

涪陵银莲花(毛茛科)的名实订正

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摘要: 通过标本检查,发现毛茛科涪陵银莲花(*Anemone fulingensis* W. T. Wang & Z. Y. Liu)与川西银莲花(*A. prattii* Huth ex Ulbr.)属于同一种植物,故将前者处理为后者的异名。揭示川西银莲花的花粉具 6~10 带沟。澄清了川西银莲花的地理分布,讨论了与其近缘种滇川银莲花(*A. delavayi* Franch.)的形态区别。

关键词: 银莲花属; 新异名; 毛茛科; 分类学

doi: 10.11926/j.issn.1005-3395.2015.02.002

The Identity of *Anemone fulingensis* (Ranunculaceae)

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Abstract: Examination of herbarium specimens has shown that *Anemone fulingensis* W. T. Wang & Z. Y. Liu (Ranunculaceae) is conspecific with *A. prattii* Huth ex Ulbr. We therefore reduce *A. fulingensis* to the synonymy of *A. prattii*. Pollen grains in *A. prattii* are revealed to be 6–10-zonocolpate. The geographical range of *A. prattii* is clarified, and its morphological differentiation from *A. delavayi* Franch. is discussed.

Key words: *Anemone*; New synonymy; Ranunculaceae; Taxonomy

Anemone fulingensis W. T. Wang & Z. Y. Liu (Ranunculaceae) was described on the basis of two collections, Z. Y. Liu & M. B. Ren 2060366 (PE) and 205007 (PE) (Fig. 1), from Fuling, Chongqing, China, with the former being designated as the holotype^[1]. In the protologue, the authors stated that the species was a member of *A. sect. Stolonifera* (Ulbr.) Juz. by having sessile involucre bracts, 4–5 sepals, filiform filaments, and pantocolpate pollen, but distinguishable from all other species of the section by its moniliform rhizome consisting of 2–10 tubers. They stressed that the moniliform rhizome of the species was not only unique in *A. sect. Stolonifera* but also in the whole

genus *Anemone* L.

Judging from its external morphology and pollen morphology (for the correct description of the pollen, see below), *Anemone fulingensis* is indeed readily referable to *A. sect. Stolonifera*. However, its moniliform rhizome is far from a unique character in the section. Our examination of ample material in major Chinese herbaria has shown that such rhizome occurs at least in three species of the section, i.e., *A. baicalensis* Turcz. (Fig. 2), *A. delavayi* Franch. (Fig. 3), and *A. prattii* Huth ex Ulbr. (Fig. 4). In literature, the rhizomes of these species are often described as having long and slender internodes with the nodes remote from each

Received: 2014-09-29

Accepted: 2014-12-04

This study was supported by the Science and Technology Basic Work of China (2013FY112100).

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Fig. 1 Specimens of *Anemone prattii*. A: Z. Y. Liu and M. B. Ren 2060366 (holotype of *A. fulingensis*, PE), Fuling, Chongqing, China; B, C: Z. Y. Liu and M. B. Ren 2060366 (isotypes of *A. fulingensis*, PE); D: Z. Y. Liu 2050007 (paratype of *A. fulingensis*, PE), Fuling, Chongqing, China.

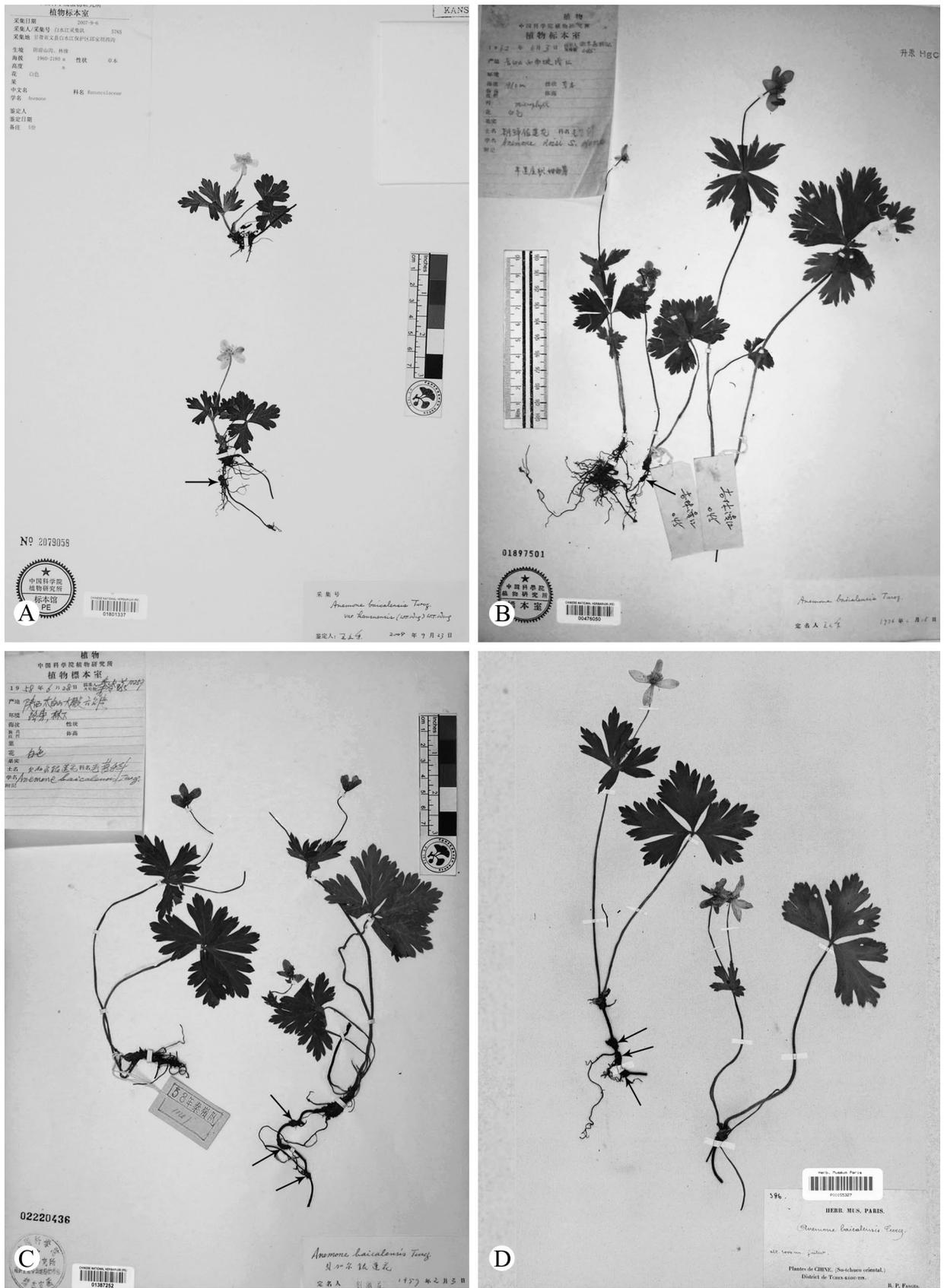


Fig. 2 Specimens of *Anemone baicalensis*. A: Baishuijiang Exped. 5765 (PE), Wenxian, Gansu, China; B: Temperate Forest Exped. 45 (PE), Changbai Shan, Jilin, China; C: Qinling Exped. 10257 (PE), Taibai Shan, Shaanxi, China; D: Farges 386 (P), Chengkou, Chongqing, China. Arrows indicates tuber-like nodes of the rhizome.

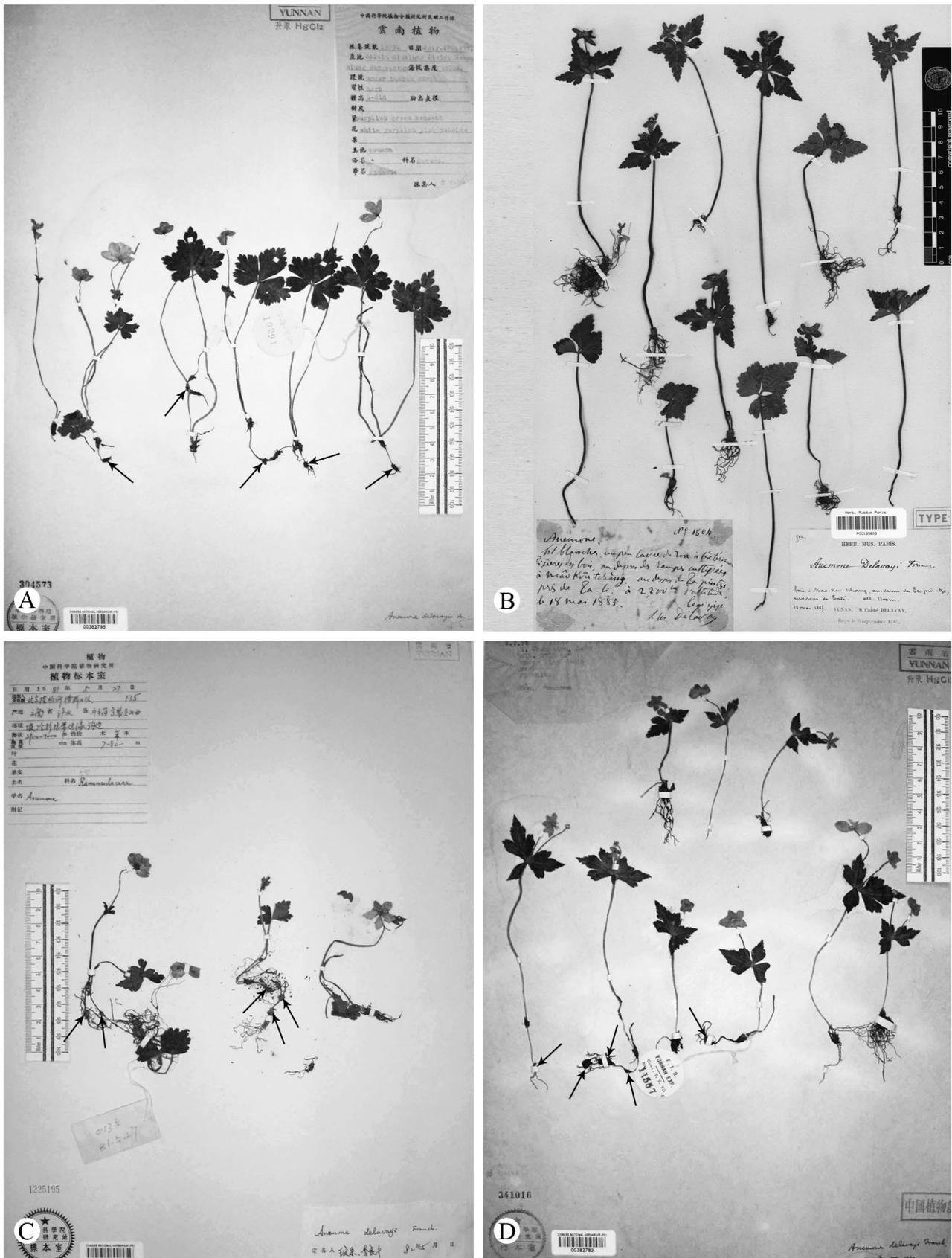


Fig. 3 Specimens of *Anemone delavayi*. A: T. T. Yu 19291 (PE), Deqen, Yunnan, China; B: Delavay 1504 (lectotype, here designated, P), Heqing, Yunnan, China; C: Inst. Bot. Hengduan Shan Exped. 135 (PE), Lushui, Yunnan, China; D: T. T. Yu 11557 (PE), Zhongdian, Yunnan, China. Arrows indicate tuber-like nodes of the rhizome.



Fig. 4 Specimens of *Anemone prattii*. A: Pratt 773 (lectotype, P), Ta-t sien-lou (= Kangding), Sichuan, China; B: K. C. Kuan et al. 440 (PE), Emei Shan, Sichuan, China; C: Veget. Exped. 41688 (CDBI), Luding, Sichuan, China; D: Y. B. Yang 21715 (CDBI), Tianquan, Sichuan, China. Arrows indicate tuber-like nodes of the rhizome.

other.

Among the three species just mentioned, *Anemone prattii* caught our special attention because of its great resemblance with *A. fulingensis* in general aspect. Ulbrich^[2] described *A. prattii* on the basis of a collection, Pratt 773, from the neighborhood of Kangding, western Sichuan, China. He described the rhizome of the species as having very strongly elongated internodes, with the tuber-like nodes 3–5 cm distant from each other. The rhizome was also clearly illustrated in the accompanying line drawing in the paper. The original material of *A. prattii* deposited in the Botanical Garden and Botanical Museum Berlin-Dahlem (B) was most likely destroyed in World War II. Fortunately, we found

a duplicate of Pratt 773 (Fig. 4: A) from the National Natural History Museum, Paris (P). This specimen had been previously identified as *A. baicalensis*, but it matches perfectly the original description of *A. prattii* and thus we designate it as the lectotype herein. In describing *A. fulingensis*, Wang et al.^[1] must have not examined the type material and original description of *A. prattii*, and thus did not compare their *A. fulingensis* with *A. prattii*. As shown in Figures 1, 4 and Table 1, *A. fulingensis* is not different from *A. prattii* in any essentials. In the protologue, *A. fulingensis* was described as having only one pedicel, but actually it has one or two pedicels as illustrated in Figure 1.

In pollen morphology, *Anemone fulingensis* is also

Table 1 Comparison of morphological characters for *Anemone fulingensis* and *A. prattii*

	<i>A. fulingensis</i>	<i>A. prattii</i>
Plant height (cm)	15–25	11–30
Habit	Erect herb with 1–2 basal leaves	Erect herb with 1–3 basal leaves
Perennating structure	Rhizomes, tubers	Rhizomes, tubers
Leaf shape and dissection	Cordate-pentagonal; 3-sect, central segment 3-lobed, rhombic, base cuneate, margin incised serrate, lateral segments 2-parted, obliquely flabellate	Cordate-pentagonal; 3-sect, central segment 3-lobed, rhombic, base cuneate, margin incised serrate, lateral segments 2-parted, obliquely flabellate
Leaf size (cm)	3–5 × 5.5–7.6	3–3.6 × 4.8–5.5
Leaf pubescence	Sparsely puberulent adaxially, subglabrous abaxially	Sparsely puberulent adaxially, subglabrous abaxially
Petiole	Glabrous	Glabrous
Scape	Glabrous	Glabrous or distally sparsely puberulent
Involucral bracts	Rhombic, 3-partite or 3-lobed, 2.6–4 cm × 1.2–4.8 cm	Rhombic, 3-partite or 3-lobed, 2–5 cm × 0.8–4 cm
Pedicel number (flower number)	1–2	1–3
Sepal	4–5, white; 9.5–12 mm × 3.2–7 mm	5, white; 8–10 mm × 4–7 mm
Carpel number	5–6	4–7
Achene	Obovoid, densely puberulent	Obovoid, densely puberulent

not essentially different from *A. prattii*. Wang et al.^[1] reported *A. fulingensis* to be 6-colpate. Xi and Chang^[3] reported *A. prattii* to be 8(–10)-colpate, and Fang and Yang^[4] reported it to be (6–)7(–10)-colpate. The material of *A. prattii* that we examined had 8-zonocolpate pollen (Fig. 5). Obviously *A. prattii* is somewhat variable in the number of pollen aperture. It is to be noted that Wang et al.^[1] was wrong to have described the pollen of *A. fulingensis* as “pantocolpate”. The six apertures of pollen in *A. fulingensis* are situated at the

equator and thus the pollen should be referred to as “6-zonocolpate”^[5] or “stephanocolpate”^[6]. In their studies of the pollen in *Anemone*, Xi and Chang^[3], and Huynh^[7] described such pollen as “polycolpate”. In pantocolpate pollen grains, the apertures are more or less regularly distributed over the whole surface^[6], such as those in *Anemone griffithii* Hook. f. & Thoms.^[3–4,8]

From the above analyses it is necessary to reduce *Anemone fulingensis* to the synonymy of *A. prattii*.

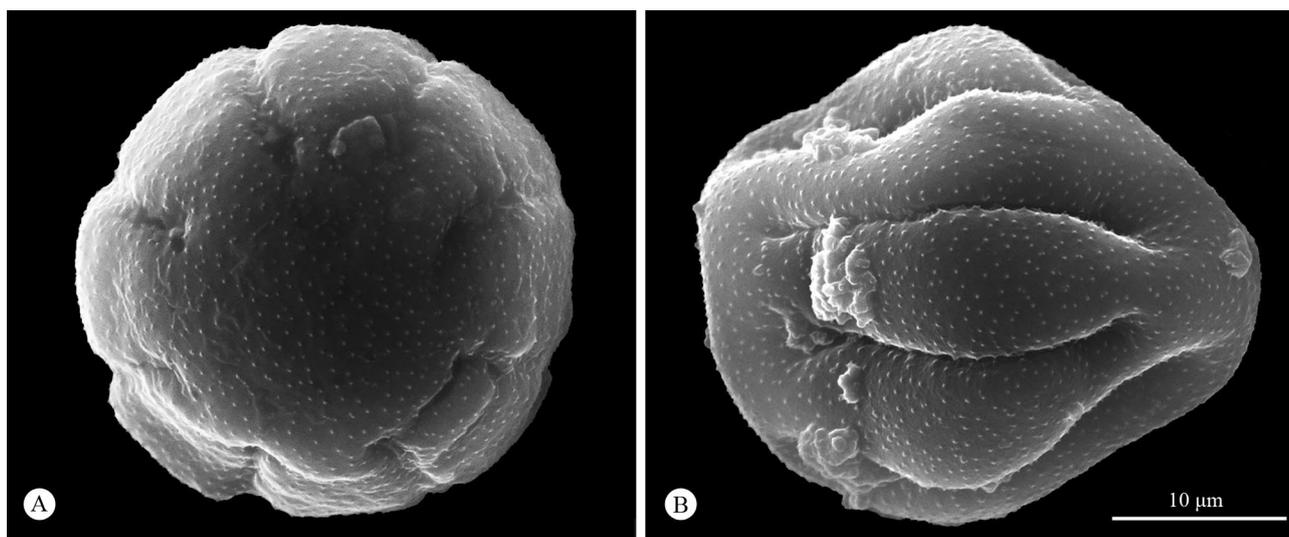


Fig. 5 Pollen grains of *Anemone prattii*. [Scanning electron microscopy, both same scale; voucher: L. X. Zhou 12132 (IBSC), Mabian, Sichuan, China], 8-zonocolpate. A: Polar view; B: Equatorial view.

Anemone prattii Huth ex Ulbr. in Bot. Jahrb. Syst. **36** (Beibl. 80): 4. 1905; W. T. Wang in Fl. Reipubl. Popularis Sin. **28**: 18. 1980, p.p.; L. Q. Li in Vas. Pl. Hengduan Mount. **1**: 510. 1993, p.p.; W. T. Wang in Fl. Yunnan. **11**: 188. 2000, p.p.; W. T. Wang et al. in Fl. China **6**: 312. 2001, p.p.; Ziman et al. in J. Jpn. Bot. **79**: 296. 2004, p.p. Type: China. Sichuan: Tachienlu (= Kangding), alt. 9000–13500 ft, 1890, Pratt 773 (B, most likely destroyed; lectotype, here designated, P!).

A. fulingensis W. T. Wang & Z. Y. Liu in Acta Phytotax. Sin. **45**: 290. 2007. **syn. nov.** Type: China. Chongqing: Fuling, Damu Xiang, in shady moist forest on slope in ravine, alt. 1420 m, 22 Apr. 2006, Z. Y. Liu & M. B. Ren 2060366 (holotype, PE!; isotypes, PE!).

Notes. Ziman et al.^[9] have wrongly cited Ducloux 5678 (P; Fig. 6: A) from Qiaojia, northeastern Yunnan, China as the holotype of *Anemone prattii*. Ulbrich^[1] did not cite this specimen when he described *A. prattii*, with his description based on only Pratt 773. In fact, Ducloux 5678 was collected in 1908 whereas *A. prattii* was described in 1905. It was Handel-Mazzetti^[10] who referred Ducloux 5678 (P) to *A. prattii* for the first time. This specimen, in our opinion, should belong to *A. delavayi*. Handel-Mazzetti, however, correctly

identified Ducloux 6170 (P; Fig. 6: B) from Qiaojia as *A. prattii* on the determinavit slip of the specimen, although he did not mention this collection in any of his works.

Anemone prattii has long been recorded to occur in Deqen, northwestern Yunnan, China^[11–14]. This wrong record is obviously attributed to Handel-Mazzetti's misidentification of his own collection, Handel-Mazzetti 8881 (WU; Fig. 6: C)^[15]. This specimen, just like Ducloux 5678 from Qiaojia, should be referred to *A. delavayi*. He also misidentified Ducloux 4592 (P; Fig. 6: D) from Binchuan, northwestern Yunnan as *A. prattii* on the determinavit slip; this specimen also should be identified as *A. delavayi*. Another collection from northwestern Yunnan, Forrest 21495 (not shown here), which Handel-Mazzetti first considered to represent the transition from *A. baicalensis* to *A. prattii*^[15], and then to be most likely *A. prattii*^[10], has been correctly identified as *A. delavayi* at PE. All these specimens have a slender rhizome with more or less tuber-like nodes, indicating that Handel-Mazzetti regarded the presence of tubers as an important diagnostic character of *A. prattii*.

Morphologically, *Anemone delavayi* is indeed somewhat confused with *A. prattii* owing to their similarity in rhizome structure. The involucre bracts



Fig. 6 Specimens of *Anemone delavayi*. (A, C, D; all misidentified as *A. prattii* by Handel-Mazzetti) and *A. prattii* (B). A: Ducloux 5678 (P), Qiaojia, Yunnan, China; B: Ducloux 6170 (P), Qiaojia, Yunnan, China; C: Handel-Mazzetti 8881 (WU), Deqen, Yunnan, China; D: Ducloux 4592 (P), Binchuan, Yunnan, China. Arrows indicate tuber-like nodes of the rhizome.

in *A. delavayi*, just like those in *A. baicalensis*, are highly variable in size, as pointed out by Handel-Mazzetti^[15] in his remarks on *A. delavayi* and as shown in Figures 3, 6. Some plants of the species have bracts much smaller than the basal leaves, while some have very large ones similar to the basal leaves in shape. Those with large leaf-like bracts are, in particular, easily confused with *A. prattii*, in which the bracts are almost always as large as the basal leaves. It seems that *A. delavayi* is different from *A. prattii* mainly in the basal leaves solitary or absent (vs. 1–3), and the leaf segments undivided or only shallowly divided (vs. deeply divided). Ziman et al.^[9,16] classified *A. baicalensis*, *A. prattii* and *A. delavayi* in different series under *A. sect. Stolonifera*, with the former two in ser. *Stolonifera* Ziman et al. and the latter one in ser. *Flaccidae* Juz. It seems to us that these three species are morphologically so closely

similar to each other that they may better be placed together in a series.

Additional specimens examined. Chongqing:

Fuling, Z. Y. Liu & M. B. Ren 205007 (PE); Sichuan: Baoxing, Anonymous 00247 (PE); Dujiangyan, F. T. Wang 20845 (NAS, PE), Q. E. Yang & M. Feng 95028 (PE); Ebian, T. T. Yu 656 (NAS, PE); Emei, Anonymous 54210 (PE), K. C. Kuan et al. 373 (CDBI, PE), 440 (PE), G. H. Yang 54266 (PE), T. T. Yu 361 (PE), 461 (NAS, PE); Luding, Sichuan Veget. Exped. 25118 (CDBI), 41688 (CDBI), 42059 (CDBI); Mabian, W. P. Fang 457 (NAS, PE); Shimian, C. J. Xie 40035 (PE), 40059 (PE); Tianquan, T. Naito et al. 153 (PE), X. L. Jiang 33722 (IBSC, PE), Y. B. Yang 21715 (CDBI); **Yunnan:** Qiaojia, Ducloux 6170 (P).

Distribution and habitat. *Anemone prattii* is distributed in Chongqing (Fuling), western Sichuan,

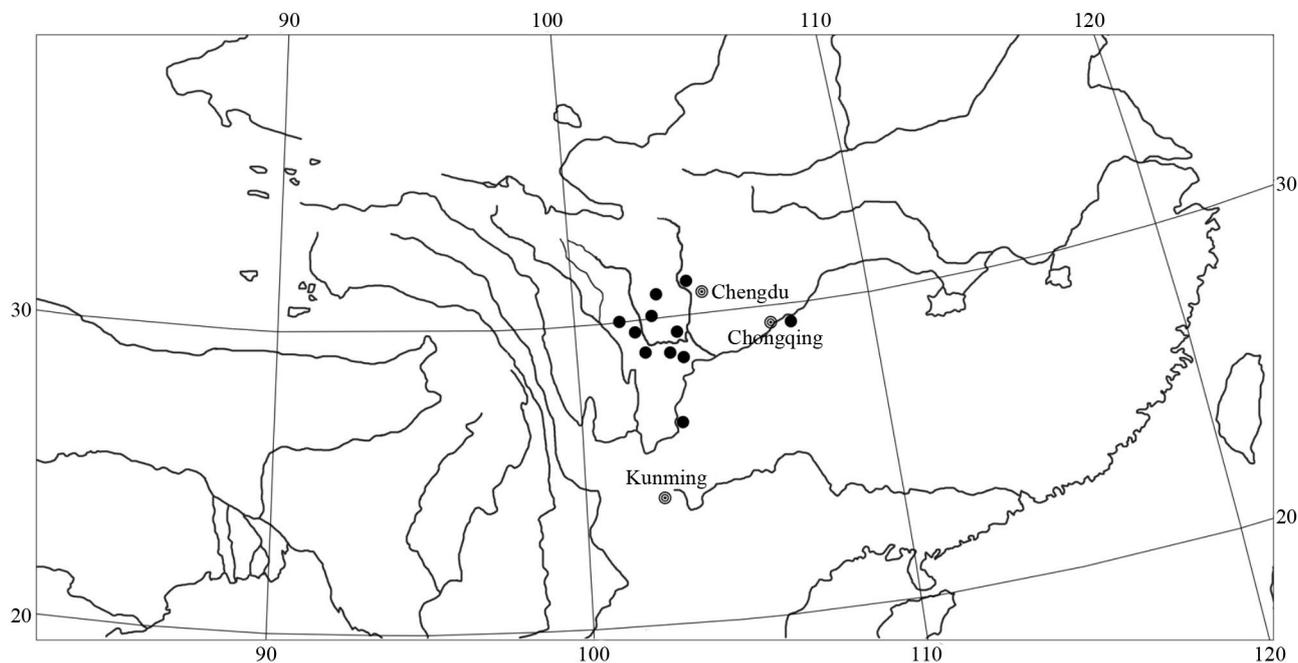


Fig. 7 Distribution of *Anemone prattii* (●).

and northeastern Yunnan (Qiaojia), China. It grows in shady places in mixed forests or thickets at altitudes of 1400–2400 m above sea level.

Acknowledgments We are grateful to the curators of CDBI, IBSC, NAS, P, PE and WU for the permission to use their scanned images of specimens and for research facilities.

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