

14. LLOYDIA Reichenbach, Fl. Germ. Excurs. 102. 1830, nom. cons.

洼瓣花属 wa ban hua shu

Chen Xinqi (陈心启 Chen Sing-chi); Nicholas J. Turland

*Giraldiella* Dammer (1905), not Müller (Halle) (1898); *Huolirion* F. T. Wang & Tang.

Herbs perennial, small, bulbiferous. Bulbs usually ovoid, covered with a tunic; tunic generally with a collar of persistent leaf bases, apex splitting longitudinally. Stem simple. Leaves usually filiform; basal leaves 1 to several, rather long. Inflorescence terminal, 1–4-flowered. Flowers bisexual. Tepals 6, free, white or yellow, sometimes mottled with purple, usually with a nectary, hairs, or lamellae near base adaxially. Stamens 6, inserted at base of tepals; filaments erect, sometimes hairy; anthers basifixed. Ovary 3-loculed; ovules numerous per locule. Style rather long; stigma scarcely or slightly 3-lobed. Fruit a capsule, distally loculicidal. Seeds numerous, deltoid to narrowly ovate-linear, sometimes winged at 1 end.

About 20 species: temperate regions of the N hemisphere; eight species (two endemic) in China.

- 1a. Basal leaves 1 or 2; filaments glabrous.
  - 2a. Style 2.5–4 × as long as ovary; stigma shortly 3-lobed ..... 4. *L. yunnanensis*
  - 2b. Style nearly as long as to slightly longer than ovary; stigma indistinctly 3-lobed.
    - 3a. Tepals white, greenish veined; seeds globose ..... 1. *L. triflora*
    - 3b. Tepals white, violet veined, base mottled with purple; seeds subdeltoid or crescent-shaped-deltoid, flat ..... 2. *L. serotina*
- 1b. Basal leaves 3–8; filaments hairy (sometimes glabrous in *L. oxycarpa*).
  - 4a. Tepals 0.9–1.3 cm, neither hairy nor lamellar; style ca. 3 mm; filaments glabrous or sparsely pubescent ..... 3. *L. oxycarpa*
  - 4b. Tepals 1.3–2 cm, inner ones generally hairy or lamellar near base adaxially (smooth in *L. flavonutans*); style 4–5 mm; filaments usually densely villous.
    - 5a. Tepals white, mottled with purple; leaves and bracts white pubescent at margin, particularly at base of bracts; outer tepals slightly narrower than inner ones ..... 8. *L. ixiolirioides*
    - 5b. Tepals yellow; leaves and bracts generally glabrous, rarely slightly pubescent at margin; outer tepals ca. 2/3 as wide as inner ones.
      - 6a. Inner tepals crested-lamellar near base adaxially ..... 5. *L. tibetica*
      - 6b. Inner tepals not crested-lamellar.
        - 7a. Tepals villous or rarely slightly hairy at or near base adaxially ..... 6. *L. delavayi*
        - 7b. Tepals glabrous adaxially ..... 7. *L. flavonutans*

1. *Lloydia triflora* (Ledebour) Baker, J. Linn. Soc., Bot. 14: 300. 1874.

三花洼瓣花 san hua wa ban hua

*Ornithogalum triflorum* Ledebour, Mém. Acad. Imp. Sci. St. Pétersbourg Hist. Acad. 5: 529. 1815; *Gagea triflora* (Ledebour) Schultes & J. H. Schultes.

Plants 15–30 cm tall. Bulb ca. 6 mm in diam. Basal leaf 1, narrowly linear, 1–1.5 mm wide; cauline leaves 1–3(or 4), basal one narrowly lanceolate, 3.5–7 cm × 4–6 mm. Inflorescence 2–4-flowered. Tepals white, greenish veined, linear to oblanceolate, 1–1.2 cm × 1.7–2.2 mm. Stamens ca. 1/2 as long as tepals. Style 3–4 mm; stigma capitate, indistinctly 3-lobed. Capsule obovoid, 3-angled, ca. 1/3 as long as enlarged, persistent tepals. Seeds globose. Fl. May–Jun, fr. Jul.

Thickets, grassy slopes, hillsides along ravines. Hebei, Heilongjiang, Jilin, Liaoning, Shanxi [Japan, Korea, Russia].

2. *Lloydia serotina* (Linnaeus) Reichenbach, Fl. Germ. Excurs. 102. 1830.

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Plants 3–20 cm tall. Bulb 1.5–2.5 cm × 6–7 mm. Basal leaves (1 or)2, filiform, slightly shorter or longer than stem, ca. 1 mm wide; cauline leaves 2–4, linear or narrowly so, 1–3 cm × 1–3 mm. Inflorescence 1- or 2-flowered. Tepals white, violet

veined, basally mottled with purple, obovate-oblong, 0.5–1.5 cm × 2–5 mm, usually with a small, nectariferous groove near base adaxially, apex obtuse-rounded. Stamens 1/2–3/5 as long as tepals; filaments glabrous. Ovary suboblong or narrowly ellipsoid, 3–4 × 1–1.5 mm. Style 3–4 mm; stigma indistinctly 3-lobed. Capsule subobovoid or subovoid, 3–7 mm, apex with persistent style. Seeds subdeltoid or crescent-shaped-deltoid, flat. Fl. Jun–Aug, fr. Aug–Oct.

Thickets, grassy slopes, alpine grasslands; 2400–5000 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan [Bhutan, India, Japan, Kazakhstan, Korea, Mongolia, Nepal, Pakistan, Russia, Sikkim; Europe, North America].

- 1a. Plants 10–20 cm tall; tepals 1–1.5 cm; capsule 6–7 mm ..... 2a. var. *serotina*
- 1b. Plants 3–4 cm tall; tepals 0.5–0.7 cm; capsule 3–5 mm ..... 2b. var. *parva*

2a. *Lloydia serotina* var. *serotina*

洼瓣花(原变种) wa ban hua (yuan bian zhong)

*Bulbocodium serotinum* Linnaeus, Sp. Pl. 1: 294. 1753; *Anthericum serotinum* (Linnaeus) Linnaeus; *Lloydia alpina* Salisbury; *L. himalensis* Royle; *L. serotina* var. *unifolia* Franchet.

Plants 10–20 cm tall. Tepals 1–1.5 cm. Capsule subobovoid, 6–7 mm. Seeds deltoid. 2n = 24, 36, 48.

Thickets, grassy slopes; 2400–4000 m. Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan [Bhutan, India, Japan, Kazakstan, Korea, Mongolia, Nepal, Pakistan, Russia, Sikkim; Europe, North America].

**2b. *Lloydia serotina* var. *parva*** (C. Marquand & Airy Shaw) H. Hara, Bull. Univ. Mus. Univ. Tokyo 2: 166. 1971.

矮小洼瓣花 ai xiao wa ban hua

*Lloydia serotina* f. *parva* C. Marquand & Airy Shaw, J. Linn. Soc., Bot. 48: 228. 1929.

Plants 3–4 cm tall. Tepals 0.5–0.7 cm. Capsule subovoid, 3–5 mm. Seeds crescent-shaped-deltoid.

Alpine grasslands; 3700–5000 m. W Sichuan, Xizang [Bhutan, Nepal, Sikkim].

**3. *Lloydia oxycarpa*** Franchet, J. Bot. (Morot) 12: 192. 1898.

尖果洼瓣花 jian guo wa ban hua

*Lloydia forrestii* Diels; *L. forrestii* var. *psilostemon* Handel-Mazzetti.

Plants 5–20(–25) cm tall. Bulb 1–2 cm × 6–7 mm. Basal leaves 3–7, filiform, ca. 1 mm wide; cauline leaves several, narrowly linear, 1–3 cm × ca. 1 mm. Inflorescence usually 1-flowered. Tepals yellow or yellowish green, obovate-elliptic, 0.9–1.3 cm × 3–4 mm, glabrous, without a nectariferous groove near base adaxially, apex obtuse. Stamens 3/5–2/3 as long as tepals; filaments glabrous or sparsely pubescent. Ovary narrowly ellipsoid, ca. 3 × 1 mm. Style ca. 3 mm; stigma slightly thickened. Capsule narrowly obovoid-oblong, ca. 1.5 cm × 4 mm. Seeds narrowly ovate-linear, ca. 2.5 mm, longitudinally 3-angled, winged at 1 end. Fl. May–Jul, fr. Aug.

• Sparsely forested slopes, grasslands; 2800–4800 m. S Gansu, Sichuan, Xizang, Yunnan.

**4. *Lloydia yunnanensis*** Franchet, J. Bot. (Morot) 12: 192. 1898.

云南洼瓣花 yun nan wa ban hua

*Lloydia filiformis* Franchet; *L. mairei* H. Léveillé; *L. yunnanensis* S. Yun Liang.

Plants 5–20 cm tall. Bulb 5–12 × 3–4 mm; tunic brown. Basal leaves 1 or 2, filiform, usually shorter than stem, 0.5–1 mm wide; cauline leaves 2 or 3, narrowly linear, 0.4–2 cm × 0.5–0.8 mm. Inflorescence usually 1-flowered. Tepals white or yellowish, mottled with purple or red, glabrous, sometimes with 2 inconspicuous, nectariferous grooves near base adaxially; outer tepals oblong, 0.9–1.2 cm × 3–4 mm; inner ones obovate, 0.9–1.2 cm × 5–6 mm. Stamens 1/2–2/3 as long as tepals; filaments glabrous. Ovary ovoid to subellipsoid, 1.8–2.5 × 1–1.5 mm. Style slender, 6–10 mm; stigma shortly 3-lobed. Fl. Jun–Jul.

Forest margins, scrub, shady places on slopes, grasslands, rocky places along valleys; 2300–4100 m. W Sichuan, Yunnan [Sikkim].

**5. *Lloydia tibetica*** Baker ex Oliver, Hooker's Icon. Pl. 23: t. 2216. 1892.

西藏洼瓣花 xi zang wa ban hua

*Giraldiella montana* Dammer; *Lloydia montana* (Dammer) P. C. Kuo; *L. tibetica* var. *lutescens* Franchet.

Plants 10–30 cm tall. Bulb 2.5–3.5 cm × 6–9 mm. Basal leaves 3–10, narrowly strap-shaped, usually shorter than stem, 1.5–3 mm wide; cauline leaves 2 or 3, narrowly linear, 1.5–2.5 cm × 1–2 mm, margin occasionally minutely ciliate. Inflorescence 1–5-flowered; bracts narrowly linear, 6–10 mm. Tepals yellow, purplish green veined, usually villous at base adaxially; outer tepals suboblong, 1.3–2 cm × 4–6 mm; inner ones obovate-elliptic, 1.3–2 cm × 6–8 mm, with 1–4 crested lamellae near base adaxially. Stamens 7–10 mm; filaments densely villous except apically. Ovary ovoid, 3–4(–5) mm. Style 4–6(–8) mm; stigma slightly 3-lobed. Fl. May–Jul.

Shady slopes, grasslands; 2300–4100 m. Gansu, Hebei, Hubei, Shaanxi, Shanxi, Sichuan, Xizang [Nepal].

**6. *Lloydia delavayi*** Franchet, J. Bot. (Morot) 12: 193. 1898.

黄洼瓣花 huang wa ban hua

Plants 15–25 cm tall. Bulb 2–3 cm × 5–8 mm. Basal leaves 3–9, narrowly strap-shaped, usually shorter than stem, 1.5–3 mm wide; cauline leaves several, 1–2.5 cm × 1–2 mm. Inflorescence 1–4-flowered; bracts 5–9 mm. Tepals yellow, purplish green veined, generally villous or rarely slightly hairy at or near base adaxially; outer tepals suboblong, 1.4–1.8 cm × 4–6 mm; inner ones obovate-elliptic, 1.4–1.8 cm × 6–8 mm. Stamens ca. 1/2 as long as tepals; filaments densely villous except apically. Ovary ovoid, 3–4 mm. Style 4–10 mm; stigma slightly 3-lobed. Fl. Jul–Aug.

Rocky slopes, grasslands; 2700–3900 m. Yunnan [Myanmar].

**7. *Lloydia flavonutans*** H. Hara, J. Jap. Bot. 49: 202. 1974.

平滑洼瓣花 ping hua wa ban hua

Plants 10–25 cm tall. Bulb 1.5–2.5 cm × 6–7 mm. Basal leaves 3–8, narrowly strap-shaped, usually shorter than stem, 1.5–2.5 mm wide; cauline leaves several, 1–2 cm × 1–2 mm. Inflorescence 1–4-flowered; bracts 0.6–1.5 cm. Tepals yellow, purplish green veined, 1.4–1.9 cm, glabrous; outer tepals suboblong, 4–6 mm wide, inner ones obovate-elliptic, 6–8 mm wide. Stamens 0.9–1.2 cm; filaments densely villous except apically. Ovary ovoid, 3–4 mm. Style 4–6 mm, stigma slightly 3-lobed. Fl. May–Jul.

Thickets, meadows; 4000–5000 m. S Xizang [Bhutan, Nepal, Sikkim].

**8. *Lloydia ixiolirioides*** Baker ex Oliver, Hooker's Icon. Pl. 23: t. 2215. 1892.

紫斑洼瓣花 zi ban wa ban hua

*Lloydia tibetica* Baker ex Oliver var. *purpurascens* Franchet.

Plants 15–30 cm tall. Bulb 2–3 cm × 5–7 mm. Basal leaves usually 4–8, narrowly linear, shorter than stem, 1–2(–5) mm wide; cauline leaves 2 or 3, 2–3.5 cm × 1–2 mm, margin usually white pubescent-ciliate especially near base. Inflorescence 1- or 2-flowered; bracts 6–12 mm, margin white ciliate.

Tepals white, mottled with purple proximally, obovate-elliptic, 1.5–2 cm × 5–6 mm, with several lines of hairs near base adaxially. Stamens 7–9 mm; filaments densely villous. Ovary oblong, 3–4 mm. Style 3–4 mm. Capsule narrowly oblong, 1.5–2 cm × ca. 4 mm. Seeds narrowly ovate-linear, ca. 2.5 mm, longitudinally 3-angled. Fl. Jun–Jul, fr. Aug.

- Shady slopes, grasslands; 3000–4300 m. Sichuan, Xizang, Yunnan.

The Himalayan species *Lloydia longiscapa* Hooker was recorded from NW Yunnan by Handel-Mazzetti (Symb. Sin. 7: 1202. 1936, based on *Handel-Mazzetti 6700*) and later stated to occur in W China, including S Xizang, by Hara (in Ohashi, Bull. Univ. Mus. Univ. Tokyo 8: 133. 1975). It is closely related to *L. ixiolirioides*, but differs in having glabrous tepals. None of the many specimens examined for this treatment belongs to *L. longiscapa*; therefore, the species is excluded until its presence in China can be confirmed.

