

41. KELLOGGIA Torrey ex Bentham & J. D. Hooker, Gen. Pl. 2: 137. 1873.

钩毛草属 *gou mao cao shu*

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Herbs, perennial, sometimes slightly woody at base; rootstock slender, with short rhizomatous and somewhat woody branches and with ascending or erect stems. Raphides present. Leaves opposite, decussate, subsessile, without domatia; stipules persistent, interpetiolar, hardly fused to petioles, triangular to linear or ± irregularly divided and often multifid to fimbriate. Inflorescences thyrsoid, with terminal and axillary branches at uppermost nodes, pedunculate cymes often with umbelliform flower groups, not rarely with new axes developing and older axes elongating making inflorescences expansive, lax, few to many flowered and bracteate; uppermost bracts often reduced to multifid or fimbriate stipules. Flowers pedicellate, bisexual, monomorphic. Calyx teeth 4 or 5, narrowly lanceolate, hardly fused at base. Corolla white to pink or red, funnelform, divided to ca. 1/2 into 4 or 5 lobes, glabrous inside and valvate in bud. Stamens 4 or 5, inserted in corolla throat, finally slightly exerted; filaments flattened; anthers dorsifixed near base. Ovary inferior, densely covered with hooked trichomes, 2-celled, ovules 1 in each cell, erect, basal; style with 2 short, linear stigmas, exerted. Fruit with calyx teeth ± persistent, schizocarpous, dividing into 2 oblong to ellipsoid, leathery and indehiscent mericarps, densely covered with hooked trichomes; each mericarp with 1 medium-sized, ellipsoid and plano-convex seed; endosperm fleshy; embryo large; cotyledons leaflike; radicle hypogeous.

Two species: disjunct, one in China and Bhutan, the other in W North America (Mexico, United States); one species in China.

In general aspect, *Kelloggia* resembles *Galium*, particularly with respect to the inferior ovary (hypanthium) developing into dry schizocarps covered with hooked trichomes. Presumably, these fruit disperse similarly to those of *Galium* as “stick-tights,” by attaching to animals. In contrast to *Galium* and other Rubiinae, *Kelloggia* has 3-colpate (and not polycolpate) pollen grains, calyx teeth, and not leaflike interpetiolar stipules, making sterile plants resemble *Nertera* and *Neanotis*. In spite of these differences, Robbrecht and Manen (Syst. & Geogr. Pl. 76: 85–146. 2006) have transferred *Kelloggia* from the tribe Paederieae to the tribe Rubieae as a monotypic and basal subtribe Kelloggiinae. We concur with this transfer but not with the inclusion of the totally different *Theligonum* into the Rubieae, which should be left in a separate tribe, Theligoneae (see also Bremer & Eriksson, Int. J. Pl. Sci. 170: 766–793. 2009). *Kelloggia* and all other Chinese Rubieae taxa have been briefly discussed and keyed out under *Galium* in the present volume.

All generic descriptions of *Kelloggia* give the number of calyx and corolla lobes as “4 or 5,” implying that both conditions are equally common as apparently is the case in the North American species. However, all the Asian specimens studied have 5 calyx and corolla lobes, as shown in the FRPS illustration (71(2): 157, t. 41. 1999) and described by Springate et al. (Fl. Bhutan 2(2): 822. 1999).

The morphology, circumscription, biogeography, and molecular phylogeny of *Kelloggia* were studied by Nie et al. (Amer. J. Bot. 92: 642–452. 2005). They concluded that the two species of the genus are most closely related to each other, that *Kelloggia* arrived in North America through long-distance dispersal from Asia, and that it occupies a basal position within Rubieae.

1. *Kelloggia chinensis* Franchet, J. Bot. (Morot) 6: 11. 1892.

云南钩毛草 *yun nan gou mao cao*

Galium aberrans W. W. Smith.

Herbs, perennial, to 30 cm tall. Stems flattened to subterete, puberulent to villosulous or hirtellous. Leaves subsessile or with petiole to 1 mm; blade drying thinly papery and blackish, narrowly lanceolate to narrowly elliptic, oblanceolate, or obovate, 5–15 × 2–5 mm, adaxially sparsely strigillose to villosulous, abaxially glabrous except sparsely to densely puberulent to hirtellous along midrib, base cuneate to acute, apex obtuse to acute; 1 main vein, secondary veins not or hardly visible; stipules 1.5–4 mm, often irregularly 3–7-lobed, triangular to linear, tomentulose or villosulous to glabrescent. Inflorescences 1–12 cm, axes strigillose to villosulous, 3–20-flowered; bracts stipuliform, 1–2 mm; pedicels 2–3 mm. Calyx split essentially to base, lobes 5, narrowly triangular, 0.5–1 mm. Corolla white to pink or red, outside puberulent or hispidulous; tube 2–2.5 mm; lobes 5, lanceolate, 2–2.5 mm, acute. Ovary ellipsoid, 1–1.5 mm, densely hairy with hooked trichomes 0.5–1 mm. Mericarps ovoid, ca. 2.5 mm, densely covered with hooked trichomes of 0.5–1 mm. Fl. Jul, fr. Jul–Sep.

Dry to wet mountain grasslands, along trails, forest and thicket openings; 3000–3700 m. Sichuan, Xizang, Yunnan [Bhutan].

Springate et al. (Fl. Bhutan 2(2): 822. 1999) noted that this species was collected once in Bhutan, at 3680 m, and that it is known from Xizang also. We have seen no material or other citations from Xizang, but this distribution seems reasonable and is added here.

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