. 221, banks with sand, grass and mud; 8.VI.1996; leg. L. Ji & M. Wang.

223. **Sichuan Province**; Ya'an City Region; ca. 18 km N Ya'an City and 3 km N of monastery (Baima Qüan (= White Horse Spring)); small stream, ca. 2–3 m wide, clean and very cold, stones in stream partly moss-covered, unshaded, ca. 900 m a.s.l.; 9.VI.1996; leg. L. Ji & M. Wang.

224. **Sichuan Province**; Ya'an City Region; small ground water pool near loc. 223, with aquatic vegetation; 9.VI.1996; leg. L. Ji & M. Wang.

225. **Sichuan Province**; Ya'an City Region; ca. 16 km N Ya'an City and ca. 3 km N Shangli Town; small stream, ca. 0.5 m wide, tributary to stream in loc. 223, ca. 950 m a.s.l.; 9.VI.1996; leg. L. Ji & M. Wang.

228. **Sichuan Province**; Ya'an City Region; Baoxing County; ca. 5 km SW Baoxing City and 4 km N Shuangshi (= Twin Stones); Xichuan He [river], ca. 5 m wide, with pebbles and cobbles, cold, fast flowing through forest, ca. 900 m a.s.l.; 11.VI.1996; leg. L. Ji & M. Wang.

229. **Sichuan Province**; Ya'an City Region; Lushan County; ca. 5 km N Lushan City, 2 km N Renjia Village, near abandoned power plant (between gate to gorge and bridge); Xichuan He [river], with pebbles and cobbles, and aquatic vegetation, unpolluted, ca. 900 m a.s.l.; 11.VI.1996; leg. L. Ji & M. Wang.

230. **Sichuan Province**; Ya'an City Region; Lushan County; ca. 3 km S Lushan City; stream, ca. 3 m wide, fast flowing through secondary vegetation (trees and shrubs), valley slopes cultivated, ca. 650 m a.s.l.; 11.VI.1996; leg. L. Ji & M. Wang.

231. **Sichuan Province**; Ya'an City Region; Tianqüan County; Xingou (= New Gorge) Village; ca. 57 km W Ya'an City, 6 km SW Zishi Village; Tianqüan He (= Sky Spring River), ca. 6–8 m wide, cold and fast flowing, with gravel and cobbles, slightly polluted, cultivated forest on valley slopes, ca. 1500 m a.s.l.; 12.VI.1996; leg. L. Ji & M. Wang.

232. **Sichuan Province**; Ya'an City Region; Tianqüan County; ca. 57 km W Ya'an City, and 4 km W Xingou Village; at foot of Erlang Shan (= Two Wolves Mountain); stream, ca. 2–3 m wide, tributary to Tianqüan He, cold and fast flowing through secondary forest, shaded, unpolluted, ca. 1500 m a.s.l.; 12.VI.1996; leg. L. Ji & M. Wang.

233. **Sichuan Province**; Ya'an City Region; Tianqüan County; ca. 57 km W Ya'an City, 4 km W Xingou Village; at foot of Erlang Shan; upstream of loc. 232; small stream, ca. 1–2 m wide, cold and fast flowing through secondary forest, large stones, leaf packs, unpolluted, ca. 1600 m a.s.l.; 13.VI.1996; leg. L. Ji & M. Wang.

234. **Sichuan Province**; Ya'an City Region; Tianqüan County; ca. 57 km W Ya'an City, 4 km W Xingou Village; very small puddle, on path near loc. 233, ca. 1600 m a.s.l.; 13.VI.1996; leg. L. Ji & M. Wang.

235. **Sichuan Province**; Ya'an City Region; Tianqüan County; ca. 20 km W Tianqüan City; Dayu Xi (= Big Fish Brook) (tributary of Tianqüan He), ca. 4–5 m wide, cold and rather fast flowing through open area, with cobbles, very clean, ca. 1200 m a.s.l.; 13.VI.1996; leg. L. Ji & M. Wang.

236. **Sichuan Province**; Ya'an City Region; Tianqüan County; ca. 20 km W Tianqüan City; Tianqüan He (= Heaven Spring River), ca. 10 m wide, cold and rather fast flowing, polluted, with large cobbles, ca. 1100 m a.s.l.; 13.VI.1996; leg. L. Ji & M. Wang.

237. **Sichuan Province**; Ya'an City Region; Ya'an City; ca. 3 km N Feixian (= Flying Angel) Town; ca. 10 km NW Ya'an City; stream, ca. 3 m wide, warm and slowly flowing through cultivated land, with gravel, including pools near shore, ca. 700 m a.s.l.; 14.VI.1996; leg. L. Ji & M. Wang.

240. **Fujian Province**; Jianyuan Prefecture; Chong'an City Region; ca. 1 km W Wuyi Gong Village (= Shanqian, ca. 10 km S Chong'an City); residual pools in dry riverbed in steep valley, crystalline rock, 200–250 m a.s.l.; 15. and 18.I.1997; leg. H. Schönmann, L. Ji & M. Wang.

246. **Fujian Province**; Jianyuan Prefecture; Chong'an City Region; ca. 3 km NW Wuyi Gong Village (= Shanqian), ca. 10 km S Chong'an City; upper part of small river, mostly dried out, partly 20–30 cm wide sections of flowing water in narrow gorges, crystalline sand and gravel, partly larger pools, shaded by dense vegetation, gravel mostly covered with algae, 300 m a.s.l.; 17.I.1997; leg. H. Schönmann, L. Ji & M. Wang.

248. **Fujian Province**; Jianyuan Prefecture; Chong'an City Region; ca. 3 km W Wuyi Gong Village (= Shanqian), ca. 10 km S Chong'an City; very small stream, only a few cm wide, upper part of stream forming loc. 240, shaded by bushes, long and narrow pools with almost stagnant water, short sections with slowly flowing water, gravel and sand, rich growth of algae, 350–400 m a.s.l.; 18.I.1997; leg. H. Schönmann, L. Ji & M. Wang.

249. **Fujian Province**; Jianyuan Prefecture; Chong'an City Region; 2 km W Da'an Town, ca. 20 km NW Chong'an City; small stream, < 0.5 m wide, flowing through small forest and rice fields, coarse crystalline gravel, shaded, water very cold, 450 m a.s.l.; 19.I.1997; leg. H. Schönmann, L. Ji & M. Wang.

251. **Fujian Province**; Jianyuan Prefecture; Chong'an City Region; ca. 20 km NW Chong'an City, 5 km S Da'an, 2 km NE Lian Dun Village; small river, 0.5–1 m wide, in steep, densely forested valley (broadleaf trees and bamboo), rock pools and waterfalls, sections with fine and coarse crystalline gravel, densely shaded, water very cold, 500 m a.s.l.; 20.I.1997; leg. H. Schönmann, L. Ji & M. Wang (see JÄCH & JI 1998. Fig. 15).

252. **Fujian Province**; Jianyuan Prefecture; Guangze County (= Shuanxi); 12 km S Zhima Town and 2 km N Li Fang Village; small stream flowing from forested mountains (broadleaf trees, bamboo and *Cunninghamia*), ca. 1 m wide, partly shaded by bushes, pools (filled with sand) and sections with granitic rocks and coarse crystalline gravel, 400 m a.s.l.; 22.I.1997; leg. H. Schönmann, L. Ji & M. Wang.

260. **Fujian Province**; Longyan City Region; near Ke Shan Monastery, near Jiangshan (= Tongbo), on the slope of Meihua Shan (summit: ca. 1700 m a.s.l.), 20 km N Longyan City; small stream, ca. 0.5 m wide, partly flowing over granitic rock (incl. small pools), partly running over coarse gravel, turbid, partly shaded by bushes, surrounded by rice fields, 900–1000 m a.s.l.; 28.I.1997; leg. H. Schönmann, L. Ji & M. Wang.

261. **Fujian Province**; Longyan City Region; near Ke Shan Monastery, near Jiangshan (= Tongbo), on the slope of Meihua Shan (summit: ca. 1700 m a.s.l.), 20 km N Longyan City; shallow pools in rice fields near loc. 260, 900–1000 m a.s.l.; 28.I.1997; leg. H. Schönmann, L. Ji & M. Wang.

264. **Fujian Province**; Longyan City Region; 2 km E Shizhong Town, ca. 40 km S Longyan City; small stream, < 0.5 m wide, descending from Shangfang Shan (summit: ca. 1400 m a.s.l., partly forested), only little water running in deep gorge, waterfalls and small pools, surrounded by rice fields and *Cunninghamia* forest, 850 m a.s.l.; 31.I.1997; leg. H. Schönmann, L. Ji & M. Wang.

268. **Guizhou Province**; Liupanshui City Region; 10 km W Liupanshui City; Yao Shang Reservoir, bank with aquatic vegetation, mud and sand, slightly polluted, surrounded by agricultural fields, ca. 1800 m a.s.l.; 27.VII.1997; leg. M. Wang.

273. **Guizhou Province**; Bijie Prefecture; Bijie County; close to loc. 272 (= Dao Tian He (= Rice Field River) near Bijie City; small stream, ca. 0.5 m wide, unpolluted, partly shaded, surrounded by secondary forest, ca. 1200 m a.s.l.; 28.VII.1997; leg. M. Wang.

284. **Anhui Province**; Weizhou Prefecture; Huang Shan (= Yellow Mountains) National Park; Qi Yun Shan (= Cloudy Mountains) near Yan Qian, 30 km W Huang Shan City (= Tunxi); stream, < 0.5 m wide, running over conglomerate rock in a gorge, densely shaded, more or less dried out, residual pools, 500 m a.s.l.; 24.X.1997; leg. H. Schönmann & M. Wang.

285. **Anhui Province**; Weizhou Prefecture; Huang Shan NP; Qi Yun Shan near Yan Qian, 30 km W Huang Shan City (= Tunxi); small stream, < 0.5 m wide, conglomerate rock, sand and gravel, deep residual pools (2–3 m wide) and small waterfalls, 250 m a.s.l.; 24.X.1997; leg. H. Schönmann & M. Wang.

287. **Anhui Province**; Weizhou Prefecture; Huang Shan NP; 40 km NW Huang Shan City (= Tunxi), near the road from Huang Shan City to Tang Kou Town; 2 small streams, < 0.5 m wide, surrounded by tea and vegetable gardens, shaded by bushes and bamboo, pools with leaves, small waterfalls, short sections with water running over crystalline sand and gravel, 350–400 m a.s.l.; 26.X.1997; leg. H. Schönmann & M. Wang.

288. **Anhui Province**; Weizhou Prefecture; Huang Shan NP; 30 km NW Huang Shan City (= Tunxi); 5 km E Nantang Village; stream (right tributary of Gui Chuan (= Precious River)), < 0.5 m wide, running through a deep gully with partly artificial walls, surrounded by rice fields, tea and vegetable gardens, shaded by bushes, 350–400 m a.s.l.; 28.X.1997; leg. H. Schönmann & M. Wang.

289. **Anhui Province**; Weizhou Prefecture; Huang Shan NP; 30 km NW Huang Shan City (= Tunxi); 4 km E Nantang Village; Gui Chuan [stream], 0.5 m (narrow rocky sections with fast running water) to 5 m (pools with nearly stagnant water) wide, flowing through flat valley, sections with crystalline gravel and sand, unshaded, surrounded by rice fields, tea and vegetable gardens, 300–350 m a.s.l.; 28.X.1997; leg. H. Schönmann & M. Wang.

290. **Anhui Province**; Weizhou Prefecture; Huang Shan NP; 50 km W Huang Shan City (= Tunxi), Yi Xian Shan; stream, 1–1.5 m wide, running along a small road in a narrow valley with steep slopes mainly covered by *Cunninghamia* forest, mostly dried out, only few sections with rest water running over crystalline gravel, partly shaded, 350–400 m a.s.l.; 29.X.1997; leg. H. Schönmann & M. Wang.

291. **Anhui Province**; Weizhou Prefecture; Huang Shan NP; 30 km NW Huang Shan City (= Tunxi), 3 km W Nantang; stream, ca. 0.5–1 m wide, waterfalls and pools, rocky and gravelly sections, partly shaded by bushes and bamboo, surrounded by vegetable gardens, 350–550 m a.s.l.; 30.X.1997; leg. H. Schönmann & M. Wang.

293. **Anhui Province**; Weizhou Prefecture; Huang Shan NP; 45 km NW Huang Shan City (= Tunxi), 4 km NE of Huang Shan City – Tang Kou Town road; small stream, < 0.5 m wide, in a narrow steep valley, mainly shaded by bushes, surrounded by vegetable and tea gardens and single yew trees, 550 m a.s.l.; 1.XI.1997; leg. H. Schönmann & M. Wang.

295. **Anhui Province**; Anqing Prefecture; Yuexi County; Dabie Shan; ca. 40 km N Yuexi City, near Gui Xing Di Village; stream, ca. 1–2 m wide, running over granitic rock, small waterfalls and sandy pools with decaying leaves, short sections with gravel and sand, surrounded by bushes and *Cunninghamia* and *Pinus* forest, 800 m a.s.l.; 5.XI.1997; leg. H. Schönmann & M. Wang.

297. **Anhui Province**; Anqing Prefecture; Yuexi County; Dabie Shan; near Shi Guan, ca. 20 km N Yuexi City; stream, ca. 0.5–1 m wide, surrounded by dense bushes and *Cunninghamia* forest, completely shaded, small waterfalls, sections with gravel, decaying leaves, 950–1000 m a.s.l.; 6.XI.1997; leg. H. Schönmann & M. Wang.

298. **Anhui Province**; Anqing Prefecture; Yuexi County; Dabie Shan; Huang Liyan Village, near Baojia Village, ca. 50 km NW Yuexi City; stream, ca. 1–3 m wide, fast flowing, big granitic rocks, small waterfalls, branches with sand, gravel and decaying leaves, shaded by bushes and broadleaf trees, 1050 m a.s.l.; 7.XI.1997; leg. H. Schönmann & M. Wang (see JÄCH & JI 1998, Fig. 19).

299. **Anhui Province**; Anqing Prefecture; Yuexi County; Dabie Shan; ca. 50 km NW Yuexi City, Huang Liyan Village, near Baojia Village; two streams (tributaries of loc. 298), ca. 0.5–1 m wide, in steep and narrow forested valleys, mainly running over rock, small sandy pools with decaying leaves, densely shaded, 1000–1050 m a.s.l.; 8.XI.1997; leg. H. Schönmann & M. Wang.

301. **Anhui Province**; Anqing Prefecture; Yuexi County; Dabie Shan; ca. 25 km N Yuexi City, near Shi Guan Village; stream, ca. 1–2 m wide, slowly flowing, big rounded granitic boulders, sand, gravel and decaying leaves, densely shaded, 1100 m a.s.l.; 9.XI.1997; leg. H. Schönmann & M. Wang.

302. **Jiangxi Province**; Yicun Prefecture; Jiuling Shan; Fengxin County; 18 km NW Shangfu City, near Jiu Xian Village, on Wumei Shan (summit: ca. 1740 m a.s.l.); streams, 0.5–1 m wide, deep ditches, crystalline sand, little gravel, shaded by bushes and surrounded by rice fields, 700–800 m a.s.l.; 12.XI.1997; leg. H. Schönmann & M. Wang.

303. **Jiangxi Province**; Yicun Prefecture; Jiuling Shan; Fengxin County; 18 km NW Shangfu City, near Jiu Xian Village, on Wumei Shan (summit: ca. 1740 m a.s.l.); stream, 3–5 m wide, fast flowing, crystalline boulders and coarse gravel, unshaded, surrounded by rice fields, artificial dams of gravel and rice roots diverting water for mills, 650 m a.s.l.; 12.XI.1997; leg. H. Schönmann & M. Wang.

304. **Jiangxi Province**; Yicun Prefecture; Jiuling Shan; Fengxin County; 8 km NW Shangfu City, near Shang Bao Village; stream, ca. 1–2 m wide, in a dense bamboo forest, big granitic rocks and sand, man-made canals, 700 m a.s.l.; 13.XI.1997; leg. H. Schönmann & M. Wang.

305. **Jiangxi Province**; Yicun Prefecture; Jiuling Shan; Fengxin County; 35 km W Shangfu City, near Dong Xi Ling Village; stream, ca. 0.5–1 m wide, in a deep ravine between rice fields, 800 m a.s.l.; 14.XI.1997; leg. H. Schönmann & M. Wang.

306. **Jiangxi Province**; Yicun Prefecture; Jiuling Shan; Fengxin County; 18 km NW Shangfu City, near Jiu Xian Village, on slope of Wumei Shan (summit: ca. 1740 m a.s.l.); two very steep mountain streams (sources of loc. 303), 2–3 m wide, surrounded by dense forest (bamboo, *Cunninghamia* and various broadleaf trees), high waterfalls, deep and sandy pools, granitic boulders, 800 m a.s.l.; 15.XI.1997; leg. H. Schönmann & M. Wang (see JÄCH & JI 1998. Fig. 21).

349. **Yünnan Province**, Qüjing Prefecture, Liangwang Shan (= King Liang Mountains), ca. 100 km NNE Kunming, few km E Banqiao, ca. 2300 m a.s.l., 25°33'14"N 103°05'52"E; river (tributary of Xiao Jiang (= tributary of Jang Jiang)), ca. 4–6 m wide, unshaded, shrubs; 3.XI.1999; leg. M.A. Jäch, H. Schönmann, M. Wang & Y. Wei.

350. **Yünnan Province**, Qüjing Prefecture, Liangwang Shan (= King Liang Mountains), ca. 2300 m a.s.l., 25°33'14"N 103°05'52"E; stream, ca. 1–2 m wide (right hand side tributary of river loc. 349); 3.XI.1999; leg. M.A. Jäch & H. Schönmann (see JÄCH & JI 2003, Fig. 2).

359. **Yünnan Province**, Xishuangbanna Dai Autonomous Prefecture, Mengla County, Menglun Town, ca. 10 km NW Menglun, along road Menglun – Mengyang, ca. 700 m a.s.l.; Wushiwu He (= River Fiftyfive), ca. 3–5 m wide, flowing through primary forest in steep valley; 7.XI.1999; leg. M.A. Jäch, H. Schönmann, M. Wang & Y. Wei.

360. **Yünnan Province**, Xishuangbanna Dai Autonomous Prefecture, Mengla County, Menglun Town, ca. 700–800 m a.s.l.; stream (tributary of Wushiwu He, loc. 359), ca. 1–2 m wide, flowing through dense primary forest, ca. 10 km NW Menglun; 7.XI.1999; leg. M.A. Jäch, H. Schönmann, M. Wang & Y. Wei (see JÄCH & JI 2003, Fig. 9).

377. **Yünnan Province**, Xishuangbanna Dai Autonomous Prefecture, Jinghong City Region, "Original Forest Park", along highway Jinghong – Mengyang, ca. 7 km NE Jinghong, ca. 600 m a.s.l.; river, ca. 5 m wide, flowing through degraded primary forest; 12.XI.1999; leg. M.A. Jäch, H. Schönmann, M. Wang & Y. Wei (see JÄCH & JI 2003, Fig. 10).

379. **Yünnan Province**, Xishuangbanna Dai Autonomous Prefecture, Menghai County, pass (near summit) on old road Jinghong – Mengyang, ca. 1100 m a.s.l.; small stream, ca. 0.5 m wide, partly shaded, flowing through shrubs and cultivated land; 12.XI.1999; leg. M.A. Jäch, H. Schönmann, M. Wang & Y. Wei.

383. **Yünnan Province**, Kunming City Region, few km SW Chengjiang, ca. 1600 m a.s.l.; several streams, ca. 2–3 m wide, flowing into Fuxian Lake, through terraced, cultivated (mainly vegetables) land; 14.XI.1999; leg. M.A. Jäch & Y. Wei.

384. **Yünnan Province**, Kunming City Region, ca. 1600 m a.s.l.; several small pools (roadside ditches, rain pools, mud pools, springfed pools) around streams loc. 383; 14.XI.1999; leg. M.A. Jäch & Y. Wei.

386. **Yünnan Province**, Yuxi Prefecture, Chengjiang County, near loc. 385 (= plain N of Fuxian Lake, few km E Chengjiang, small stream, ca. 1 m wide, flowing into Fuxian Lake), ca. 1600 m a.s.l.; shaded pool, size. ca. 50 × 10 m; 14.XI.1999; leg. M.A. Jäch & Y. Wei.

387. **Yünnan Province**, Simao Prefecture, 54 km SW Simao, Cuiyun Resort, ca. 1000 m a.s.l.; River Jian Shan, upwelling of karst river, ca. 5–7 m wide, with large boulders, small amounts of plant debris'; 15.XI.1999; leg. H. Schönmann & M. Wang.

388. **Yünnan Province**, Simao Prefecture, 36 km SW Simao, road Simao – Lancang, ca. 1000 m a.s.l.; stream, 3–5 m wide, flowing through dense pine forest, sandstone rocks, gravel and organic debris almost completely absent; 15.XI.1999; leg. H. Schönmann & M. Wang.

390. **Yünnan Province**, Simao Prefecture, River Caiyang Nature Reserve, 35 km S Simao, ca. 1100 m a.s.l.; river, ca. 5–7 m wide, flowing through primary forest, sandstone cobbles; 16.XI.1999; leg. H. Schönmann & M. Wang.

392. **Yünnan Province**, Simao Prefecture, 25 km SW Simao, road Simao – Lancang, Zhu Shan (= Bamboo Mountain), ca. 1000 m a.s.l.; River Zhu, 5–7 m wide, flowing through degraded forest; sample taken from plant debris after strong flood period; 17.XI.1999; leg. H. Schönmann & M. Wang.

393. **Yünnan Province**, Simao Prefecture, 25 km SW Simao, road Simao – Lancang, Zhu Shan, ca. 1000 m a.s.l.; forest stream (right tributary of River Zhu Shan), 1–2 m wide, residual pools and plant debris, substrate: rock steps, coarse and fine sandstone gravel; 17.XI.1999; leg. H. Schönmann & M. Wang.

394. **Yünnan Province**, Simao Prefecture, Mojiang County, 35 km SW Mojiang, ca. 1000 m a.s.l.; mountain river, ca 2–3 m wide (right tributary of River Najiu), large boulders of sandstone and very fine sediment, flowing through cultivated land and pine forest; 19.XI.1999; leg. H. Schönmann & M. Wang.

396. **Yünnan Province**, Simao Prefecture, Mojiang County, 35 km SW Mojiang, ca. 1050 m a.s.l.; river Najiu, 5–7 m wide, waterfalls and pools with fine sand; 19.XI.1999; leg. H. Schönmann & M. Wang.

398. **Yünnan Province**, Gejiu Prefecture, Gejiu City, 10 km N Gejiu, ca. 1300 m a.s.l.; river, ca. 2–3 m wide, flowing through deforested area, sediment. marble, limestone, sandstone, clay; 22.XI.1999; leg. H. Schönmann & M. Wang.

399. **Yünnan Province**, Gejiu Prefecture, Gejiu City, 15 km S Gejiu, ca. 1700 m a.s.l.; Tou Dao Shui (= Number One Water) stream, 50–100 cm wide, canalized, flowing through crop fields, pastures and pine forest, riparian vegetation dense, floating rootlets; 23.XI.1999; leg. H. Schönmann & M. Wang.

400. **Yünnan Province**, Gejiu Prefecture, Gejiu City, 30 km S Gejiu, surroundings of Tian Ba Zhi, ca. 1300 m a.s.l.; mountain stream, ca. 2–3 m wide, with sinter, waterfalls with moss and marble boulders, dense riparian vegetation, *Cunninghamia* forest; 23.XI.1999; leg. H. Schönmann & M. Wang.

402. **Yünnan Province**, Gejiu Prefecture, Gejiu City, 5 km W Gejiu, ca. 1900 m a.s.l.; springfed karst pool, with rich aquatic vegetation, in *Cunninghamia* forest; 24.XI.1999; leg. H. Schönmann & M. Wang.

404. **Yünnan Province**, Gejiu Prefecture, Gejiu City, 15 km S Gejiu, ca. 1700 m a.s.l.; stream (upper course of loc. 399), 50–100 cm wide, canalized, flowing through crop fields, pastures and pine forest, riparian vegetation dense, floating rootlets; 24.XI.1999; leg. H. Schönmann & M. Wang.

405. **Yünnan Province**, Chuxiong Prefecture, Lufeng City, Wu Tai Shan Forest Park, 30 km N Lufeng, ca. 2150 m a.s.l.; small stream, ca. 50 cm wide, flowing in deep ravine through oak forest; 26.XI.1999; leg. H. Schönmann & M. Wang.

406. **Yünnan Province**, Chuxiong Prefecture, Lufeng City, Wu Tai Shan Forest Park, 30 km N Lufeng, ca. 2100 m a.s.l.; man-made lake; 26.XI.1999; leg. H. Schönmann & M. Wang.

407. **Yünnan Province**, Chuxiong Prefecture, Lufeng City, Wu Tai Shan Forest Park, 30 km N Lufeng, ca. 2150 m a.s.l.; stream, ca. 1–2 m wide, substrate. sandstone gravel, plant debris, flowing through forest; 26.XI.1999; leg. H. Schönmann & M. Wang.

409. **Yünnan Province**, Chuxiong Prefecture, 10 km N Yipinglang, near Ban Jiu, ca. 1700 m a.s.l.; River Da Shui Go, 1–2 m wide, with large sandstone boulders, little organic debris; 27.XI.1999; leg. H. Schönmann & M. Wang.

435. **Guizhou Province**, Qiandongnan Miao Dong Autonomous Prefecture, Leishan County, SE Kaili, NE Leishan, eastern slope of Leigong Shan, 1 km E of pass between Leishan and Fangxiang Village, ca. 1700 m a.s.l., 26°23'03"N 108°13'02"E; small waterfall, debris of dead wood and leaves; 15.VI.2001; leg. H. Schillhammer & M. Wang.

438. **Guizhou Province**, Qiandongnan Miao Dong Autonomous Prefecture, Leishan County, SE Kaili, NE Leishan, eastern slope of Leigong Shan, ca. 2 km W of pass between Leishan and Fangxiang Village, ca. 1700 m a.s.l., 26°22'42"N 108°12'00"E; small stream, 0.5–1 m wide, same habitat characteristics as loc. 437; 17.VI.2001; leg. H. Schillhammer & M. Wang.

445. **Guizhou Province**, Tongren Prefecture, Jiangkou County, ca. 50 km SW Jiangkou, opposite of Shidu Village, 650–680 m a.s.l., 27°32'42"N 108°36'18"E–27°32'25"N 108°36'10"E; small stream (right tributary of River Guanhe), 0.5–1 m wide, partly shaded, flowing through secondary forest and agricultural area; 1./4.VII.2001; leg. H. Schillhammer & M. Wang (see JÄCH & JI 2003, Fig. 13).

458. **Guangdong Province**, Zhaoqing Prefecture, Fengkai County, ca. 60 km E of Fengkai, ca. 9 km E of Heishiding Nature Reserve head office, ca. 4 km E of Qixing, Yulao – Mocun road, ca. 230 m a.s.l., 23°26'36"N 111°58'10"E; River Qixing, ca. 8–10 m wide, through degraded forest and cultivated land; 1.XI.2001; leg. M.A. Jäch & A. Komarek.

461. **Guangdong Province**, Zhaoqing Prefecture, Fengkai County, ca. 60 km E of Fengkai, ca. 11 km E of Heishiding Nature Reserve head office, ca. 6 km E of Qixing, Yulao – Mocun road, ca. 230 m a.s.l.; River Qixing, ca. 8–10 m wide, dividing into two branches, below mouth of a rather large tributary on the right side (ca. 4 m wide), through degraded forest and cultivated land (paddy fields); 2.XI.2001; leg. M.A. Jäch & A. Komarek.

462. **Guangdong Province**, Zhaoqing Prefecture, Fengkai County, ca. 60 km E of Fengkai, ca. 11 km E of Heishiding Nature Reserve head office, ca. 6 km E of Qixing, along Yulao – Mocun road, close to loc. 461, ca. 230 m a.s.l.; springfed, hygropetric rock, partly with small rock pools; 2.XI.2001; leg. M.A. Jäch & A. Komarek.

468. **Guangdong Province**, Shaoguan Prefecture, Yangshan County, Nanling National Park, Chengjia Nature Reserve, Yao Shan, ca. 35 km NE of Chengjia Village, near Taipingdong Village, ca. 950 m a.s.l., 24°53'03"N 112°57'37"E; River Chengjia, ca. 8–10 m wide, through cultivated land, margins with grass and undercut banks; 4.XI.2001; leg. M.A. Jäch & A. Komarek.

471. **Guangdong Province**, Shaoguan Prefecture, Ruyuan County, Chengjia – Ruyuan road, ca. 40 km E of Chengjia Village, near Tianluokeng Village, ca. 550 m a.s.l.; stream, ca. 2–3 m wide, margins partly with grass, strongly meandering, flowing through cultivated land in small plain surrounded by pine forest; 5.XI.2001; leg. M.A. Jäch & A. Komarek.

479. **Guangdong Province**, Shaoguan Prefecture, Shixing County, ca. 10 km SW of Chebaling Village, at Jiangciao Village, Chebaling – Siqian road, ca. 270 m a.s.l., 24°41'11"N 114°07'17"E; several small pools with mud and aquatic vegetation, in meadow, close to river (480); 7.XI.2001; leg. M.A. Jäch & A. Komarek.

480. **Guangdong Province**, Shaoguan Prefecture, Shixing County, ca. 10 km SW of Chebaling Village, at Jiangciao Village, Chebaling – Siqian road, ca. 270 m a.s.l., 24°41'11"N 114°07'17"E; river, ca. 5–7 m wide, margins with gravel banks and grass; 7.XI.2001; leg. M.A. Jäch & A. Komarek.

484. **Guangdong Province**, Shaoguan Prefecture, Shixing County, Huashi Shan, Siqian – Shaoguan road, ca. 40 km W of Siqian, near Zhongxintao Village, ca. 480 m a.s.l., 24°40'28"N 113°56'33"E; stream, ca. 2 m wide, through degraded forest and paddy fields; 8.XI.2001; leg. M.A. Jäch & A. Komarek.

490. **Guangdong Province**, Huiyang Prefecture, Boluo County, ca. 40 km ENE of Zengcheng, near Xialang Village, ca. 140 m a.s.l., 23°17'10"N 114°04'02"E; small stream, ca. 1 m wide, flowing through bamboo forest and agricultural land; 11.XI.2001; leg. A. Komarek & M. Wang.

498. **Hunan Province**, Yueyang city, Pingjiang County, ca. 25 km N Pingjiang City, near Meixian [village], ca. 200 m a.s.l., 113°37'26"E 28°50'52"N; steep stream, ca. 1–2 m wide, above rice fields, sparse riparian vegetation, flood debris; 19.III.2003; leg. H. Schönmann, A. Komarek & M. Wang.

500. **Hunan Province**, Yueyang City, Pingjiang County, ca. 25 km N Pingjiang City, near Zhao Xian [village], ca. 200 m a.s.l., 113°38'05"E 28°50'10"N, small tributary to stream loc. 499 (ca. 3–5 m wide, boulders, cliffs, sparse riparian vegetation, flood debris), ca. 0.5–1 m wide, riparian vegetation and flood debris; 20.III.2003; leg. H. Schönmann, A. Komarek & M. Wang.

501. **Hunan Province**, Yueyang City, Pingjiang County, ca. 25 km N Pingjiang City, near Zhao Xian [village], ca. 200 m a.s.l., 113°38'05"E 28°50'10"N, hygropetric rock near stream loc. 499 (= ca. 3–5 m wide, boulders, cliffs, sparse riparian vegetation, flood debris; 20.III.2003; leg. A. Komarek.

502. **Hunan Province**, Yueyang City, Pingjiang County, ca. 5 km from Meixian, near Jiang Yuan [village], ca. 290 m a.s.l., 113°38'05"E 28°50'09"N; steep stream, ca. 1–2 m wide, cold, siliceous, cliffs, sparse gravel and submersed vegetation, sand, degraded shrub; 20.III.2003; leg. H. Schönmann, A. Komarek & M. Wang.

503. **Hunan Province**, Yueyang City, Pingjiang County, NE Nanjiangqiao, Mufu Shan, between Fengpi and Yuantao [villages], ca. 600 m a.s.l., 113°48'03"E 28°57'17"N; mountain stream, ca. 1–2 m wide, siliceous sand, boulders, small amounts of flood debris, dense riparian vegetation, bamboo, *Cunninghamia*, *Pinus masoniana*; 21.III.2003; leg. H. Schönmann, A. Komarek & M. Wang.

506. **Jiangxi Province**, Jiujiang City, Xiushui County, ca. 30 km NW Xiushui [town], ca. 10 km N Xikou, Huangmengyuan [= "yellow fast spring"], ca. 250 m a.s.l., 114°24'18"E 29°14'30"N; mountain stream, ca. 2–3 m wide, siliceous rock, moss, burnt *Cunninghamia* forest; 23.III.2003; leg. H. Schönmann, A. Komarek & M. Wang.

512. **Jiangxi Province**, Jiujiang City, Xingzi County, Luan Shi Peng [mountain], near Xiu Feng [town], ca. 250 m a.s.l., 115°58'48"E 29°26'58"N; forest stream, ca. 0.5 m wide, in deep gorge, surrounded by *Cunninghamia* forest; 26.III.2003; leg. H. Schönmann, A. Komarek & M. Wang.

514. **Jiangxi Province**, Yichun City, Jing'an County, ca. 70 km NW Jing'an Town, ca. 550 m a.s.l., 115°11'17"E 29°03'17"N; shallow, sandy stream, flowing through bamboo forest, ca. 0.5 m wide, flood debris; 27.III.2003; leg. H. Schönmann, A. Komarek & M. Wang.

521. **Hunan Province**, Liuyang City County, Tonggu County, ca. 5 km W Dahu [town], near Xiyuan [village], ca. 400 m a.s.l., 113°53'25"E 28°26'21"N; stream, ca. 0.5 m wide, siliceous sand, flood debris, rice fields, *Cunninghamia* forest; 31.III.2003; leg. H. Schönmann, A. Komarek & M. Wang.

524. **HubeiProvince**, Shennongjia Forest District, Duanjiang-village. 3 km N Muyu, ca. 1.300 m a.s.l., upper part of River Xiangxi, 5–8 m wide, surrounded by steep slopes with low forest vegetation, flowing between large boulders, small parts with gravel, only small amounts of flood debris or submersed vegetation, geology sandstone; 10.X.2004; leg. H. Schönmann & M. Wang.

531. **Hubei Province**, Shennongjia Forest District. ca. 5 km E Muyu, Tong Mu Village; stream, ca. 2–3 m wide, slowly flowing between cultivated fields, ca. 1250 m a.s.l., geology: sandstone, marble; 13.X.2004; leg. H. Schönmann & M. Wang.

Checklist of the *Anacaena* species of the People's Republic of China

1. *A. atriflava* JIA, 1997	Anhui, Fujian, Guangdong, Guizhou, Jiangxi, Zhejiang
2. *A. brachypenis* sp.n.	Yünnan
3. *A. bushiki* PU, 1963	Hainan, Yünnan
4. *A. gaoligongshana* sp.n.	Yünnan
5. *A. gerula* ORCHYMONT, 1942	Guizhou, Yünnan
6. *A. hainanensis* JIA, 1997	Hainan
7. *A. jiafenglongi* sp.n.	Yünnan
8. *A. lancifera* PU, 1963	Anhui, Fujian, Guangdong, Hunan, Jiangxi, Sichuan, Yünnan
9. *A. lanzhujii* sp.n.	Hainan
10. *A. maculata* PU, 1964	Fujian, Guangdong, Hunan, Jiangxi, Yünnan
11. *A. pui* sp.n.	Guizhou, Hubei, Jiangxi, Sichuan, Yünnan
12. *A. schoenmanni* sp.n.	Yünnan
13. *A. sichuana* sp.n.	Sichuan
14. *A. wangi* sp.n.	Hubei, Sichuan
15. *A. yunnanensis* ORCHYMONT, 1942	Yünnan

Anacaena atriflava JIA, 1997

Anacaena atriflava JIA 1997: 108.

TYPE LOCALITY: China, Jiangxi Province, Jinggangshan (mountains in border region to Hunan).

TYPE MATERIAL: **Holotype** ♂ (ZUG): Jiangxi, Jinggangshan, 16.–18.VIII.1974 (in Chinese characters, see Fig. 114).

The female "allotype" and two female "paratypes" could not be located in the ZUG and CASB collections and must be regarded as lost.

ADDITIONAL MATERIAL EXAMINED:

Anhui: 6 ♂♂, 2 ♀♀ (NMW): CWBS 284; 5 ♂♂, 3 ♀♀ (NMW): CWBS 285; 42 exs. (NMW): CWBS 287; 6 exs. (NMW): CWBS 288; 3 exs. (NMW): CWBS 289; 2 exs. (NMW): CWBS 290; 41 exs. (NMW): CWBS 291; 20 exs. (NMW): CWBS 293; 2 ♂♂ (NMW) CWBS 295; 29 ♂♂ (NMW): CWBS 297; 3 ♂♂, 2 ♀♀ (NMW): CWBS 301; 7 ♂♂, 2 ♀♀ (NMW): CWBS 302.

Fujian: 20 ♂♂, 12 ♀♀ (NMW): CWBS 249; 39 exs. (NMW): CWBS 251; 3 ♂♂, 2 ♀♀ (NMW): CWBS 260.

Guangdong: 4 ♂♂, 2 ♀♀ (NMW): CWBS 468; 6 ♂♂, 3 ♀♀ (NMW): CWBS 471.

Guizhou: 1 ♂ (NMW): CWBS 273; 1 ♂ (NMW): Guizhou NE, 30 km NW Jiangkou, Fanjing Shan – Kuaichang, 500 m a.s.l., 9.V.2000.

Jiangxi: 3 ♂♂ (NMW): CWBS 304; 4 ♂♂, 3 ♀♀ (NMW): CWBS 305; 2 ♂♂ (NMW): CWBS 506; 1 ♂ (NMW): CWBS 514; 380 exs. (NMW): Jiangxi W, Jinggang Shan, Ciping environment, 2.–14.VI.1994; 14 exs. (NMP, NMW): Jiangxi Prov., Jinggangshan, Baiyinhu environment, 800 m a.s.l, 26°36.8'N 114°11.1'E, drying-up stream in stony bed, night collecting in isolated pools in the stream on wet rocks covered with algae, 23.–29.IV.2010, M. Fikáček, J. Hájek, V. Kubeček "MF01"; 11 exs. (NMP, NMW): same locality as "MF01", but in muddy, exposed pools on road connected to a stream in secondary forest; 37 exs. (NMP, NMW): Jiangxi Prov., Jinggangshan, Jingzhushan, 6400 m a.s.l, 26°31.0'N 114°05.9'E, small stony stream, sidepools partly overgrown with filamentous algae and grass, partly without vegetation, with accumulations of leaves, 25.IV.2010, M. Fikáček, J. Hájek, F.-L. Jia, K. Song "MF06"; 4 exs. (NMP): same locality as "MF06", but in an exposed shallow pool with rich submerged vegetation on a forest clearing; 16 exs. (NMP, NMW): Jinggangshan, Songmuping, stream valley, 1280 m a.s.l, 26°34.7'N 114°04.3'E, muddy pools on a stream below the village, partly overgrown with *Callitriche*, 27.IV.2011, M. Fikáček, J. Hájek, F.-L. Jia, K. Song, "MF10"; 6 exs. (NMP): same locality as "MF10"; but on cut and decaying tops of bamboo trunks in a bamboo bush; 1 ♀ (NMP): Jinggangshan, Huyagta, 1490 m a.s.l, 26°29.9'N 114°07.3'E, pools in a small stony mountain stream partly overgrown with moss in a primary *Azalea* bush, 28.IV.2011, M. Fikáček, J. Hájek, V. Kubeček, F.-L. Jia, K. Song and S. Zhao "MF12"; 1 ♂ (NMP): same locality as "MF12", but without habitat specification.

Zhejiang: 2 ♀♀ (NHM): "Da-laen-saen / China / J.J. Walker \ G.C. Champion / Coll. / B.M. 1927−409"; 1 ♂ (NHM): "Da-laen-saen / nr. Nong-po [Ningbo, SW Hangzhou] / Walker Coll. \ 93.−18. / 9850".

DIFFERENTIAL DIAGNOSIS (Figs. 1–2, 24, 38, 52, 54, 72, 86, 100): Very similar to *A. jengi* KOMAREK, 2011 from Taiwan including features of the aedeagus, and also similar to *A. wangi* and *A. yunnanensis*. United with *A. wangi* and *A. yunnanensis* as "*yunannensis*-group" (see Discussion). Differs from *A. jengi* by the clypeus (larger, anterolateral angles present), maxillary palpi (palpomere 4 longer and more slender, apical infuscation more distinct), labial palpi (palpomere 3 more slender), pronotal coloration (yellowish paramesal spots on posterior margin present), and elytral coloration. *A. atriflava* can be distinguished from *A. yunnanensis* by the pronotal and elytral coloration (infuscations more expanded) and the aedeagus (manubrium extended into a conical lobe), and from *A. wangi* by the pronotal coloration (central patch smaller).

DESCRIPTION: Total length 2.3–2.7 mm; maximum width 1.4–1.7 mm; E.I. 1.06–1.09. Habitus oblong oval, with greatest width at midlength; elytra about 3.5–4.0 × as long as pronotum in dorsal view.

Head: Labrum mostly dark brown; clypeus and frons black, with rather sharply demarcated, yellow, approximately triangular preocular patches of about the size of the eyes. Irregular punctures fine and deep, without setae; interspaces 1–2 × as large as punctures, punctation denser towards clypeal margins; one series of very fine, densely arranged punctures present

along inner margin of eyes. Clypeus comparatively long, not or very slightly excised anteriorly, with blunt anterolateral angles. Eyes very slightly constricted anteriorly by clypeal extension; dorsal portion not distinctly larger than ventral part. Frontoclypeal suture very indistinct or obsolete. Antennomere 3 slightly elongated (Fig. 52); apical antennal club segment slightly longer than wide. Maxillary palpomere 2 weakly inflated; palpomere 4 widest in midlength, inner margin straight; narrowly rounded apical part with distinct terminal infuscation (Fig. 24). Mentum (Fig. 38) ca. 1.5–1.7 × as wide as long, anteriorly slightly impressed; anterior margin with deep, distinct mesal incision, ventral punctures sparse, widely spaced, irregularly distributed; labial palpi with strongly pigmented segments 2–3, slender, with convex outer margin and straight or slightly concave inner margin; longer than lateral edge of mentum; palpomere 3 distinctly longer than palpomere 2.

Thorax: Pronotum (Fig. 54) with dark brown median patch of variable extension reaching mesal margin of eyes (often appearing smaller in dry material) with wide yellowish lateral areas, or almost reaching lateral edge of pronotum; narrow yellow rim along anterior border and small yellowish spots situated paramesally on posterior margin usually present; lateral margins and hind corners slightly curved (Fig. 72). Punctation (Fig. 100) very fine, weakly impressed, finer than on head; interspaces 2–4 × as wide as one puncture, punctation very slightly denser towards lateral margins. Prosternum with bulge. Elytra dark brown, with the intensity of coloration decreasing towards the lateral and posterior portion in most individuals, or yellowish brown, with small dark brown patches around punctures; elytra thus often appearing indistinctly speckled or striated in individuals with lighter brown basic coloration; light brown mesal or anteromesal areas often present in specimens with dark brown basic coloration. Lateral borders of pronotum and elytra without setae. Elytra with slightly accentuated shoulder regions; punctures (Fig. 100) as fine as on head, distinctly coarser than on pronotum, irregular, with very indistinct short series of coarser punctures laterally; interspaces 1–2 × as wide as puncture. Sutural stria anteriorly continuous with a series of very small dark brown patches in specimens with light brown basic coloration. Mesoventrite with a sharply pointed protuberance. Legs unicolored brown; procoxa and protrochanter without spine-like setae; metafemur almost entirely pubescent except extreme distal portion, with round hairline (Fig. 86); metatarsus shorter than metatibia.

Aedeagus (Figs. 1–2): Main piece of phallobase about as long as parameres, slightly longer than wide; manubrium smoothly converging, extended into a conical lobe, narrowly rounded apically; borderline between unpigmented and narrow pigmented part of ventral face of phallobase very deep, almost reaching proximal edge. Lateral and mesal margins of parameres curved, sigmoidal; distance between lateral margins of parameres slightly larger than diameter of phallobase; apex wide, not inflated, slightly asymmetrical, very slightly pointing mesad; basal portion wider than apical part; ventral portion of bases fused (Fig. 2), very slightly reaching into phallobase; dorsal portion of bases slightly curved. Lateral margins of median lobe evenly converging towards pointed apex; corona in subapical position of median lobe. Basal apophyses about as long as main piece of median lobe or slightly longer, attaining less than midlength of phallobase. Base of median lobe distinctly connected with parameres by a small tooth.

DISCUSSION: The original description (JIA 1997) is restricted to a comparison with *A. maculata* (numbers of antennal segments, metafemoral pubescence) and *A. mista* ORCHYMONT, 1932 (maxillary palpomere 4, metafemoral pubescence). The observation concerning the metafemoral pubescence and the maxillary palpomere 4 can be confirmed. In contrast to JIA (1997) all three species have nine antennomeres and there is no closer affinity of *A. atriflava* to *A. maculata* and *A. mista*. *Anacaena atriflava* is very similar to *A. yunnanensis*. Very narrow parameres as shown by JIA (1997) are an artifact due to the partial destruction of the aedeagus of the holotype.

ECOLOGY: In small streams and restwater pools, often running through cultivated land or secondary forests, in basins of waterfalls, on substrate of crystalline sand, gravel, stones and rocks, among decaying leaves, on moss, at grassy margins of streams; also in gullies and artificial canals of rice fields, gardens, bamboo- or pine forests.

DISTRIBUTION: China: Anhui, Fujian, Guangdong, Guizhou, Jiangxi, Zhejiang.

Anacaena brachypenis sp.n.

TYPE LOCALITY: China, Yünnan Province, Pu'er (Prefecture), Simao (District), Caiyang River, 35 km S Simao (City).

TYPE MATERIAL: **Holotype** ♂ (CASS): "China: Yünnan, Simao Pref. / 35 km S Simao, 16.11.1999 / Caiyang Riv. NR, ca. 1100 m / Schönmann & Wang (CWBS 390)". **Paratype** ♂ (NMW): same sampling data.

DIFFERENTIAL DIAGNOSIS (Figs. 3, 25, 39, 55, 73, 87, 101): very similar to *A. schoenmanni* and *A. sichuana*; separable from both species by the color pattern of the pronotum (three small confluent central patches, Fig. 55); from *A. sichuana* (Fig. 111) additionally by the pronotal punctation (denser, distinctly impressed (Fig. 101). *Anacaena brachypenis* differs from all species of China and Taiwan by the aedeagus (very short median lobe, Fig. 3).

DESCRIPTION: Total length 2.1–2.2 mm; maximum width 1.2–1.3 mm; E.I. 1.13–1.21. Habitus oblong oval, with greatest width at midlength; elytra about 3.0–3.1 × as long as pronotum in dorsal view.

Head: Labrum dark brown; clypeus and frons dark brown to black, with distinct, yellow, triangularly shaped preocular patches. Irregular punctures fine, distinctly impressed, without setae; interspaces about as large as punctures; very indistinct series of indistinct, minute, densely arranged punctures present along inner margin of eyes. Clypeus large, straight to slightly emarginate anteriorly, with distinct angles between lateral and anterior portion. Eyes not constricted anteriorly; dorsal and ventral portion of almost equal size. Frontoclypeal suture not visible. Antennomere 3 indistinctly elongate; apical segment of antennal club longer than wide. Maxillary palpomere 2 slightly inflated; palpomere 4 widest at midlength, slender, with straight inner margin and curved outer margin; distal third with distinct infuscation (Fig. 25). Mentum (Fig. 39) ca. 1.8 × as wide as long; anterior margin with moderately deep mesal incision; ventral punctures very widely spaced; labial palpi slender, longer than lateral edge of mentum; palpomere 3 slightly larger than palpomere 2.

Thorax: Pronotum (Fig. 55) yellow, with three dark brown, confluent, central patches. Lateral margins and hind corners slightly curved (Fig. 73). Punctation (Fig. 101) distinctly finer than on head, weakly impressed; interspaces about 2–3 × as wide as one puncture, punctation denser towards lateral margins. Prosternum without carina or distinct bulge. Elytra light brown; very indistinct darker brown spots around punctures, partially confluent. Scutellar shield and parasutural stria darker brown. Lateral borders of pronotum and elytra without setae. Shoulder regions not accentuated. Punctures (Fig. 101) coarser than on head, distinctly impressed; irregular, with subserial arrangement along lateral margins; interspaces 1–2 × as wide as one puncture. Mesoventrite with sharply pointed protuberance. Legs dark brown; few spine-like setae present on mesal face of protrochanter; mesal portion (Fig. 87) and anterior half of metafemur pubescent with horizontal hairline; metatarsus about as long as metatibia.

Aedeagus (Fig. 3): Main piece of phallobase distinctly longer than parameres, distinctly longer than wide; manubrium evenly converging, extended into a moderately wide lobe; borderline between unpigmented and pigmented part of ventral face of phallobase moderately deep, very indistinct; lateral and mesal margins of parameres slightly curved; distance between lateral

margins of parameres not wider than diameter of phallobase; apices moderately wide, asymmetrical, not pointing mesad; basal portion about as wide as apical part; ventral portion of bases not recognisable; dorsal portion of bases distinctly curved. Lateral margins of median lobe slightly convex, distinctly shorter than parameres; corona in apical position of median lobe; basal apophyses about as long as main piece of median lobe, attaining less than midlength of phallobase. Base of median lobe distinctly connected with parameres by a mesal tooth.

ETYMOLOGY: The specific epithet (greek: brachýs = short) refers to the very short median lobe of the aedeagus.

DISCUSSION: The very short median lobe is not found in other Palearctic or Oriental species of *Anacaena*. It can be regarded as an autapomorphy of *A. brachypenis*.

ECOLOGY: In a river in primary forest.

DISTRIBUTION: China, Yünnan.

Anacaena bushiki PU, 1963

Anacaena bushiki PU 1963: 79.

INCORRECT SUBSEQUENT SPELLING: The specific epithet was mentioned twice by PU (1963) and both times spelled "*bushiki*" (also on the label, Fig. 115). In subsequent studies by PU (1964) and JIA (1997) it was spelled "*bushikae*". In contrast to HANSEN (1999) and in agreement with ICZN Article 32 the spelling "*bushiki*" is the correct one, and "*bushikae*" an incorrect subsequent spelling (ICZN Article 33).

TYPE LOCALITY: China, Yünnan Province, Baoshan (Prefecture), mountains near Tengchong (City).

TYPE MATERIAL: **Holotype** ♀ (CASB): China, Yünnan, mountains near Tengchong, 2400 m a.s.l., leg. Bushik (in Chinese characters, see Fig. 115).

ADDITIONAL MATERIAL EXAMINED:

Yünnan: 4 ♂♂, 2 ♀♀ (NMW): Gaoligongshan Nature Reserve, 100 km W Baoshan, 14.–21.VI.1993, E. Jendek, O. Šauša; 19 exs. (NMP, NMW): Pass SW Baoshan, Gaoligongshan, 4.–8.VI.2005, Oto Nekládal. [The city of Baoshan is about 70 km east of the type locality].

Hainan: 2 ♂♂ (NMP): Limushan, 550–750 m a.s.l, 19°9.1–9.2'N 109°45–46"E, along the road, sifting of moist to wet leaf litter along streams in secondary forests with bamboo, 5.V.2011, M. Fikáček, S. Zhao "MF18"; 1 ex. (NMP): Hainan, Limushan, mountains above first administration center, 650–900 m a.s.l, 19°10.5–10.9'N 109°44–45'E, sifting of small accumulations of moist leaf litter along and on the trail in secondary forest partly with *Cyathea* and bamboo, 6.V.2011, M. Fikáček, S. Zhao "MF19".

DIFFERENTIAL DIAGNOSIS (Figs. 4, 26, 40, 56, 74, 88, 102): differs from other Chinese species by the uniquely shaped maxillary palpomeres (distinctly inflated palpomere 2, "cigar-shaped" palpomere 4), the elytral punctation (with serial distribution on posterior half) and the metafemoral pubescence (oblique, Fig. 88); the metafemoral pubescence of *A. smetanai* KOMAREK, 2011 from Taiwan with a similar oblique hairline, is less expanded, and this species differs in many other features from *A. bushiki*, including characteristics of the aedeagus. In contrast to this, the aedeagus of *A. bushiki* is similar to that of *A. pui* (for differences see Differential Diagnosis of *A. pui*).

DESCRIPTION: Total length 2.2–2.3 mm; maximum width 1.4 mm; E.I. 1.18. Habitus oblong oval, not attenuated towards elytral apex, with greatest width at midlength; elytra about 3.1 × as long as pronotum in dorsal view.

Head: Labrum light brown; clypeus and frons dark brown, with large yellow preocular patches. Irregular punctures very fine to obsolete, very widely spaced, without setae; series of indistinct, minute, densely arranged punctures present along inner margin of eyes. Clypeus large in longitudinal diameter, straight to slightly emarginate anteriorly, with distinct angles between

lateral and anterior portion. Eyes not constricted anteriorly; dorsal and ventral portion of almost equal size. Frontoclypeal suture indistinct. Antennomere 3 slightly elongate; apical segment of antennal club longer than wide. Maxillary palpomere 2 distinctly inflated; palpomere 4 with indistinct infuscation in distal half, "cigar-shaped": widest at midlength, slender with slightly curved inner and outer margin (Fig. 26). Mentum (Fig. 40) ca. 1.6 × as wide as long, very weakly sclerotized, not distinctly impressed anteriorly; lateral and anterior margins with few fine setae; anterior margin with very shallow mesal incision; ventral face with few widely spaced, evenly distributed punctures; labial palpi stout, shorter than lateral edge of mentum; palpomere 3 about as long as palpomere 2.

Thorax: Pronotum (Fig. 56) dark brown, with narrow yellow lateral margins. Punctation (Fig. 102) obsolete. Lateral margin and hind corner (Fig. 74) weakly curved. Prosternum without carina or distinct bulge. Elytra dark brown, with indistinct brighter areas, especially on lateral region and apically. Lateral borders of pronotum and elytra without setae. Elytra with accentuated shoulder regions. Punctures (Fig. 102) fine, distinctly coarser than on head, distinctly impressed; interspaces about 2 × as wide as one puncture, serially arranged in posterior half; coarser punctures along lateral margins. Mesoventrite with a sharply pointed protuberance. Legs unicolored, brown; procoxa and protrochanter without spine-like setae; metafemur (Fig. 88) pubescent on proximal two thirds, with oblique hairline. Metatarsus shorter than metatibia.

Aedeagus (Fig. 4): Main piece of phallobase about as long as parameres, slightly longer than wide; manubrium evenly converging, extended into a short narrow lobe; borderline between unpigmented and very narrow pigmented part of ventral face of phallobase very deep, almost reaching proximal edge; lateral and mesal margins of parameres very slightly curved; distance between lateral margins of parameres as wide as diameter of phallobase; apices wide, asymmetrical, not or very slightly pointing mesad; basal portion slightly wider than apical part; ventral portion of bases fused, not deeply reaching into phallobase; dorsal portion of bases slightly curved. Median lobe shorter than parameres; corona in subapical position of median lobe; basal apophyses about as long as main piece of median lobe, attaining less than midlength of phallobase. Base of median lobe distinctly connected with parameres.

DISCUSSION: This species is similar to *A. smetanai* KOMAREK, 2011 from Taiwan in the maxillary palpi, the coloration of the head, pronotum and elytra, and the metafemoral hairline. However, the aedeagi are distinctly different. The female type specimen of *A. bushiki* is incomplete. Head and prothorax are missing. The original description is mainly based on a comparison with *A. lancifera.* The present redescription is based on the preserved part of the holotype, on the original description, and on the study of additional material. The comparison of the characters described by PU (1963) with the available material revealed that most of the original characterisations are incorrect ("punctures on head more distinct", "anterior margin of clypeus more straight", "ultimate segments of maxillary palpi longer and larger", "anterior margin of pronotum more straight, while posterior margin less arched", "mesosternum with a longitudinal carina along the middle", "posterior tibiae with longer and bigger thorns", "ventral surface with apparently longer hairs") or unclear ("posterior surface [of mesoventrite] with prominent hairs"). The "erect white hairs" on the mentum observed by PU (1963) and used as a diagnostic character in the key published by JIA (1997) is a character present in all *Anacaena* species of the region. The observation of visible longitudinal series of punctures on the elytra is confirmed. Serial elytral punctures (Fig. 102), the very stout maxillary (Fig. 26) and labial (Fig. 40) palpomeres, and an obliquely shaped metafemoral hairline (Fig. 88) are not found in other Chinese species and are regarded as autapomorphies of *A. bushiki.*

ECOLOGY: Probably terrestrial; found by sifting of moist and wet leaf litter.

DISTRIBUTION: China: Hainan, Yünnan.

Anacaena gaoligongshana sp.n.

TYPE LOCALITY: Yünnan, Gaoligongshan Natural Reserve, 100 km W Baoshan.

TYPE MATERIAL: **Holotype** ♂ (NMW): "China–Yunnan 14.–21.6. / 100 km W Baoshan, 1993 / Gaoligongshan Nat. Res. / E. Jendek & O. Sausa leg.". **Paratypes**: 14 exs. (NMW): same sampling data; 1 ♀ (NMW): Yünnan Province, environment of Baoshan, 6.–8.VI.1993, E. Jendek, O. Šauša.

DIFFERENTIAL DIAGNOSIS (Figs. 5, 57): Very similar to *A. pui* in most characters. Differs from it in the smaller average body size and in the aedeagus.

DESCRIPTION: Total length 2.1–2.4 mm; maximum width 1.2–1.4 mm; E.I. 1.19–1.27. Habitus oblong oval, slightly attenuated towards elytral apex, with greatest width at midlength; elytra about 3.0–3.6 × as long as pronotum in dorsal view.

Head: Labrum light brown; clypeus and frons dark brown, with distinct, yellow, triangular preocular patches of about the size of the eyes or larger. Irregular punctures moderately large, strongly impressed, without setae; interspaces about as large as punctures; some coarser punctures interspersed; series of indistinct, minute, densely arranged punctures present along inner margin of eyes. Microsculpture absent. Clypeus long, straight to slightly emarginate anteriorly, with distinct angles between lateral and anterior portion. Eyes not constricted anteriorly; dorsal and ventral portion of almost equal size. Frontoclypeal suture indistinct, but visible in whole length as fine impressed line in most individuals. Antennomere 3 distinctly elongate; apical segment of antennal club distinctly longer than wide, with distinct circular subapical constriction. Maxillary palpomere 2 inflated; palpomere 4 widest at midlength, slender, almost symmetrical, with slightly convex inner and outer margins; at least distal half indistinctly infuscated. Mentum ca. 1.6 × as wide as long, very weakly sclerotized; lateral margins with long, very fine setae, slightly convex, with distinct anterior angles; anterior margin with shallow mesal impression; ventral punctures widely spaced, evenly distributed. Labial palpi very stout, about 1.5 × as long as wide, shorter than lateral edge of mentum; palpomere 3 not distinctly longer and distinctly wider than palpomere 2.

Thorax: Pronotum (Fig. 57) with large, dark brown median patch of variable extension; intensity of coloration decreasing laterad; with irregularly shaped lateral margins, not reaching anterior margin in most cases; indistinct paramedian brighter spot at pronotal base present in most individuals. Punctation as on head, moderately large, strongly impressed; interspaces about 1–2 × as wide as one puncture, punctation denser towards lateral margins. Lateral margin almost straight; posterior corner angulate. Prosternum with weak mesal reinforcement; carina absent. Elytra light brown, with dark brown spots around punctures, forming ten dark brown longitudinal bands; spaces between dark bands appearing "speckled". Lateral borders of pronotum and elytra without setae. Elytra with accentuated shoulder regions. Punctures as coarse as on head, strongly impressed, similar to pronotal punctation, with interspaces as wide as punctures; coarser along lateral margins; irregularly distributed mesally, arranged in short series laterally. Mesoventrite with a sharply pointed protuberance. Legs dark brown; distal portion of femur and tibia light brown; procoxa and protrochanter without spine-like setae; metafemoral hairline round in anterior portion, slightly oblique posteriorly; metatarsus slightly shorter than metatibia.

Aedeagus (Fig. 5): Main piece of phallobase distinctly longer than parameres, longer than wide; manubrium evenly converging, extended into a narrow, slightly conical lobe, not distinctly bent dorsad; pigmented portion of ventral face of phallobase restricted to basal 1/5, short mesal pigmented line present; lateral and mesal margins of parameres very slightly curved; distance

between lateral margins of parameres as wide as diameter of phallobase; apex wide, round, not flattened or impressed, slightly asymmetrical, very slightly pointing mesad; basal portion about as wide as apical part; ventral portion of bases fused, not deeply reaching into phallobase; dorsal portion of bases slightly curved. Median lobe distinctly shorter than parameres; corona in subapical position of median lobe; basal apophyses about as long as main piece of median lobe, attaining less than midlength of phallobase. Base of median lobe distinctly connected with parameres.

ETYMOLOGY: The name of the epithet refers to the Gaoligongshan Nature Reserve and is to be used as adjective.

DISCUSSION: A close relationship between *A. gaoligongshana* and *A. pui* can be assumed, as they share several character states not occuring in other Chinese species: strong punctation of head, pronotum and elytra (Fig. 109), strongly elongate antennomere 3 (Fig. 53), mentum with weakly convex lateral margins (Fig. 47) and very shallow anterior incision, pronotum (Fig. 81) with almost straight lateral margins and angulate posterolateral corners, elytra with distinct bands. The status as a separate species is based on the aedeagus (Fig. 5) which differs strongly from that of *A. pui* (Figs. 14–15).

ECOLOGY: Unknown.

DISTRIBUTION: China: Yünnan.

Anacaena gerula ORCHYMONT, 1942

Anacaena gerula ORCHYMONT 1942: 54.

TYPE LOCALITY: China, Yünnan Province, Yunnansen (village near Xiangyun, ca. 120 km E of Baoshan, 25°28'N 100°34'E).

TYPE MATERIAL: **Holotype** ♀ (ISNB): "Coll R.I.Sc.N.B. / Chine / Yunnan / Yunnan-Sen [handwritten] / Coll. A. Orchymont \ A. Orchymont det. / Anacaena / gerula m [yellow collection label] \ Type".

ADDITIONAL MATERIAL EXAMINED:

Yünnan: 1 ♂ (NMW): CWBS 384; 2 exs. (NMW): Yünnan, 100 km W Kunming, Diaolin Nature Reserve, 22.V.-2.VI.1993, E. Jendek, O. Šauša; 4 exs. (NMW): Yünnan, S Xiaguan, 1.2 km S Weishan, Weibaoshan, 2600–3000 m a.s.l., 1.–17.VII.1993, L. Ji; 12 exs. (NMW): Yünnan, 4 km S Shizong, 11. and 13.IX.2000, J. Bergsten.
Guizhou: 1 ♀ (NMW): CWBS 435; 1 ♀ (NMW): CWBS 445; 1 ♂ (NMW): CWBS 268.

DIFFERENTIAL DIAGNOSIS (Figs. 6, 27, 41, 58, 75, 89, 103): similar to *A. jaechi* KOMAREK, 2010, regarding size, coloration, maxillary palpi and metafemoral pubescence; differs from this species mainly by the missing bulge of the mesal margins of the parameres and the coarser pronotal and elytral punctation.

DESCRIPTION: Total length 2.0–2.4 mm; maximum width 1.1–1.3 mm; E.I. 1.07–1.24. Habitus oblong oval, with greatest width at midlength; elytra about 2.9–3.0 × as long as pronotum in dorsal view.

Head: Labrum, clypeus and frons black; preocular patches absent. Irregular punctures fine, distinctly impressed, without setae; interspaces about 1–2 × as large as punctures; series of very indistinct, minute, densely arranged punctures present along inner margin of eyes. Clypeus large, straight to slightly emarginate anteriorly, with distinct anterolateral angles. Eyes not constricted anteriorly; dorsal and ventral portion of almost equal size. Frontoclypeal suture indistinct. Antennomere 3 not distinctly elongate; apical segment of antennal club longer than wide. Maxillary palpomere 2 slightly inflated; palpomere 4 widest at midlength, slender, with straight inner margin and curved outer margin; distinct infuscation present in distal half, or more extended in some specimens (Fig. 27). Mentum (Fig. 41) ca. 1.7 × as wide as long; lateral

margins with dense fringes of long, very fine setae; anterior margin with deep mesal incision; very fine ventral punctures very widely spaced. Labial palpi slender, slightly longer than lateral edge of mentum; palpomere 3 slightly longer than palpomere 2.

Thorax: Pronotum (Fig. 58) black, with narrow rufous lateral margins. Punctation (Fig. 103) distinctly finer than on head, weakly impressed; interspaces about 3–4 × as wide as one puncture, punctation slightly denser laterally. Lateral margins distinctly convex, posterior corners broadly rounded (Fig. 75). Prosternum without carina or distinct bulge. Elytra black with indistinct rufous lateral margins and apical region. Lateral borders of pronotum and elytra without setae. Shoulder regions not accentuated. Punctures coarser than on head, strongly impressed; irregular; interspaces 1–3 × as wide as one puncture; short subserial rows present along lateral margins. Mesoventrite with sharply pointed protuberance. Legs dark brown; procoxa and protrochanter with some spine-like setae; metafemur (Fig. 89) pubescent on mesal portion and on anterior half, with horizontal hairline; metatarsus slightly shorter than metatibia.

Aedeagus (Fig. 6): Main piece of phallobase as long as parameres, sligthly longer than wide; manubrium evenly converging, extended into spatula-like lobe; borderline between unpigmented and narrow pigmented part of ventral face of phallobase very deep, almost reaching proximal edge. Lateral and mesal margins of parameres very slightly curved; distance between lateral margins of parameres not wider than diameter of phallobase; apex wide, slightly asymmetrical, slightly pointing mesad; basal portion as wide as apical part; ventral portion of bases not visible; dorsal portion slightly curved. Median lobe slightly shorter than parameres, slightly concave; corona in apical position of median lobe; basal apophyses slightly shorter than main piece of median lobe, attaining less than midlength of phallobase. Base of median lobe distinctly connected with parameres by mesal tooth.

DISCUSSION: The characters outlined in the original description are mainly based on a comparison with *A. glabella* ORCHYMONT, 1942. They can be confirmed in the present contribution, even though there is no specific structural or phylogenetic affinity between *A. gerula* and the Afrotropical *A. glabella*.

ECOLOGY: In small water bodies such as roadside ditches, rain pools, mud pools, and springfed pools; in debris of dead wood and leaves in a small waterfall, in a small stream flowing through secondary forest and an agricultural area; also at the edge of a slightly polluted reservoir with aquatic vegetation, mud and sand, surrounded by agricultural fields.

DISTRIBUTION: China: Guizhou, Yünnan.

Anacaena hainanensis JIA, 1997

Anacaena hainanensis JIA 1997: 109.

TYPE LOCALITY: China, Hainan Province.

TYPE MATERIAL: **Holotype** ♂ (ZUG): Hainan, 16.XII.1957, leg. Li Cui-Ying (in Chinese characters, see Fig. 116). **Paratype** ♀ (ZUG): Hainan, Xinglong, 3.I.1964, leg. Tong-Xu Peng (in Chinese characters, see Fig. 117).

The following types mentioned by JIA (1997) could not be found in the collections of CASB and ZUG and must be regarded as lost: allotype ♀, paratypes: 1 ♂, 1 ♀: "Wanning of Hainan, 1957, XII. 16.−17., collected by Li Cuiying".

ADDITIONAL MATERIAL EXAMINED:

Hainan: 2 ♀♀ (NMW): CWBS 179; 14 exs. (NMW): CWBS 181; 14 exs. (NMW): CWBS 183; 3 exs. (NMW): CWBS 185; 1 ex. (NMW): CWBS 186; 2 exs. (NMW): CWBS 200; 6 exs. (NMW): CWBS 214; 1 ex. (NMW): CWBS 215; 2 exs. (NMW): CWBS 216; 43 exs. (NMW): CWBS 217.

DIFFERENTIAL DIAGNOSIS (Figs. 7, 28, 42, 59, 76, 90, 104): very similar to *A. maculata* in size, coloration, maxillary palpi, labium, and metafemoral pubescence; differs by the slightly

larger preocular patches, the smaller pronoto-elytral length ratio, and the missing or less distinct "speckled" appearance of the elytra; differs clearly from all Chinese species by the aedeagus.

DESCRIPTION: Total length 1.1–1.8 mm; maximum width 0.9–1.5 mm; E.I. 1.07–1.26. Habitus oblong oval, with greatest width at midlength; elytra about 2.4–3.1 × as long as pronotum in dorsal view.

Head: Labrum, clypeus, and frons black; distinct, triangular yellow preocular patches of clypeus slightly larger than eye. Irregular punctures fine, distinctly impressed, without setae; interspaces 1–3 × as large as punctures, punctation denser towards clypeal margins; series of minute punctures along inner margin of eyes absent or very indistinct. Clypeus large, straight anteriorly, with distinct anterolateral angles. Eyes not constricted anteriorly; dorsal and ventral portion of almost equal size. Frontoclypeal suture very indistinct. Antennomere 3 not elongate, shorter than pedicellus; apical segment of antennal club slightly longer than wide. Maxillary palpomere 2 slightly inflated; palpomere 4 widest at midlength, slender, with almost straight inner margin and convex outer margin, with distinct infuscation in about apical fifth to apical third (Fig. 28). Mentum (Fig. 42) ca. 1.7 × as wide as long; anterior margin with distinct mesal incision; ventral punctures very widely spaced, minute, evenly distributed. Labial palpi slender, slightly longer than lateral edge of mentum; palpomere 3 slightly longer than palpomere 2.

Thorax: Pronotum (Fig. 59) light brown, with indistinctly delimited, dark brown, oval central infuscation. Irregular punctation (Fig. 104) almost obsolete, very fine, indistinctly impressed, widely spaced, denser towards moderately convex lateral margins (Fig. 76); posterolateral corners broadly rounded. Prosternum without carina or distinct bulge. Elytra dark brown, intensity of coloration decreasing towards lateral and posterior margins, or light brown with dark spots around punctures resulting in a slightly speckled appearance; spots confluent in some cases. Sutural stria with darker brown coloration. Lateral borders of pronotum and elytra without setae. Shoulder regions very slightly accentuated. Irregular punctures (Fig. 104) coarse, very densely distributed, even confluent in some places; some very coarse punctures in rows present along lateral margins in some individuals. Mesoventrite with a sharply pointed protuberance. Legs dark brown; procoxa and protrochanter with few spine-like setae; metafemur (Fig. 90) pubescent on mesal portion and on anterior half; with horizontal hairline; metatarsus about as long as metatibia.

Aedeagus (Fig. 7): Main piece of phallobase about as long as parameres, slightly longer than wide; manubrium evenly converging, extended into a moderately wide lobe; ventral face of phallobase with shallow incision; lateral and mesal margins of parameres slightly curved; distance between lateral margins of parameres not wider than diameter of phallobase; narrowing apicad, apex cylindrical, slightly pointing mesad; basal portion distinctly wider than apical part; ventral portion of bases not fused; dorsal portion distinctly curved. Median lobe distinctly shorter than parameres, with slightly convex margins; corona in subapical position of median lobe; basal apophyses about as long as main piece of median lobe, attaining less than midlength of phallobase. Base of median lobe distinctly connected with parameres by a mesal tooth.

DISCUSSION: In contrast to Jia (1997) nine antennomeres are present, also an apical infuscation of maxillary palpomere 4 and a distinct protuberance of the mesoventrite; the metafemoral pubescence is restricted to anterior half.

ECOLOGY: In a muddy ground water pool, slightly polluted pools in a stream, muddy fish ponds, rice fields, streams and rivers in cultivated land, and in rain water ditches.

DISTRIBUTION: China: Hainan.

Anacaena jiafenglongi sp.n.

TYPE LOCALITY: China, Yünnan Province, Gaoligong Mountain National Nature Reserve, 100 km W Baoshan.

TYPE MATERIAL: **Holotype** ♂ (NMW): "China-Yünnan 14.–21.6. / 100 km W Baoshan, 1993 / Gaoligongshan Nat. Res. / E. Jendek & O. Sausa leg.". **Paratypes**: 2 ♂♂, 6 ♀♀ (NMW): same data.

DIFFERENTIAL DIAGNOSIS (Figs. 8, 29, 43, 60, 77, 91, 105): Can be distinguished from all other Chinese species by the maxillary palpomere 4 (stout, symmetrical, infuscation absent or very indistinct; Fig. 29), by the blunt protuberance on the mesoventrite, and by the aedeagus.

DESCRIPTION: Total length 2.2–2.5 mm; maximum width 1.3–1.5 mm; E.I. 1.18–1.33. Habitus oblong oval, with greatest width at midlength; elytra about 3.1–3.6 × as long as pronotum in dorsal view.

Head: Labrum and clypeus light brown; preocular patches absent; indistinct mesal infuscation present on clypeus in some individuals. Frons dark brown; irregular punctures fine, distinctly impressed, without setae; interspaces 1–3 × as large as punctures, punctation denser towards clypeal margins; series of indistinct, minute, densely arranged punctures present along inner margin of eyes. Clypeus large, straight anteriorly, with distinct anterolateral angles. Eyes not constricted anteriorly; dorsal and ventral portion of almost equal size. Frontoclypeal suture very indistinct. Antennomere 3 slightly elongate; apical segment of antennal club slightly longer than wide. Maxillary palpomeres stout, palpomere 2 distinctly inflated; palpomere 4 widest at midlength, with distinctly curved inner and outer margins; very indistinct apical infuscation present in some individuals (Fig. 29). Mentum (Fig. 43) ca. 1.6 × as wide as long, with deep distinct mesal incision; ventral punctures very widely spaced, fine, evenly distributed; labial palpi stout, not longer than lateral edge of mentum; palpomere 3 slightly longer and wider than palpomere 2.

Thorax: Pronotum (Fig. 60) with dark brown mesal portion; intensity of coloration decreasing laterally, wide portion of lateral part light brown. Punctation (Fig. 105) very fine, indistinctly impressed, denser towards lateral margins; interspaces about 2–3 × as wide as puncture. Lateral margins moderately convex, posterolateral corners rather broadly rounded (Fig. 77). Prosternum without carina or distinct bulge. Elytra light brown, with slightly darker brown areas, mainly on shoulder regions, sutural stria and around punctures, confluent in some individuals, forming very indistinct dark brown longitudinal bands. Lateral borders of pronotum and elytra without setae. Shoulder regions very slightly accentuated. Punctures (Fig. 105) moderately fine, distinctly coarser than on pronotum, strongly impressed, irregular; interspaces 1–2 × as wide as one puncture; coarser punctures arranged in short rows present along lateral margins. Mesoventrite with a blunt, crescent-shaped protuberance. Legs dark brown; procoxa and protrochanter pubescent without spine-like setae; metafemur (Fig. 91) pubescent in mesal portion and on anterior half, with horizontal hairline; metatarsus about as long as metatibia or slightly shorter.

Aedeagus (Fig. 8): Main piece of phallobase about as long as parameres, slightly longer than wide; manubrium evenly converging, extended into a rather broad lobe; pigmentation of ventral face of phallobase very indistinct; lateral and mesal margins of parameres very slightly curved; distance between lateral margins of parameres not wider than diameter of phallobase; apex cylindrical, not inflated, slightly asymmetrical, basal portion slightly wider than apical part; ventral portion of bases not fused; dorsal portion of bases distinctly curved. Median lobe distinctly shorter than parameres, with slightly curved margins; corona in subapical position of median lobe; basal apophyses slightly shorter than main piece of median lobe, attaining less than midlength of phallobase. Base of median lobe distinctly connected with parameres by a mesal tooth.

ETYMOLOGY: The name of the epithet refers to Fenglong Jia (ZUG), the author of two species of *Anacaena* from China.

DISCUSSION: The blunt, crescent shaped protuberance on the mesoventrite and the very stout maxillary palpomere 4 are not found in other Chinese species. These character states can be regarded as autapomorphic and justify the status as a species.

ECOLOGY: Unknown.

DISTRIBUTION: China: Yünnan.

Anacaena lancifera Pu, 1963

Anacaena lancifera Pu 1963: 12 (Chinese), 81 (English); Jia 1997: 108.

TYPE LOCALITY: China, Sichuan Province, Emei Mountains (= Omei Shan).

TYPE MATERIAL: **Holotype** ♂ (CASB): "Sichuan Prov.: Emei Mts., 1100–1800 m, 23−VI−1955, leg. Yang Xing-Chi" (in Chinese and Russian characters, see Fig. 118). – Allotype: 1 ex. "from the same locality, 24.VI.1955, collected by Ko Chung-lin (in Chinese and Russian characters, see Fig. 120); **Paratype** ♂ (CASB): Sichuan Province, Emei Shan, 1800−2100 m a.s.l., 24.VI.1955, leg. Bing-Rong Ou (in Chinese and Russian characters, see Fig. 119).

Pu (1963) states seven paratypes "with same locality". Six of these paratypes could not be found in the CASB and ZUG collections and must be regarded as lost.

ADDITIONAL MATERIAL EXAMINED:

Anhui: 2 ♂♂ (NMW): CWBS 291; 2 ♂♂, 2 ♀♀ (NMW): CWBS 295; 1 ♂ (NMW): CWBS 297.

Fujian: 5 exs. (NMW): CWBS 240; 2 ♀♀ (NMW): CWBS 246; 1 ♀ (NMW): CWBS 248; 2 ♀♀ (NMW): CWBS 251; 2 ♂♂ (NMW): CWBS 252; 2 ♀♀ (NMW): CWBS 260; 3 ♀♀ (NMW): CWBS 264.

Guangdong: 1 ♀ (NMW): CWBS 471; 1 ♀ (NMW): CWBS 484; 2 ♂♂ (NMP): 30 km NE Shaoguan, Duanshi village, Danxia Shan National Park, 25°02.7'N 113°43.8'E, 125 m a.s.l, streams, pools, 4.−5.V.2011, J. Hájek.

Hunan: 1 ♀ (NMW): Hunan Province, Guidong environment, 26.04°N 113.56°E, 26.−31.V.1994; 5 exs. (NMW): CWBS 22; 1 ♀ (NMW): CWBS 35; 15 exs. (NMW): CWBS 498; 9 exs. (NMW): CWBS 500; 1 ♂, 1 ♀ (NMW): CWBS 501; 11 exs. (NMW): CWBS 502; 1 ♀ (NMW): CWBS 503; 1 ♂ (NMW): CWBS 521.

Jiangxi: 1 ♀ (NMW): CWBS 303; 2 ♂♂, 1 ♀ (NMW): CWBS 305; 2 ♂♂, 4 ♀♀ (NMW): Jiangxi W, Jinggang Shan, Ciping environment, 2.−14.VI.1994; 5 ♂♂, 7 ♀♀ (NMW): CWBS 512; 3 exs. (NMP): Jiangxi Prov., Jinggangshan, Jingzhushan, 6400 m a.s.l, 26°31.0'N 114°05.9'E, small stony stream, sidepools partly overgrown with filamentous algae and grass, partly without vegetation, with accumulation of leaves, 25.IV.2010, M. Fikáček, J. Hájek, F.-L. Jia, K. Song "MF06"; 1 ♂, 1 ♀ (NMP): Jinggangshan, Xiangzhou, forested valley S of village, 374 m a.s.l, 26°35.5'N 114°16.0'E, rice fields in the village, very shallow water with lots of mud and in exposed stream in the village, 26.IV.2011, M. Fikáček, J. Hájek "MF08".

Sichuan: 1 ♂, 2 ♀♀ (NMW): CWBS 221; 1 ♂ (NMW): CWBS 237.

Yünnan: 10 exs. (NMW): CWBS 398; 23 exs. (NMW): CWBS 399; 1 ♂, 3 ♀♀ (NMW): CWBS 400; 1 ♂, 1 ♀ (NMW): CWBS 404; 19 exs. (NMW): CWBS 409; 1 ♂ (NMW): Yünnan, 2 km S Shizong, 15.IX.2000, J. Bergsten; 1 ♂, 1 ♀ (NMP): Yünnan, Shanzhi environment, Jizhu Shan, Zhu Sheng Si monastery, 25°57.7'N 100°23.6'E, 2180 m a.s.l., individually collected, on vegetation and on tree trunks in a stream, flowing through dense mixed forest with dominant *Pinus*, *Quercus*, and *Rhododendron*, 22.−24.VI.2007, J. Hájek, J. Růžička.

DIFFERENTIAL DIAGNOSIS (Figs. 9, 30, 44, 61–63, 78, 92, 106): Belongs to the species with extended metafemoral pubescence and slender maxillary papomeres; very similar to *A. lanzhujii*, but differing distinctly by the aedeagus (phallobase not shorter than parameres, manubrium long, conical); can be distinguished from the species of the "*yunnanensis*-group" by the clypeus (absence of defined preocular patches), maxillary palpi (palpomere 4 not infuscated), and from all species of the region by characteristics of the aedeagus.

DESCRIPTION: Total length 1.9–2.6 mm; maximum width 1.2–1.9 mm; E.I. 1.11–1.22. Habitus oblong oval, greatest width at midlength; elytra about 3.0–4.0 × as long as pronotum in dorsal view.

Head: Labrum light brown. Clypeus light brown, intensity of coloration decreasing towards lateral margin in most cases; clearly defined preocular patches absent. Frons light brown or coloration distinctly darker than on clypeus. Irregularly arranged punctures fine, few coarser punctures interspersed, distinctly impressed, without setae; interspaces about 1−3 × as large as punctures; series of indistinct, minute, densely arranged punctures present along inner margin of eyes. Clypeus long, straight to very slightly emarginate anteriorly, with distinct angles between lateral and anterior portion. Eyes not constricted anteriorly; dorsal and ventral portion of almost equal size. Frontoclypeal suture visible laterally and between eyes in many individuals. Antennomere 3 slightly elongate; apical segment of antennal club slightly longer than wide. Maxillary palpomere 2 distinctly inflated; palpomere 4 slender, widest at midlength, with indistinctly curved inner margin and distinctly curved outer margin, without infuscation (Fig. 30). Mentum (Fig. 44) ca. 1.7−1.8 × as wide as long; anterior margin with deep distinct mesal incision; ventral punctures very widely spaced, fine, denser on anterior half; labial palpi slender, slightly longer than lateral edge of mentum; palpomere 3 longer than palpomere 2.

Thorax: Pronotum (Figs. 61−63) yellow; variably shaped, distinct dark brown mesal infuscation as wide as frons, consisting of a small circular dark brown patch, subdivided by a very narrow mesal line (Fig. 62); or with larger mesal patch and two indistinct paramedian spots, separated from central patch or confluent with it (Figs. 61, 63); anterior margin dark brown. Punctation (Fig. 106) very fine to obsolete. Lateral margins slightly convex, posterolateral corners sharply rounded (Fig. 78). Prosternum without carina or distinct bulge. Elytra dark brown; intensity of coloration decreasing towards lateral margins, apically, and anteromesally; some individuals with even brown elytral coloration. Lateral borders of pronotum and elytra usually without setae; some very fine setae present on elytral apex in some individuals. Shoulder regions not or very slightly accentuated. Punctures (Fig. 106) coarser than on head, strongly impressed, irregularly arranged; slightly coarser punctures present along lateral margins, arranged in short rows; interspaces about 2 × as wide as one puncture. Mesoventrite with a sharply pointed protuberance. Legs dark brown, brighter than ventrites or with less dark brown distal portions in some individuals; procoxa and protrochanter without spine-like setae; metafemur (Fig. 92) pubescent on proximal 4/5, hairline rounded; metatarsus about as long as metatibia.

Aedeagus (Fig. 9): Main piece of phallobase about as long as parameres, slightly longer than wide; manubrium smoothly converging proximad, extended into a very long, conical lobe; borderline between unpigmented and narrow pigmented part of ventral face of phallobase very deep, almost reaching proximal edge; lateral and mesal margins of parameres very slightly sigmoidal; distance between lateral margins of parameres as wide as diameter of phallobase or very slightly wider; apex rather narrow, not inflated, slightly pointing mesad; basal portion slightly wider than apical part; ventral portion of bases fused, distinctly reaching into phallobase; dorsal portion distinctly curved. Median lobe almost as long as parameres; corona in apical position of median lobe; basal apophyses slightly shorter than main piece of median lobe, attaining less than midlength of phallobase. Base of median lobe visibly connected with parameres by a small tooth.

DISCUSSION: Most of the features described by PU (1963) can be confirmed, but the head is not "deeper colored" and not "indistinctly punctulated". PU (1963) lists four characters delimiting *A. lancifera* from *A. yunnanensis*: "absence of any outgrowth on the mentum anteriorly", "presence of dense pubescence on the posterior femora", "punctures on the elytra much larger than those on the head", and "presence of larger punctures in the lateral areas of elytra". The re-examination reveals that *A. lancifera* and *A. yunnanensis* are not differing in these characters.

ECOLOGY: In rivers and streams flowing through villages or cultivated land (rice fields, vegetable gardens, crop fields, pastures) and secondary or degraded forest (bamboo, pine,

Cunninghamia, *Quercus*, *Rhododendron*), mostly on dense riparian or submerged vegetation, floating rootlets, moss-covered stones, algae-covered gravel, sand, decaying leaves, and flood debris; also in small rivers with large sandstone boulders and sparse vegetation; in residual pools of small rivers and streams, in rice fields, rock pools, waterfalls, in deep gorges and ravines; on hygropetric surfaces.

DISTRIBUTION: China: Anhui, Fujian, Guangdong, Hunan, Jiangxi, Sichuan, Yünnan.

Anacaena lanzhujii sp.n.

TYPE LOCALITY: China, Hainan Province, Wuzhi Shan Resort, 30 km E Maoyang.

TYPE MATERIAL: **Holotype** ♂ (CASS): "China: Hainan (193) / 30 km E Maoyang, 600 m / Wuzhi Shan Resort, 1996 / 17.−18.1., Ji & Wang". **Paratypes**: 20 ♂♂, 12 ♀♀ (NMW, AEZS): same data as holotype; 1 ♂, 3 ♀♀ (NMW): CWBS 195; 18 exs. (NMW): CWBS 205; 23 exs. (NMW): CWBS 208; 2 ♂♂ (NMW): CWBS 210; 5 exs. (NMP): Hainan, Limushan, 550−750 m a.s.l, 19°9.1−9.2'N 109°45−46'E, along the road, small streamlet in secondary forest with bamboo, among gravel and stones at the small pools and on a wet stone covered with decaying leaves, 5.V.2011, M. Fikáček, S. Zhao "MF18"; 1 ♂ (NMP) same locality as "MF18", but sifting of moist to wet leaf litter along streams in secondary forests with bamboo, collected together with *A. bushiki*; 4 exs. (NMP, NMW): same locality as "MF18", exposed pools along the road, partly connected to the stream, sparsely to densely overgrown by grass; 2 exs. (NMP): Hainan, Bawangling Mts., Yajia (5 km SE of Baotie), 415 m a.s.l, 19°5.29'N 109°7.41'E, along the stony river in a lowland forest with low water level, side pools and algae at rock banks, in the pools and on wet rocks in the streambed of a drying-up stream, 7.V.2011, M. Fikáček, S. Zhao "MF20"; 1 ex. (NMP): Hainan, Bawangling National Forest Park, 12.3 km ESE of Baotie, 1050 m a.s.l, 19°5.20'N 109°11.80'E, small shaded stream with sandy bottom and stones in primary forest, 8.V.2011, M. Fikáček "MF23"; 4 exs. (NMP, NMW): Hainan, Jianfengling Mts., Tianchi Lake environment, Bishu villa, 950 m a.s.l, 18°44.7'N 108°50.7'E, pools in the bed of a small drying-up stream with sandy bottom and small concrete pools in the streambed, 9.−11.V.2011, M. Fikáček, V. Kubeček, Y. Li "MF25"; 43 exs. (NMP, NMW): Hainan, Jianfengling Mountains, Tianchi Lake, road from Tianchi village to "sector 5", 820−950 m a.s.l, 18°43.6−44.1'N 108°52.5'E, pools at sides of shaded drying-up streams in primary forest, partly with grass, mostly only with decaying leaves, 10.V.2011, M. Fikáček, S. Zhao "MF27"; 2 exs. (NMP): same locality as "MF27", in small, slow flowing stony river in primary forest, among gravel and stones at the sides and on the water surface; 15 exs. (NMP, NMW): Hainan, Limushan, 650−900 m a.s.l, 19°10.5−10.9'N 109°44−45'E, wet horizontal rock in a streambed with a thin water film and lots of fallen leaves, only partly exposed, 6.V.2011, M. Fikáček, S. Zhao "MF19"; 2 exs. (NMP, NMW): same locality as "MF19", in an isolated pool with some fallen leaves on horizontal rock.

DIFFERENTIAL DIAGNOSIS (Figs. 10–11, 31, 45, 64, 65, 79, 93, 107): Most similar to *A. lancifera* but differing from it by the elytral punctation (distinct in *A. lancifera,* Fig. 106, almost obsolete in *A. lanzhujii*, Fig. 107), and from all Chinese species by the aedeagus.

DESCRIPTION: Total length 1.9–2.5 mm; maximum width 1.3–1.6 mm; E.I. 1.13–1.22. Habitus: oblong oval, with greatest width in midlength; elytra about 2.9–3.5 × as long as pronotum in dorsal view.

Head: Labrum and clypeus unicolored, light brown. Preocular patches or mesal infuscation absent. Frons darker brown or light brown with infuscated lateral and posterior areas. Irregular punctures very fine to obsolete. Series of punctures along inner margin of eyes absent. Clypeus large, straight to slightly emarginate anteriorly, with distinct angles between lateral and anterior portion. Eyes not constricted anteriorly; dorsal and ventral portion of almost equal size. Frontoclypeal suture indistinct. Antennomere 3 slightly elongate; apical segment of antennal club slightly longer than wide. Maxillary palpomere 2 distinctly inflated; palpomere 4 widest at midlength, slender with indistinctly curved inner margin and distinctly curved outer margin, without infuscation in most individuals; very indistinct infuscation in apical fifth present in some cases (Fig. 31). Mentum (Fig. 45) ca. 1.7−1.9 × as wide as long; anterior margin with distinct mesal incision; ventral punctures very widely spaced, evenly distributed; labial palpi moderately slender, about as long as lateral edge of mentum; palpomere 3 slightly longer than palpomere 2.

Thorax: Pronotum (Figs. 64–65) yellow, with a small circular dark brown mesal patch; indistinct lateral infuscations adjacent to central spot present in some individuals. Punctation (Fig. 107) obsolete, only few very fine punctures present laterally. Lateral margins slightly convex, posterolateral corners sharply rounded (Fig. 79). Prosternum without carina or distinct bulge. Elytra light to dark brown; light brown areas present anteromesally, laterally and apically in individuals with dark brown basic coloration. Lateral borders of pronotum and elytra without setae. Shoulder regions very slightly accentuated in some individuals. Irregular punctures (Fig. 107) very fine, almost obsolete on elytral disk; short rows of fine punctures present along lateral margins. Mesoventrite with a sharply pointed protuberance. Legs dark brown; procoxa and protrochanter without spine-like setae; metafemur (Fig. 93) pubescent on proximal 4/5, with rounded hairline; metatarsus about as long as metatibia.

Aedeagus (Figs. 10–11): Main piece of phallobase distinctly shorter than parameres, about as long as wide; manubrium smoothly converging, extended into a very narrow, parallel-sided lobe, strongly bent dorsad; borderline between unpigmented and narrow pigmented part of ventral face of phallobase very deep, almost reaching proximal edge; lateral margins of parameres slightly curved; mesal margins strongly curved; distance between lateral margins of parameres not wider than diameter of phallobase; apices slender, not inflated, pointing mesad; basal portion distinctly wider than apical part; ventral portion of bases fused, distinctly reaching into phallobase; dorsal portion of bases slightly curved. Median lobe shorter than parameres, with slightly convex margins; corona in apical position of median lobe; basal apophyses slightly shorter than main piece of median lobe, attaining less than midlength of phallobase. Base of median lobe distinctly connected with parameres by a mesal tooth.

ETYMOLOGY: The name of the epithet refers to the entomologist and water beetle specialist Lanzhu Ji (CASS), one of the collectors of the species.

DISCUSSION: The almost obsolete punctation of the elytra and the very short basal lobe with a strongly bent manubrium are regarded as autapomorphies, justifying the status as species.

ECOLOGY: In springfed pools, in rivers and streams flowing through degraded primary forest and shrubs, in sidepools, roadpools, in a river in a very dense primary forest; among gravel, stones, decaying leaves, and on wet stones covered with algae.

DISTRIBUTION: China: Hainan.

Anacaena maculata PU, 1964

Anacaena maculata PU 1964: 399 (Chinese); JIA 1997: 108 (English).

TYPE LOCALITY: China, Guangdong Province, Fengkai (County), Zhaoqing (Prefecture), River Qixing, ca. 60 km E of Fengkai, ca. 11 km E of Heishiding Nature Reserve head office, ca. 6 km E of Qixing.

TYPE MATERIAL: **Neotype** ♂ (NMW) by present designation: "China: Guangdong Prov. / 60 km E Fengkai / Heishiding N.R. / 2.11.2001, ca. 230 m / Jäch & A. Komarek (CWBS 461) \ Neotypus / Anacaena maculata / Pu, 1964 / des. A. Komarek 2011".

Despite considerable efforts the holotype could not be found in the collections of CASB and ZUG and must be regarded as lost. PU (1964) did not denote sampling data. Information about type locality and about paratypes are missing in the original description and in JIA (1997). In accordance with Article 75 of the ICZN, the designation of a neotype of *Anacaena maculata* is made hereby to clarify the type locality and as a reference for the redescription. JIA (1997) notes that the species is distributed in the provinces of Yünnan, Guizhou, Guangxi, and Guangdong. One specimen from Guizhou, Dushan, 10.X.1940, leg. Zhe-Long Pu (Fig. 121), labelled "paratype" was found in the ZUG. It was not possible to determine the gender of this specimen. The description by PU (1964) was based on a male (aedeagus illustrated in PU 1964). The characters of the male genitalia are essential to distinguish the species.

Therefore a male was selected as neotype from a series of specimens collected in Guangdong, in accordance with the distributional data in JIA (1997).

ADDITIONAL MATERIAL:

Fujian: 1 ♀ (NMW): CWBS 261.

Guangdong: 23 exs. (NMW): CWBS 458; 30 exs. (NMW): CWBS 461 (type locality); 1 ♂ (NMW): CWBS 462; 2 exs. (NMW): CWBS 479; 1 ex. (NMW): CWBS 480; 1 ex. (NMW): CWBS 484; 1 ex. (NMW): CWBS 490.

Hunan: 2 ♀♀ (NMW): CWBS 28; 1 ♂ (NMW): CWBS 36; 1 ♂, 1 ♀ (NMW): CWBS 37.

Jiangxi: 1 ♀ (NMP): Longshi environment (rice fields), 240 m a.s.l, 26°41.6'N 113°58.0'E, 27.IV.2011, M. Fikáček, J. Hájek "MF09".

Yünnan: 2 ♂♂ (NMW): CWBS 383; 1 ♂, 4 ♀♀ (NMW): CWBS 384; 1 ♂ (NMW): CWBS 386; 3 exs. (NMW): 100 km W Kunming, Diaolin Natural Reserve, 22.V.–2.VI.1993, E. Jendek, O. Šauša.

DIFFERENTIAL DIAGNOSIS (Figs. 12–13, 32, 46, 66, 80, 94, 108): Shares the small body size and the dorsal coloration (head black with yellow preocular patches, pronotum and elytra brown) with *A. hainanensis*. Very similar to *A. modesta* ORCHYMONT, 1932 (KOMAREK 2010), including the aedeagus. Differing from this species by the body length (*A. modesta*: 2.7−3.1 mm), the central pronotal patch (larger, less distinctly divided into three parts), the elytral coloration (distinct speckles), and slight differences in the aedeagus (length ratio parameres/phallobase; shape of parameres). *A. maculata* shares the small body size and the "speckled" appearance of the elytra (KOMAREK 2006) with *A. minutalis* ORCHYMONT, 1942. It differs from this species by the mesoventrite (low ridge present in *A. minutalis*) and the aedeagus. *Anacaena maculata* can be distinguished from all known species of the region by characteristics of the aedeagus.

DESCRIPTION: Total length 1.6–2.0 mm; maximum width 1.0–1.3 mm; E.I. 1.06–1.25. Habitus oblong oval, with greatest width at midlength; elytra about 3.5–4.4 × as long as pronotum in dorsal view.

Head: Labrum, clypeus and frons black, with distinct, yellow, triangular preocular patches of about the size of one eye; distance between patches in most individuals as wide as distance between eyes, sometimes slightly smaller. Irregular punctures fine with some coarser punctures interspersed, distinctly impressed; interspaces about 1−3 × as large as puncture, punctation denser towards clypeal margins; setae absent; series of indistinct, minute, densely arranged punctures present along inner margin of eyes. Clypeus large, straight to slightly emarginate anteriorly, with blunt angles between lateral and anterior portion. Eyes not constricted anteriorly; dorsal and ventral portion of almost equal size. Frontoclypeal suture very indistinct, visible on lateral third of clypeus in most individuals. Antennomere 3 not distincly elongate; apical segment of antennal club longer than wide. Maxillary palpomeres slender, palpomere 2 slightly inflated; palpomere 4 widest at midlength, slender with straight inner margin and convex outer margin; distinct infuscation present on distal third to distal half (Fig. 32). Mentum (Fig. 46) ca. 1.7−1.8 × as wide as long; lateral margins with dense fringes of long, very fine setae; anterior margin with deep distinct mesal incision; ventral punctures very widely spaced, slightly denser on anterior half; labial palpi slender, longer than lateral edge of mentum; palpomere 3 longer than palpomere 2.

Thorax: Pronotum (Fig. 66) yellowish brown; large dark brown median patch approximately as wide as frons, not reaching anterior margin; irregularly shaped lateral margins and two brighter paramedian spots present at pronotal base. Punctation (Fig. 108) distinctly finer than on head, weakly impressed, denser towards lateral margins; interspaces about 2–4 × as wide as puncture. Lateral margins evenly curved, posterolateral corners distinctly curved (Fig. 80). Prosternum without carina or distinct bulge. Elytra with distinctly "speckled" appearance, light brown with dark brown spots around punctures. Scutellar shield and parasutural stria with darker brown coloration in most individuals. Lateral borders of pronotum and elytra without setae. Shoulder regions very slightly accentuated or accentuation absent. Punctures fine, stronger than on head, largely irregular; some subseriate rows present, particularly on lateral areas; interspaces, 1–3 ×

as wide as puncture; coarser punctures along lateral margins absent. Mesoventrite distinctly elevated mesally, with sharply pointed protuberance. Legs dark brown; procoxa and protrochanter with some indistinct spine-like setae visible in some individuals; metafemur (Fig. 94) pubescent in mesal portion and on anterior half with horizontal hairline; metatarsus about as long as metatibia.

Aedeagus (Figs. 12–13): Main piece of phallobase as long as parameres or slightly shorter than parameres, slightly longer than wide; manubrium smoothly converging, extended into a very broad lobe, distinctly bent dorsad; borderline between unpigmented and narrow pigmented part of ventral face of phallobase moderately deep, indistinctly visible, not reaching manubrium. Lateral and mesal margins of parameres very slightly curved; distance between lateral margins of parameres not wider than diameter of phallobase; apices rather wide, asymmetrical, straight, unpigmented; basal portion as wide as apical part; ventral portion of bases not distinctly visible; dorsal portion of bases slightly curved, very slightly reaching into phallobase. Median lobe about as long as parameres, with slightly concave margins; corona in subapical position of median lobe; basal apophyses shorter than main piece of median lobe, attaining less than midlength of phallobase. Base of median lobe distinctly connected with parameres by a mesal tooth.

DISCUSSION: The observations in the description by PU (1964) can be largely confirmed. In contrast to PU (1964) and JIA (1997) the antennae are composed of nine antennomeres.

ECOLOGY: In different types of shallow water bodies (roadside ditches, rain pools, mud pools, springfed pools, rock pools, rice fields), in streams and small rivers flowing in rice fields and other cultivated areas, as for instance vegetable fields; in slightly polluted streams; in rivers flowing through degraded forest and cultivated land; on springfed, hygropetric surfaces.

DISTRIBUTION: China: Fujian, Guangdong, Hunan, Jiangxi, Yünnan. The distribution in Guangxi and Guizhou (JIA, 1997) is not confirmed by the present study.

Anacaena pui sp.n.

TYPE LOCALITY: China, Sichuan Province, Tianqüan (County), Ya'an City Region, ca. 57 km W Ya'an City, 4 km W Xingou (village), stream at foot of Erlang Shan.

TYPE MATERIAL: **Holotype** ♂ (CASS): "China: Sichuan, 13.6.1996 / ca. 60 km W Ya'an, 1600 m / 4 km W Xingou Village / leg. Ji & Wang. (CWBS 233)". **Paratypes**: **Sichuan**: 26 exs. (NMW): same data; 1 ♂, 4 ♀♀ (NMW): CWBS 232; 39 exs. (NMW, AEZS): "SE Sichuan / Jinfo Shan, 29°01'N / 107°14'E, 1800 m, 27.VI. / 1998, A. Smetana C72 \ 1998 China Expedition / J. Farkač, D. Král / J. Schneider / & A. Smetana"; **Guizhou**: 1 ♀ (NMW): CWBS 438; 1 ♂, 5 ♀♀ (NMW): Guizhou NE, 30 km NW Jiangkou, Fanjing Shan-Kuaichang, 500 m a.s.l., 9.V.2000; 2 exs. (CASB): Leigongshan Mountains, Lianhuaping, 8.IX.2005, Shuang Zhao [one ex. labelled "Paratype Crenitis sinensis / det. Feng Long Jia"; labels in Chinese, translated by Si-Qin Ge]; **Hubei**: 1 ♂, 1 ♀ (NMW): W Hubei, Daba Shan, creek valley, 8 km NW Muyuping, 31°29'N 110°22'E, 1550−1650 m a.s.l., 18.VII.2001, A. Smetana "C115a"; 2 ♂♂ (NMW): W Hubei, Daba Shan mountain range NE Muyuping, creek valley, 4 km N Muyuping, 31°29'N 110°22'E, 1700 m a.s.l., 21.VII.2001, A. Smetana "C116"; 1 ♀ (NME): W Hubei, Daba Shan, creek valley, 8 km NW Muyuping, 31°29'N 110°22'E, 1540 m a.s.l., edge of small creek, 18.VII.2001, Wrase "16"; **Jiangxi**: 1 ♂ (NMW): CWBS 306; 1 ex. (NMW): Jiangxi W, Jinggang Shan, Ciping envinronment, 2.−14.VI.1994; 1 ♂ (NMP): Jinggangshan, Jingzhushan, 6400 m a.s.l, 26°31.0'N 114°05.9'E, quickly flowing stony stream amid bushy pastures, in gravel at banks and in moss on stones in small waterfalls, 25.IV.2010, M. Fikáček, J. Hájek, F.-L. Jia & K. Song "MF06"; 1 ♂ (NMP): same locality as "MF06" but in cow excrements on a forest clearing; **Yünnan**: 16 exs. (NMW): Yünnan, Gaoligongshan Natural Reserve, 100 km W Baoshan, 14.–21.VI.1993, E. Jendek & O. Šauša; 1 ♀ (NMW): Baoshan environment, 6.–8.VI.1993, E. Jendek, O. Šauša; 2 ♂♂, 1 ♀ (NMP): Shanzhi environment, Jizhu Shan Mountain, Jade Dragon waterfall, 25°57.6'N 100°23.2'E, 2250 m a.s.l., individually collected on wet rocks below the waterfall, rocks covered with algae, with adjacent mixed forest, 23.−24.VI.2007, J. Hájek & J. Růžička; 24 exs. (NMP, NMW): Shanzhi environment, Jizhu Shan Mountains, Zhu Sheng Si monastery, 25°57.7'N / 100°23.6'E, 2180 m a.s.l., individually collected on vegetation, on tree trunks, in a stream flowing through dense mixed forest with dominant *Pinus*, *Quercus*, and *Rhododendron*, 22.−24.VI.2007, J.

Hájek, J. Růžička; 9 exs. (NMP, NMW): Dali environment, Cangshan Mountains, Path Zhonghe Si – Gantang Si, E slope, 25°30−41'N 100°08−09'E, 2200−2400 m a.s.l., individually collected on soil surface and on plants and shrubs along the path, and on gravel banks in stream, 2.VI.2007, J. Hájek, J. Růžička.

DIFFERENTIAL DIAGNOSIS (Figs. 14–15, 33, 47, 53, 67, 81, 95, 109): Very similar to *A. gaoligongshana*, but differing in size and features of the aedeagus. Can be separated from all other species of China by the shape of antennomere 3 (distinctly elongated, Fig. 53), the elytral coloration (with very distinct longitudinal bands), the hind pronotal corners (angulate, Fig. 81) and the aedeagus (very short manubrium, broadly rounded parameres, Figs. 14–15), and from most species by the strong pronotal and elytral punctation (Fig. 109). The aedeagus of *A. pui* (Figs. 14–15) is similar to that of *A. bushiki* (Fig. 4), but both species differ distinctly in other characters, such as for instance the pronotal punctation (strongly punctured in *A. pui*) and the metafemoral pubescence (extended, with round hairline in *A. pui*).

DESCRIPTION: Total length 2.3−2.9 mm; maximum width 1.4−1.7 mm (individuals from Gaoligongshan: length 2.1−2.4 mm, width 1.2–1.4 mm); E.I. 1.15−1.30. Habitus oval, elytra slightly attenuated apicad in most individuals; greatest width at midlength; elytra about 3.0–3.6 × as long as pronotum in dorsal view.

Head: Labrum light brown throughout or with dark brown posterior half and yellowish brown anterior half; clypeus and frons dark brown, with rather sharply demarcated, yellow, triangular preocular patches of about the size of an eye or slightly larger. Irregular punctures moderately strong, strongly impressed; interspaces as large as punctures or slightly wider, punctation denser towards clypeal margins; setae absent; some coarser punctures interspersed; series of indistinct, minute, densely arranged punctures present along inner margin of eyes. Clypeus long, slightly emarginate anteriorly, with distinct angles between lateral and anterior portion. Eyes not indented anteriorly; dorsal and mesal portion of almost equal size. Frontoclypeal suture very indistinct, but visible as complete, fine, impressed line in most individuals. Antennomere 3 (Fig. 53) distinctly elongate; apical segment of antennal club distinctly longer than wide, with distinct circular subapical constriction. Maxillary palpomere 2 inflated; palpomere 4 widest at midlength, almost symmetrical, with slightly convex inner and outer margins; broadly rounded apex entirely infuscated or yellowish with darker brown apical half (Fig. 33). Mentum (Fig. 47) ca. 1.5 × as wide as long; very slightly convex lateral margins with loosely arranged long, fine setae; anterior margin with shallow mesal incision; ventral punctures widely spaced, moderately fine, more densely arranged on anterior half; labial palpi very stout, about 1.5 × as long as wide; shorter than lateral edge of mentum; palpomere 3 about as long as palpomere 2 and distinctly wider than palpomere 2.

Thorax: Pronotum (Fig. 67) with wide yellowish lateral margins; dark brown median patch not reaching anterior margin in most individuals, variably extending laterad, about as wide as distance between eyes in most individuals, irregularly shaped, in many cases with "W"-shaped anterior margin and variably shaped lateral extensions; anterior pronotal margin narrowly infuscated; some individuals with extensive dark coloration of pronotum. Punctation (Fig. 109) moderately strong, as on head, strongly impressed; interspaces about 1−2 × as wide as one puncture, punctation denser towards lateral margins. Lateral margin almost straight, posterior corner angulate (Fig. 81). Prosternum mesally reinforced, without carina. Elytra dark, or light brown with brighter areas laterally and posteriorly; nine to ten dark brown longitudinal bands distinct in most individuals, indistinctly visible in individuals with darker basic coloration. Lateral borders of pronotum and elytra without setae. Elytra with accentuated shoulder regions. Punctures (Fig. 109) moderately coarse, strongly impressed, irregular on most parts, arranged as short series within darker brown bands posteriorly and along lateral margins; interspaces as wide as punctures or slightly wider. Mesoventrite with a sharply pointed protuberance. Legs dark brown; distal portions of femora and tibiae light brown, procoxa and protrochanter without

spine-like setae; metafemur (Fig. 95) pubescent on proximal 4/5, with straight hairline; convex anteriorly, slightly oblique posteriorly; metatarsus almost as long as metatibia.

Aedeagus (Figs. 14–15): Main piece of phallobase distinctly longer than parameres, longer than wide; manubrium smoothly converging, extended into a short lobe, usually spoon-shaped and strongly bent dorsad; conical, less distinctly bent dorsad in some individuals; borderline between unpigmented and narrow pigmented part of ventral face of phallobase very deep, almost reaching proximal edge; short mesal pigmented line present; lateral and mesal margins of parameres slightly curved, lateral margins sigmoidal in many cases; distance between lateral margins of parameres as wide as diameter of phallobase or slightly wider; apical part very wide, broadly rounded, flattened or slightly impressed at tip, not pointing mesad; basal portion slightly wider than apical part; ventral portion of bases fused, very slightly reaching into phallobase; dorsal portion slightly curved. Median lobe slightly shorter than parameres; corona distant from apex, placed on distal third of median lobe; basal apophyses about as long as main piece of median lobe, attaining less than midlength of phallobase. Base of median lobe distinctly connected with parameres by a small tooth.

ETYMOLOGY: The species is dedicated to the Chinese entomologist Pu Chih-Lung from the Zhongshan (= formerly Sun Yatsen) University of Guangzhou (Guangdong), who described several species of *Anacaena* from China.

DISCUSSION: *A. pui* is very similar to *A. gaoligongshana* but differs strikingly from all other species of *Anacaena* (see Differential Diagnosis). Some features like the coloration of the pronotum and elytra and characters of the aedeagus are very variable. The apomorphies observed in samples from different locations justify the status as a species.

ECOLOGY: In unpolluted streams, rivulets, waterfalls, and pools in dense forests, on granitic boulders, large stones, gravel banks, leaf packs, wet rocks covered with algae and moss, mostly shaded by dense vegetation; one specimen was found on cow dung.

DISTRIBUTION: China: Guizhou, Hubei, Jiangxi, Sichuan, Yünnan.

Anacaena schoenmanni sp.n.

TYPE LOCALITY: China, Yünnan Province, Chuxiong (Prefecture), Wutai Shan Forest Park, stream 30 km N Lufeng (City).

TYPE MATERIAL: **Holotype** ♂ (CASS): "China: Yünnan, Chuxiong Pref. / 30 km N Lufang, 26.11.1999 / Wu Tai Shan F.P., ca. 2150 m / Schönmann & Wang (CWBS 407)". **Paratypes**: 3 ♀♀ (NMW): same data; 18 ♂♂, 14 ♀♀ (NMW): Yünnan Province, Gaoligongshan Nature Reserve, 100 km W Baoshan, 14.–21.VI.1993, E. Jendek, O. Šauša.

DIFFERENTIAL DIAGNOSIS (Figs. 16–17, 34, 48, 68, 82, 96, 110): Similar to *A. gerula* in several features (maxillary palpomere 4 infuscated apically, dorsal coloration largely black, metafemoral hairline horizontal), but differs from it by the presence of preocular patches of the clypeus, strongly impressed pronotal punctures (Fig. 110; *A. gerula*: Fig. 103) and the aedeagus (manubrium wide, apex of parameres very narrow, Figs. 16–17). Differs from all other species with horizontal metafemoral pubescence by the black coloration of the elytra, and from all species of China by the aedeagus.

DESCRIPTION: Total length 2.8−2.9 mm; maximum width 1.6 mm; E.I. 1.20−1.25. Habitus oval, with greatest width at midlength; elytra about 3.2–3.7 × as long as pronotum in dorsal view.

Head: Labrum dark brown; clypeus and frons dark brown to black; yellow preocular clypeal patches present, but indistinct in few individuals. Irregular punctures moderately large, distinctly

impressed; interspaces as large as punctures or slightly larger, punctation denser towards clypeal margin; few punctures bearing setae; series of indistinct, minute, densely arranged punctures present along inner margin of eyes. Clypeus long, slightly emarginate anteriorly, with distinct angles between lateral and anterior portion. Eyes not constricted anteriorly; dorsal and mesal portion of almost equal size. Frontoclypeal suture very indistinct. Antennomere 3 slightly elongate; apical segment of antennal club slightly longer than wide. Maxillary palpomere 2 weakly inflated; palpomere 4 widest distal to midlength, asymmetrical, with distinctly convex inner margin and almost straight outer margin; infuscated on about apical half or more, extended in some individuals (Fig. 34). Mentum (Fig. 48) ca. 1.6 × as wide as long; lateral margins set with long soft setae; anterior margin with deep mesal incision; ventral punctures sparse, fine; labial palpi very slender; longer than lateral edge of mentum; palpomere 3 about as long and wide as palpomere 2.

Thorax: Pronotum (Fig. 68) dark brown to black, with yellowish lateral margins of variable extension. Punctation (Fig. 110) moderately strong, slightly finer than on head, strongly impressed, denser towards lateral margins; interspaces about 2−3 × as wide as one puncture. Lateral margin slightly convex; posterolateral corner rather broadly rounded (Fig. 82). Prosternum mesally reinforced in anterior half, without carina. Elytra dark brown to black, with light brown lateral margins and posterior area. Lateral borders of pronotum and elytra without setae. Elytra without accentuated shoulder regions. Punctures (Fig. 110) moderately coarse, strongly impressed, irregular; interspaces 1−2 × as large as punctures; coarser, arranged in short series and confluent on some places along lateral margins. Mesoventrite with sharply pointed protuberance. Legs dark brown; procoxa and protrochanter without spine-like setae; metafemur (Fig. 96) pubescent on anteror half, proximal portion with horizontal hairline; metatarsus about as long as metatibia.

Aedeagus (Figs. 16–17): Main piece of phallobase about as long as parameres, slightly longer than wide; manubrium smoothly converging, extended into a very broad lobe; pigmented portion of ventral face of phallobase large; lateral and mesal margins of parameres very slightly curved; distance between lateral margins of parameres not wider than diameter of phallobase; apex very narrow, asymmetrical, straigth or slightly pointing mesad; basal portion distinctly wider than apical part; ventral portion of bases fused, reaching into phallobase; dorsal portion of bases slightly curved. Median lobe shorter than parameres; corona in subapical position; basal apophyses about as long as main piece of median lobe, attaining less than midlength of phallobase. Base of median lobe distinctly connected with parameres.

ETYMOLOGY: The species is dedicated to Heinrich Schönmann (NMW), one of the collectors of the specimens.

DISCUSSION: The very broad manubrium and the narrow parameres are regarded as autapomorphies, justifying the specific status. Specimens from Wutai Shan are slightly darker than the indivuals from Gaoligongshan and also differ very slightly in the shape of the parameres (Fig. 17). These subtle differences might be a consequence of the disjunct areas of different populations. Additional material is required to clarify the question whether these differing populations deserve the status of subspecies.

ECOLOGY: In streams flowing through forests, on sandstone gravel and plant debris.

DISTRIBUTION: China: Yünnan.

Anacaena sichuana sp.n.

TYPE LOCALITY: China, Sichuan Province, Ya'an City Region, stream ca. 16 km N Ya'an (City), ca. 3 km N Shangli (Town).

TYPE MATERIAL: **Holotype** ♂ (CASS): "China: Sichuan, 9.6.1996 / ca. 16 km N Ya'an City / 3 km N Shangli, 950 m / leg. Ji & Wang (CWBS 225)". **Paratypes**: 21 exs. (NMW): same data; 1 ♀ (NMW): CWBS 218; 4 exs. (NMW): CWBS 219; 11 exs. (NMW): CWBS 221; 4 exs. (NMW): CWBS 222; 1 ex. (NMW): CWBS 224; 1 ex. (NMW): CWBS 228; 10 exs. (NMW): CWBS 229; 14 exs. (NMW): CWBS 230; 8 exs. (NMW): CWBS 234; 9 exs. (NMW): CWBS 237.

DIFFERENTIAL DIAGNOSIS (Figs. 18, 35, 49, 69, 83, 97, 111): similar to *A. schoenmanni* and *A. brachypenis* in the elytral coloration (largely dark brown) and the clypeus (preocular patches present), maxillary palpi (slender, palpomere 4 partly infuscated), and metafemoral pubescence (hairline horizontal); can be separated from *A. schoenmanni* by characteristics of the pronotum (mesal infuscation small, not divided into three sections, punctures very fine, indistinctly impressed) and the aedeagus (manubrium narrow, apex of parameres wide, slightly inflated, median lobe moderately short, but distinctly longer than in *A. brachypenis*). Differs from all species of China by the aedeagus.

DESCRIPTION: Total length 2.1–2.6 mm; maximum width 1.1–1.4 mm; E.I. 1.19–1.32. Habitus oblong oval, with greatest width at midlength; elytra about 3.3–3.7 × as long as pronotum in dorsal view.

Head: Labrum dark brown; clypeus and frons dark brown, with distinct, yellow, triangular preocular patches of about the size of the eyes; distance between patches in most individuals as wide as distance between eyes, sometimes slightly smaller. Irregular punctures fine, distinctly impressed, without setae; few coarser punctures interspersed in some cases; interspaces about 1−2 × as large as punctures, punctation denser towards clypeal margins; series of indistinct, minute, densely arranged punctures present along inner margin of eyes. Clypeus large, straight to slightly emarginate anteriorly, with distinct anterolateral angles. Eyes not constricted anteriorly; dorsal and ventral portion of almost equal size. Frontoclypeal suture not visible in most individuals. Antennomere 3 not distinctly elongate, shorter than pedicellus; apical segment of club longer than wide. Maxillary palpomere 2 slightly inflated; palpomere 4 widest at midlength, slender, with straight inner margin and curved outer margin, with distinct infuscation on distal third to distal half (Fig. 35). Mentum (Fig. 49) ca. 1.6 × as wide as long; lateral margins with dense fringes of long, very fine setae; anterior margin with deep distinct mesal incision; ventral punctures widely spaced, fine, evenly distributed. Labial palpi slender, not longer than lateral edge of mentum, palpomere 3 longer than palpomere 2.

Thorax: Pronotum (Fig. 69) yellow; large dark brown median patch approximately as wide as frons, oval, with narrow yellow rim along anterior border present in most individuals. Punctation (Fig. 111) very fine to obsolete, weakly impressed, denser towards lateral margins. Prosternum without carina or distinct bulge. Lateral margin distinctly convex; posterolateral corner broadly rounded (Fig. 83). Elytra dark brown, intensity of coloration decreasing laterally, apically, and in most individuals also anteromesally. Lateral borders of pronotum and elytra without setae. Shoulder regions not accentuated. Punctures (Fig. 111) coarser than on head, strongly impressed, irregular; interspaces 1–2 × as wide as puncture. Mesoventrite with a sharply pointed protuberance. Legs dark brown, slightly less dark than ventrites in many individuals. Procoxa and protrochanter without spine-like setae; metafemur (Fig. 97) pubescent in mesal portion and on anterior half with horizontal hairline; metatarsus about as long as metatibia.

Aedeagus (Fig. 18): Main piece of phallobase longer than parameres, longer than wide; manubrium smoothly converging, extended into a narrow lobe; borderline between unpigmented and pigmented part of ventral face of phallobase not very deep, not reaching midlength of phallobase; lateral margin of parameres slightly curved, mesal margins distinctly curved; distance between lateral margins of parameres not wider than diameter of phallobase; apices rather wide, slightly inflated; basal portion slightly wider than apical part; ventral portion of bases not fused; dorsal portion of bases distinctly curved. Median lobe distinctly shorter than

parameres, with almost straight margins; corona in subapical position of median lobe; basal apophyses sligthly shorter than main piece of median lobe, attaining less than midlength of phallobase. Base of median lobe distinctly connected with parameres by a blunt mesal tooth.

ETYMOLOGY: The adjectival name of the epithet refers to the province of Sichuan.

DISCUSSION: The status as a species is mainly based on the aedeagus; the absence of fused ventral faces of parameres is rare in *Anacaena* and considered as an autapomorphy. A similar condition has likely evolved independently in *A. hainanensis* and *A. jiafenglongi. Anacaena sichuana* shares the metafemoral pubescence with these species (horizontal hairline), but differs in other characters: palpomeres stout, without infuscation (*A. jiafenglongi*), coloration of head black, body size distinctly smaller, parameres not inflated (*A. hainanensis*).

ECOLOGY: In streams and rivers near rice fields or flowing through secondary vegetation (trees and shrubs) with gravel, pebbles, cobbles, large rocks, partly moss-covered; in different kinds of water pools, with sand, grass, mud or aquatic vegetation; unpolluted; small puddles on footpath.

DISTRIBUTION: China: Sichuan.

Anacaena wangi sp.n.

TYPE LOCALITY: China, Sichuan Province, Ya'an City Region, Tianqüan (County), Xingou (Village), Tianqüan He River, ca. 57 km W Ya'an City, 6 km SW Zishi Village.

TYPE MATERIAL: **Holotype** ♂ (CASS): "China: Sichuan, 12.6.1996 / W Ya'an, 6 km SW Zishi / Xingou Village, 1500 m / leg. L. Ji & M. Wang. (CWBS 231)". **Paratypes**: **Sichuan**: 12 ♂♂, 13 ♀♀ (NMW): same sampling data; 1 ♂ (NMW): CWBS 232; 3 ♀♀ (NMW): CWBS 233; 5 ♂♂, 3 ♀♀ (NMW): CWBS 234; 3 ♂♂, 1 ♀ (NMW): CWBS 235; 23 ♂♂, 8 ♀♀ (NMW): CWBS 236; **Hubei**: 20 exs. (NMW): CWBS 524; 68 exs. (NMW): CWBS 531.

DIFFERENTIAL DIAGNOSIS (Figs. 19, 36, 50, 70, 84, 98, 112): United with the similar *A. atriflava* and *A. yunnanensis* as "*yunnanensis*-group" (for characters shared by this group see Discussion). Differs from both species by the black coloration of the pronotum.

DESCRIPTION: Total length 2.8–3.0 mm; maximum width 1.6–1.9 mm; E.I. 1.11–1.30. Habitus oval, with greatest width at midlength; elytra about 3.1−3.6 × as long as pronotum in dorsal view.

Head: Labrum dark brown; clypeus and frons black; rather sharply demarcated, yellow, narrow preocular patches smaller than size of eyes, situated along lateral edge of clypeus. Irregular punctures moderately strong, sharply impressed, without setae; interspaces as large as punctures; one series of very fine, densely arranged punctures present along inner margin of eyes. Clypeus long, not excised anteriorly, with blunt, anterolateral angles. Eyes not constricted; dorsal portion about as large as ventral portion. Frontoclypeal suture very indistinctly visible in lateral third, obsolete mesally. Antennomere 3 slightly elongate; apical segment of club slightly longer than wide. Maxillary palpomere 2 moderately inflated; palpomere 4 widest at midlength, with almost straight inner margin, distinctly curved outer margin, slightly truncate apex; distinct infuscation present on apical half in most induviduals, on apical two thirds in some cases (Fig. 36). Mentum (Fig. 50) ca. 1.6−1.8 × as wide as long; lateral margins with dense fringes of long fine setae, anterior margin with distinct mesal incision; ventral punctures fine, densely and evenly distributed. Labial palpi with distinctly pigmented palpomere 3, pigmentation restricted to apical half in some individuals; moderately slender, with convex outer margin and straight inner margin; longer than lateral edge of mentum, palpomere 3 slightly longer than palpomere 2.

Thorax: Pronotum (Fig. 70) black, with narrow yellow coloration on lateral margin and posterolateral corner. Punctation (Fig. 112) fine, distinctly impressed, slightly finer than on head; interspaces 2–3 × as wide as punctures, punctation denser towards lateral margins. Lateral

margin moderately convex; posterolateral corner distinctly rounded (Fig. 84). Prosternum slightly reinforced medially, without carina. Elytra black, with narrow yellowish brown lateral and posterior portion in most individuals. Lateral borders of pronotum and elytra without setae. Shoulder regions very slightly accentuated in some individuals. Punctures (Fig. 112) slightly stronger than on head, coarser than on pronotum, irregular with some coarser punctures laterally; interspaces about as wide as one puncture. Mesoventrite with a sharply pointed protuberance. Legs dark brown to black; procoxa and protrochanter without spine-like setae; metafemur (Fig. 98) almost entirely pubescent except extreme distal portion, with rounded hairline; metatarsus shorter than metatibia.

Aedeagus (Fig. 19): Main piece of phallobase about as long as parameres or slightly longer, slightly longer than wide; manubrium evenly converging, extended into a moderately wide and moderately long lobe with parallel margins; borderline between unpigmented and narrow pigmented part of ventral face of phallobase very deep, almost reaching proximal edge. Lateral and mesal margins of parameres slightly sigmoidal; distance between lateral margins of parameres slightly larger than diameter of phallobase; apex moderately wide, not inflated, slightly asymmetrical, slightly pointing mesad; basal portion slightly wider than apical part; ventral portion of bases fused, very slightly reaching into phallobase; dorsal portion of bases slightly curved. Median lobe evenly converging towards pointed apex; corona in subapical position of median lobe. Basal apophyses slightly longer than main piece of median lobe, attaining less than midlength of phallobase. Base of median lobe distinctly connected with parameres by a small tooth.

DISCUSSION: The species is very similar to *A. atriflava* and *A. yunnanensis* (see Differential Diagnosis), including the aedeagus. The three species are therefore summarized as "*yunnanensis*-group". *A. wangi* differs from the other two species mainly by the black coloration of the head, pronotum and elytra. Specimens with intermediate stages of coloration could not be found. The distinct differences are therefore assumed as autapomorphies, justifying the status as separate species. This argument is weakened by the distribution pattern: the three species are widely distributed but occur in different provinces, the areas are not overlapping. The habitats are similar.

ECOLOGY: In streams and rivers, between 1 and 10 m wide. Usually cold and fast flowing, with gravel and cobbles, large stones and boulders, leaf packs, sparse flood debris or submersed vegetation; flowing through cultivated land (agricultural fields) and secondary forest, shaded; water unpolluted or slightly polluted. In a very small puddle on a footpath.

DISTRIBUTION: China: Hubei, Sichuan.

Anacaena yunnanensis ORCHYMONT, 1942

Anacaena yunnanensis ORCHYMONT 1942: 49–50.

TYPE LOCALITY: China, Yünnan Province.

TYPE MATERIAL: **Holotype** ♂ (ISNB): "♂ \ Yunnan / coll. A.Orchymont [mounted on a yellow collection label "Coll. R.I.Sc.N.B. / Chine"] \ A. det. / Anacaena / yunnanensis m. \ TYPE [red label]". **Paratypes**: 3 ♂♂, 2 ♀♀ (ISNB): same sampling data, "PARATYPE [red label]". One female bears the additional remark "A. Grouvelle". A third female included in the paratype series by ORCHYMONT (1942) bears an additional label "t[ête] pr[onotum] & sc[utellum] + / finement ponct[ués]". This specimen differs significantly from the other specimens of the type series and does not belong to *A. yunnanensis* (see under Discussion).

ADDITIONAL MATERIAL EXAMINED:

Yünnan: 1 ♀ (NMW): CWBS 349; 2 ♂♂, 4 ♀♀ (NMW): CWBS 350; 14 ♂♂, 10 ♀♀ (NMW): CWBS 359; 11 ♂♂, 2 ♀♀ (NMW): CWBS 360; 18 ♂♂, 14 ♀♀ (NMW): CWBS 377; 24 ♂♂, 14 ♀♀ (NMW): CWBS 379; 78 exs. (NMW): CWBS 387; 32 exs. (NMW): CWBS 388; 2 ♂♂, 5 ♀♀ (NMW): CWBS 392; 11 ♂♂, 8 ♀♀

(NMW): CWBS 393; 1 ♂ (NMW): CWBS 394; 1 ♂, 1 ♀ (NMW): CWBS 396; 1 ♀ (NMW): CWBS 399; 9 ♂♂, 12 ♀♀ (NMW): CWBS 402; 1 ♀ (NMW): CWBS 404; 7 ♂♂, 9 ♀♀ (NMW): CWBS 405; 1 ♂, 1 ♀ (NMW): CWBS 406; 2 ♂♂ (NMW): CWBS 407; 19 exs. (NMW): Yünnan, Gaoligongshan Natural Reserve, 100 km W Baoshan, 14.–21.VI.1993, E. Jendek, O. Šauša; 7 exs. (NMW): Yünnan, Baoshan environment, 6.–8.VI.1993, E. Jendek, O. Šauša; 23 exs. (NMW): Yünnan, S Xiaguan, 1.2 km S Weishan, Weibaoshan, 2600–3000 m a.s.l., 1.–17.VII.1993, L. Ji; 2 ♂♂, 1 ♀ (NMP): Dali environment, Cangshan Mountains, E slope of Zhonghe Shan Mountain, 25°41.7'N / 100°08.3'E, 2150 m a.s.l., individually collected under stones, on plants and shrubs, and in tea plantation at the margin of a mixed forest, 13.VI.2007, J. Hájek, J. Růžička; 1 ♂ (NMP): Shanzhi environment, Jizhu [=Jizu] Shan, Zhu Sheng Si monastery, 25°57.7'N / 100°23.6'E, 2180 m a.s.l., individually collected on vegetation, on tree trunks, in stream, dense mixed forest with dominant *Pinus*, *Quercus*, and *Rhododendron*, 22.−24.VI.2007, J. Hájek, J. Růžička; 2 ♂♂, 2 ♀♀ (NMP): Shanzhi environment, Jizhu [=Jizu] Shan, Jade Dragon waterfall, 25°57.6'N / 100°23.2'E, 2250 m a.s.l., individually collected on wet rocks covered with algae below the waterfall, with adjacent mixed forest, 23.−24.VI.2007, J. Hájek, J. Růžička; 1 ♂, 5 ♀♀ (NMP): Dali environment, Cangshan, Path Zhonghe Si – Gantang Si, E slope, 25°30−41'N 100°08−09'E, 2200−2400 m a.s.l., individually collected under stones and logs, on a gravel bank of a stream, 2.VI.2007, J. Hájek, J. Růžička.

DIFFERENTIAL DIAGNOSIS (Figs. 20−23, 37, 51, 71, 85, 99, 113): Very similar to *A. atriflava* and *A. wangi* ("*yunnanensis*-group"; see Discussion), differing mainly in the pronotal coloration and the aedeagus.

DESCRIPTION: Total length 2.2–2.9 mm; maximum width 1.4–1.6 mm; E.I. 1.14–1.32. Habitus oblong oval, with greatest width at midlength; elytra about 3.0−3.5 × as long as pronotum in dorsal view.

Head: Labrum light brown, medially infuscated in some cases; clypeus and frons dark brown, with distinct, yellow, triangular preocular patches of about the size of the eyes; distance between patches in most individuals about as wide as distance between eyes, sometimes slightly smaller. Irregular punctures fine, distinctly impressed, without setae; interspaces about 2 × as large as punctures, punctation denser towards clypeal margins; some coarser punctures interspersed. Series of indistinct, minute, densely arranged punctures present along inner margin of eyes. Clypeus large, straight to slightly emarginate anteriorly, with distinct, blunt angles between lateral and anterior portion, Eyes not constricted anteriorly; dorsal and ventral portion of almost equal size. Frontoclypeal suture very indistinct, visible in lateral third of clypeus in most individuals. Antennomere 3 slightly elongate; apical segment of antennal club longer than wide. Maxillary palpomere 2 slightly inflated; palpomere 4 widest at midlength, slender with almost straight inner margin and curved outer margin, with distinct infuscation on distal third to distal half (Fig. 37). Mentum (Fig. 51) ca. 1.6 × as wide as long; lateral margins with dense fringes of long, very fine setae; anterior margin with deep, distinct mesal incision; ventral punctures moderately fine, evenly distributed. Labial palpi slender, longer than lateral edge of mentum; palpomere 3 longer than palpomere 2.

Thorax: Pronotum (Fig. 71) yellow; large, circular, dark brown median patch approximately as wide as frons; two smaller lateral spots present, closer to pronotal base than to anterior pronotal margin, merged with central spot in most individuals; narrow yellow rim along anterior border present in most individuals. Lateral margins moderately convex, posterolateral corners bluntly rounded (Fig. 85). Irregular punctures (Fig. 113) very fine, finer than on head, obsolete mesally in some cases, weakly impressed, denser towards lateral margins. Prosternum without carina or distinct bulge. Elytra variably colored: light to dark brown, with minute dark brown spots around punctures, giving some individuals a slightly speckled appearance; spots in some cases confluent and forming very indistinct longitudinal bands; or elytra unicolored rufous with decreasing intensity of coloration on lateral margins. Scutellar shield, shoulder region and parasutural stria dark brown in most individuals. Lateral borders of pronotum and elytra without setae; some very fine setae present on elytral apex in some individuals. Elytra with indistinctly accentuated shoulder regions. Punctures (Fig. 113) coarser than on head, strongly impressed, irregular;

interspaces 1–2 × as wide as punctures. Mesoventrite with a sharply pointed protuberance. Legs dark brown, procoxa and protrochanter pubescent without spine-like setae; metafemur (Fig. 99) pubescent on proximal 4/5 with rounded hairline; metatarsus almost as long as metatibia.

Aedeagus (Figs. 20−23): Main piece of phallobase about as long as parameres, longer than wide; manubrium smoothly converging, extended into a long narrow lobe with parallel or slightly converging margins; borderline between unpigmented and narrow pigmented part of ventral face of phallobase very deep, almost reaching proximal edge; lateral and mesal margins of parameres evenly curved or slightly sigmoidal; distance between lateral margins of parameres as wide as diameter of phallobase or very slightly wider; apices moderately narrow or rather broad, not inflated, straight or very slightly pointing mesad; basal portion slightly to distinctly wider than apical part; ventral portion of bases fused, slightly reaching into phallobase; dorsal portion of bases distinctly curved. Median lobe shorter than parameres; corona in subapical position of median lobe; basal apophyses about as long as main piece of median lobe, attaining less than midlength of phallobase. Base of median lobe not visibly connected with parameres.

DISCUSSION: All characters described by ORCHYMONT (1942) are confirmed in this study. Based on the presence of preocular spots, ORCHYMONT (1942) discussed affinities between *A. yunnanensis* and the European *A. bipustulata*, which is understandable considering the small number of *Anacaena* species known at his time. However, *A. bipustulata* is more similar to other Chinese species, especially to *A. atriflava. Anacaena yunnanensis* shows a remarkable variability of the aedeagus, in contrast to most species of *Anacaena.* ORCHYMONT (1942) describes one female paratype as having a darker dorsal coloration and finer punctation on head, pronotum and scutellar shield (see under Type material). Re-examination of the paratype series confirms this obervation. This particular specimen differs also in the absence of clearly defined preocular patches and the absence of the terminal infuscation of maxillary palpomere 4. Therefore it does apparently not belong to *A. yunnanensis.* As a matter of fact, it is not possible to assign this female to a species.

ECOLOGY: In streams and rivers flowing through primary or degraded forests, shrubs, cultivated land with diverse substrates: large boulders, sandstone rocks, gravel, fine sediments, organic debris, dense riparian vegetation and floating rootlets; in residual pools of streams; in upwellings of a karst river with large boulders and small amounts of plant debris, in waterfalls and pools with fine sand; in a springfed karst pool, with rich aquatic vegetation; in canalized streams flowing through crop fields, pastures and pine forest; on gravel bank of a stream; in an artificial lake; on wet rocks covered with algae below a waterfall.

DISTRIBUTION: China: Yünnan.

Nomina nuda

1. The single male holotype described as "*Anacaena hunanensis* PU, 1964" from Hunan could not be found in the collections of ZUG and CASB. The type has been sent by C.-L. Pu to the former Soviet Union (USSR) in the 1970's or 1980's. It has apparently not been returned and must be regarded as lost (Jia Fenglong, pers. comm. to Martin Fikáček, 2010). Most of the characters described by PU (1964) are rather common in species of *Anacaena*. Other characters cannot be identified: "posterior margin [of head] with tiny but rather regular transverse trace", "lateral margin and posterior angles [of pronotum] with depressed groove", "ventral surface coarse and pubescent". The following characters are of diagnostic value: "punctures [of head] small, intervals smooth and shorter than diameter of punctures", "preocular yellowish spots [present]", "apex of maxillary palpomere 4 dark", "pronotum with a large brown spot, nearly reaching anterior and posterior margins, lateral margin yellow", "all femora pubescent except

apices", "aedeagus with parameres broad and apices blunt, median lobe about as long as parameres, conical but apex blunt". Depressed grooves on the pronotum are usually found in representatives of *Crenitis* BEDEL, 1881, but are absent in *Anacaena.* If the specimen actually belongs to the genus *Anacaena*, the characters described could apply to the following species from China: *A. atriflava*, *A. yunnanensis*, *A. wangi* or *A. pui.*

2. The female holotype of *Anacaena pseudoyunnanensis* JIA, 1997 is present in the ZUG collection and labelled "Yunnan province, Pohui / 2.IX.1939 / leg. Zhelong Pu [Chinese, translation by Si-qin Ge] \ Holotype / Anacaena / pseudoyunnanensis / det. Fenglong Jia". Differing from the label, JIA (1997) notes "1939-V-2" as sampling date. The specimen is incomplete. Head and prothorax are missing. In the original description (JIA 1997), this specimen was described as "similar to *A. yunnanensis*, but can be separable by hind femora glabrous along posterior margin", "elytra with some more or less regular series of punctures" and "lateral portion of elytra with two series of black spots", "length 2.6 mm, width 1.2 mm". Re-examination of the remaining body parts of the holotype specimens confirm the description of the metafemoral pubescence. The regular series of punctures is restricted to the lateral elytral margins, and the elytral disk is irregularly punctured. This condition is found in almost all species of *Anacaena*. The elytral punctures are surrounded by dark brown spots which are larger and more distinct at the lateral series of punctures. The diagnostic features could apply to *A. maculata, A. hainanensis* or *A. jiafenglongi.*

The descriptions of two specimens as *Anacaena hunanensis* PU, 1964 and *Anacaena pseudoyunnanensis* JIA, 1997 do therefore not allow to assign them with certainty. Thus the names fail to conform to article 13 ICZN and are not available. They must be treated as nomina nuda.

Key to the species

1 Metafemoral pubescence extended, with round hairline (Figs. 86, 92–93, 95, 98–99) 2

– Metafemoral pubescence restricted to anterior half and proximal portion (Figs. 87, 89–91, 94, 96–97), or hairline oblique (Fig. 88) 8

2 Clypeus dark brown, with distinct yellow preocular patches; pronotal punctures fine, distinctly impressed (Figs. 100, 109, 112–113); maxillary palpomere 4 weakly infuscated on entire surface or with terminal infuscation (Figs. 24, 33, 36–37), asymmetrical with straight inner margin and distinctly curved outer margin (Figs. 24, 36–37), or almost symmetrical with curved inner and outer margin (Fig. 33) 3

– Clypeus light brown without distinct preocular patches, mesal infuscation present in some individuals; pronotal punctures very fine or obsolete (Figs. 106–107); maxillary palpomere not infuscated or very indistinct infuscation present on apical fifth, asymmetrical with straight inner margin and distinctly curved outer margin (Figs. 30–31) 7

3 Antennomere 3 distinctly elongate (Fig. 53); antennomere 9 with distinct circular subapical constriction; maxillary palpomere symmetrical, with biconvex margins (Fig. 33); labial palpomere 3 almost spherical, not distinctly longer than wide (Fig. 47); posterolateral corners of pronotum angulate (Fig. 81); longitudinal bands on elytra present, indistinct in dark individuals 4

– Antennomere 3 not distinctly elongate (Fig. 52); antennomere 9 without subapical constriction; maxillary palpomere 4 asymmetrical, with convex outer margin and straight or nearly straight inner margin (Figs. 24, 36–37); labial palpomere 3 oblong oval (Figs. 38, 50–51); posterolateral corners of pronotum distinctly rounded (Figs. 72, 84, 85); elytra without longitudinal bands 5

4 Body length 2.3−2.9 mm; aedeagus: parameres with broadly rounded apex, flattened or slightly impressed; basal lobe extended into a short, strongly bent lobe (Figs. 14–15) ..... ***pui***

Body length 2.1–2.4 mm; aedeagus: parameres with moderately wide apex, not flattened or impressed; basal lobe extended into narrow, slightly conical lobe, not distinctly bent dorsad (Fig. 5) ..... ***gaoligongshana***

5 Pronotum with wide yellow lateral margins and large, dark brown central patch (Fig. 54), appearing small in dry material; aedeagus: manubrium moderately wide, conical, without median dark pigmentation (Figs. 1–2) ..... ***atriflava***

− Pronotum yellow with small central infuscations (Fig. 71) or black with narrow yellow margins (Fig. 70); aedeagus: manubrium moderately wide with parallel margins (Fig. 19) or narrow (Figs. 20−23), median dark pigmentation present (Figs. 19, 20−23) 6

6 Pronotum with very fine or almost obsolete,widely spaced punctation (Fig. 113), yellow, with one circular dark brown central patch accompanied by two smaller patches (Fig. 71); aedeagus: manubrium long, narrow with parallel or slightly conically shaped margins; base of median lobe not distinctly connected with parameres by a small tooth; basal apophyses about as long as main piece of median lobe (Figs. 20−23) ..... ***yunnanensis***

− Pronotum with distinct, densely arranged punctation (Fig. 112), largely black with narrow yellow margins (Fig. 70); aedeagus: manubrium moderately wide and moderately long, with parallel margins;base of median lobe distinctly connected with parameres by a small tooth; basal apophyses slightly longer than main piece of median lobe (Fig. 19) ..... ***wangi***

7 Maxillary palpomeres without infuscation (Fig. 30); elytral punctures fine, distinctly impressed, interspaces twice as wide as punctures (Fig. 106); aedeagus: manubrium very long, not strongly bent; main piece of phallobase at least as long as parameres (Fig. 9) ..... ***lancifera***

− Maxillary palpomeres without infuscation, or a very indistinct infuscation present on apical fifth (Fig. 31); elytral punctures very fine, weakly impressed, interspaces more than twice as wide as punctures (Fig. 107); aedeagus: manubrium moderately long, strongly bent; main piece of phallobase shorter than parameres (Figs. 10–11) ..... ***lanzhujii***

8 Metafemoral hairline oblique (Fig. 88); maxillary palpomeres unique shaped: palpomere 2 very strongly inflated, inflation more distinct than that of "cigar-shaped" palpomere 4 (Fig. 26) ..... ***bushiki***

− Metafemoral hairline horizontal (Figs. 87, 89–91, 94, 96–97); maxillary palpomere 2 and 4 similarly shaped: palpomere 2 indistinctly to moderately inflated (most species); or palpomeres 2 and 4 distinctly inflated (Fig. 29) 9

9 Body length ≤ 2.0 mm; elytra speckled 10

− Body length ≥ 2.0 mm; elytra not speckled 11

10 Body length 1.6−2.0 mm; elytra distinctly speckled; aedeagus: ventral portion of bases not visible, median lobe about as long as parameres, with concave margins; basal lobe wide, distinctly flexed (Figs. 12–13) ..... ***maculata***

− Body length 1.1–1.8 mm; elytra indistinctly speckled; aedeagus: ventral portion of bases distinctly visible, not fused; median lobe shorter than parameres, with straight margins; basal lobe narrow, not distinctly flexed (Fig. 7) ..... ***hainanensis***

11 Maxillary palpomere 4 stout, symmetrical, not infuscated or with very weak infuscation (Fig. 29) ..... ***jiafenglongi***

− Maxillary palpomere 4 slender, asymmetrical, distinctly infuscated (Figs. 25, 27, 34–35) 12

12 Clypeus black, preocular patches absent (very narrow yellow lateral clypeal margins may be present), pronotum black with very narrow, indistinct yellow lateral margin, or yellow margin absent (Fig. 58); posterolateral corners broadly rounded (Fig. 75); elytra black, with narrow light brown margin; aedeagus: median lobe with concave margins, about as long as parameres, pigmented portion of phallobase small (Fig. 6) ..... ***gerula***

− Clypeus black or brown, preocular patches present; pronotum with distinct yellow lateral margins (Figs. 55, 68–69), with narrowly rounded posterolateral corners (Figs. 73, 82–83); elytra black or brown; aedeagus: median lobe with straight or convex margins, shorter than parameres, pigmented portion of phallobase large (Figs. 3, 16–18) 13

13 Pronotum black with narrow yellow lateral margins (Fig. 68); pronotal punctures moderately coarse (Fig. 110); aedeagus: parameres with narrow apex; basal lobe with broad manubrium (Figs. 16–17) ..... ***schoenmanni***

– Pronotum with broad yellow lateral margins (Figs. 55, 69); pronotal punctures fine, weakly impressed (Fig. 101) or obsolete (Fig. 111); aedeagus: parameres with moderately wide apex; basal lobe with narrow manubrium (Figs. 3, 18) 14

14 Pronotum largely yellow, with three confluent central patches (Fig. 55); pronotal punctures fine, weakly impressed (Fig. 101); aedeagus: ventral portion of bases not visible, median lobe much shorter than parameres; basal lobe longer than parameres (Fig. 3) ..... ***brachypenis***

– Pronotum with oval blackish brown patch in central region (Fig. 69); pronotal punctures very fine, very widely spaced or obsolete (Fig. 111); aedeagus: ventral portion of bases not fused, median lobe shorter than parameres; basal lobe not longer than parameres (Fig. 18) ..... ***sichuana***

Discussion

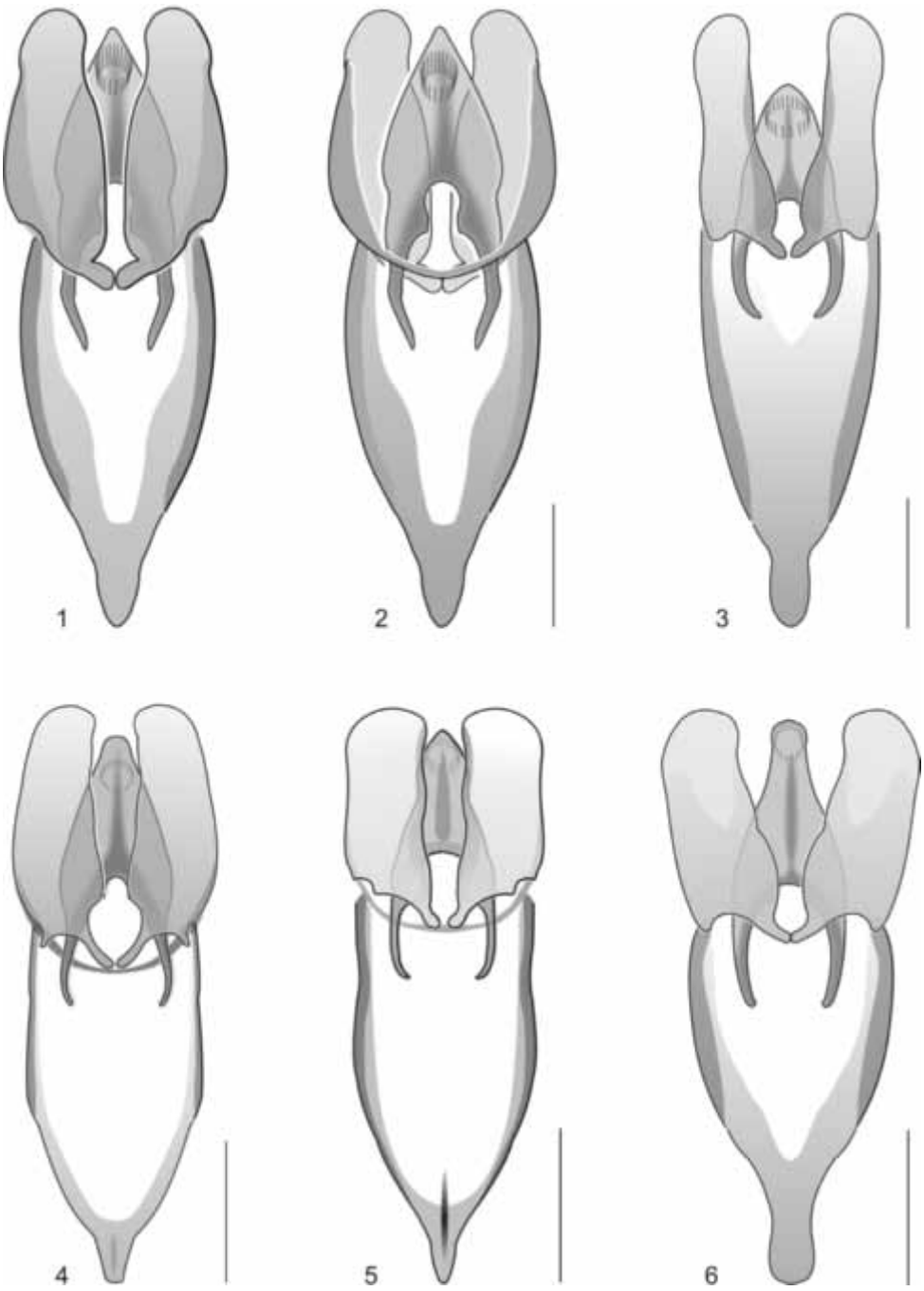
The examination of the type material of *Anacaena bulbifera* PU, 1964 and *A. lushanensis* PU, 1964 revealed that these specimens actually belong to *Paracymus* THOMSON, 1867.

The species of *Anacaena* from the mainland of China are morphologically similar to species from South-East Asia and Taiwan (KOMAREK 2010, 2011). The presence of the strong protuberance of the metaventrite distinguishes them from species occurring in India. Three species (*A. atriflava*, *A. wangi*, and *A. yunnanensis*) are apparently very closely related as indicated by several characters and thus summarized as "*yunnanensis*-group". Potential synapomorphies are the slender and apically infuscated maxillary palpomere 4, distinct preocular patches, an extended metafemoral pubescence with a round hairline, and features of the aedeagus. Whether their morphological affinities reflect a monophyletic origin must be clarified with an analysis using molecular data.

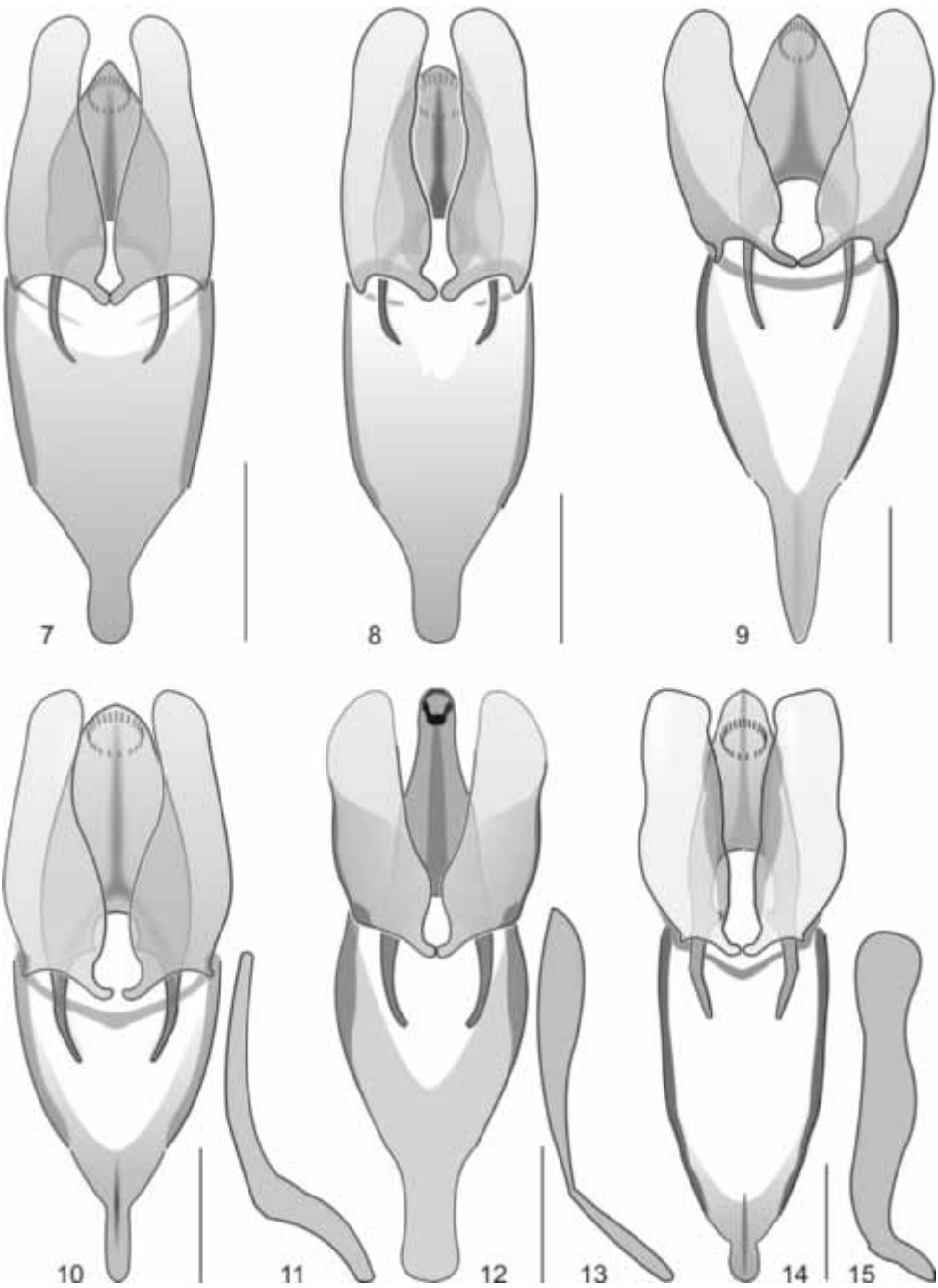
The species described in this revision are at present not found outside the People's Republic of China. In Mainland China, the Eastern Palearctic and the Oriental Regions overlap and their borders are not exactly definable. JÄCH & JI (1995) describe seven major zoogeographical regions. All specimens of *Anacaena* were found in the Central, Southwest, and South China Regions that belong to the subtropical and tropical zones. The large majority of the individuals was collected south of the Chiang Jiang, Asia's longest river, dividing China into a northern and a southern part. A few specimens of *A. atriflava*, *A. lancifera*, and *A. pui*, and all specimens of *A. wangi* were found slightly north of the Chiang Jiang, the northernmost specimen in the Shennongjia Forest in Hubei (*A. wangi*). Surprisingly, no representatives of *Anacaena* were hitherto found in the northern provinces, even though many expeditions have been conducted by the CWBS to the Northeastern and North China Regions (JÄCH & Ji 1995, 1998). Some species of *Anacaena* are known from countries north of China: *A. lutescens* STEPHENS, 1829 from Scandinavia and Russia, *A. asahinai* SATÔ, 1982 from Japan and Russia (HANSEN 1999).

Four species (*A. atriflava*, *A. lancifera*, *A. maculata*, and *A. pui*) are widely distributed and were found in five to seven provinces, three species (*A. bushiki*, *A. gerula* and *A. wangi*) only in two provinces, and eight species are restricted to single provinces (Sichuan: 1 sp., Hainan: 2 spp., and Yünnan: 5 spp.). The concentration of species in the tropical region of China and also the island endemism of two species from Hainan are not surprising and corroborate known data (e.g., KOMAREK 2010).

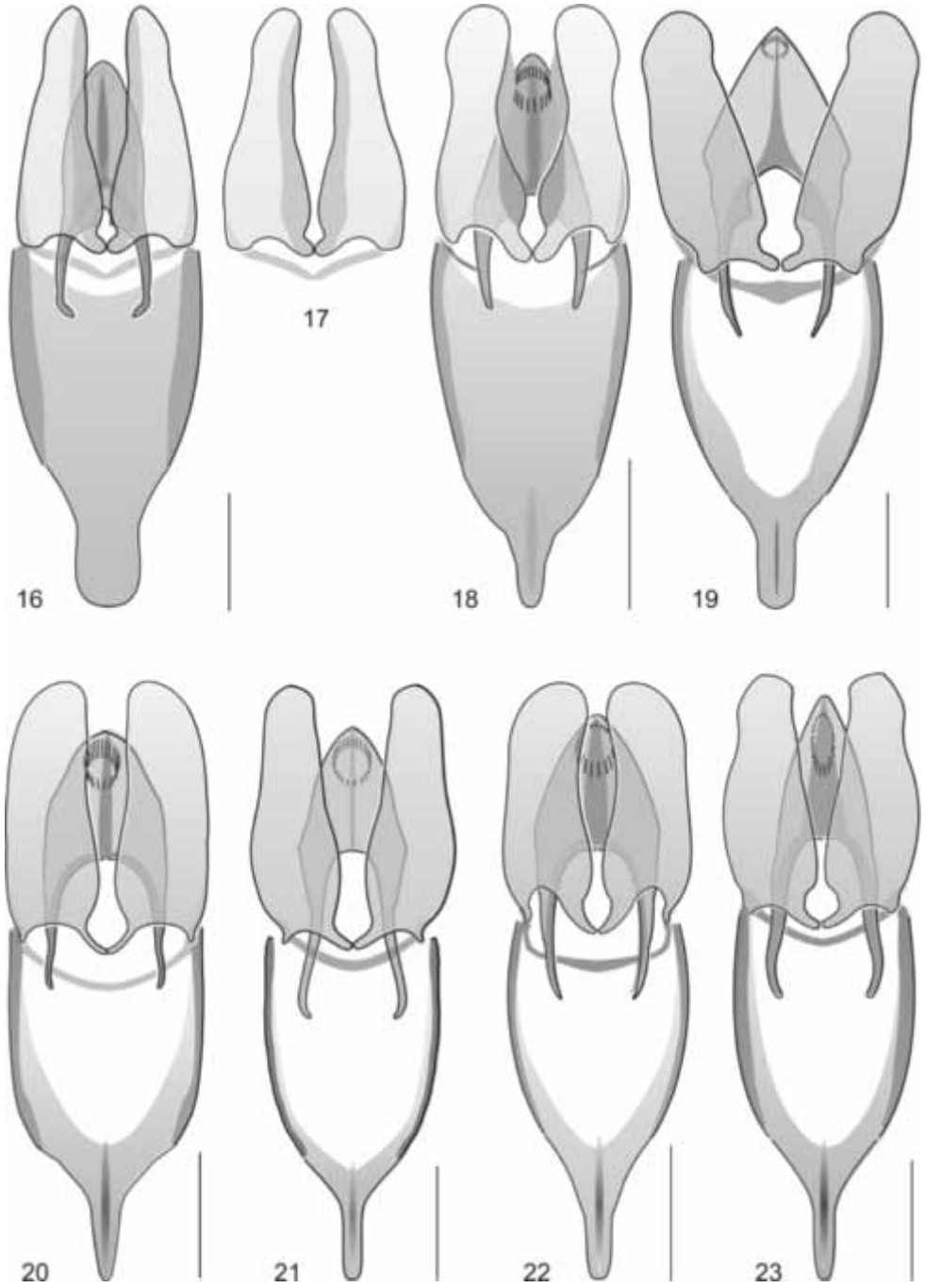
For three species the habitat is still unknown (*A. bushiki*, *A. gaoligongshana,* and *A. jiafenglongi*), one of them, *A. bushiki*, is probably terrestrial. The other species are aquatic, most of them are found in a wide variety of different waterbodies. *Anacaena brachypenis* was found in a river in primary forest and seems to be the only known stenoecious species.



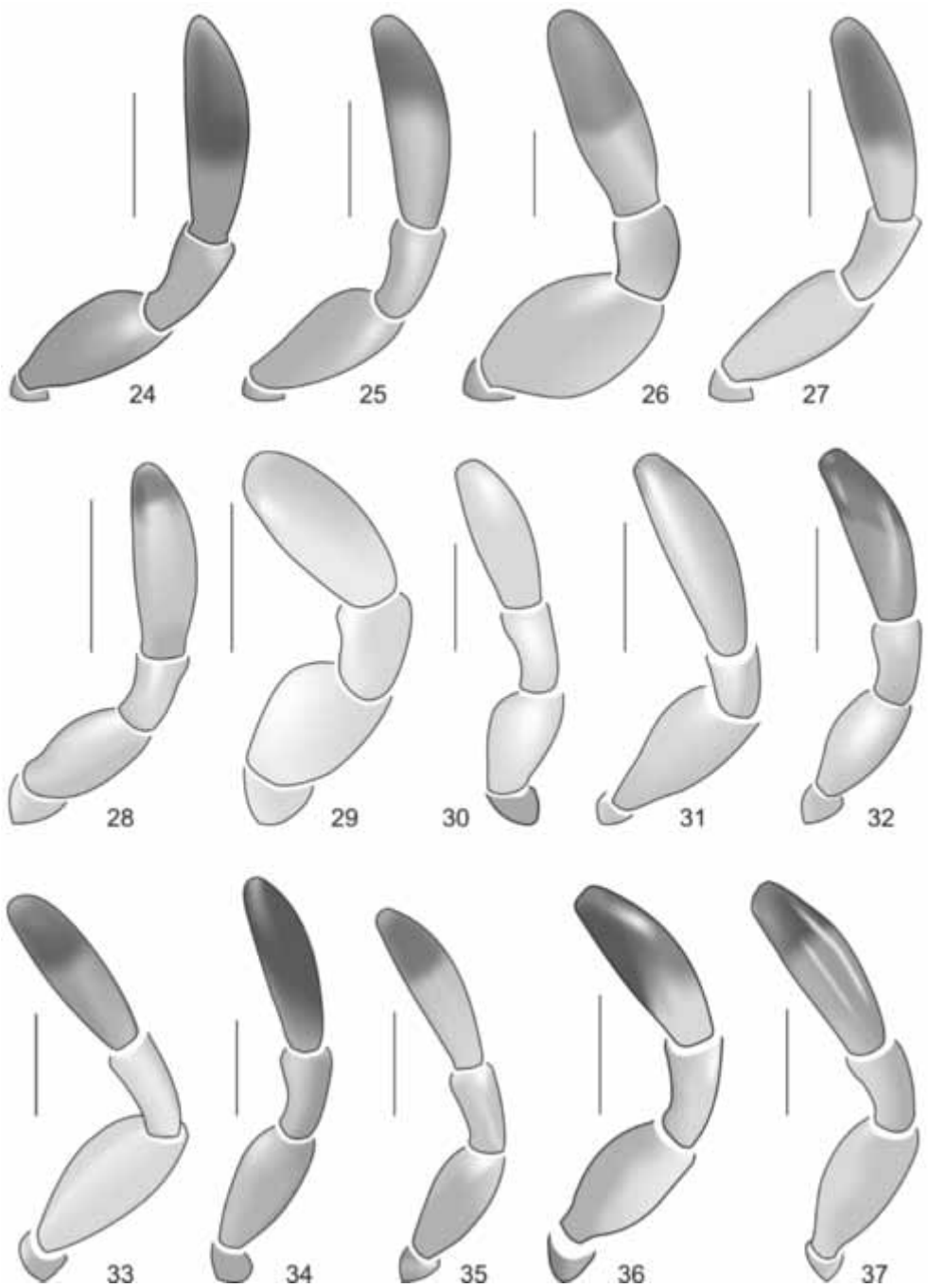
Figs. 1–6: Aedeagus. 1) *Anacaena atriflava*: dorsal view, 2) *A. atriflava*: ventral view, 3) *A. brachypenis*, 4) *A. bushiki*, 5) *A. gaoligongshana*, 6) *A. gerula.* Scale bar = 0.1 mm.



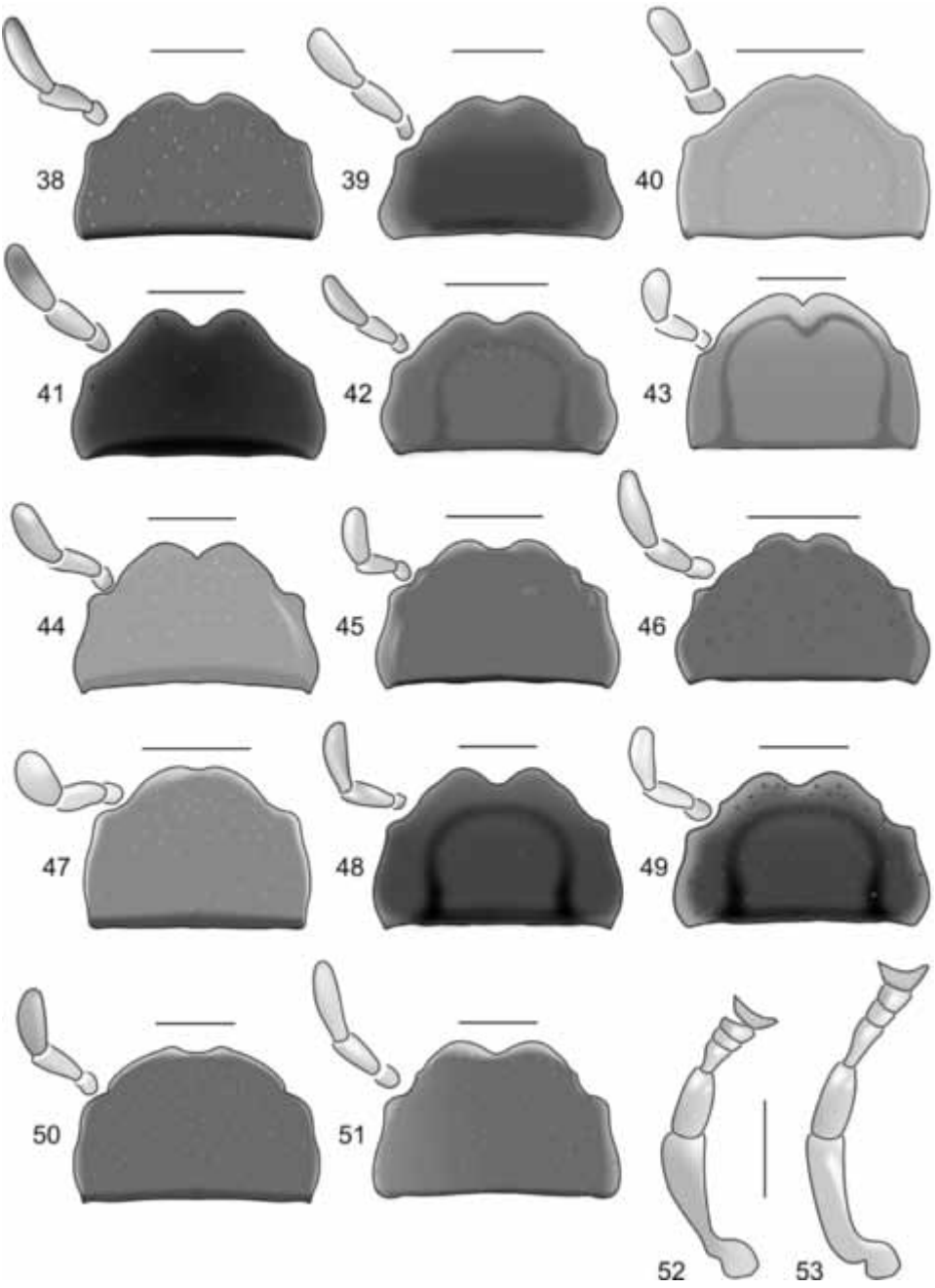
Figs. 7–15: Aedeagus. 7) *Anacaena hainanensis*, 8) *A. jiafenglongi*, 9) *A. lancifera*, 10) *A. lanzhujii*: dorsal view, 11) *A. lanzhujii*: lateral view, 12) *A. maculata*: dorsal view, 13) *A. maculata*: lateral view, 14) *A. pui*: dorsal view, 15) *A. pui*: lateral view. Scale bar = 0.1 mm.



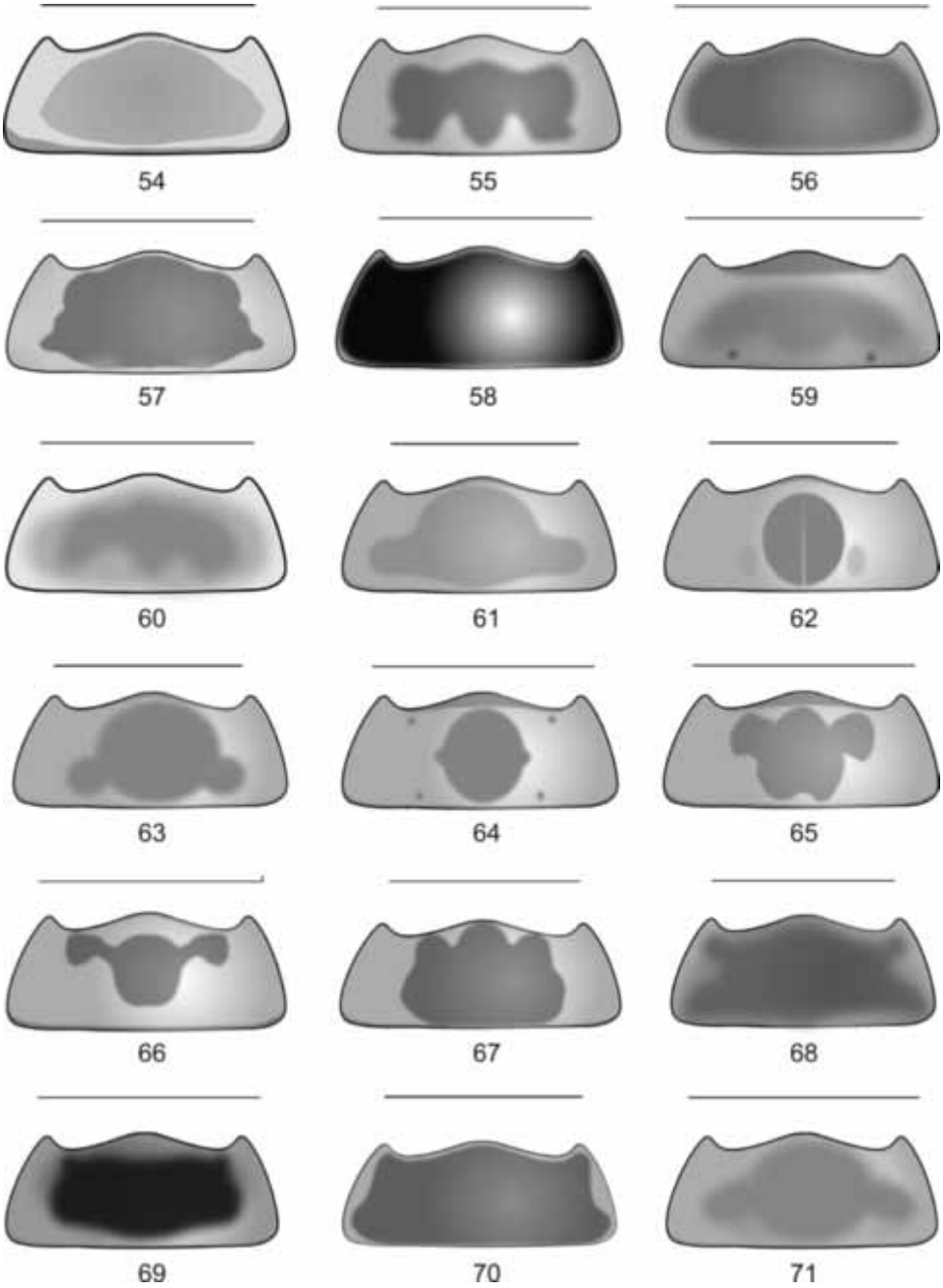
Figs. 16–23: Aedeagus. 16) *Anacaena schoenmanni* (from Gaoligongshan), 17) *A. schoenmanni*, parameres (from Wutaishan), 18) *A. sichuana*, 19) *A. wangi*, 20–23) *A. yunnanensis*. Scale bar = 0.1 mm.



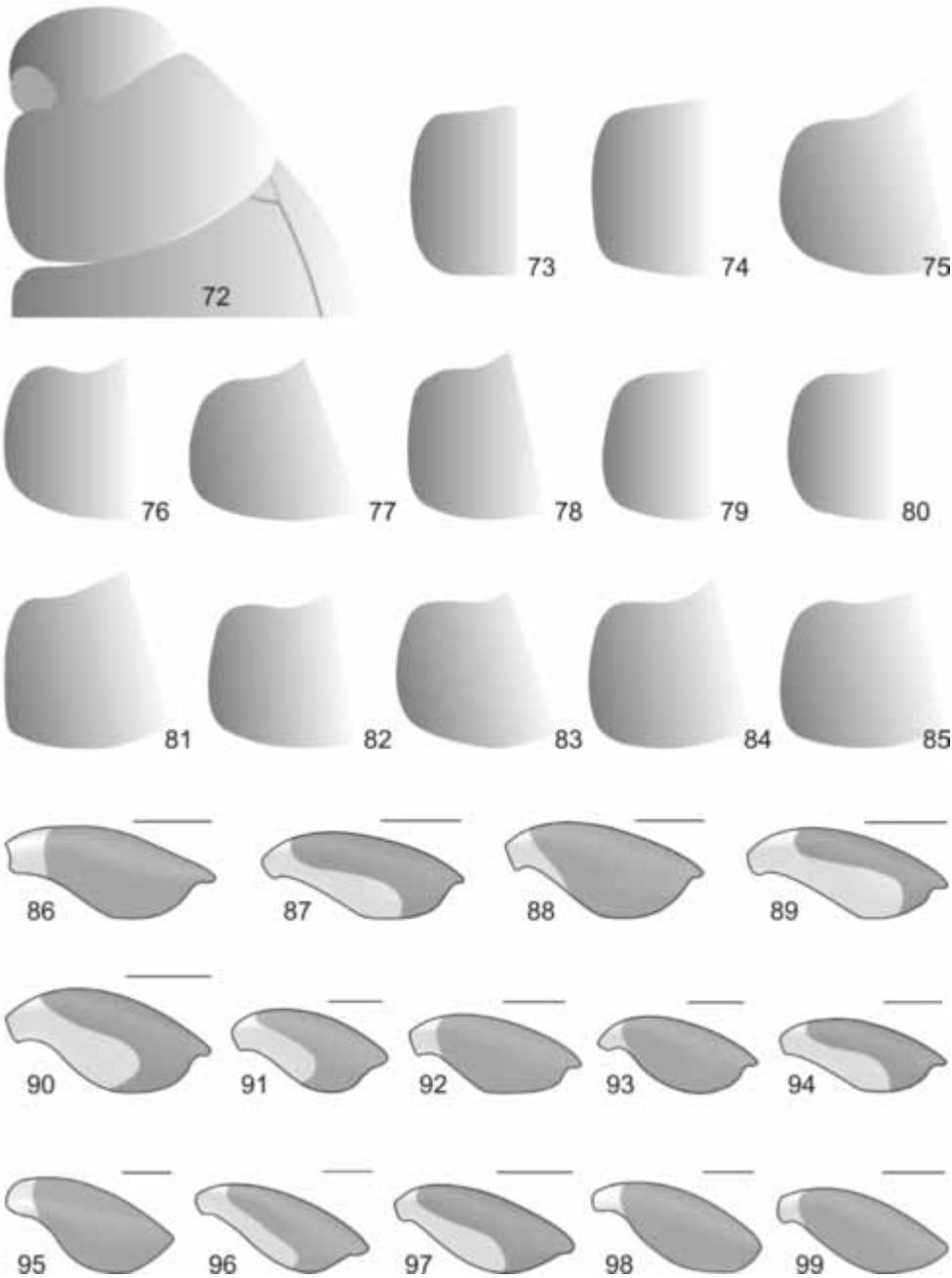
Figs. 24–37: Maxillary palpi. 24) *Anacaena atriflava*, 25) *A. brachypenis*, 26) *A. bushiki*, 27) *A. gerula*, 28) *A. hainanensis*, 29) *A. jiafenglongi*, 30) *A. lancifera*, 31) *A. lanzhujii*, 32) *A. maculata*, 33) *A. pui*, 34) *A. schoenmanni*, 35) *A. sichuana*, 36) *A. wangi*, 37) *A. yunnanensis*. Scale bar = 0.1 mm.



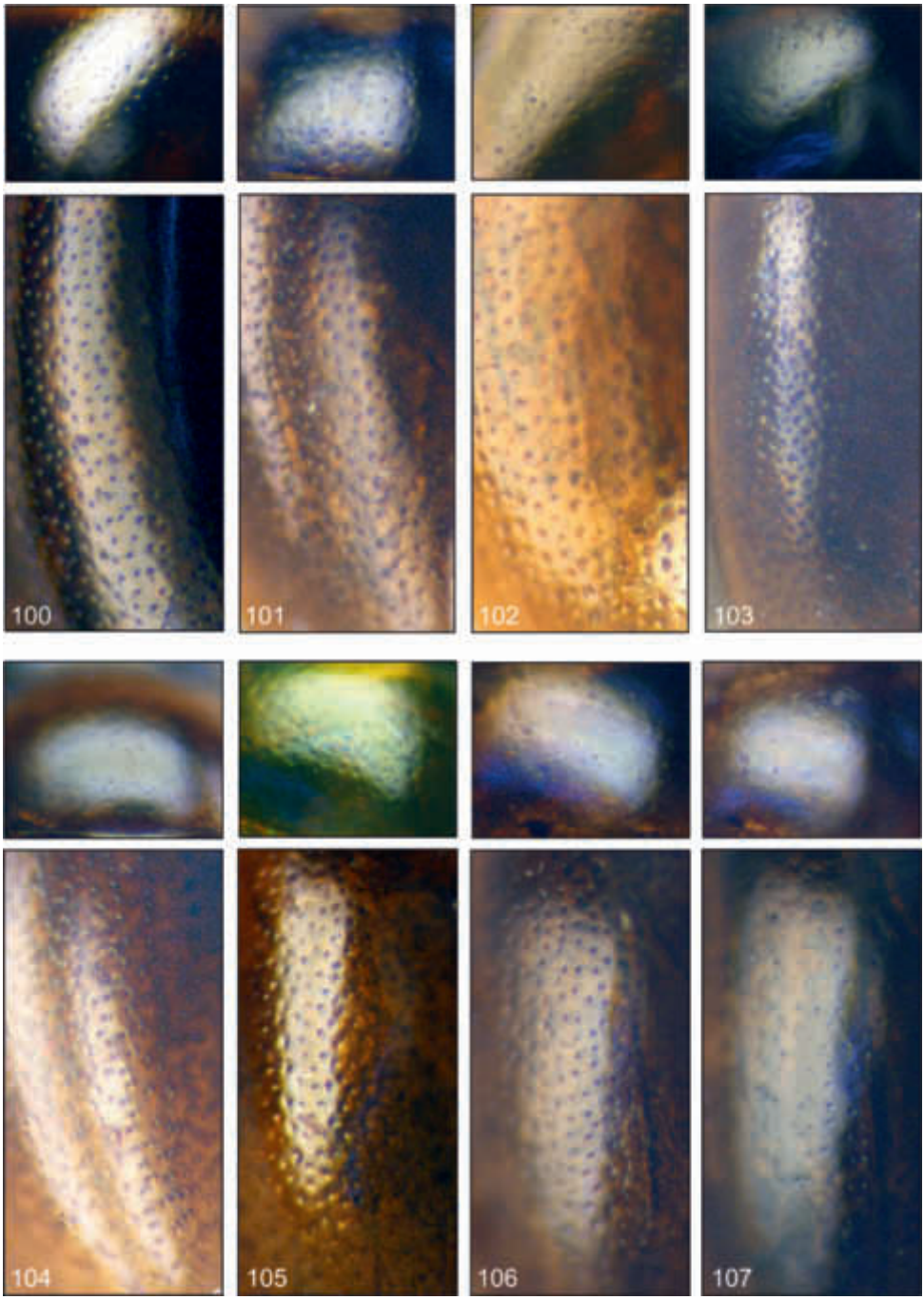
Figs. 38–53: Mentum (setae omitted) and labial palpi; 52–53: Antennomeres 1–6. 38, 52) *Anacaena atriflava*, 39) *A. brachypenis*, 40) *A. bushiki*, 41) *A. gerula*, 42) *A. hainanensis*, 43) *A. jiafenglongi*, 44) *A. lancifera*, 45) *A. lanzhujii*, 46) *A. maculata*, 47, 53) *A. pui*, 48) *A. schoenmanni*, 49) *A. sichuana*, 50) *A. wangi*, 51) *A. yunnanensis.* Scale bar = 0.1 mm.



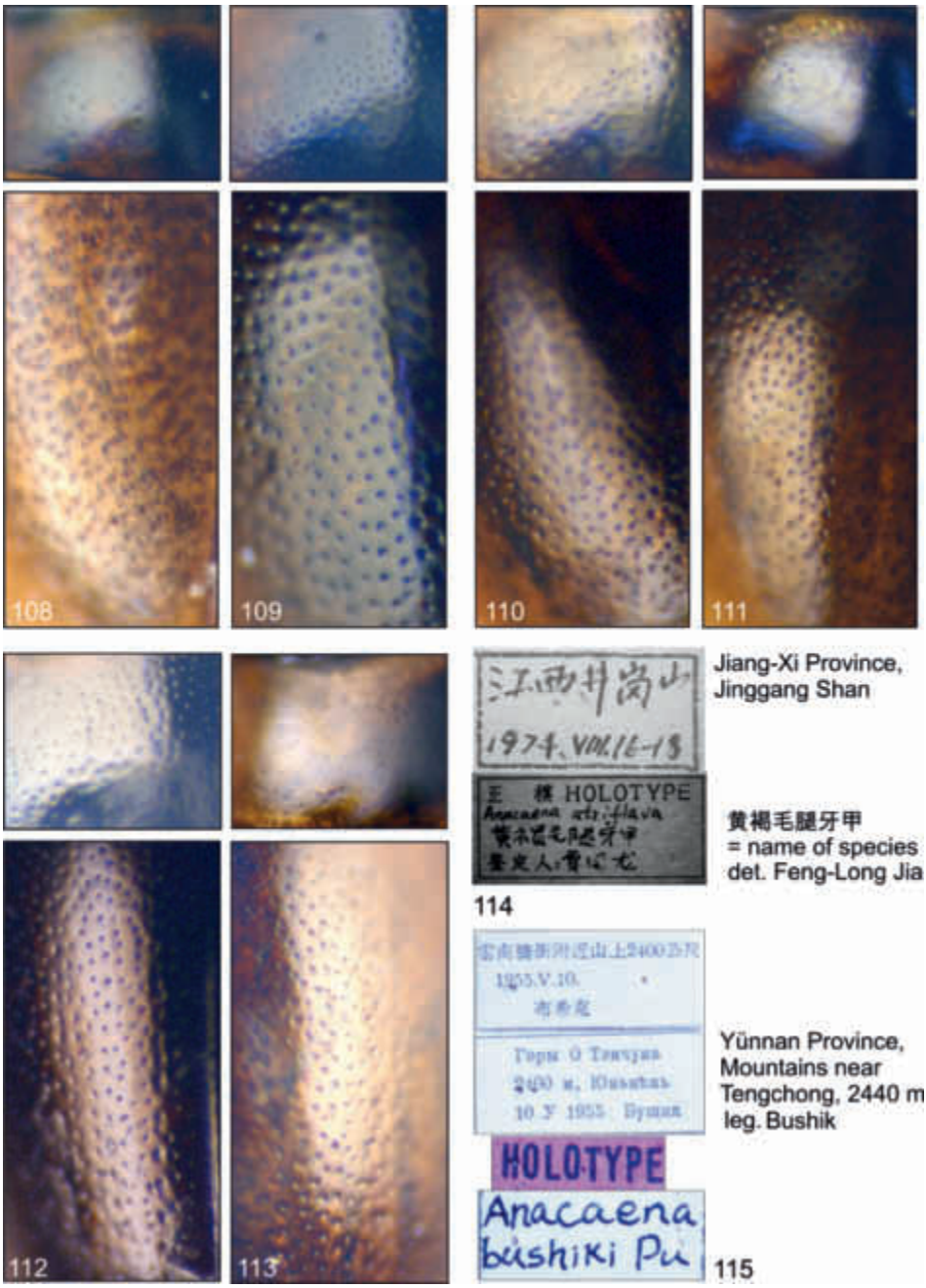
Figs. 54–71: Pronotum, dorsal view. 54) *Anacaena atriflava*, 55) *A. brachypenis*, 56) *A. bushiki*, 57) *A. gaoligongshana*, 58) *A. gerula*, 59) *A. hainanensis*, 60) *A. jiafenglongi*, 61–63) *A. lancifera*, 64–65) *A. lanzhujii*, 66) *A. maculata*, 67) *A. pui*, 68) *A. schoenmanni*, 69) *A. sichuana*, 70) *A. wangi*, 71) *A. yunnanensis.* Scale bar = 1 mm.



Figs. 72–99: 72–85: Pronotum, lateral margin; 86–99: metafemur. 72, 86) *Anacaena atriflava*, 73, 87) *A. brachypenis*, 74, 88) *A. bushiki*, 75, 89) *A. gerula*, 76, 90) *A. hainanensis*, 77, 91) *A. jiafenglongi*, 78, 92) *A. lancifera*, 79, 93) *A. lanzhujii*, 80, 94) *A. maculata*, 81, 95) *A. pui*, 82, 96) *A. schoenmanni*, 83, 97) *A. sichuana*, 84, 98) *A. wangi*, 85, 99) *A. yunnanensis.* Scale bar = 1 mm.



Figs. 100–107: Punctuation of pronotum (smaller rectangles) and elytra (larger rectangles); 100) *Anacaena atriflava*, 101) *A. brachypenis*, 102) *A. bushiki*, 103) *A. gerula*, 104) *A. hainanensis*, 105) *A. jiafenglongi*, 106) *A. lancifera*, 107) *A. lanzhujii*.



Figs. 108–115: Punctuation of pronotum (smaller rectangles) and elytra (larger rectangles); 114–115: type labels. 108) *A. maculata*, 109) *A. pui*, 110) *A. schoenmanni*, 111) *A. sichuana*, 112) *A. wangi*, 113) *A. yunnanensis*, 114) *A. atriflava*, 115) *A. bushiki*. (Photos made by Ge and Fikáček, translation by Ge).

Figs. 116–121: Type labels. 116) *A. hainanensis* (holotype), 117) *A. hainanensis* (paratype), 118) *A. lancifera* (holotype), 119) *A. lancifera* (paratype), 120) *A. lancifera* (allotype), 121) *A. maculata*. (Photos made by Ge and Fikáček, translation by Ge).

Acknowledgements

Thanks are due to the water beetle team of the NMW, particularly to Manfred A. Jäch for his friendly support and the opportunity to use the Coleoptera collection, to Martin Fikáček (Praha) for making valuable photographs of the type specimens in the collections of CASB and ZUG, and other useful information, to the collection managers listed above for loan of material, to André Skale for carrying specimens from NME to Vienna, to Si-qin Ge (CASB) for checking the type material in the CASB collection and for translating the Chinese type labels, to Christine Taylor (NHM) for informations on the sampling sites of some specimens deposited in the NHM, and to Rolf Beutel (Jena) for critically reading the manuscript.

Zusammenfassung

Die in der Volksrepublik China vorkommenden Arten von *Anacaena* THOMSON, 1859 werden erstmals revidiert. *Anacaena bulbifera* PU, 1964 und *A. lushanensis* PU, 1964 gehören zur Gattung *Paracymus* THOMSON, 1867. *Anacaena hunanensis* PU, 1964 und *A. pseudoyunnanensis* JIA, 1997 sind nicht identifizierbar, die Namen damit nomina nuda und daher nicht verfügbar. Acht neue Arten werden beschrieben: *A. brachypenis*, *A. gaoligongshana*, *A. jiafenglongi*, *A. lanzhujii*, *A. pui*, *A. schoenmanni*, *A. sichuana*, and *A. wangi.* Ein Neotypus wird für *A. maculata* PU, 1964 designiert. Alle hier behandelten Arten wurden bisher ausschließlich in der Volksrepublik China gesammelt. Kein Vertreter der Gattung konnte bislang nördlich der Provinz Hubei gefunden werden. Die Arten sind morphologisch den anderen bekannten Arten der ostorientalischen Region ähnlich, unterscheiden sich aber deutlich von den Arten der orientalischen Region Indiens. Aufgrund ihrer Ähnlichkeit werden *Anacaena atriflava*, *A. wangi* und *A. yunnanensis* zur "*yunnanensis*-Gruppe" zusammengefasst. Zwölf Arten sind aquatisch. Die meisten sind euryök, nur eine kann als stenök bezeichnet werden. Für drei Arten ist das Habitat unbekannt, eine davon (*A. bushiki*) möglicherweise terrestrisch. Zahlreiche diagnostische Details werden abgebildet und ein Artenschlüssel ist angefügt.

References

HANSEN, M. 1999: Hydrophiloidea (Coleoptera). – In Hansen, M. (ed.): World Catalogue of Insects, Volume 2. – Stenstrup: Apollo Books, 416 pp.

JÄCH, M.A. & JI, L. 1995: Introduction, pp. 5–32. – In Jäch, M.A. & Ji, L. (eds.): Water Beetles of China. Vol. I. – Wien: Zoologisch-Botanische Gesellschaft in Österreich and Wiener Coleopterologenverein, 410 pp.

JÄCH, M.A. & JI, L. 1998: China water beetle survey (1995−1998), pp. 1−23. – In Jäch, M.A. & Ji, L. (eds.): Water Beetles of China. Vol. II. – Wien: Zoologisch-Botanische Gesellschaft in Österreich and Wiener Coleopterologenverein, 371 pp.

JÄCH, M.A. & JI, L. 2003: China water beetle survey (1999−2001), pp. 1−20. – In Jäch, M.A. & Ji, L. (eds.): Water Beetles of China. Vol. III. – Wien: Zoologisch-Botanische Gesellschaft in Österreich and Wiener Coleopterologenverein, VI+572 pp.

JIA, F.-L. 1997: Taxonomy of the genus *Anacaena* (Coleoptera: Hydrophilidae) in China. − Entomotaxonomia 19: 104−110.

KOMAREK, A. 2004: Taxonomic revision of *Anacaena* Thomson, 1859. I. Afrotropical species (Coleoptera: Hydrophilidae). – Koleopterologische Rundschau 74: 303–349.

KOMAREK, A. 2006: Taxonomic revision of *Anacaena* Thomson, 1859, III. The Indian Subcontinent (Coleoptera: Hydrophilidae). – Koleopterologische Rundschau 76: 283−314.

KOMAREK, A. 2007: Taxonomic revision of *Anacaena* IV. Australia (Hydrophilidae). – Koleopterologische Rundschau 77: 147–170.

KOMAREK, A. 2010: Taxonomic revision of *Anacaena* Thomson, 1859 VII. Indonesia except Papua (Coleoptera: Hydrophilidae). − Koleopterologische Rundschau 80: 113−128.

KOMAREK, A. 2011: Taxonomic revision of *Anacaena* Thomson, 1859 VIII. Taiwan (Coleoptera: Hydrophilidae). − Koleopterologische Rundschau 81: 229−236.

ORCHYMONT, A. 1942: Contribution à l'étude de la tribu Hydrobiini Bedel, spécialement de sa sous-tribu Hydrobiae (Palpicornia−Hydrophilidae). − Mémoires du Musée royale d'Histoire naturelle de Belgique 2 (24): 1−68.

PU, C-L. 1963: Results of the zoologico-botanical expedition to southwest China, 1955−1957 (Coleoptera: Hydrophilidae). − Acta entomologica sinica 12: 77−82.

PU, C-L. 1964: The genus *Anacaena* Thomson of China (Coleoptera: Hydrophilidae). − Acta entomologica sinica 13: 396−400.

Dr. Albrecht KOMAREK
Johann Straußgasse 39, *A – 2340 Mödling*, *Austria* (albrecht.komarek@aon.at)