



A new combination in *Cremanthodium* (Asteraceae, Senecioneae) from Sichuan, China

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Abstract

Critical examination of herbarium specimens (including type material) of *Cremanthodium ellisii* var. *roseum* (Asteraceae, Senecioneae) has shown that the variety should be transferred to *C. brunneopilosum*. We therefore propose a new combination, *C. brunneopilosum* var. *roseum*.

Key words: Compositae, taxonomy

Introduction

Cremanthodium plantagineum f. *roseum* Handel-Mazzetti (1938: 307) was described on the basis of a single collection, *H. Smith 12108* (PE, UPS; Fig. 1) from Dawu, western Sichuan, China. In the protologue, the author stated that it was characterized by the florets rosy-red and the basal leaves numerous, up to 6.5–30 cm in size.

Cremanthodium plantagineum Maximowicz (1881: 481) is most widely distributed and highly variable in some characters such as stature, leaf shape and size, number of the capitula, and pubescence of the phyllaries, with a long list of synonyms and three to five different forms once recognized within it (Good 1929, Handel-Mazzetti 1938, Hu 1966). In his monograph of the genus *Cremanthodium* Benth (1873: 37), Good (1929) reduced *Werneria ellisii* Hooker (1881: 357) to *C. plantagineum*, proposing the combination *C. plantagineum* f. *ellisii* (Hooker 1881: 357) Good (1929: 293), a treatment accepted by Handel-Mazzetti (1938) and Hu (1966). Kitamura & Gould (1982: 22), however, treated *W. ellisii* as an independent species within *Cremanthodium*, namely *C. ellisii* (Hooker 1881: 357) Kitamura, and placed *C. plantagineum* within its synonymy. This treatment has been generally accepted by later authors (e.g., Liu 1984, 1989, 2005, Chen & Li 1994, Grierson & Springate 2001, Min 2004, Liu & Illarionova 2011). As a result, Liu (1989: 162) transferred *C. plantagineum* f. *roseum* to *C. ellisii* as a variety, i.e. *C. ellisii* var. *roseum* (Handel-Mazzetti 1938: 307) Liu. While Chen & Li (1994) overlooked this treatment and still placed *C. plantagineum* f. *roseum* within the synonymy of *C. ellisii*, the variety was recognized by Liu (2005) and Liu & Illarionova (2011).

In his remarks on *Cremanthodium plantagineum*, Good (1929) noted that a collection from western Sichuan, *Wilson 3794*, was a particularly luxuriant and handsome plant of *C. plantagineum* f. *ellisii*, and that it clearly showed relationship to *C. stenactinium* Diels (1922: 510), and might be a hybrid between that species and *C. plantagineum*. Obviously Liu (1984) noticed this remark, and based on examination of ample herbarium material he came to the conclusion that Good's *C. plantagineum* f. *ellisii* was a mixture including two totally different types of plants, the true *C. ellisii* and an undescribed species. He described and named the species as *C. brunneopilosum* Liu (1984: 63; “*brunneo-pilosum*”) (Fig. 2) on the basis of numerous collections from Qinghai, Sichuan and Xizang, China, and stated it was most closely related to *C. stenactinium*, differing only in being robust and in the bracteoles herbaceous and linear (vs. membranous and ovate). This species has been recognized by Liu (1985, 1989, 1996, 2005), Chen & Li (1994) and Liu & Illarionova (2011).



FIGURE 1. Type specimens of *Cremanthodium brunneopilosum* var. *roseum* (= *C. plantagineum* f. *roseum*). **A.** China, Sichuan, Dawu, H. Smith 12108 (UPS, holotype). **B.** H. Smith 12108 (PE, isotype).

TABLE 1. Morphological differences between *Cremanthodium ellisii*, *C. brunneopilosum* var. *brunneopilosum* and *C. brunneopilosum* var. *roseum*.

* Ray florets are recorded as absent in *C. ellisii* var. *ramosum* (Ling 1937: 1) Ling & Liu in Liu (1984: 65), a variety yet imperfectly known due to the paucity of material.

	<i>C. ellisii</i>	<i>C. brunneopilosum</i> var. <i>roseum</i>	<i>C. brunneopilosum</i> var. <i>brunneopilosum</i>
Stem	5–60 cm tall	55–80 cm tall	25–90 cm tall
Basal leaves	2–7, narrowly elliptic, elliptic or oblong, 2.5–18 × 2–6.5 cm, margin coarsely dentate	4–8, narrowly elliptic, 6–25 × 3–5 cm, margin entire	4–10, narrowly elliptic, 8–30 × 2–8 cm, margin entire or rarely minutely denticulate
Stem leaves	1–4; middle ones elliptic or obovate-oblong, margin dentate; distal ones elliptic, margin entire	3–6, elliptic, margin entire	3–7, elliptic, margin entire
Capitula	1–3(–5)	2–5	1–13
Phyllary indumentum	densely blackish-gray pilose	densely purplish-brown pilose	densely purplish-brown pilose
Involucre size	0.8–2 × 1–3(–4.5) cm	1.5–1.8 × 2–3 cm	1.5–2.5 × 2–4.3 cm
Ray lamina*	oblong, 1–1.5 cm × 2–7 mm, yellow	linear-lanceolate, 1.5–3 cm × ca. 3 mm, rosy-red	linear-lanceolate, 1.8–5 cm × 2–5 mm, yellow

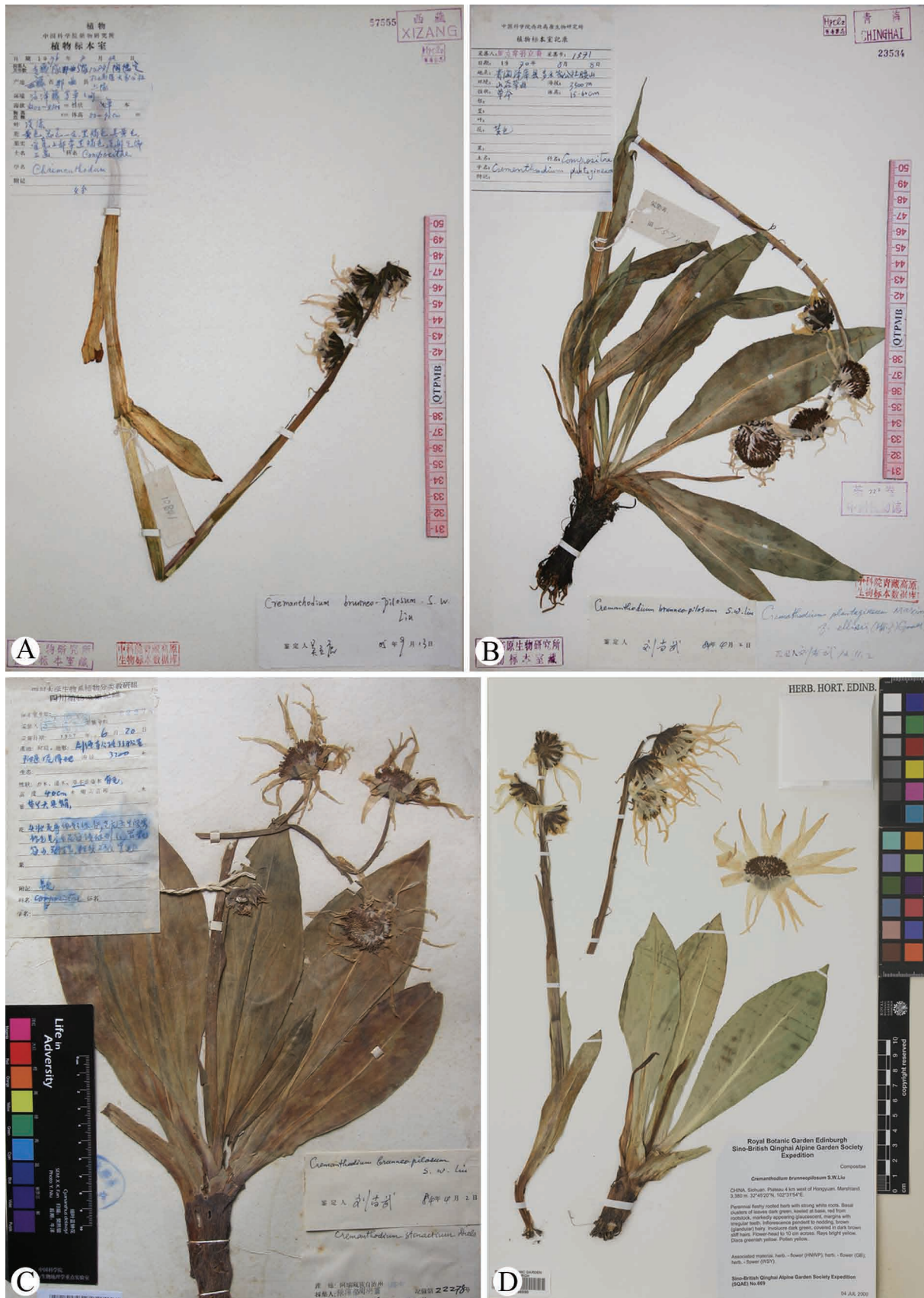


FIGURE 2. Specimens of *Cremanthodium brunneopilosum* var. *brunneopilosum*. **A.** China, Xizang, Nagqu, *Qinghai-Xizang Exped. 10841* (HNWP, isotype). **B.** China, Qinghai, Zèkog, *L.H. Zhou & L.N. Sun 1571* (HNWP, paratype). **C.** China, Sichuan, Hongyuan, *C.Y. Chang & H.F. Chou 22278* (SZ, isoparatype). **D.** Same locality, *Sino-Brit. Qinghai Alp. Gard. Soc. Exped. 669* (E).



FIGURE 3. Specimens of *Cremanthodium ellisii* var. *ellisii*. **A.** China, Qinghai, Chindu, *T.N. Ho et al.* 1639 (E). **B.** China, Sichuan, Litang, *D.E. Boufford et al.* 42298 (PE). **C.** China, Xizang, Lhasa, *G.C. Xia et al.* 2773 (KUN). **D.** China, Yunnan, Dêqên, *J.F. Rock* 10014 (E).

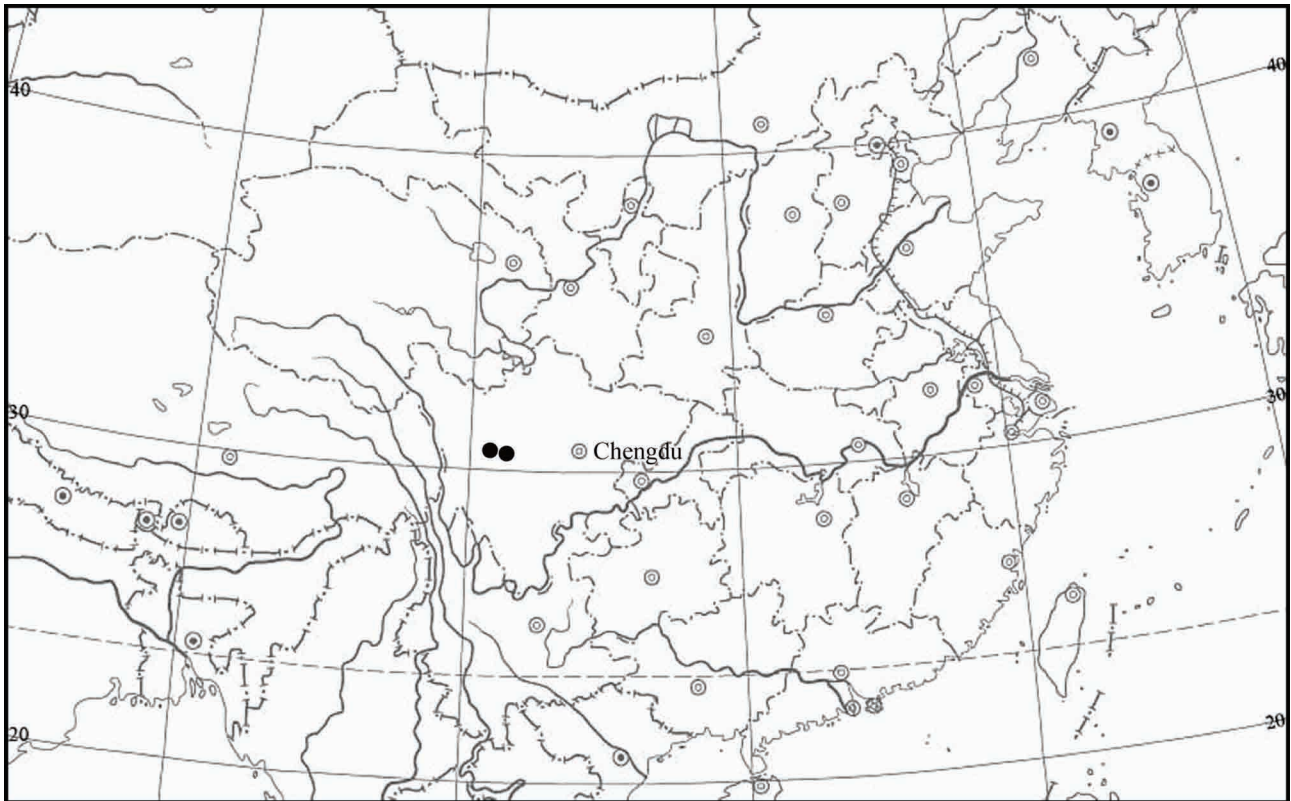


FIGURE 4. Distribution of *Cremanthodium brunneopilosum* var. *roseum* (●). Note that Dawu, the type locality and shown as the right solid dot, is represented by two specimens of the collection *H. Smith 12108* (PE, UPS), and Xinlong, the left solid dot, is represented by nine specimens of the collection *Y.S. Chen 9556* (PE).

Based on observations of both herbarium specimens and living plants we also consider that *Cremanthodium brunneopilosum* should be segregated from *C. ellisii* as an independent species of its own. We found, however, that *C. ellisii* var. *roseum* (Handel-Mazzetti 1938: 307) Liu (1989: 162) is much more closely similar to *C. brunneopilosum* (Fig. 2) than to *C. ellisii* (Fig. 3) in general aspect, particularly in shape and length of the ray lamina (Table 1). The only point of essential difference between *C. ellisii* var. *roseum* (Fig. 1) and *C. brunneopilosum* (Fig. 2) is the rosy-red ray florets in the former vs. yellow ones in the latter (Table 1). It is most likely that Liu (1989) did not see the type material when he transferred *C. plantagineum* f. *roseum* to *C. ellisii* as *C. ellisii* var. *roseum*, basing his taxonomic decision only on the simple description of *C. plantagineum* f. *roseum* given by Handel-Mazzetti (1938). It is necessary, therefore, to make the following treatment.

Taxonomic treatment

Cremanthodium brunneopilosum* var. *roseum (Handel-Mazzetti 1938: 307) L. Wang, C. Ren & Q. E. Yang, **comb. nov.** *Cremanthodium plantagineum* f. *roseum* Handel-Mazzetti (1938: 307). *Cremanthodium ellisii* var. *roseum* (Handel-Mazzetti) Liu (1989: 1962). Fig. 1

Type:—CHINA. Sichuan: Dawu, humid pasture, 3900 m a.s.l., 13 September 1934, *H. Smith 12108* (holotype UPS!, isotype PE!).

Distribution and habitat:—*Cremanthodium brunneopilosum* var. *roseum* should be a rather locally endemic plant and currently known only from western Sichuan (Dawu, Xinlong), China (Fig. 4). After its first discovery in 1934 from Dawu it was not collected again until 2009 from Xinlong (see below), which is closely contiguous to Dawu. It grows in humid pasture at elevations between 3700–4300 m above sea level.

Phenology:—Flowering from August to September.

Additional specimens examined:—CHINA. Sichuan: Xinlong, Larima, wet meadows, common, 3700–4300 m a.s.l., 23 August 2009, *Y.S. Chen 9556* (PE).

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