

**20. LILIUM** Linnaeus, Sp. Pl. 1: 302. 1753.

百合属 bai he shu

Liang Songyun (梁松筠 Liang Song-jun); Minoru N. Tamura

Herbs perennial, bulbiferous. Bulb of many imbricate, fleshy scales, without tunic. Stem erect, leafy. Leaves alternate, rarely whorled, sessile or subsessile, usually linear to linear-lanceolate. Bulblets sometimes present in leaf axils. Inflorescence terminal, a raceme or solitary flower, very rarely an umbel or corymb; bracts leaflike. Flowers often funnelform or campanulate, sometimes tubular or cupular. Tepals 6, free, usually connivent, sometimes strongly recurved or revolute, white, yellow, greenish, or reddish to purplish, nectariferous near base adaxially; nectaries usually narrowly grooved, sometimes fringed with papillae or hairs, rarely flat on outer tepals. Stamens 6; filaments subulate or filiform, sometimes pubescent; anthers dorsifixed, versatile. Ovary 3-loculed; ovules many per locule. Style elongate, slender; stigma swollen, usually 3-lobed. Fruit a loculicidal capsule. Seeds many, arranged like a pile of coins in each valve, flat, narrowly winged all round.

About 115 species: temperate and alpine regions of the N hemisphere, especially in E Asia; 55 species (35 endemic, one introduced) in China.

The status of *Lilium puerense* Y. Y. Qian (Guihaia 11: 125. 1991) and *L. rockii* R. H. Miao (Acta Scient. Nat. Univ. Sunyatseni 34(3): 81. 1995) is unclear. *Lilium puerense* was described from S Yunnan (Pu'er Xian), based on specimens collected in 1987 (holotype: Y. Y. Qian 1774, SMAO). It is said to be similar to *L. sulphureum*, but with leaf margin papillose, bracts ovate, and ovary greenish (vs. purple). *Lilium rockii* was described from Yunnan, based on a single specimen collected in 1932 (*J. F. Rock* 25129, SYS). It is said to be close to *L. concolor*; but with stem, leaf margin, and leaf veins on both surfaces shortly hirsute (vs. papillose), flowers larger, tepals yellowish (vs. deep red), and style longer (vs. shorter) than ovary. *Lilium pyi* is also an unclear species, of which no specimens were seen by the present authors. It is briefly described at the end of this account (no. 55), but could not be included in the key because insufficient details are known. *Lilium apertum* and *L. saluenense* are temporarily treated as *Nomocharis aperta* and *N. saluenensis*, respectively. At present, *Nomocharis* consists of six species. However, further studies are needed to clarify whether *Nomocharis* should be regarded as an independent genus or included within *Lilium*.

- 1a. Leaves whorled.
  - 2a. Flowers campanulate; stamens converging.
    - 3a. Tepals purple, narrowly elliptic or rarely narrowly ovate, 25–35 × 10–14 mm ..... 6. *L. paradoxum*
    - 3b. Tepals yellow, elliptic, 50–60 × 20–24 mm ..... 7. *L. medogense*
  - 2b. Flowers not campanulate, tepals spreading, recurved, or revolute; stamens diverging.
    - 4a. Flowers erect; tepals spreading or slightly recurved ..... 3. *L. tsingtauense*
    - 4b. Flowers nodding to horizontal; tepals revolute.
      - 5a. Nectaries papillose on both surfaces.
        - 6a. Bulb scales not articulate; tepals purple-red, with deeply colored spots ..... 2. *L. martagon*
        - 6b. Bulb scales articulate; tepals pale orange-red, with purple-red spots ..... 4. *L. distichum*
      - 5b. Nectaries not papillose.
        - 7a. Bulb scales articulate; tepals apricot-colored to scarlet, with black spots, scarcely thickened ..... 5. *L. medeoloides*
        - 7b. Bulb scales not articulate; tepals yellow or red-orange, with brown spots, thickened ..... 1. *L. hansonii*
- 1b. Leaves alternate.
  - 8a. Flowers funnelform or campanulate; stamens distally curved upward or converging.
    - 9a. Flowers horizontally spreading or nodding, funnelform; tepals white, unspotted; stamens curved upward distally.
      - 10a. Nectaries papillose on both surfaces; leaf axils without bulblets.
        - 11a. Bracts lanceolate, not curved apically; style glabrous ..... 45. *L. brownii*
        - 11b. Bracts linear-lanceolate, curved apically; style densely pubescent proximally ..... 46. *L. anhuiense*
      - 10b. Nectaries not papillose; leaf axils sometimes with bulblets in distal part of stem.
        - 12a. Leaf axils in distal part of stem with bulblets.
          - 13a. Filaments glabrous; bulblets brown ..... 52. *L. sulphureum*
          - 13b. Filaments densely pubescent proximally; bulblets green ..... 53. *L. sargentiae*
        - 12b. Leaf axils without bulblets.
          - 14a. Bulb scales articulate ..... 47. *L. wenshanense*
          - 14b. Bulb scales not articulate.
            - 15a. Leaves linear, 2–7 mm wide.
              - 16a. Leaves 2–3 mm wide, papillose at margin and on midvein abaxially ..... 48. *L. regale*
              - 16b. Leaves 4–13 mm wide, smooth at margin and on midvein abaxially ..... 49. *L. formosanum*
            - 15b. Leaves lanceolate or oblong-lanceolate, 6–18 mm wide.
              - 17a. Filaments glabrous ..... 50. *L. longiflorum*
              - 17b. Filaments pubescent ..... 51. *L. leucanthum*
    - 9b. Flowers campanulate, spotted or unspotted; stamens converging.
      - 18a. Nectaries of inner tepals papillose or with fimbriate projections on both surfaces.

- 19a. Nectaries of inner tepals papillose on both surfaces; flowers erect.  
 20a. Leaves not white woolly basally; stem papillose; style slightly shorter than ovary; tepals 2–6 cm ..... 11. *L. concolor*  
 20b. Leaves with a cluster of white woolly hairs basally; stem smooth; style more than 2 × as long as ovary; tepals 7–9 cm ..... 12. *L. dauricum*
- 19b. Nectaries of inner tepals with fimbriate projections on both surfaces; flowers nodding or horizontal.  
 21a. Tepals yellow, pale yellow, or greenish yellow, lanceolate or ovate-lanceolate ..... 8. *L. lophophorum*  
 21b. Tepals pale purple, purple-red, or yellow, rarely white, often spotted purplish, elliptic or ovate-elliptic.  
 22a. Style 4–6 mm; bulb scales white ..... 9. *L. nanum*  
 22b. Style ca. 1 mm; bulb scales purple ..... 10. *L. brevistylum*
- 18b. Nectaries of inner tepals neither papillose nor with fimbriate projections.  
 23a. Leaves 12–15 cm; flowers usually 5 or 6; tepals white, with a dark purple-red blotch at base adaxially ..... 13. *L. henrici*  
 23b. Leaves 2.5–8 cm; flowers usually 3 or 4; tepals variable in color, without a dark purple-red blotch at base adaxially.  
 24a. Stem papillose.  
 25a. Leaves papillose at margin and on midvein abaxially; flowers 6.5–8.3 × 5.5–6 cm ..... 14. *L. bakerianum*  
 25b. Leaves smooth; flowers 3.5–4 × 3–3.5 cm.  
 26a. Tepals white, with purple-red speckles basally ..... 15. *L. sempervivoideum*  
 26b. Tepals purple-red or rose purple, with red spots ..... 16. *L. amoenum*
- 24b. Stem smooth.  
 27a. Leaves narrowly linear or subulate, 1–2(–3) mm wide ..... 17. *L. pinifolium*  
 27b. Leaves ovate-lanceolate, narrowly elliptic, or lanceolate, 6–24 mm wide.  
 28a. Leaves 7–8 × 1.6–2.4 cm; tepals pale red ..... 20. *L. huidongense*  
 28b. Leaves 2–6 × 0.6–1.5 cm; tepals purple-red.  
 29a. Tepals adaxially not speckled, basally not saccate ..... 18. *L. souliei*  
 29b. Tepals adaxially speckled, basally saccate ..... 19. *L. saccatum*
- 8b. Flowers neither funnelform nor campanulate (slightly funnelform in *L. nepalense*); tepals revolute or not; stamens diverging apically.  
 30a. Nectaries not papillose, sometimes with fimbriate projections.  
 31a. Leaves shortly petiolate; nectaries with fimbriate projections on both surfaces.  
 32a. Leaves similar in shape; tepals white, with purple-red blotches and spots on proximal 1/3–1/2, margin undulate ..... 21. *L. speciosum*  
 32b. Leaves conspicuously dimorphic; tepals yellow or orange, margin entire.  
 33a. Leaves oblong-lanceolate, 20–27 mm wide; capsule brown, oblong, 4–4.5 × ca. 3.5 cm ..... 22. *L. henryi*  
 33b. Leaves linear-lanceolate, 8–10 mm wide; capsule brownish green, narrowly oblong, 5.5–6.5 × 1.4–1.8 cm ..... 23. *L. rosthornii*
- 31b. Leaves sessile; nectaries without fimbriate projections.  
 34a. Tepals primrose yellow, greenish yellow, or pale yellow, rarely yellowish white or orange-yellow, unspotted.  
 35a. Leaves lanceolate, 3-veined ..... 24. *L. primulinum*  
 35b. Leaves oblong-lanceolate, 5-veined ..... 25. *L. nepalense*
- 34b. Tepals white, pale purple-red, pink, or greenish yellow, with purple-red spots.  
 36a. Tepals pale purple-red or pink; style at least 3 × as long as ovary; leaves narrowly lanceolate, with 3 impressed veins adaxially ..... 26. *L. wardii*  
 36b. Tepals equaling or slightly longer than ovary; leaves linear or linear-lanceolate, without 3 impressed veins adaxially.  
 37a. Flower solitary.  
 38a. Tepals white, tinged pale brown ..... 27. *L. matangense*  
 38b. Tepals greenish or greenish yellow.  
 39a. Tepals greenish yellow, with deep red spots; filaments much longer than anthers ..... 28. *L. stewartianum*  
 39b. Tepals greenish, with purple spots throughout; filaments slightly shorter than anthers ..... 29. *L. habaense*
- 37b. Flowers 2–5(–13) in a raceme.  
 40a. Leaves narrowly oblong or ovate-lanceolate, 5–11 × 1.5–3 cm ..... 32. *L. lijiangense*  
 40b. Leaves linear, linear-lanceolate, or lanceolate, 5–10 × 0.8–1.5 cm.  
 41a. Tepals white, with purple spots; style subequaling or slightly longer than ovary ..... 30. *L. taliense*  
 41b. Tepals white or yellow, purple at base and with purple spots apically; style ca. 2 × as long as ovary ..... 31. *L. jinfushanense*
- 30b. Nectaries papillose on both surfaces.  
 42a. Leaf axils in distal part of stem with bulblets ..... 44. *L. tigrinum*  
 42b. Leaf axils without bulblets.  
 43a. Leaves narrowly lanceolate to oblong.

- 44a. Tepals red, with black or purple spots and fimbriate projections.  
 45a. Plants white hispidulous ..... 35. *L. amabile*  
 45b. Plants not white hispidulous, white woolly when young ..... 36. *L. leichtlinii*  
 44b. Tepals white or pink, with purple spots, without fimbriate projections.  
 46a. Leaf axils with a cluster of white hairs; leaf veins not elevated abaxially; tepals white, with purple-red spots ..... 33. *L. duchartrei*  
 46b. Leaf axils without hairs; leaf veins elevated abaxially; tepals pink, with deep red spots ..... 34. *L. lankongense*  
 43b. Leaves linear.  
 47a. Nectaries papillose and crested on both surfaces.  
 48a. Bulb yellow, 4.5 × 4–5 cm ..... 43. *L. xanthellum*  
 48b. Bulb white, 2–3 × 1.5–2.5 cm  
 49a. Tepals purple-red to reddish brown, unspotted ..... 41. *L. papilliferum*  
 49b. Tepals greenish white, with purple or purple-brown spots ..... 42. *L. fargesii*  
 47b. Nectaries only papillose on both surfaces, not crested.  
 50a. Bracts thickened apically ..... 40. *L. callosum*  
 50b. Bracts not thickened apically.  
 51a. Tepals bright red or white, usually unspotted, occasionally with a few spots near base.  
 52a. Tepals bright red, not minutely papillose adaxially ..... 37. *L. pumilum*  
 52b. Tepals white, minutely papillose adaxially ..... 54. *L. tianschanicum*  
 51b. Tepals pale purple-red or orange, darker purple spotted proximally.  
 53a. Stem densely papillose; tepals orange, 5–6 cm ..... 38. *L. davidii*  
 53b. Stem not papillose; tepals pale purple-red, 3.5–4.5 cm ..... 39. *L. cernuum*

**1. *Lilium hansonii*** Leichtlin ex D. T. Moore, Moore's Rural New Yorker 24: 60. 1871.

竹叶百合 zhu ye bai he

*Lilium medeoloides* A. Gray var. *obovata* Franchet & Savatier.

Bulb ovoid-globose or subglobose, 3–7 cm in diam.; scales white to yellowish white, ovate to subdeltoid, not articulate. Stem 1–1.5 m. Leaves 4–12-whorled plus a few scattered between apical whorl and basal bract, oblong-ob lanceolate, 10–18 × 2–4 cm, apex acuminate. Flowers 4–12 in a raceme, nodding, fragrant. Tepals revolute, yellow or red-orange, with brown spots, lanceolate or oblanceolate, 3–4 cm × 1–1.5 cm, very thick, apex thickened and papillose; nectaries not papillose. Stamens shorter than tepals; filaments glabrous; anthers purplish. Ovary 1–2 cm. Capsule subglobose, 2.5–3.5 cm in diam., 6-winged. Fl. and fr. Jul–Aug.  $2n = 24$ .

Possibly naturalized on river banks. S Jilin [native to Korea (Ullung Island)].

*Lilium hansonii*, *L. distichum*, and *L. medeoloides* seem to be related to one another, and grow allopatrically.

*Lilium hansonii* is grown as an ornamental.

**2. *Lilium martagon*** Linnaeus var. ***pilosiusculum*** Freyn, Oesterr. Bot. Z. 40: 224. 1890.

新疆百合 xin jiang bai he

*Lilium martagon* subsp. *pilosiusculum* (Freyn) E. Pritzel; *L. pilosiusculum* (Freyn) Misczenko.

Bulb broadly ovoid, ca. 5 mm in diam.; scales oblong, 2–2.5 cm × 8–10 mm, apex acute, not articulate. Stem with purple streaks, 45–90 cm, glabrous. Leaves whorled, rarely scattered, lanceolate, 6.5–11 × 1–2 cm, abaxially sometimes with white hairs. Bracts 2–4 cm × 5–6 mm, with white hairs in axil, at mar-

gin, and abaxially. Flowers 2–7 in a raceme, nodding. Tepals purple-red, spotted, narrowly elliptic, 3.2–3.8 cm × 8–9 mm, abaxially with white, curly, long hairs; nectaries papillose on both surfaces. Filaments 2.2–2.4 cm; anthers ca. 9 mm. Ovary 8–9 × 2–3 mm. Style ca. 1.5 cm. Capsule obovoid-oblong, 2–2.8 cm. Fl. Jun–Jul, fr. Aug.

Forests, thickets, shady slopes; 200–2500 m. N Xinjiang [Mongolia, Russia].

Rudolf Kamelin (pers. comm.) believes that *Lilium martagon* var. *martagon*, which differs in having glabrous tepals, also occurs in China. Its distribution extends westward to Europe.

**3. *Lilium tsingtauense*** Gilg., Bot. Jahrb. Syst. 34 (Beibl. 75): 24. 1904.

青岛百合 qing dao bai he

*Lilium miquelianum* Makino.

Bulb subglobose, 2.5–4 cm in diam.; scales white, lanceolate, 2–2.5 cm × 6–8 mm, not articulate. Stem 40–85 cm, not papillose. Leaves in 1 or 2 whorls of 5–14 plus a few scattered, shortly petiolate, oblong-ob lanceolate to narrowly elliptic, 10–15 × 2–4 cm, glabrous. Bracts 4–5.5 × 0.8–1.5 cm. Flowers solitary or 2–7 in a raceme, erect. Tepals orange or vermilion, with purple-red spots, narrowly elliptic, 4.8–5.2 × 1.2–1.4 cm; nectaries not papillose. Filaments ca. 3 cm, glabrous; anthers orange. Ovary 0.8–1.2 cm × 3–4 mm. Style ca. 2 × as long as ovary. Fl. Jun, fr. Aug.  $2n = 24^*$ .

Sunny forested slopes, bushy and grassy places; 100–400 m. Anhui, Shandong [Korea].

**4. *Lilium distichum*** Nakai ex Kamibayashi, Chosen Yuri Dzukai, t. 7. 1915.

东北百合 dong bei bai he

Bulb ovoid, (2.5–)3.5–4 cm in diam.; scales white, lan-

ceolate, 1.5–2 cm × 4–6 mm, articulate. Stem 60–120 cm, papillose. Leaves in a whorl of 7–9(–20) near middle of stem plus a few scattered, obovate-oblong-lanceolate, (5–)8–15 × (1–)2–4 cm, glabrous. Bracts 2–2.5 cm × 3–6 mm. Flowers (1 or)2–12 in a raceme, nodding to horizontal. Tepals slightly revolute, pale vermilion, with purple-red spots, ovate-lanceolate, 3.5–4.5 cm × 6–13 mm; nectaries not papillose. Stamens shorter than tepals; filaments 2–2.5 cm, glabrous; anthers to 1 cm. Ovary 8–9 × 2–3 mm. Style ca. 2 × as long as ovary. Capsule obovoid, ca. 2 × 1.5 cm. Fl. Jul–Aug, fr. Sep. 2n = 24\*.

Forested slopes, forest margins, hillsides along streams; 200–1800 m. Heilongjiang, Jilin, Liaoning [Korea, Russia (Primorskiy Krai)].

**5. *Lilium medeoloides*** A. Gray, Mem. Amer. Acad. Arts, ser. 2, 6: 415. 1858.

浙江百合 zhe jiang bai he

*Lilium avenaceum* Fischer ex Regel.

Bulb subglobose, 2–2.5 cm in diam.; scales white, oblong-lanceolate, 1–2 cm × 3–4 mm, articulate. Stem 30–75(–100) cm, smooth, rarely slightly papillose proximally. Leaves usually in a whorl of 7–12(–20) plus a few scattered, lanceolate-oblong, lanceolate, or oblanceolate, 5–12(–17) × 1.5–4 cm, glabrous, rarely slightly scabrous at margin, apex acute to acuminate. Flowers solitary or 2–4(–10) in an umbel or raceme, nodding, rarely to ascending, not fragrant. Tepals strongly revolute, apricot-colored to bright red, with black spots, lanceolate, (3–)3.5–4(–4.5) cm × 5–10 mm, rather thick, apex papillose; nectaries not papillose. Stamens shorter than tepals; filaments glabrous; anthers ca. 1 cm. Ovary ca. 1 cm. Style sometimes thickened toward apex. Capsule obovoid, 1.5–2 cm, 3-ribbed. Fl. Jul–Aug. 2n = 24\*.

Forests, subalpine grasslands, limestone and serpentine areas. Zhejiang [Japan, Korea (Cheju Island), Russia (Kamchatka, Kurile Islands, Sakhalin)].

**6. *Lilium paradoxum*** Stearn, Bull. Brit. Mus. (Nat. Hist.), Bot. 2: 78. 1956.

藏百合 zang bai he

Bulb subglobose, 1–2.5 cm in diam.; scales ovate, ca. 2.5 cm × 8 mm, not articulate. Stem 20–45 cm, papillose. Leaves whorled plus sometimes a few scattered, obovate-oblong-lanceolate or elliptic, 4.5–5.5 × 1.8–2 cm, glabrous, 5–7-veined. Flower solitary, campanulate. Tepals spreading, purple, unspotted, narrowly elliptic or rarely narrowly ovate, 2.5–3.5 cm × 1–1.4 cm; nectaries not papillose. Stamens shorter than tepals; filaments ca. 1.6 cm, glabrous; anthers linear, 6–8 mm. Ovary purple, 6–8 mm. Style ca. 1.7 cm. Fl. Jul.

• Among bushes, grassy slopes, rocky places; 3200–3900 m. SE Xizang.

**7. *Lilium medogensense*** S. Yun Liang, Acta Phytotax. Sin. 23: 392. 1985.

墨脱百合 mo tuo bai he

Bulb subglobose, ca. 2.2 cm in diam.; scales purple-red, lanceolate, 1.7–2.2 cm × ca. 6 mm. Stem 35–50 cm, papillose. Leaves 5–8-whorled plus a few scattered, obovate-oblong-lanceolate or elliptic, 4.5–6 × 1.7–2.2 cm. Flowers 1–3, campanulate. Tepals yellow, dark purple at base adaxially, unspotted, elliptic, 5–6 × 2–2.4 cm, smooth. Stamens much shorter than tepals; filaments ca. 2.5 cm, glabrous; anthers oblong, ca. 1.3 cm × 2 mm. Ovary ca. 1.4 cm × 3 mm. Style ca. 2.5 cm; stigma capitate, ca. 8 mm in diam. Fl. Jun.

• Rocky openings in *Abies* forests. SE Xizang (Mêdog Xian).

**8. *Lilium lophophorum*** (Bureau & Franchet) Franchet, J. Bot. (Morot) 12: 221. 1898.

尖被百合 jian bei bai he

Bulb subovoid, 1.5–3.5 cm in diam.; scales rather lax, white, lanceolate, 3.5–4 cm × 6–7 mm. Stem 10–45 cm. Leaves highly variable, clustered to scattered, linear, narrowly lanceolate, lanceolate, or oblong-lanceolate, 5–12 × 0.3–2 cm, margin papillose. Bracts 5–13 cm × 3–10 mm. Flowers usually solitary, occasionally 2 or 3, nodding. Tepals yellow, pale yellow, or pale yellowish green, with purple-red spots or unspotted, lanceolate or narrowly ovate-lanceolate, 4.5–5.7 × 0.9–1.6 cm; inner ones with fimbriate projections on both surfaces of nectaries. Stamens converging, 1.5–2 cm; filaments glabrous; anthers 7–10 mm. Ovary 1–1.2 cm × 3–4 mm. Style ca. 1 cm. Capsule 2–3 × 1.5–2 cm. Fl. Jun–Jul, fr. Aug–Sep.

• Forests, bushy slopes, alpine grasslands; 2500–4500 m. Sichuan, Xizang, Yunnan.

- 1a. Leaves narrowly lanceolate, lanceolate, or oblong-lanceolate; tepals with extremely sparse, purple-red spots or unspotted ..... 8a. var. *lophophorum*
- 1b. Leaves linear; tepals with obvious, purple-red spots ..... 8b. var. *linearifolium*

**8a. *Lilium lophophorum* var. *lophophorum***

尖被百合(原变种) jian bei bai he (yuan bian zhong)

*Fritillaria lophophora* Bureau & Franchet, J. Bot. (Morot) 5: 153. 1891; *Lilium lophophorum* f. *latifolium* Sealy; *L. lophophorum* f. *wardii* (I. B. Balfour) Sealy; *Nomocharis lophophora* (Bureau & Franchet) W. E. Evans; *N. lophophora* var. *wardii* (I. B. Balfour) W. W. Smith & W. E. Evans; *N. wardii* I. B. Balfour.

Leaves narrowly lanceolate, lanceolate, or oblong-lanceolate. Tepals yellow to pale yellowish green, with extremely sparse, purple-red spots or unspotted.

• Forests, bushy slopes, alpine grasslands; 2500–4500 m. Sichuan, Xizang, Yunnan.

**8b. *Lilium lophophorum* var. *linearifolium*** (Sealy) S. Yun Liang in F. T. Wang & Tang, Fl. Reipubl. Popularis Sin. 14: 129. 1980.

线叶百合 xian ye bai he

*Lilium lophophorum* subsp. *linearifolium* Sealy, Kew Bull. 5: 294. 1950.

Leaves linear. Tepals yellow, with obvious, purple-red spots.

• Alpine grasslands; 3500–4000 m. NW Yunnan (Lijiang Naxi Zu Zizhixian).

**9. *Lilium nanum*** Klotzsch in Klotzsch & Garcke, Bot. Ergebn. Reise Waldemar, 53. 1862.

小百合 xiao bai he

Bulb oblong, 1.5–2.3 cm in diam.; scales white, lanceolate, 2–2.5 cm × 5–8 mm. Stem 10–30 cm. Leaves scattered, linear, 6–11 × 4–8.5 cm. Flower solitary, nodding, campanulate. Tepals pale purple, purplish red, or yellow, rarely white, usually with deep purple spots adaxially; outer ones elliptic, 2.5–2.7 × 1–1.2 cm; inner ones slightly wider than outer; nectaries with fimbriate projections on both surfaces. Stamens converging; filaments 1–12 mm, glabrous; anthers ca. 6 mm. Ovary ca. 1 cm × 3–6 mm. Style 4–6 mm; stigma 3–4 mm in diam. Capsule yellow, tinged purple on ribs, 2.8–3.5 × 2–2.5 cm. Fl. Jun, fr. Sep.

Forest margins, thickets, grassy slopes, alpine grasslands; 3500–4500 m. Sichuan, Xizang, Yunnan [Bhutan, Myanmar, Nepal, Sikkim].

- 1a. Tepals pale purple or purplish red, rarely white, with deep purple spots adaxially ..... 9a. var. *nanum*
- 1b. Tepals yellow, unspotted ..... 9b. var. *flavidum*

**9a. *Lilium nanum* var. *nanum***

小百合(原变种) xiao bai he (yuan bian zhong)

*Nomocharis nana* (Klotzsch) E. H. Wilson.

Tepals pale purple or purplish red, rarely white, with deep purple spots adaxially.  $2n = 48$ .

Forest margins, thickets, grassy slopes; 3500–4500 m. Sichuan, Xizang, Yunnan [Bhutan, Myanmar, Nepal, Sikkim].

**9b. *Lilium nanum* var. *flavidum*** (Rendle) Sealy, Bot. Mag. 169: t. 218. 1952.

黄斑百合 huang ban bai he

*Fritillaria flavida* Rendle, J. Bot. 44: 45. 1906; *Lilium euxanthum* (W. W. Smith & W. E. Evans) Sealy; *L. nanum* f. *flavidum* (Rendle) H. Hara; *Nomocharis euxantha* W. W. Smith & W. E. Evans.

Tepals yellow, unspotted.

Forest margins, alpine grasslands; 3800–4300 m. SE Xizang, Yunnan [N Myanmar, Sikkim].

Henry Noltie (pers. comm.) considers *Lilium euxanthum* (from SE Xizang and Yunnan) to be distinct from *L. nanum* var. *flavidum* (from S Xizang (Chumbi valley), N Myanmar, and Sikkim). The former has oblong leaves, which do not overtop the flower, and golden yellow tepals; the latter has linear, finely tapering leaves, which overtop the flower, and pale lemon-colored tepals.

**10. *Lilium brevistylum*** (S. Yun Liang) S. Yun Liang in F. T. Wang et al., Acta Bot. Yunnan. 8: 52. 1986.

短柱小百合 duan zhu xiao bai he

*Lilium nanum* Klotzsch var. *brevistylum* S. Yun Liang in F. T. Wang & Tang, Fl. Reipubl. Popularis Sin. 14: 283. 1980.

Bulb oblong, 1.5–2 cm in diam.; scales purple, lanceolate, 2–3 cm × 5–7 mm. Stem 20–35 cm, glabrous. Leaves scattered,

linear or narrowly lanceolate, 3–5 cm × 2–5 mm. Flower solitary, nodding, campanulate. Tepals yellow, tinged pale purplish and with purple spots adaxially; outer ones elliptic-lanceolate, 2–2.2 cm × 5–8 mm; inner ones somewhat wider; nectaries with fimbriate projections on both surfaces. Stamens converging apically; filaments 8–10 mm, glabrous; anthers 4–5 mm. Ovary ca. 1 cm × 4 mm. Style very short, ca. 1 mm. Fl. Jun.

• Forest margins; ca. 4300 m. SE Xizang (Zayü Xian).

**11. *Lilium concolor*** Salisbury, Parad. Lond. 1: t. 47. 1806.

渥丹 wo dan

Bulb ovoid, (1.5–)2–3.5 cm in diam.; scales white, ovate or ovate-lanceolate, 2–2.5(–3.5) × 1–1.5(–3) cm. Stem occasionally tinged purple near base, 30–50(–80) cm, papillose, rooting near bulb. Leaves scattered, sessile, linear, (2–)3–7(–10) cm × 2–10 mm, veins and margin papillose, apex acute. Flowers 1–5 in a subumbel or raceme, erect. Tepals stellately spreading, deep red, spotted or unspotted, oblong-lanceolate to oblanceolate, 2.2–5.2 cm × 4–14 mm; nectaries papillose on both surfaces. Stamens converging; filaments 1.8–2 cm, glabrous; anthers ca. 7 mm. Ovary 1–1.2 cm × 2–3 mm. Style 7–9 mm. Capsule oblong, (1.5–)3–3.5 × ca. 2.2 cm. Fl. May–Jul, fr. Aug–Sep.

Moist places in forests, thickets, moist meadows, grassy slopes, hillsides, sunny grasslands; 300–2200 m. Hebei, Heilongjiang, Henan, Hubei, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Yunnan [Japan, Korea, Mongolia, Russia (Far East, E Siberia)].

- 1a. Tepals unspotted ..... 11a. var. *concolor*
- 1b. Tepals spotted.
  - 2a. Tepals (25–)28–35(–40) × (5–)6–9 (–10) mm ..... 11b. var. *pulchellum*
  - 2b. Tepals 50–52 × 8–14 mm ..... 11c. var. *megalanthum*

**11a. *Lilium concolor* var. *concolor***

渥丹(原变种) wo dan (yuan bian zhong)

*Lilium concolor* var. *sinicum* (Lindley & Paxton) J. D. Hooker; *L. concolor* var. *uniflorum* Spae; *L. mairei* H. Léveillé; *L. sinicum* Lindley & Paxton.

Leaves 3.5–7 cm × 3–6 mm. Tepals unspotted, 2.2–4 cm × 4–7 mm.  $2n = 24^*$ .

• Thickets, grassy slopes, hillsides; 300–2000 m. Hebei, Henan, Hubei, Jilin, Shaanxi, Shandong, Shanxi, Yunnan.

The bulbs are medicinal and edible.

**11b. *Lilium concolor* var. *pulchellum*** (Fischer) Regel, Gartenflora 25: 354. 1876.

有斑百合 you ban bai he

*Lilium pulchellum* Fischer in Fischer et al., Index Sem. Hort. Petrop. 6: 56. 1840; *L. buschianum* Loddiges; *L. concolor* var. *buschianum* (Loddiges) Baker.

Leaves (2–)3–4.5(–7) cm × 2–3(–6) mm. Tepals spotted, (2.5–)2.8–3.5(–4) cm × (5–)6–9(–10) mm.  $2n = 24$ .

Moist places in forests, sunny grasslands; 600–2200 m. Hebei,

Heilongjiang, Jilin, Liaoning, Nei Mongol, Shandong, Shanxi [Japan, Korea, Mongolia, Russia (Far East, E Siberia)].

**11c. *Lilium concolor* var. *megalanthum*** F. T. Wang & Tang, Fl. Reipubl. Popularis Sin. 14: 283. 1980.

大花百合 da hua bai he

*Lilium megalanthum* (F. T. Wang & Tang) Q. S. Sun.

Leaves 5–8.5 cm × 5–10 mm. Tepals with purple spots, 5–5.2 × 0.8–1.4 cm.

- Moist meadows; ca. 500 m. Jilin.

**12. *Lilium dauricum*** Ker Gawler, Bot. Mag. 30: t. 1210. 1809.

毛百合 mao bai he

*Lilium maculatum* Thunberg subsp. *dauricum* (Ker Gawler) H. Hara; *L. pensylvanicum* Ker Gawler; *L. pseudodahuricum* M. Fedossejew & S. Fedossejew.

Bulb ovoid-globose, ca. 2 cm in diam.; scales white, broadly lanceolate, 1–1.4 cm × 5–6 mm, articulate or not. Stem (30–)50–70(–120) cm, not papillose. Leaves scattered plus 4 or 5 in a whorl at apex of stem, sessile, linear, rarely to lanceolate, 4–5 cm × 3–4(–25) mm, 3–5-veined, margin papillose, sometimes also sparsely white woolly, base with a cluster of white woolly hairs. Flowers 1 or 2(–6). Tepals vermilion or red, with purple-red spots, rarely with yellow claws; outer ones oblanceolate, (3–)7–9 × 1.5–2.3 cm, abaxially white woolly, sometimes glabrous; inner ones slightly narrower; nectaries deep purple papillose on both surfaces. Stamens converging; filaments ca. 5 cm; anthers ca. 1 cm. Ovary ca. 1.8 cm. Style ca. 4 cm. Capsule oblong, ca. 5 × 3 cm. Fl. Jun–Jul, fr. Aug–Sep.  $2n = 24^*$ .

Open forests, bushy slopes, hillsides, moist meadows; 400–1500 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol [Japan, Korea, Mongolia, Russia (Far East, E Siberia)].

**13. *Lilium henrici*** Franchet, J. Bot. (Morot) 12: 220. 1898.

墨江百合 mo jiang bai he

Bulb ovoid or subglobose, ca. 4 cm in diam.; scales lanceolate, 2.5–4 × 0.8–1.5 cm. Stem 60–120 cm. Leaves scattered, narrowly lanceolate, 12–15 × 0.9–1.4 cm, glabrous, 3-veined. Flowers usually 5 or 6 in a raceme, open campanulate. Tepals white, with an obvious, purple-red or deep purple-red blotch at base adaxially, sometimes also with purple-red speckles, suboblong-lanceolate, 3.5–5 × 1.2–1.4(–2) cm; nectaries green, not papillose. Stamens converging apically; filaments ca. 2 cm, glabrous; anthers ca. 1 cm. Ovary 0.9–1.3 cm × 2–3 mm. Style 1.5–2.2 cm. Fl. Jun–Jul.

- Mixed forests; ca. 2800 m. W Sichuan, NW Yunnan.

- 1a. Tepals with an obvious, deep purple-red blotch at base adaxially ..... 13a. var. *henrici*
- 1b. Inner tepals with a large, purple-red blotch at base adaxially and a few purple-red speckles, outer ones each with a purple-red blotch only ..... 13b. var. *maculatum*

**13a. *Lilium henrici* var. *henrici***

墨江百合(原变种) mo jiang bai he (yuan bian zhong)

*Lilium franchetianum* H. Léveillé; *Nomocharis henrici* (Franchet) E. H. Wilson.

Tepals with an obvious, deep purple-red blotch at base adaxially.

- Mixed forests; ca. 2800 m. W Sichuan, NW Yunnan.

**13b. *Lilium henrici* var. *maculatum*** (W. E. Evans) Woodcock & Stearn, Lilies World, 226. 1950.

斑块百合 ban kuai bai he

*Nomocharis henrici* (Franchet) E. H. Wilson f. *maculata* W. E. Evans, Notes Roy. Bot. Gard. Edinburgh 15: 194. 1926.

Inner tepals with a large, purple-red blotch at base adaxially and a few purple-red speckles; outer ones each with a purple-red blotch only.

- NW Yunnan.

**14. *Lilium bakerianum*** Collett & Hemsley, J. Linn. Soc., Bot. 28: 138. 1890.

滇百合 dian bai he

Bulb broadly ovoid to subglobose, ca. 2.5 cm in diam.; scales white, ovate or ovate-lanceolate, 2–2.2 cm × 7–10 mm. Stem 60–90 cm, papillose. Leaves scattered, linear or linear-lanceolate, 4–7.5 cm × 4–7 mm, papillose at margin and on midvein abaxially, sometimes white pubescent on both surfaces. Flowers 1–3, nodding or suberect, campanulate. Tepals white, greenish, yellow, pink, or purple, often with purple to red spots; outer ones lanceolate, 6.5–8.3 × 1.4–1.8 cm; inner ones slightly wider; nectaries not papillose. Stamens converging; filaments ca. 3 cm; anthers ca. 1.6 cm. Ovary 1.7–2 cm × 2–4 mm. Style 2.2–2.6 cm. Capsule oblong, ca. 3.5 × 2.5 cm. Fl. Jun–Sep, fr. Sep–Oct.

*Pinus* forests, forested and grassy slopes, forest and thicket margins, grasslands, hillsides along streams; 1500–3800 m. Guizhou, Sichuan, Yunnan [Myanmar].

- 1a. Leaves white pubescent on both surfaces ..... 14e. var. *yunnanense*
- 1b. Leaves glabrous.
  - 2a. Tepals white ..... 14a. var. *bakerianum*
  - 2b. Tepals not white.
    - 3a. Tepals purple-red to pink ..... 14d. var. *rubrum*
    - 3b. Tepals pale yellow, yellow, brownish yellow, purplish yellow, yellowish green, or greenish.
      - 4a. Tepals pale yellow, yellow, brownish yellow, or purplish yellow, with purple or purple-red spots adaxially ..... 14b. var. *aureum*
      - 4b. Tepals yellowish green, pale yellow-green, greenish, or pale green, with purple or bright red spots adaxially ..... 14c. var. *delavayi*

**14a. *Lilium bakerianum* var. *bakerianum***

滇百合(原变种) dian bai he (yuan bian zhong)

Leaves glabrous. Tepals white, with purple-red spots adaxially.

Forest margins; ca. 2800 m. W Sichuan, NW Yunnan [Myanmar].

**14b. *Lilium bakerianum* var. *aureum*** Grove & Cotton, Lily Year Book 8: 127. 1939.

金黄花滇百合 *jin huang hua dian bai he*

Leaves glabrous. Tepals pale yellow, yellow, brownish yellow, or purplish yellow, with purple or purple-red spots adaxially.

• Thicket margins, grassy slopes; 2000–2500 m. SW Sichuan, NW Yunnan.

**14c. *Lilium bakerianum* var. *delavayi*** (Franchet) E. H. Wilson, Lilies East. Asia 43. 1925.

黄绿花滇百合 *huang lu hua dian bai he*

*Lilium delavayi* Franchet, J. Bot. (Morot) 6: 314. 1892.

Leaves glabrous. Tepals yellowish green, pale yellow-green, greenish, or pale green, with purple or bright red spots adaxially.

Forested or grassy slopes; 2500–3800 m. Guizhou, Sichuan, Yunnan [Myanmar].

**14d. *Lilium bakerianum* var. *rubrum*** Stearn, Gard. Chron., ser. 3, 124: 4. 1948.

紫红花滇百合 *zi hong hua dian bai he*

*Lilium linceorum* H. Léveillé & Vaniot.

Leaves glabrous. Tepals purple-red or pink, with purple or red spots adaxially.

• Forest margins, hillsides along streams, grassy slopes; 1500–2000 m. Guizhou, Yunnan.

**14e. *Lilium bakerianum* var. *yunnanense*** (Franchet) Sealy ex Woodcock & Stearn, Lilies World, 151. 1950.

无斑滇百合 *wu ban dian bai he*

*Lilium yunnanense* Franchet, J. Bot. (Morot) 6: 314. 1892.

Leaves white pubescent on both surfaces. Tepals white or pale rose, unspotted.

• *Pinus* forests, grasslands; 2000–2800 m. SW Sichuan, NW Yunnan.

**15. *Lilium sempervivoideum*** H. Léveillé, Bull. Acad. Int. Géogr. Bot. 25: 38. 1915.

蒜头百合 *suan tou bai he*

*Lilium bakerianum* Collett & Hemsley subsp. *sempervivoideum* (H. Léveillé) McKean.

Bulb subglobose, 2.3–3 cm in diam.; scales lanceolate, 2.5–3 cm × 5–10 mm. Stem 20–30 cm, papillose. Leaves 16–30, scattered, linear, 2.5–5.5 cm × 2–4 mm, 1-veined. Flower solitary, campanulate. Tepals white with purple-red speckles; outer ones lanceolate, 3.5–4 cm × 5–10 mm; inner ones 1.2–1.5 cm wide; nectaries not papillose. Stamens converging; filaments 1.2–1.5 cm, glabrous; anthers 5.5–6.5 cm. Ovary purple-

black, ca. 8 × 1.5–2.5 mm. Style ca. 1.5 cm; stigma 3–4 mm in diam. Fl. Jun.

• Grassy slopes; 2400–2600 m. Sichuan, Yunnan.

**16. *Lilium amoenum*** E. H. Wilson ex Sealy, Bot. Mag. 166: t. 73. 1949.

玫红百合 *mei hong bai he*

*Lilium sempervivoideum* H. Léveillé subsp. *amoenum* (E. H. Wilson ex Sealy) S. Yun Liang.

Bulb ovoid, 2–22 cm in diam.; scales white, lanceolate, 1.5–1.8 cm × 6–8 mm. Stem 15–30 cm, papillose. Leaves 8–12, scattered, narrowly elliptic or narrowly oblong, 2.8–4.5 cm × 2–7 mm, 1-veined. Flower solitary, nodding, campanulate, fragrant. Tepals purple-red or rose purple, with deep red spots; outer ones lanceolate, 3–4 cm × 9–10 mm, slightly revolute apically; inner ones ovate-lanceolate or elliptic, 1.4–1.5 cm wide; nectaries green, not papillose. Stamens converging; filaments ca. 1.4 cm, glabrous; anthers 5–6.5 cm. Ovary ca. 8 × 2 mm. Style 1.2–1.6 cm; stigma ca. 3 mm in diam. Fl. Jun.  $2n = 24^*$ .

• Forested slopes, grassy places in thickets; 1800–3000 m. Yunnan.

**17. *Lilium pinifolium*** L. J. Peng, Acta Bot. Yunnan. 7: 317. 1985.

松叶百合 *song ye bai he*

*Lilium sempervivoideum* H. Léveillé subsp. *pinifolium* (L. J. Peng) S. Yun Liang.

Bulb subglobose, 3–3.5 in diam.; scales white, ovate, 2.5–3.5 × 2–2.5 cm. Stem 70–80 cm. Leaves scattered, narrowly linear or subfiliform, 3–4 cm × 1–2(–3) mm, abaxially sometimes scabrous, margin minutely papillose. Flowers usually 2, nodding, campanulate. Tepals white, green at base, with red spots; outer ones linear, ca. 4 × 1.2 cm; inner ones narrowly oblong, ca. 1.5 cm wide; nectaries blackish green, not papillose. Stamens ca. 2 cm; filaments greenish white; anthers 5–7 mm. Ovary green, ca. 1.5 cm × 3 mm. Style 1.7–2 cm; stigma small. Fl. Jun.

• Forests; 3300–3400 m. NW Yunnan.

**18. *Lilium souliei*** (Franchet) Sealy, Kew Bull. 5: 296. 1950.

紫花百合 *zi hua bai he*

*Fritillaria souliei* Franchet, J. Bot. (Morot) 12: 221. 1898; *Nomocharis souliei* (Franchet) W. W. Smith & W. E. Evans.

Bulb narrowly ovoid, 1.3–1.8 cm in diam.; scales white, lanceolate. 1.5–3 cm × 6–10 mm. Stem 10–30 cm. Leaves 5–8, scattered, narrowly elliptic, lanceolate, or linear, 3–6 × 0.6–1.5 cm, margin sometimes sparsely papillose. Flower solitary, nodding, campanulate. Tepals purple-red, usually paler toward base, unspotted; outer ones elliptic, 2.5–3.5 × 0.9–1.2 cm, apex shortly pointed; inner ones 1–1.8 cm wide; nectaries not papillose. Stamens converging; filaments 1.2–1.4 cm, glabrous; anthers purple-black, 5–7 mm. Style to 1.2 cm; stigma small. Capsule subglobose, 1.5–2 cm in diam. Fl. Jun–Jul, fr. Aug–Oct.  $2n = 24^*$ .

• Thicket margins, grassy slopes; 1200–1400 m. Sichuan, SE Xizang, Yunnan.

**19. *Lilium saccatum*** S. Yun Liang in C. Y. Wu, Fl. Xizang. 5: 540. 1987.

囊被百合 nang bei bai he

Bulb ovoid, ca. 2 cm in diam.; scales pale brown, lanceolate, ca. 2.5 cm × 7 mm. Stem 20–30 cm. Leaves scattered, occasionally several crowded and subwhorled, ovate or elliptic-lanceolate, 2–4 × 0.8–1.2 cm. Flower solitary, nodding, campanulate. Tepals purple-red, with dark spots adaxially, narrowly elliptic, 2.3–2.5 cm × 8–9 mm, basally saccate; nectaries not papillose. Stamens converging; filaments 1–1.2 cm, glabrous; anthers ca. 6 mm. Ovary purple-red, cylindrical, 8–10 × 2–3 mm. Style 8–9 mm; stigma swollen, shallowly 3-lobed. Fl. Jul.

• Bushy and grassy slopes; ca. 3900 m. SE Xizang (Mainling Xian).

**20. *Lilium huidongense*** J. M. Xu, Acta Phytotax. Sin. 23: 232. 1985.

会东百合 hui dong bai he

Stem to 50 cm, smooth, rooting near base. Leaves scattered, ovate-lanceolate to lanceolate, 7–8 × 1.6–2.4 cm, 5–7-veined, axil with a cluster of white, curly hairs, margin minutely papillose. Flowers usually 4 in a raceme, nodding, campanulate. Tepals pale red, with purple spots adaxially, oblong to oblong-ovate, ca. 4 × 1.3 cm, apex minutely papillose; nectaries not papillose. Stamens converging; filaments ca. 2 cm, glabrous; anthers linear, ca. 7 mm. Ovary cylindrical, ca. 8 × 2 mm. Style ca. 2.5 cm; stigma swollen. Fl. Jun.

• About 3200 m. SW Sichuan (Huidong Xian).

**21. *Lilium speciosum*** Thunberg var. *gloriosoides* Baker, Gard. Chron., n.s., 14: 198. 1880.

药百合 yao bai he

*Lilium kanahirae* Hayata; *L. konishii* Hayata.

Bulb flattened subglobose, ca. 5 cm in diam.; scales white, broadly lanceolate, ca. 2 × 1.2 cm. Stem 60–120 cm. Leaves scattered, shortly petiolate, lanceolate, oblong-lanceolate, or ovate-lanceolate, 7–18 × 1–5 cm, 3–5-veined, margin papillose, apex acuminate. Flowers 1–5 in a raceme or subumbel, nodding. Tepals recurved, white, with purple-red blotches and spots on proximal 1/3–1/2, lanceolate to narrowly oblong, 6–7.5 × 1–2 cm, margin undulate; nectaries with red, fimbriate projections and papillae on both surfaces. Stamens diverging; filaments green, 5–6 cm; anthers crimson, 1.5–1.8 cm. Ovary 1.2–1.7 cm. Style 3–5 cm. Capsule subglobose, ca. 3 cm in diam. Fl. Jul–Aug, fr. Oct.  $2n = 24^*$ .

• Shaded and moist places in forests, grassy slopes; 600–900 m. Anhui, Guangxi, Hunan, Jiangxi, Taiwan, Zhejiang.

*Lilium speciosum* var. *speciosum* occurs in SW Japan (Kyushu, Shikoku).

The bulbs are edible and medicinal.

**22. *Lilium henryi*** Baker, Gard. Chron., ser. 3, 2: 660. 1888.

湖北百合 hu bei bai he

Bulb subglobose, ca. 7 cm in diam.; scales white, oblong, 3.5–4.5 × 1.4–1.6 cm. Stem streaked with purple, 1–2 m. Leaves dimorphic, proximal and middle ones oblong-lanceolate, 7.5–15 × 2–2.7 cm, distal ones ovate, 2–4 × 1.5–2.5 cm. Flowers 2–12 in a raceme, paired on each pedicel. Tepals recurved, orange, with sparse, black spots, lanceolate, 5–7 × ca. 2 cm; nectaries with numerous fimbriate projections on both surfaces. Stamens diverging; filaments 4–4.5 cm, glabrous; anthers deep vermilion. Ovary ca. 1.5 cm. Style ca. 5 cm. Capsule oblong, 4–4.5 × ca. 3.5 cm. Fl. Jul, fr. Sep.  $2n = 24^*$ .

• Mountain slopes; 700–1000 m. Guizhou, Hubei, Jiangxi.

**23. *Lilium rosthornii*** Diels, Bot. Jahrb. Syst. 29: 243. 1900.

南川百合 nan chuan bai he

Stem 40–100 cm. Leaves scattered, dimorphic, proximal and middle ones shortly petiolate, linear-lanceolate, 8–15 cm × 8–10 mm, distal ones ovate, 3–4.5 × 1–1.2 cm. Flowers usually several to 9 in a raceme, very rarely solitary. Tepals recurved, yellow or orange, with purple-red spots, sublanceolate, 6–6.5 × 0.9–1.1 cm; nectaries with many fimbriate projections on both surfaces. Stamens diverging; filaments 6–6.5 cm; anthers 1.2–1.4 cm. Ovary cylindrical, 1.5–2 × ca. 2 mm. Style 4–4.5 cm. Capsule brownish green, narrowly oblong, 5.5–6.5 × 1.4–1.8 cm. Fl. Jul–Aug, fr. Sep.

• Forests, hillsides along valleys or streams; 300–900 m. Guizhou, Hubei, Sichuan.

**24. *Lilium primulinum*** Baker, Bot. Mag. 118: t. 7227. 1892.

报春百合 bao chun bai he

Bulb subglobose, 3.5–6 cm in diam.; scales lanceolate, 3–4.5 × 1–1.5 cm. Stem 0.6–2 m, scabrous. Leaves many, scattered, lanceolate or oblong-lanceolate, 3–12 × 0.8–1.4 cm, glabrous, abaxially 3-veined. Flowers 4–9 in a raceme, nodding. Tepals revolute, primrose yellow or greenish yellow, rarely yellowish white, sometimes with purple blotches at base, oblong, narrowly oblong, or oblong-oblong-lanceolate, 3–9 × 1–1.7 cm; inner ones slightly wider; nectaries not papillose. Filaments 4.5–5.5 cm, glabrous; anthers 1–1.2 cm. Ovary 1.5–1.7 cm × 2–3 mm. Style 4.2–5 cm. Capsule brownish, oblong, 4–7 × 2.8–3 cm.

Forests, forest margins, thickets, grassy slopes; hillsides along ravines; 1100–3100 m. Guizhou, Sichuan, Yunnan [Myanmar, Thailand].

Two varieties occur in China. *Lilium primulinum* var. *primulinum* occurs only in Myanmar and has primrose yellow tepals without blotches.

- 1a. Bulb 5–6 cm in diam.; tepals oblong, 6.5–9 × 1.3–1.7 cm ..... 24a. var. *burmanicum*
- 1b. Bulb ca. 3.5 cm in diam.; tepals oblong to oblong-oblong-lanceolate, 3.5–6.5 × 1–1.3 cm ..... 24b. var. *ochraceum*

**24a. *Lilium primulinum*** var. *burmanicum* (W. W. Smith) Stearn, Gard. Chron., ser. 3, 124: 13. 1948.



紫喉百合 *zi hou bai he*

*Lilium nepalense* D. Don var. *burmanicum* W. W. Smith, Trans. Bot. Soc. Edinburgh 28: 135. 1922; *L. ochraceum* Franchet var. *burmanicum* (W. W. Smith) Cotton.

Bulb 5–6 cm in diam. Leaves lanceolate, 5.5–12 × 0.8–1.4 cm. Tepals oblong, 6.5–9 × 1.3–1.7 cm. Fl. Jul–Oct, fr. Sep–Dec.  $2n = 24$ .

Forests, forest margins, thickets, grassy slopes; hillsides along ravines; 1200–2700 m. Yunnan [Myanmar, Thailand].

**24b. *Lilium primulinum* var. *ochraceum* (Franchet) Stearn, Gard. Chron., ser. 3, 124: 13. 1948.**

川滇百合 *chuan dian bai he*

*Lilium ochraceum* Franchet, J. Bot. (Morot) 6: 319. 1892; *L. majoense* H. Léveillé; *L. nepalense* D. Don var. *ochraceum* (Franchet) S. Yun Liang; *L. tenii* H. Léveillé.

Bulb ca. 3.5 cm in diam. Leaves lanceolate to oblong-lanceolate, 3–5.5(–10) × 0.8–1(–2) cm. Tepals oblong to oblong-ob lanceolate, 3.5–6.5 × 1–1.3 cm. Fl. Jul–Aug, fr. Oct–Nov.

• Forests, grassy slopes; 1100–3100 m. Guizhou, Sichuan, NW Yunnan.

**25. *Lilium nepalense* D. Don, Mem. Wern. Nat. Hist. Soc. 3: 412. 1820.**

紫斑百合 *zi ban bai he*

Bulb subglobose, ca. 2 cm in diam.; scales white, lanceolate or ovate-lanceolate, 2–2.5 × 1–1.2 cm. Stem 40–120 cm, papillose. Leaves scattered, lanceolate or oblong-lanceolate, 5–10 × 2–3 cm, glabrous, 5-veined, margin papillose. Flowers solitary or 3–5 in a raceme, nodding, somewhat trumpet-shaped. Tepals revolute, pale yellow or greenish yellow, rarely orange-yellow, tinged purplish in throat, suboblong, 6–9(–13) × 1.6–1.8 cm; nectaries not papillose. Filaments 5–5.5 cm, glabrous; anthers 8–9(–25) mm. Ovary cylindrical, 1.5–1.8 cm. Style 4–5 cm; stigma swollen, ca. 4 mm in diam. Fl. Jun–Jul.  $2n = 24$ .

Bushy places in mixed forests, hillsides; (2100–)2600–2900 m. S Xizang, SE and W Yunnan [Bhutan, N India, Myanmar, Nepal, Sikkim].

**26. *Lilium wardii* Stapf ex F. C. Stern, J. Roy. Hort. Soc. 57: 291. 1932.**

卓巴百合 *zhuo ba bai he*

Bulb subglobose, 2.5–4 cm in diam.; scales ovate, 1.5–2 cm × 7–9 mm. Stem purplish brown, 60–100 cm, papillose. Leaves scattered, narrowly lanceolate, 3–5.5 cm × 6–7 mm, adaxially with 3 obviously impressed veins, margin papillose. Flowers 2–10 in a raceme, rarely solitary, nodding. Tepals pale purple-red or pink, with deep purple spots, oblong or lanceolate, 5.5–6 cm × 8–10 mm, margin revolute; nectaries neither papillose nor with fimbriate projections. Filaments 4–4.5 cm; anthers purple. Ovary cylindrical, ca. 1 cm. Style ca. 3 cm. Capsule oblong, 2.5–3 × 1.6–2.6 cm. Fl. Jun–Aug, fr. Aug.  $2n = 24^*$ .

• Thickets, rocky places at forest margins, grassy slopes; 2000–

3400 m. Guizhou, Sichuan, SE Xizang.

**27. *Lilium matangense* J. M. Xu, Acta Phytotax. Sin. 23: 233. 1985.**

马塘百合 *ma tang bai he*

Bulb ovoid or narrowly so, 1–1.5 cm in diam.; scales white, lanceolate, 2–2.5 cm × 5–10 mm. Stem greenish, 23–35 cm, basally minutely papillose, rooting near bulb. Leaves scattered, linear, 6–11 cm × 1–4 mm, 1-veined, margin minutely papillose. Flower solitary, nodding. Tepals white, tinged pale brown, with purple-brown spots, lanceolate, 2.5–3.5 cm × 5–7 mm, margin revolute; nectaries not papillose. Filaments pale green, 1.2–1.5 cm, glabrous; anthers yellow, oblong, 4–5 mm. Ovary pale green, 1–1.5 cm × ca. 2 mm. Style pale green, 1–1.3 cm. Fl. Jun.

• 3200–3300 m. NW Sichuan (Barkam Xian).

**28. *Lilium stewartianum* I. B. Balfour & W. W. Smith in W. W. Smith, Trans. Bot. Soc. Edinburgh 28: 127. 1922.**

单花百合 *dan hua bai he*

Bulb ovoid, ca. 2 cm in diam.; scales white, ovate-lanceolate. Stem green, sometimes with purple-red spots, 20–50 cm. Leaves scattered, linear, 2.5–7 cm × 3–4 mm, 1-veined, margin sparsely papillose. Flower solitary, nodding, fragrant. Tepals greenish yellow, with deep red spots, ob lanceolate-oblong, 4.5–5 cm × 7–9 mm, revolute distally; nectaries neither papillose nor with fimbriate projections. Filaments ca. 3 cm, glabrous. Ovary purple, cylindrical, 2–2.2 cm × ca. 3 mm. Style subequaling ovary. Capsule brown, oblong or ellipsoid, 2–2.5 × 1.5–2 cm. Fl. Jul–Aug, fr. Oct.

• Forest margins, open and rocky grasslands, rocky places on limestone mountains; 3600–4300 m. NW Yunnan.

**29. *Lilium habaense* F. T. Wang & Tang in F. T. Wang et al., Acta Bot. Yunnan. 8: 51. 1986.**

哈巴百合 *ha ba bai he*

Bulb ovoid, 1.5–2.2 cm in diam.; scales lanceolate, 2–2.5 cm × 5–10 mm. Stem 45–60 cm, smooth. Leaves scattered, linear, 5.5–8 cm × 2–4 mm, glabrous, margin recurved. Flower solitary. Tepals green, with dense, purple spots, lanceolate, 3–3.5 cm × 5–6 mm; nectaries neither papillose nor with fimbriate projections. Filaments 6–10 mm, glabrous; anthers narrowly oblong, 9–10 mm. Ovary cylindrical, ca. 6 × 1 mm. Style nearly as thick as ovary, ca. 3.5 mm. Fl. Jun.

• Open and rocky places. NW Yunnan (Zhongdian Xian).

**30. *Lilium taliense* Franchet, J. Bot. (Morot) 6: 319. 1892.**

大理百合 *da li bai he*

*Lilium feddei* H. Léveillé.

Bulb ovoid, ca. 2.5 cm in diam.; scales white, lanceolate, 2–2.5 cm × 5–8 mm. Stem 0.7–1.5 m, sometimes with purple spots, papillose. Leaves scattered, linear or linear-lanceolate, 8–10 cm × 6–8 mm, 1-veined, margin papillose. Flowers 2–5(–13) in a raceme, nodding. Tepals white, with purple spots, oblong or oblong-lanceolate, 4.5–5 × ca. 1 cm; inner ones slightly

wider than outer; nectaries neither papillose nor with fimbriate projections. Filaments ca. 3 cm; anthers 8–10 mm. Ovary 1.4–1.6 cm × 3–4 mm. Style 1.5–1.7 cm. Capsule brown, oblong, ca. 3.5 × 2 cm. Fl. Jul–Aug, fr. Sep.  $2n = 24^*$ .

- Forests, grassy slopes; 2600–3600 m. Sichuan, ?Xizang, Yunnan.

**31. *Lilium jinpushanense*** L. J. Peng & B. N. Wang, Acta Bot. Yunnan. 8: 225. 1986.

金佛山百合 jin fo shan bai he

Bulb yellowish red, subglobose, 1–1.5 cm in diam. Stem with purple spots or streaks, 0.7–1.3 m. Leaves scattered, lanceolate, 5–10 × 0.8–1.5 cm, 3–5-veined, margin papillose. Flowers 3–7(–15) in a raceme, nodding, campanulate, fragrant. Tepals white or yellowish, tinged purple at base and in proximally 1/2, with purple spots distally, narrowly oblong or ob-lanceolate, 5–6 × 1–1.2 cm, margin revolute; inner ones slightly wider than outer; nectaries green, smooth. Filaments 4–4.5 cm; anthers 5–7 mm. Ovary 1.2–1.5 cm. Style 3.2–3.5 cm. Capsule obovoid, 2.5–3 × 1.5–2 cm. Fl. Jun–Jul, fr. Sep.

- Forests; 1800–2200 m. SE Sichuan (Nanchuan Xian).

**32. *Lilium lijiangense*** L. J. Peng, Acta Bot. Yunnan. 6: 189. 1984.

丽江百合 li jiang bai he

*Lilium ningnanense* J. M. Xu.

Bulb subglobose, 2.5–4 cm in diam.; scales white, tinged purple, lanceolate, 2.5–5 × 1–2 cm. Stem 55–60 cm, with purple spots or streaks. Leaves scattered, elliptic, suboblong, ovate-lanceolate, or lanceolate, 5–11 × 1.5–3 cm, 7–9-veined, axil with a cluster of white hairs. Flowers solitary or 2–5 in a raceme, nodding, fragrant. Tepals yellow, with purple or brown spots, oblong to lanceolate, 4–4.5 × 0.8–1.5 cm, apex slightly papillose, revolute; nectaries blackish or red, not papillose. Stamens diverging; filaments 2.5–3 cm; anthers ca. 7 mm. Ovary 7–10 × ca. 2 mm. Style 3–3.5 cm. Fl. Jul–Aug.

- 3300–3400 m. W Sichuan, NW Yunnan.

**33. *Lilium duchartrei*** Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 10: 90. 1887.

宝兴百合 bao xing bai he

*Lilium farreri* Turrill; *L. forrestii* W. W. Smith.

Bulb ovoid, 1.5–4 cm in diam.; scales white, ovate to lanceolate, 1–2 × 0.5–1.8 cm. Stem 0.5–1.5 m, sometimes slightly papillose. Leaves scattered, lanceolate to oblong-lanceolate, 4.5–5 × ca. 1 cm, papillose abaxially and at margin, 3–5-veined, axil with a cluster of white hairs. Flowers solitary or several in an umbel, nodding, fragrant. Tepals white, with red-purple spots, 4.5–6 × 1.2–1.4 cm, margin revolute; nectaries papillose on both surfaces. Filaments ca. 3.5 cm; anthers yellow, narrowly oblong, ca. 1 cm. Ovary ca. 1.2 × 1.5–4 cm. Style 3–4 cm. Capsule ellipsoid, 2.5–3 × ca. 2.2 cm. Seeds with a 1–2 mm wide wing. Fl. Jul–Aug, fr. Sep.  $2n = 24^*$ .

- Forest margins along valleys, grassy slopes, hillsides; 1500–3800 m. Gansu, Hubei, ?S Shaanxi (Qin Ling), Sichuan.

**34. *Lilium lankongense*** Franchet, J. Bot. (Morot) 6: 317.

1892.

匍茎百合 pu jing bai he

?*Lilium ninae* Vriszcz.

Bulb ovoid-globose, 2.5–4 cm in diam., stoloniferous; scales white, ovate or ovate-lanceolate, 1.5–2 × 1–1.4 cm. Stem pale purple-brown, 40–150 cm, papillose. Leaves scattered, oblong, oblong-lanceolate, or lanceolate, 3–10 × 0.5–1.7 cm, slightly papillose abaxially and at margin, veins 3–7, raised abaxially. Flowers solitary or several in a raceme, nodding, fragrant. Tepals pink, with deep red spots, 5–5.5 cm × 8–10 mm, margin revolute; nectaries papillose on both surfaces. Filaments ca. 3.5 cm, glabrous; anthers purplish, ca. 1 cm. Ovary 1–1.3 cm × 2–3 mm. Style 3–4 cm. Capsule ellipsoid, 1.5–2.5 × 1.2–2 cm. Seeds with a ca. 1 mm wide wing. Fl. Jun–Jul, fr. Aug–Oct.

- Alpine grasslands; 1800–3200 m. SE Xizang, NW Yunnan.

**35. *Lilium amabile*** Palibin, Trudy Imp. S.-Peterburgsk. Bot. Sada 19: 113. 1901.

秀丽百合 xiu li bai he

*Lilium fauriei* H. Léveillé & Vaniot.

Bulb ovoid-globose, 2.5–3 cm in diam.; scales white, lanceolate or lanceolate-ovate, ca. 4 × 2.5 cm. Stem 40–80 cm, with white, short, stiff hairs. Leaves scattered, narrowly lanceolate, 2–7.5 cm × 5–8 mm, both surfaces with dense, white, stiff hairs, margin ciliate. Flowers solitary or 3 in a raceme, nodding. Tepals strongly revolute, red, sometimes dark red-orange or yellow, densely speckled black, 3.5–5 cm; outer ones 8–10 mm wide; inner ones 1.4–1.6 cm wide; nectaries papillose on both surfaces. Ovary ca. 12 × 3 mm. Style ca. 2 mm. Fl. Jul.  $2n = 24^*$ .

- SE Liaoning [Korea].

**36. *Lilium leichtlinii*** J. D. Hooker var. ***maximowiczii*** (Regel) Baker, Gard. Chron. 1871: 1422. 1871.

大花卷丹 da hua juan dan

*Lilium maximowiczii* Regel, Gartenflora 17: 322. 1868; *L. pseudotigrinum* Carrière.

Bulb white, globose, (2–)4 cm in diam. Stem 0.5–2 m, with purple spots, papillose, white woolly when young. Leaves scattered, sessile or shortly petiolate, narrowly lanceolate to oblong-lanceolate, 3–10(–14) × 0.6–1.2(–1.6) cm, white woolly when young, glabrous when mature, 3–7-veined, axil without bulblets, margin papillose, apex acute-acuminate. Flowers 2–8(–10) in a raceme, rarely solitary, nodding. Tepals revolute, red, with purple spots, lanceolate, 4.5–6.5(–8.5) × 0.9–1.5 cm; nectaries papillose and with fimbriate projections on both surfaces, densely so proximally on adaxial surface. Stamens diverging; filaments 3.5–4 cm, glabrous; anthers vermilion, ca. 1.1 cm. Ovary cylindrical, 1.2–1.3 cm × 2–3 mm. Style ca. 3 cm. Capsule ellipsoid, ca. 3 cm. Fl. Jul–Aug.  $2n = 24^*$ .

- Sandy places along valleys, mountain grasslands, limestone or serpentine areas; near sea level to 1300 m. Hebei, Jilin, Liaoning, Shaanxi [Japan, Korea, Russia (Primorskiy Krai)].

*Lilium leichtlinii* var. *leichtlinii* occurs in Japan (except Hokkaido).

**37. *Lilium pumilum*** Redouté, *Liliac.* 7: t. 378. 1812.

山丹 shan dan

*Lilium potaninii* Vrischcz; *L. pumilum* var. *potaninii* (Vrischcz) Y. Z. Zhao; *L. sinensium* Gandoger; *L. tenuifolium* Fischer ex Hooker.

Bulb ovoid or conical, 2–3 cm in diam.; scales white, oblong or narrowly ovate, 2–3 × 1–1.5 cm. Stem sometimes streaked with purple, 15–60 cm, papillose. Leaves scattered near middle of stem, linear, 3.5–9 × 1.5–3 cm, midvein prominent abaxially, margin papillose. Flowers solitary or several in a raceme, nodding. Tepals revolute, bright red, usually unspotted, occasionally with a few spots near base, 4–4.5 cm × 8–11 mm, not minutely papillose adaxially; nectaries papillose on both surfaces. Filaments 1.2–2.5 cm, glabrous; anthers yellow, with reddish pollen, ca. 1 cm. Ovary 8–10 mm. Style 1–2 cm. Capsule oblong, ca. 2 × 1.2–1.8 cm. Fl. Jul–Aug, fr. Sep–Oct.  $2n = 24^*$ .

Forest margins, grassy slopes; 400–2600 m. Gansu, Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi [Korea, Mongolia, Russia (C and E Siberia)].

The bulbs are edible and medicinal.

**38. *Lilium davidii*** Duchartre ex Elwes, *Monogr. Lilium*, t. 24. 1877.

川百合 chuan bai he

Bulb flattened globose or broadly ovoid, 2–4.5 cm in diam.; scales white, broadly ovate to ovate-lanceolate, 2–3.5 × 1–1.5 cm. Stem sometimes tinged purple, 50–100 cm, densely papillose. Leaves scattered, but relatively crowded at middle of stem, linear, 7–12 cm × 2–3(–6) mm, axil sometimes with white woolly hairs, margin recurved, conspicuously papillose. Flowers solitary or 2–8 in a raceme, nodding. Tepals orange, with dark purple spots on proximal 2/3; outer ones 5–6 × 1.2–1.4 cm; inner ones 1.6–1.8 cm wide; nectaries papillose on both surfaces and with a few fimbriate projections abaxially. Filaments 4–5.5 cm; anthers 1.4–1.6 cm. Style 2–3 cm. Capsule ca. 3.5 × 1.6–2 cm. Fl. and fr. Jun–Sep.

• Moist places in forests, forest margins, grassy slopes; 800–3200 m. Gansu, Guizhou, Henan, W Hubei, S Shaanxi, Shanxi, Sichuan, Yunnan.

Widely cultivated in China for its edible bulbs.

- 1a. Leaves usually 1-veined, axil with a cluster of white woolly hairs ..... 38a. var. *davidii*
- 1b. Leaves usually 3-veined, axil without white woolly hairs ..... 38b. var. *willmottiae*

**38a. *Lilium davidii*** var. *davidii*

川百合(原变种) chuan bai he (yuan bian zhong)

*Lilium biondii* Baroni; *L. cavaleriei* H. Léveillé & Vaniot; *L. suchuenense* Franchet; *L. thayerae* E. H. Wilson.

Leaves usually 1-veined, axil with a cluster of white wool-

ly hairs.  $2n = 24^*$ .

• Moist places in forests, forest margins, grassy slopes; 1600–3200 m. Guizhou, Sichuan, NW Yunnan.

**38b. *Lilium davidii*** var. *willmottiae* (E. H. Wilson) Raffill, *Gard. Chron.*, ser. 3, 104: 231. 1938.

兰州百合 lan zhou bai he

*Lilium willmottiae* E. H. Wilson, *Bull. Misc. Inform. Kew* 1913: 266. 1913; *L. chinense* Baroni.

Leaves usually 3-veined, axil without white woolly hairs.  $2n = 24^*$ .

• W Hubei, S Shaanxi, E Sichuan, Yunnan.

**39. *Lilium cernuum*** Komarov, *Trudy Imp. S.-Peterburgsk. Bot. Sada* 20: 461. 1901.

垂花百合 chui hua bai he

*Lilium cernuum* var. *atropurpureum* Nakai; *L. changbai-shanicum* J. J. Chien; *L. graminifolium* H. Léveillé & Vaniot; *L. palibinianum* Y. Yabe.

Bulb oblong or ovoid, (2.5–)4 cm in diam.; scales white, lanceolate or ovate. Stem to 65 cm, smooth. Leaves scattered, sessile, narrowly linear, (4–)8–12(–18) cm × (1–)2–4(–5) mm, margin slightly recurved, papillose. Flowers solitary or 2–6 in a raceme, nodding, fragrant. Tepals pale purple-red, with deep purple spots toward base, lanceolate to oblong, 3.5–4.5 cm × 8–10 mm, margin revolute; nectaries densely papillose on both surfaces. Filaments ca. 2 cm; anthers dark purple, ca. 1.4 cm. Ovary cylindric, 8–10 × ca. 2 mm. Style 1.5–1.7 cm. Capsule globose to obovoid, 1.2–2 × 1–1.5 cm. Fl. Jul.  $2n = 24^*$ , 25.

Thickets, grassy slopes. Jilin, Liaoning [Korea, Russia (Primorskiy Kray)].

**40. *Lilium callosum*** Siebold & Zuccarini, *Fl. Jap.* 1: 86. 1839.

条叶百合 tiao ye bai he

*Lilium callosum* var. *stenophyllum* Baker; *L. mandshuricum* Gandoger; *L. talanense* Hayata; *L. taquetii* H. Léveillé & Vaniot; *L. tenuifolium* Fischer var. *stenophyllum* (Baker) Elwes.

Bulb flattened globose, 1.5–3 cm in diam.; scales white to pale yellow, ovate to lanceolate, 1.5–2 cm × 6–12 mm. Stem (20–)50–90(–100) cm. Leaves scattered, sessile, linear, (3–)5–10(–13) cm × (1–)2–5(–8) mm, 3-veined, margin papillose, apex acute to acuminate. Bracts linear, thickened apically. Flower solitary, rarely up to 9 in a raceme, nodding. Tepals red or light red, rarely up to 9 in a raceme, nodding. Tepals red or light red, nearly unspotted, oblanceolate-spatulate, 3–4.5 cm × 4–8 mm, sometimes with curly hairs proximally on adaxial surface, middle part and apex revolute; nectaries sparsely papillose. Filaments 2–2.5 cm; anthers ca. 7 mm. Ovary cylindric, 1–2 cm × 1–3 mm. Style shorter than or equaling ovary. Capsule narrowly oblong, 2.5(–4) cm × 6–7(–20) mm. Fl. Jul–Aug, fr. Aug–Sep.  $2n = 24^*$ .

Grassy slopes, limestone areas; 100–900 m. Anhui, Guangdong, Guangxi, Henan, Jiangsu, Jilin, Liaoning, Nei Mongol, Taiwan, Zhejiang [Japan, Korea, Russia (Primorskiy Kray)].

**41. *Lilium papilliferum*** Franchet, *J. Bot. (Morot)* 6: 316. 1892.

乳头百合 ru tou bai he

Bulb ovoid, ca. 2.5 cm in diam.; scales white, ovate or lanceolate-ovate. Stem to 60 cm, tinged purple, densely papillose. Leaves scattered, mostly in middle and distal parts of stem, linear, 5.5–7 cm × 2–4 mm. Flowers several (usually 5) in a raceme, nodding, fragrant. Tepals purple-red or reddish brown, unspotted, oblong, slightly narrowed basally, 3.5–3.8 × 1–1.3 cm; nectaries papillose and with cristate projections on both surfaces. Filaments ca. 2 cm, glabrous; anthers light brown, with orange pollen. Ovary cylindrical, ca. 1 cm × 4 mm. Style ca. 1.3 cm. Capsule oblong, 2–2.5 × 1.5–2 cm. Fl. Jul, fr. Sep.

- Bushy slopes; 1000–1300 m. Shaanxi, Sichuan, Yunnan.

42. *Lilium fargesii* Franchet, J. Bot. (Morot) 6: 317. 1892.

绿花百合 lu hua bai he

*Lilium cupreum* H. Léveillé.

Bulb ovoid, ca. 1.5 cm in diam.; scales white, lanceolate, 1.5–2 × ca. 6 mm. Stem 20–70 cm, papillose. Leaves scattered, mostly in middle and distal parts of stem, linear, 10–14 cm × 2–5 mm, margin recurved. Flowers solitary or several in a raceme, nodding. Tepals greenish white, with dense, purple or purple-brown spots, lanceolate, 3–3.5 cm × 7–10 mm, margin revolute; nectaries with cristate projections on both surfaces. Filaments 2–2.2 cm, glabrous; anthers orange, narrowly oblong, 7–9 × ca. 2 mm. Ovary cylindrical, 1–1.5 cm × ca. 2 mm. Style 1.2–1.5 cm. Capsule oblong, ca. 2 × 1.5 cm. Fl. Jul–Aug, fr. Sep–Oct.

- Forested slopes; 1400–2300 m. Hubei, Shaanxi, Sichuan, Yunnan.

43. *Lilium xanthellum* F. T. Wang & Tang, Fl. Reipubl. Popularis Sin. 14: 283. 1980.

乡城百合 xiang cheng bai he

Bulb subglobose, 4–5 cm in diam.; scales yellow, lanceolate, 4–4.5 × 1.2–1.5 cm. Stem 35–55 cm, with dense, small scales (visible with magnification). Leaves scattered, linear, 4–8 × 0.2–0.3 mm, margin slightly recurved, papillose. Flowers solitary or paired. Tepals yellow, with or without purple spots, narrowly elliptic-oblong, ca. 3.5 cm × 6 mm; nectaries with cristate projections on both surfaces. Filaments 1.6–3 cm, glabrous; anthers linear, 1–1.2 cm. Ovary 1.3–1.5 cm × 2–3 mm. Style 1.2–1.6 cm. Fl. Jun.

- Sunny shrubby slopes, rocky places along valleys; 3200–3600 m. W Sichuan.

- 1a. Tepals unspotted ..... 43a. var. *xanthellum*
- 1b. Tepals with purple spots ..... 43b. var. *luteum*

43a. *Lilium xanthellum* var. *xanthellum*

乡城百合(原变种) xiang cheng bai he (yuan bian zhong)

Tepals unspotted.

- Sunny shrubby slopes; ca. 3200 m. W Sichuan (Xiangcheng Xian).

43b. *Lilium xanthellum* var. *luteum* S. Yun Liang in F. T. Wang & Tang, Fl. Reipubl. Popularis Sin. 14: 283. 1980.

黄花百合 huang hua bai he

Tepals with purple spots.

- Rocky places along valleys; ca. 3600 m. W Sichuan (Xiangcheng Xian).

44. *Lilium tigrinum* Ker Gawler, Bot. Mag. 31: t. 1237. 1809.

卷丹 juan dan

Bulb broadly subglobose, 4–8 cm in diam.; scales white or yellowish white, broadly ovate, 2.5–3 × 1.4–2.5 cm. Stem streaked with purple, 0.8–1.5(–2) m, minutely white woolly, sparsely papillose proximally. Leaves scattered, sessile, oblong-lanceolate to linear-lanceolate, (3–)6.5–9(–18) × (0.5–)1–1.8 cm, white woolly, 5–7-veined, axil with bulblets (on distal leaves), margin papillose, apex acuminate. Flowers 3–6(–20) in a raceme, horizontal to nodding. Tepals vermilion, with dark purple spots; outer ones lanceolate to oblong-lanceolate, 6–10 × 1–2 cm; inner ones broadly lanceolate to narrowly ovate, slightly wider; nectaries papillose and with fimbriate projections on both surfaces, densely so proximally on adaxial surface. Stamens diverging; filaments light red, 5–7 cm, glabrous; anthers ca. 2 cm. Ovary 1.5–2 cm. Style 4.5–6.5 cm. Capsule (in diploid plants) narrowly ovate-oblong, 3–4 cm. Fl. Jul–Aug, fr. Sep–Oct.  $2n = 24^*$ , 36.

Thickets, grassy slopes, hillsides, river banks; 400–2500 m. Anhui, Gansu, Guangxi, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xizang, Zhejiang [Japan, Korea].

The present authors follow the suggestion of Woodcock and Stearn (*Lilies World*, 353. 1950) to use the name *Lilium tigrinum* Ker Gawler (1809) for this species, rather than *L. lancifolium* Thunberg (1794), because the latter name is ambiguous, having been long and consistently applied in the sense of *L. speciosum*.

*Lilium tigrinum* is widely cultivated in China for its edible bulbs and medicinal uses.

45. *Lilium brownii* F. E. Brown ex Miellez, Cat. Expos. Soc. Hort. Lille, 1841.

野百合 ye bai he

Bulb globose, 2–4.5 cm in diam.; scales white, lanceolate, 1.8–4 × 0.8–1.4 cm. Stem 0.7–2 m, smooth or papillose. Leaves scattered, frequently distal ones gradually becoming smaller, lanceolate, linear, oblanceolate, or obovate, 7–15 × (0.6–)1–2 cm, 5–7-veined. Flowers solitary or several in a subumbel, funnelform, fragrant. Tepals spreading distally and recurved apically, milk white, suffused purplish, unspotted; outer ones oblong-oblong, 13–18 × 2–4.3 cm; inner ones spatulate, 3.4–5 cm wide; nectaries papillose on both surfaces. Stamens curved upward; filaments 10–13 cm, densely pilose to glabrous. Style 8.5–11 cm. Capsule 4.5–6 × ca. 3.5 cm. Fl. Jun–Aug, fr. Sep–Oct.

- Sparse forests, thickets, grassy slopes, rocky hillsides along ravines or streams, wastelands around villages; 100–2200 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shanxi, Sichuan, Yunnan, Zhejiang.

Often cultivated in China for its edible bulbs and medicinal uses.

- 1a. Leaves lanceolate to linear ..... 45a. var. *brownii*  
1b. Leaves oblanceolate to obovate ..... 45b. var. *viridulum*

**45a. *Lilium brownii* var. *brownii***

野百合(原变种) ye bai he (yuan bian zhong)

*Lilium australe* Stapf; *L. brownii* var. *australe* (Stapf) Stearn.

Leaves lanceolate to linear.  $2n = 14^*$ ,  $24^*$ ,  $25^*$ .

• Thickets, rocky hillsides along streams; 100–2200 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.

**45b. *Lilium brownii* var. *viridulum* Baker, Gard. Chron., n.s., 24: 134. 1885.**

百合 bai he

*Lilium aduncum* Elwes; *L. brownii* var. *colchesteri* Van Houtte ex Stapf; *L. brownii* var. *ferum* Stapf ex Elwes; *L. brownii* var. *odorum* (Planchon) Baker; *L. brownii* var. *platyphyllum* Baker; *L. longiflorum* Thunberg var. *purpureoviola-ceum* H. Léveillé; *L. odorum* Planchon.

Leaves oblanceolate to obovate.  $2n = 23^*$ ,  $24^*$ .

• Sparse forests, grassy slopes, hillsides along ravines, wastelands around villages; 300–1000 m. Anhui, Fujian, Gansu, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shanxi, Sichuan, Yunnan, Zhejiang.

**46. *Lilium anhuiense* D. C. Zhang & J. Z. Shao, Acta Phytotax. Sin. 29: 475. 1991.**

安徽百合 an hui bai he

Bulb subglobose, 2–4 cm in diam.; scales white, ovate-lanceolate to lanceolate,  $1.5\text{--}2.5 \times 1\text{--}1.5$  cm. Stem 60–120 cm, proximally minutely papillose. Leaves scattered, linear-lanceolate,  $8\text{--}14 \text{ cm} \times 7\text{--}11$  mm, distal ones apically recurved or cirrose. Flowers usually 2, funnellform, fragrant. Tepals white; outer ones oblong-spatulate, ca.  $16 \times 3\text{--}4$  cm, basally conspicuously narrowed; inner ones spatulate, 4–5.5 cm wide; nectaries sparsely papillose on both surfaces. Filaments 9–12 cm, proximally pilose; anthers brown, 1.2–1.5 cm. Ovary 3–3.5 cm  $\times$  5–8 mm. Style 10–12 cm. Fl. Jun.

• About 800 m. S Anhui (Shitai Xian).

**47. *Lilium wenshanense* L. J. Peng & F. X. Li, Acta Bot. Yunnan., Suppl. 3: 33. 1990.**

文山百合 wen shan bai he

Bulb subglobose, 2.5–4 cm in diam.; scales white, articulate. Stem gray-white, 1.2–1.8 m, smooth. Leaves scattered, lanceolate or very narrowly ovate,  $9\text{--}10 \times 1\text{--}1.2$  cm, glabrous, 3–5-veined, margin papillose. Flowers solitary or 2–7 in a raceme, funnellform. Tepals spreading distally and recurved apically; outer ones lanceolate, ca.  $1.8 \times 2.5$  cm; inner ones spatulate, ca. 3 cm wide; nectaries greenish, neither papillose nor with fimbriate projections. Filaments ca. 13 cm, base densely tomentose; anthers ca. 1 cm, with yellow pollen. Ovary ca. 3 cm. Style ca. 10 cm. Capsule subcylindric, Fl. Jun–Jul, fr. Aug–

Sep.

• Meadows; 1000–2000 m. SE Yunnan (Wenshan Xian).

**48. *Lilium regale* E. H. Wilson, Gard. Chron., ser. 3, 53: 416. 1913.**

岷江百合 min jiang bai he

*Lilium myriophyllum* E. H. Wilson, Fl. & Sylva 3: 330. 1905, not Franchet (1892).

Bulb broadly ovoid, ca. 3.5 cm in diam.; scales lanceolate,  $4\text{--}5 \times 1\text{--}1.5$  cm. Stem to 50 cm, papillose. Leaves scattered, narrowly linear,  $6\text{--}8 \text{ cm} \times 2\text{--}3$  mm, papillose on midvein abaxially and at margin, 1-veined. Flowers solitary or several, funnellform, very fragrant. Tepals white, tinged yellow at base; outer ones lanceolate,  $9\text{--}11 \times 1.5\text{--}2$  cm; inner ones obovate, slightly wider; nectaries neither papillose nor with fimbriate projections. Filaments 6–7.5 cm, scarcely papillose; anthers ellipsoid, 0.9–1.2 cm. Ovary cylindric, ca.  $2.2 \text{ cm} \times 3$  mm. Style ca. 6 cm. Fl. Jun–Jul.  $2n = 24^*$ .

• Rocky slopes, river banks; 800–2500 m. Sichuan.

**49. *Lilium formosanum* Wallace, Garden (London) 40: 442. 1891.**

台湾百合 tai wan bai he

Bulb subglobose or broadly ellipsoid, 2–4 cm in diam.; scales white or tinged yellow, lanceolate-ovate to lanceolate. Stem sometimes tinged purple-red, 20–55 cm, smooth or papillose. Leaves scattered, linear or narrowly lanceolate,  $2.5\text{--}15 \text{ cm} \times 4\text{--}13$  mm. Flowers solitary or sometimes several in a subumbel, fragrant, funnellform, with a slender tube gradually expanding toward apex. Tepals white, tinged purple-red abaxially; outer ones oblanceolate,  $11.5\text{--}14.5 \times 2.1\text{--}2.3$  cm; inner ones spatulate, to 3 cm wide; nectaries green, rarely indistinctly papillose on both surfaces. Filaments ca. 10 cm, with minute protuberances near base. Style ca. 6.5 cm. Capsule 7–9  $\times$  ca. 2 cm. Fl. and fr. Jun–Dec.

• Grassy slopes, seashores; near sea level to 3500 m. Taiwan.

- 1a. Leaves  $8\text{--}15 \times 1\text{--}1.3$  cm, midvein conspicuous; tepals 12–15 cm ..... 49a. var. *formosanum*  
1b. Leaves  $2.5\text{--}3 \times 0.4\text{--}0.5$  cm, midvein inconspicuous; tepals 7–8 cm ..... 49b. var. *microphyllum*

**49a. *Lilium formosanum* var. *formosanum***

台湾百合(原变种) tai wan bai he (yuan bian zhong)

*Lilium formosanum* var. *pricei* Stoker; *L. longiflorum* Thunberg var. *formosanum* Baker; *L. philippinense* Baker var. *formosanum* (Wallace) E. H. Wilson.

Leaves  $8\text{--}15 \times 1\text{--}1.3$  cm, midvein conspicuous. Tepals 12–15 cm.  $2n = 24^*$ .

• Grassy slopes; near sea level to 3500 m. Taiwan.

**49b. *Lilium formosanum* var. *microphyllum* Tang S. Liu & S. S. Ying in H. L. Li et al., Fl. Taiwan 5: 61. 1978.**

小叶百合 xiao ye bai he

Leaves 2.5–3 cm × 4–5 mm, midvein inconspicuous. Tepals 7–8 cm.

- Seashores. N Taiwan.

**50. *Lilium longiflorum*** Thunberg var. **scabrum** Masamune, Trans. Nat. Hist. Soc. Taiwan 26: 218. 1936.

糙茎百合 cao jing bai he

Bulb globose or subglobose, 2.5–5 cm in diam.; scales white. Stem 45–90 cm, green, light red at base, scabrous-pubescent. Leaves scattered, linear-lanceolate, 20–25 × 0.8–1.2 cm. Flowers solitary or several, horizontal or somewhat nodding, long tubular, very fragrant. Tepals white, slightly tinged green toward base abaxially, oblanceolate, 13–18 × 2.5–4 cm; inner ones slightly wider than outer; nectaries not papillose. Filaments 8–9 cm, glabrous; anthers purple or yellow, 5–8 mm. Ovary 4–4.5 cm. Style 6–7 cm. Fl. May–Jul.

- Near sea level to 500 m. Taiwan.

*Lilium longiflorum* var. *longiflorum* is endemic to Japan (Osumi Islands to Ryukyu Islands).

**51. *Lilium leucanthum*** (Baker) Baker, J. Roy. Hort. Soc. 26: 337. 1901.

宜昌百合 yi chang bai he

Bulb subglobose, 3.5–4 cm in diam.; scales brownish yellow or purple when dried, lanceolate, ca. 3.5 × 1 cm. Stem 0.6–1.5 m, papillose. Leaves scattered, lanceolate, 8–17 cm × 6–10 mm. Flowers 1–4, funnelform, slightly fragrant. Tepals white, tinged pale yellow adaxially, tinged pale green-yellow or purple or brownish along midvein abaxially; outer ones lanceolate, 12–15 × 1.2–2.8 cm; inner ones spatulate, 2.6–3.8 cm wide; nectaries not papillose. Filaments 10–22 cm, densely pubescent proximally; anthers pale yellow, ca. 1 cm. Ovary 3.5–4 cm. Style to 10 cm, basally pubescent. Fl. Jun–Jul.

- Grassy places along rivers, hillsides along ravines; 400–2500 m. S Gansu, Hubei, Sichuan.

- 1a. Tepals tinged pale green-yellow along midvein abaxially ..... 51a. var. *leucanthum*  
1b. Tepals tinged purple or brownish along midvein abaxially ..... 51b. var. *centifolium*

**51a. *Lilium leucanthum*** var. **leucanthum**

宜昌百合(原变种) yi chang bai he (yuan bian zhong)

*Lilium brownii* F. E. Brown ex Mieliez var. *leucanthum* Baker, Gard. Chron., ser. 3, 16: 180. 1894; *L. leucanthum* var. *leiosylum* Stapf ex Elwes; *L. leucanthum* var. *primarium* Stapf.

Tepals tinged pale green-yellow along midvein abaxially.

- Grassy places along rivers, hillsides along ravines; 400–1500 m. Hubei, Sichuan.

**51b. *Lilium leucanthum*** var. **centifolium** (Stapf ex Elwes) Stearn in Woodcock & Coutts, Lilies, 213. 1935.

紫脊百合 zi ji bai he

*Lilium centrifolium* Stapf ex Elwes, Gard. Chron., ser. 3, 70: 101. 1921.

Tepals tinged purple or brownish along midvein abaxially.

- Hillsides along ravines; ca. 2500 m. S Gansu (Zhugou Xian).

**52. *Lilium sulphureum*** Baker ex J. D. Hooker, Fl. Brit. India 6: 351. Jul 1892.

淡黄花百合 dan huang hua bai he

*Lilium myriophyllum* Franchet (Sep 1892), not E. H. Wilson (1905).

Bulb globose, ca. 5.5 cm in diam.; scales ovate-lanceolate or lanceolate, 2.5–5 × 0.8–1.6 cm. Stem 0.8–1.2 m, papillose. Leaves scattered, lanceolate, 7–13 × 1.3–1.8(–3.2) cm, axil with bulblets (on distal leaves). Flowers usually 2, funnelform, fragrant. Tepals white; outer ones oblong-oblanceolate, 17–19 × 1.8–2.2 cm; inner ones spatulate, 3.2–4 cm wide; nectaries not papillose. Filaments 13–15 cm, glabrous, rarely sparsely pubescent; anthers narrowly oblong, ca. 2 cm. Ovary purple, cylindrical, 4–4.5 cm × 2–5 mm. Style 11–12 cm. Fl. Jun–Jul.  $2n = 36^*$ .

Shaded places in forests, grassy slopes, hillsides; 100–1900 m. Guangxi, Guizhou, Sichuan, Yunnan [Myanmar].

The bulbs are used medicinally.

**53. *Lilium sargentiae*** E. H. Wilson, Gard. Chron., ser. 3, 51: 385. 1912.

泸定百合 lu ding bai he

*Lilium formosum* Franchet; *L. leucanthum* Baker var. *sargentiae* (E. H. Wilson) Stapf; *L. omeiense* Z. Y. Zhu.

Bulb subglobose or broadly ovoid, 5–6 cm in diam.; scales lanceolate, 3.5–4 × 1.5–1.7 cm. Stem 45–160 cm, papillose. Leaves scattered, lanceolate or oblong-lanceolate, 5.5–12 × 1–3 cm; axil with green bulblets (on distal leaves). Flowers solitary or 2–4 in a subumbel, funnelform. Tepals white, pale green toward base; outer ones oblanceolate, 14–17 × 2–2.8 cm; inner ones narrowly obovate-spatulate, wide; nectaries yellowish green, not papillose. Filaments 11–13 cm, densely pubescent proximally; anthers 1.4–2 cm, with brownish yellow pollen. Ovary purple, 3.5–4.5 cm × 3–5 mm. Style 10–11 cm. Capsule oblong, 6–7 × ca. 3.5 cm. Fl. Jul–Aug, fr. Oct.  $2n = 24^*$ .

- Thicket margins, grassy slopes; 500–2000 m. Sichuan, ?Yunnan.

**54. *Lilium tianshanicum*** N. A. Ivanova ex Grubov in Grubov & T. V. Egorova, Rast. Tsent. Azii, Mater. Bot. Inst. Komarova 7: 70. 1977.

天山百合 tian shan bai he

Bulb white, subglobose, ca. 3 cm in diam.; scales many, fleshy. Stem straight, ca. 25 cm, sparsely papillose proximally. Leaves linear, 8–10 cm × 2–5 mm, apex acute. Flower solitary, nodding. Tepals white, oblong-lanceolate, ca. 4.5 × 1.2–1.5 cm, apex thickened, minutely papillose adaxially; nectaries densely papillose on both surfaces. Stamens nearly as long as tepals; anthers yellow. Fl. Aug.

- Clay-gravelly steppes. Xinjiang (Tian Shan).

**55. *Lilium pyi*** H. Léveillé, Repert. Spec. Nov. Regni Veg. 6:

263. 1909.

毕氏百合 *bi shi bai he*

Stem 40–60 cm, slender. Leaves linear, 4–7 cm × 3–5 mm. Flower solitary, nodding. Tepals with dark reddish brown spots only on margin, narrowly oblong-lanceolate; nectaries blackish, glabrous.

- W Yunnan (Binchuan Xian).

This is an unclear species; no specimens have been seen by the present authors.

