

## CAPRIFOLIACEAE

忍冬科 ren dong ke

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Shrubs or woody climbers, rarely small trees or herbs. Leaves opposite, rarely whorled, simple or pinnatifid, conduplicate or involute in veneration; interpetiolar stipules absent or rarely well developed. Inflorescence thyrsoid, axillary or terminal, compact or lax, cymes 1-, 2-, or 3-flowered; paired flowers sometimes with ovaries  $\pm$  fused. Cymes with a pair of bracts and 2 pairs of bracteoles, located at base of ovaries,  $\pm$  fused, occasionally accrescent in fruit, rarely absent. Flowers bisexual, actinomorphic or zygomorphic. Calyx 4- or 5-lobed. Corolla epigynous, gamopetalous; lobes 4 or 5, spreading, sometimes bilabiate, aestivation imbricate. Stamens (4 or)5, didynamous, alternating with corolla lobes, sometimes exserted; anthers free, 2-celled, opening by longitudinal slits, introrse. Ovary inferior, carpels 2–8, fused; placenta axile; ovules 1 to many per locule, some of which can be abortive, pendulous; style solitary; stigmas capitate or lobed. Fruit a berry, a drupe with 2–5 pyrenes, or a leathery achene. Seeds 1 to many; embryo small, straight; endosperm copious.

Five genera and ca. 207 species: mostly in temperate regions of E Asia and E North America; five genera (one endemic) and 66 species (25 endemic) in China.

Following recent phylogenetic studies (Bell et al., Harvard Pap. Bot. 6(2): 481–499. 2001; Donoghue et al., Harvard Pap. Bot. 6(2): 459–479. 2001; W. H. Zhang et al., Molec. Phylogen. Evol. 26: 176–189. 2002), Caprifoliaceae is now thought to include Caprifoliaceae, Diervilleae, Linnaeae, Morinaceae, Dipsacaceae, and Valerianaceae. However, Blacklund and Pyck (Taxon 47: 657–661. 1998) preferred to retain Caprifoliaceae as a distinct family and raise Linnaeae and Diervilleae as new families, and this system is followed in the *Flora of China*.

Hsu Ping-sheng, Hu Jia-qi & Wang Han-jin. 1988. Caprifoliaceae (excluding *Sambucus* and *Viburnum*). In: Hsu Ping-sheng, ed., Fl. Reipubl. Popularis Sin. 72: 104–259.

### Key to flowering material

- 1a. Flowers single and opposite in a spike.
  - 2a. Ovaries 5-, 7-, or 8-locular, all locules with many ovules ..... 4. *Leycesteria*
  - 2b. Ovaries 4-locular, 2 locules with 1 fertile ovule, other 2 locules with many sterile ovules ..... 3. *Symphoricarpos*
- 1b. Flowers paired (rarely single and then pedunculate; rarely in threes and then bracteoles fused into a cupule) or in whorls of 6.
  - 3a. Flowers paired (rarely single and then pedunculate; rarely in threes and then bracteoles fused into a cupule) ..... 5. *Lonicera*
  - 3b. Flowers in whorls of 6.
    - 4a. Flowers 6 in a single whorl, with 2 pairs of tight involucre bracts forming a capitulum; capitula paniculate; shrubs with triplinerved leaves ..... 2. *Heptacodium*
    - 4b. Inflorescence different, if flowers in a capitulum then plant a climber with perfoliate involucre bracts and bilabiate flowers in 1–4 whorls.
      - 5a. Herbs; leaves pinnatifid, otherwise perfoliate ..... 1. *Triosteum*
      - 5b. Shrubs or climbers; leaves entire, not perfoliate (involucre bracts sometimes perfoliate).
        - 6a. Shrubs; flowers funnelform ..... 4. *Leycesteria*
        - 6b. Climbers; flowers bilabiate ..... 5. *Lonicera*

### Key to fruiting material

- 1a. Fruit a berry.
  - 2a. Shrubs; seeds minute and numerous; berries in a spike or in whorls of 6 ..... 4. *Leycesteria*
  - 2b. Shrubs or climbers; seeds few to numerous; berries usually paired, or if in whorls of 6 then climbers ..... 5. *Lonicera*
- 1b. Fruit a drupe with 1–4 pyrenes or a leathery achene.
  - 3a. Fruit a leathery achene with persistent and accrescent sepals; achenes in a single whorl of 6 and in a compact capitulum surrounded by 2 pairs of erect, tightly enclosing involucre bracts; leaves triplinerved .... 2. *Heptacodium*
  - 3b. Fruit a drupe with 2–5 pyrenes, calyx not accrescent; drupes in spikes or in lax whorls of 6 with spreading to reflexed involucre bracts; leaves with pinnate venation.
    - 4a. Herbs; drupes with 3–5 pyrenes, drupes in whorls of 6 ..... 1. *Triosteum*
    - 4b. Shrubs; drupes with 2 densely pilose pyrenes, drupes forming compact spikes ..... 3. *Symphoricarpos*

## 1. TRIOSTEUM Linnaeus, Sp. Pl. 1: 176. 1753.

薤子蕪属 ting zi biao shu

*Triosteospermum* Miller.

Herbs, perennial, with underground rhizomes. Stem erect, with white pith becoming hollow. Leaves simple, opposite, obovate,

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entire, undulate to deeply pinnatifid. Inflorescence of sessile 6-flowered whorls; bracts and bracteoles lanceolate, shorter than flowers. Calyx 5-lobed, persistent. Corolla yellow-green, yellow, or purple; lobes 5, imbricate, bilabiate, upper lip 4-lobed, lower lip entire and recurved at anthesis. Nectary of compact glandular hairs, forming a bulge at base of corolla tube. Stamens 5, inserted in corolla tube; anthers introrse. Ovary 3–5-locular; ovule 1 per locule sometimes aborted, pendulous; style filiform; stigmas discoid, 3–5-lobed. Fruit a drupe, subglobose to pyriform, ± fleshy; pyrenes 2–4, black, with a thick stony endocarp, sometimes ribbed; endosperm fleshy, embryo small.

About six species: C and E Asia, North America; three species in China.

- 1a. Inflorescence in axils of leaves, terminal axis vegetative; sepals well developed to 10 mm; drupes green, pyrenes ribbed ..... 3. *T. sinuatum*  
 1b. Inflorescence terminal, axillary buds vegetative; sepals minute to 1 mm; drupes white to red, pyrenes not ribbed.  
 2a. Leaves broadly perfoliate, usually entire ..... 1. *T. himalayanum*  
 2b. Leaves not perfoliate, usually pinnatifid ..... 2. *T. pinnatifidum*

**1. *Triosteum himalayanum*** Wallich in Roxburgh, Fl. Ind. 2: 180. 1824 [*“himalayanum”*].

穿心薤子蕪 chuan xin ting zi biao

*Echium connatum* H. Léveillé; *Triosteum erythrocarpum* Harry Smith; *T. fargesii* Franchet; *T. himalayanum* var. *chinense* Diels & Graebner.

Herbs, perennial, 40–60 cm tall, branched below terminal inflorescence after anthesis, densely hirsute, glandular hairy, faintly aromatic. Leaves obovate-elliptic to obovate-oblong, ca. 11 × 7 cm, abaxially long hirsute on veins, interspersed with glandular hairs, adaxially densely long hirsute, lower part narrowed to a broadly perfoliate base, margin entire or occasionally lobed, apex acute to acuminate. Inflorescence of 2–5 whorls, at apex of stem. Sepals to 1 mm. Corolla lobes purple-brown with paler flecks; tube yellow-green, ca. 1.5 cm, outside glandular hairy; tube curved at base and shallowly spurred, spur pointing downward to below apex of ovary. Drupe ripening from white to red, subglobose, 10–12 mm in diam., hirsute and glandular hairy, crowned with a persistent calyx. Pyrenes 3–5, without ribs. Fl. May–Jul, fr. Jul–Sep.

Mountain slopes, coniferous forests, streamsides, grasslands; 1800–4100 m. ?Henan, Hubei, Hunan, Shaanxi, Sichuan, Xizang, Yunnan [Bhutan, India, Nepal].

The names *Triosteum hirsutum* Wallich and *T. hirsutum* Roxburgh have sometimes been applied to this species. Some confusion has arisen from different print versions of Roxburgh, Fl. Ind. 2: 180. 1824. The original descriptions of *T. himalayanum* Wallich and *T. hirsutum* Roxburgh can be found in only one of these print versions. The other print version includes the description of *T. hirsutum* Wallich, which appears to be a printing error. *Triosteum hirsutum* Roxburgh is attributed to a specimen collected in Chittagong, Bangladesh, now the basionym of *Lasianthus hirsutus* in the Rubiaceae (see p. 192).

**2. *Triosteum pinnatifidum*** Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 27: 476. 1881.

薤子蕪 ting zi biao

*Triosteum intermedium* Diels & Graebner; *T. rosthornii* Diels & Graebner.

Herbs, perennial, to 60 cm tall, branched below terminal inflorescence after anthesis, hirsute and glandular hairy. Leaves subsessile; leaf blade ca. 11 × 10 cm, abaxially with domatia along main vein, adaxially sparsely hirsute, more densely so on veins and margin, base cuneate, pinnatifid to occasionally entire toward apex, deeply lobed to more than half width of leaf blade; lobes elliptic, acuminate. Inflorescence of 2 or 3 6-flowered whorls at apex of stem. Sepals ca. 2 mm. Corolla yellow-green, ca. 1 cm; lobes purple-brown with paler flecks; tube curved at base, glandular hairy. Drupe white, subglobose, ca. 12 mm, hirsute and glandular hairy, crowned with a persistent calyx. Pyrenes 3–5, without ribs. Fl. May–Jun, fr. Jul–Sep.  $2n = ca. 18^*$ , 36.

Coniferous forests, sunny places on streamsides; 1800–2900 m. Gansu, Hebei, Henan, Hubei, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan [Japan].

**3. *Triosteum sinuatum*** Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 15: 373. 1871.

腋花薤子蕪 ye hua ting zi biao

Herbs, perennial, to 90 cm tall, unbranched, densely hirsute and glandular hairy. Leaf blade orbicular-ovate or oblong, ca. 14 × 7 cm, lower third abruptly narrowed, sparsely to densely hirsute, ciliate and glandular on veins and margin, base amplexicaul to perfoliate, margin entire to sinuous or shallowly lobed, apex acuminate. Inflorescence of 2 or 3 6-flowered whorls, at apex of stem. Sepals lanceolate, 6–10 mm, subequaling ovary, outside densely glandular hairy. Corolla ca. 1 cm; lobes purple-brown with paler flecks; tube yellow-green with a shallow spur at base; spur pointing outward, not reaching apex of ovary. Stamens: 2 longer, other 3 subequal in length; anthers narrowly elliptic. Style filiform; stigmas exserted. Drupe sessile, greenish, dry, pyriform with persistent calyx, 1–1.5 cm in diam., densely glandular hairy. Pyrenes 3, with 5 or 6 prominent ribs. Fl. Jun, fr. Sep–Oct.  $2n = 18$ .

Forests, streamsides; 800–900 m. Jilin, Liaoning, Xinjiang [Japan, Russia (Primorsky Krai)].

## 2. HEPTACODIUM Rehder in Sargent, Pl. Wilson. 2: 617. 1916.

七子花属 qi zi hua shu

Shrubs or small trees, deciduous. Winter buds with several pairs of scales. Leaves opposite, entire, triplinerved, estipulate. Inflo-

rescence a terminal panicle composed of numerous capitula. Capitulum of a single sessile whorl of opposite 3-flowered cymes and a terminal bud of bracts and a whorl often not developed. Capitulum with 2 pairs of involucrel decussate bracts and 12 bracts (bracts of each cyme spatulate and often fused together, bracts of secondary flowers smaller and often missing). Involucrel bracts ovate and persistent in fruit, glabrous to sericeous, longer and covering bracts and ovaries. Sepals 5, slightly protruding from involucre. Corolla tubular-funnelform; tube strongly curved at base with a nectary inside and shallowly gibbous, 5-lobed and regular. Stamens 5, exerted; filaments inserted at middle of corolla tube. Ovary 3-locular, 2 locules with numerous sterile ovules, remaining locule with 1 fertile ovule. Stigmas discoid. Fruit a leathery achene, cylindrical, crowned with a persistent and enlarged calyx. Achene 1-seeded, pericarp membranous; endosperm fleshy.

- One species: China.

**1. *Heptacodium miconioides*** Rehder in Sargent, Pl. Wilson. 2: 618. 1916.

七子花 *qi zi hua*

*Heptacodium jasminoides* Airy Shaw.

Shrubs, to 7 m tall. Young branches red-brown, sparsely pubescent. Petiole ca. 10 mm; leaf blade ovate, 8–15 × 5–9 cm, leathery, abaxially sparsely pubescent on veins, base obtuse to subcordate, apex acuminate to long acuminate. Inflorescence a subpyramidal panicle of capitula, 5–15 × 5–9 cm. Capitulum

with involucrel bracts and bracts variously shaped, unequal in size, pair of involucrel bracts often emarginate. Flowers white, fragrant. Sepals 2–2.5 mm, equaling ovary at anthesis. Style hairy. Corolla 1–1.5 cm, densely adpressed hairy. Achene ca. 10 mm, protruding from involucre, striate, hirsute-sericeous; persistent calyx with spreading sepals to 7–10 mm; seeds 5–6 mm. Fl. Jul–Sep, fr. Sep–Nov.

- Cliffs, scrub, forests; 600–1000 m. Anhui, Hubei, Zhejiang.

This is a rare species.

### 3. SYMPHORICARPOS Duhamel du Monceau, *Traité Arbr. Arbust.* 2: 295. 1755.

毛核木属 *mao he mu shu*

Shrubs, deciduous. Winter buds with several pairs of scales. Leaves opposite, entire or sometimes sinuous, shortly petiolate, estipulate. Flowers forming a spike at apices of lateral branches, sometimes solitary in axils of upper leaves. Calyx cupular, 4- or 5-lobed. Corolla reddish or white, campanulate to funnelform or hypocateriform, 4- or 5-lobed, regular; tube slightly gibbous at base, inside long pubescent or glabrous. Stamens 4 or 5, inserted in corolla tube, included or slightly exerted; anthers introrse. Ovary 4-locular, 2 locules with several sterile ovules, remaining 2 each with 1 fertile ovule; style slender; stigmas capitate or slightly 2-lobed. Fruit a berrylike drupe, white, red, or bluish black, globose, ovoid, or ellipsoid; pyrenes 2, ovoid, ± compressed; seeds with endosperm, embryo small.

Sixteen species: 15 in North America and Mexico; one species (endemic) in China.

**1. *Symphoricarpos sinensis*** Rehder in Sargent, Pl. Wilson. 1: 117. 1911.

毛核木 *mao he mu*

Shrubs erect, 1–2.5 m tall. Young branches glabrous to pubescent. Bark fibrous. Petiole 1–2 mm; leaf blade abaxially glaucescent, adaxially green, rhombic to ovate, 1.5–2.5 × 1.2–1.8 cm, both surfaces glabrous, lateral veins inconspicuous, base cuneate and narrowed to petiole, margin entire, apex obtuse to acute. Inflorescence a terminal, pedunculate spike of paired flowers at ends of axillary branches. Paired flowers 3–6, decussate, with conspicuous internodes; each flower with 1 small

subulate bract and 2 shorter ones. Sepals to 1 mm, glabrous, acute. Corolla white, campanulate, 5–7 mm; lobes ovate, slightly shorter than tube, both sides glabrous; tube slightly gibbous at base. Stamens inserted at middle of corolla tube, equaling or slightly exceeding corolla; anthers white, ca. 2 mm. Style 6–7 mm, glabrous; stigmas capitate. Drupe bluish black, pruinose, ovoid, ca. 7 mm, crowned with a short beak. Pyrenes 2, densely pilose. Fl. Jul–Sep, fr. Sep–Nov.

- Scrub; 600–2300 m. S Gansu, Guangxi, W Hubei, Shaanxi, E Sichuan, N Yunnan.

This is rather rare and local species.

### 4. LEYCESTERIA Wallich in Roxburgh, *Fl. Ind.* 2: 181. 1824.

鬼吹箫属 *gui chui xiao shu*

Shrubs, deciduous; branches hollow or with solid pith. Leaves simple, opposite, margin entire or serrate, occasionally sinuate; stipules present or absent. Inflorescence a spike or flowers in sessile whorls of 6, terminal or axillary, often with conspicuous leaflike involucrel bracts. Sepals 5. Corolla 5-lobed, white, pink, purple-red, or orange-yellow, funnelform, regular; tube gibbous at base. Stamens 5; anthers dorsifixed. Ovary 5-, 7-, or 8-locular, with numerous ovules per locule; style long, slender; stigmas peltate or capitate. Fruit a berry, with persistent calyx; seeds minute, numerous.

Five species: Sino-Himalayan region; four species in China.

1a. Inflorescence a spike with flowers in pairs.

- 2a. Interpetiolar stipules absent; petioles 5–10 mm; ovary glabrous, usually 7- or 8-locular ..... 3. *L. gracilis*  
 2b. Interpetiolar stipules present; petioles 2–4 mm; ovary pubescent at anthesis, usually 5-locular ..... 4. *L. glaucophylla*  
 1b. Inflorescence with flowers in whorls of 6.  
 3a. Interpetiolar stipules absent; branches hollow; abaxial leaf surfaces, petioles, and inflorescences sparsely  
 adpressed pubescent or subglabrous ..... 1. *L. formosa*  
 3b. Interpetiolar stipules present; branches with solid pith; abaxial leaf surfaces, petioles, and inflorescences  
 densely lanate ..... 2. *L. stipulata*

**1. *Leycesteria formosa*** Wallich in Roxburgh, Fl. Ind. 2: 182. 1824.

鬼吹箫 *gui chui xiao*

*Leycesteria formosa* var. *brachysepala* Airy Shaw; *L. formosa* var. *glandulosissima* Airy Shaw; *L. formosa* var. *stenosepala* Rehder; *L. limprichtii* H. Winkler; *L. sinensis* Hemsley.

Shrubs, 1–5 m tall. Branches hollow, branchlets, petioles, peduncles, bracts, and sepals adpressed pubescent and sometimes glandular hairy. Petiole 5–15 mm; leaf blade ovate to lanceolate, 4–13 × 2–6 cm, both surfaces glabrescent to sparsely adpressed pubescent, base cuneate to subcordate, margin entire to dentate, occasionally irregularly sinuate, apex acuminate to caudate. Inflorescence terminal or axillary; peduncle 6–30 mm. Whorls 1–10, each whorl composed of 2 opposite sessile, 3-flowered cymes subtended by green, purplish, or purple-red leaflike involucre bracts and bracts; involucre pair of bracts up to 2.5 cm, 4 outer bracts narrower and shorter, 8 inner bracts very small. Ovary oblong, 3–4 mm, densely glandular hairy. Calyx shortly fused at base, sometimes to half way; lobes lanceolate to linear, sometimes deltoid, 1–9 mm. Corolla white to pink, sometimes purple-red, funnellform, 1.2–1.8 cm, outside pubescent; lobes orbicular-ovate, ca. 5 mm. Stamens subequaling corolla. Ovary 5-locular; style slightly exceeding corolla, glabrous. Berry red, turning black-purple, ovoid or subglobose, with persistent calyx, 5–7 mm in diam.; seeds minute, numerous, brownish, broadly ellipsoid to oblong, slightly compressed, ca. 1 mm. Fl. (May–)Jun–Sep(–Oct), fr. (Aug–)Sep–Oct.  $2n = 18$ .

Forests, forest margins, scrub; 1100–3500 m. W Guizhou, W Sichuan, Xizang, Yunnan [Bhutan, India, Kashmir, Myanmar, Nepal, Pakistan; widely cultivated and naturalized in Australia, Europe, North America, and Pacific islands (New Zealand)].

The name *Leycesteria sinensis* was published by Hemsley in Hooker's Icon. Pl. (27: t. 2633. 1900). It is based on a single specimen collected by Henry (9692c) in Yunnan (mountains north of Mengtze, 2130 m) and does not appear to have been collected since then. This specimen has inflorescences with a single whorl, outer bracts broadly ovate, and calyx fused up to the middle with deltoid lobes; it falls within the variation of *L. formosa*.

**2. *Leycesteria stipulata*** (J. D. Hooker & Thomson) Fritsch in Engler & Prantl, Nat. Pflanzenfam. 4(4): 169. 1891.

绵毛鬼吹箫 *mian mao gui chui xiao*

*Lonicera stipulata* J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 2: 165. 1858; *Pentaptyxis stipulata* (J. D. Hooker & Thomson) J. D. Hooker ex C. B. Clarke.

Shrubs, ca. 3 m tall. Branches with solid pith. Branchlets, abaxial leaf surfaces, petioles, and inflorescences densely gray-

white lanate. Interpetiolar stipules conspicuous, suborbicular, 6–20 mm, persistent. Petiole 5–10 mm; leaf blade shiny adaxially, oblong-lanceolate, 8–15 × 3.5–7 cm, glabrescent adaxially, venation reticulate, midvein and lateral veins raised abaxially, veins conspicuously impressed adaxially, base rounded, margin slightly involute, remotely dentate, apex acuminate to long acuminate. Inflorescences axillary, shortly pedunculate, with 1–3 whorls of opposite 3-flowered cymes and 14 leaflike bracts and bracteoles per whorl; involucre bracts orbicular-ovate to lanceolate, 3–5 mm, exceeding or as long as ovaries. Corolla white, ca. 1 cm, outside tomentose, inside glabrous. Style glabrous. Berry ca. 1.9 cm, lanate to glabrescent; seeds brownish yellow, ellipsoid or subglobose, ca. 1 mm. Fl. Mar–Apr, fr. Oct–Nov.

Broad-leaved forests, grassy places; 1300–2000 m. Yunnan [Bhutan, India, Myanmar].

**3. *Leycesteria gracilis*** (Kurz) Airy Shaw, Hooker's Icon. Pl. 32: t. 3166. 1932.

纤细鬼吹箫 *xian xi gui chui xiao*

*Lonicera gracilis* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 39: 77. 1870.

Shrubs, 1.5–3 m tall. Branches hollow. Interpetiolar stipules absent; petiole 5–10 mm, glabrescent; leaf blade ovate-lanceolate, 7–12 × 2.5–6.5 cm, abaxially glaucous, sparsely pubescent on midvein and lateral veins, adaxially glabrous, base rounded to subcordate, margin slightly involute, remotely dentate, apex acuminate to caudate. Inflorescence a ± pendent axillary pedunculate spike of paired flowers; pairs 2–6, with 3 bracts per flower; involucre bracts ovate-lanceolate or lanceolate, 1/3–1/2 as long as ovaries, glandular ciliate. Ovary 5–6 mm, with a short beak at apex. Sepals connate and shallowly cupular in lower part; lobes linear-lanceolate to lanceolate, 1.5–2 mm, often glandular ciliate. Corolla white, funnellform, 1–2 cm, glabrous; lobes ovate to orbicular-ovate, 5–7 mm. Stamens slightly shorter than corolla. Ovary (5–)7- or 8(–10)-locular, with numerous ovules; style protruding from corolla. Berry red, turning blue-purple, oblong or ellipsoid, 1–1.3 cm; seeds numerous, subglobose, minute, ca. 1 mm in diam. Fl. (Sep–)Oct–Nov(–Dec), fr. (Mar–)Apr–May.

Forests, thickets; 2000–3800 m. Xizang, Yunnan [Bhutan, India, Myanmar, Nepal].

**4. *Leycesteria glaucophylla*** (J. D. Hooker & Thomson) C. B. Clarke in J. D. Hooker, Fl. Brit. India 3: 16. 1880.

西域鬼吹箫 *xi yu gui chui xiao*

*Lonicera glaucophylla* J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 2: 165. 1858; *Leycesteria glaucophylla* var. *thibetica* (H. J. Wang) J. F. Huang; *L. thibetica* H. J. Wang.

Shrubs, 1–2 m tall. Branches hollow. Interpetiolar stipules variously developed, reniform to suborbicular, 1–10 mm, abaxially densely pubescent; petiole 2–4 mm, pubescent; leaf blade ovate-lanceolate, 4–10 × 1–6 cm, abaxially densely gray-white pubescent, adaxially sparsely pubescent, base rounded, margin slightly involute, sparsely serrate, apex acuminate to caudate. Inflorescence a pedunculate spike of paired flowers; peduncle 5–20 mm, pairs 1 or 2, with 3 bracts per flower; 2 involucrel bracts leaflike, ovate to lanceolate, 5–20 mm, as long as or longer than ovaries; bracts ovate. Ovary ca. 5 mm with a short beak at apex, densely long hairy, interspersed with shorter glandular hairs.

Sepals shortly fused at base; lobes lanceolate, 4–7 mm. Corolla greenish or pale yellow to white, funnelform, 1–2 cm, outside hairy; lobes ovate, ca. 4 mm. Stamens slightly shorter than corolla; filaments hairy in lower half. Ovary 5-locular, with numerous ovules; style as long as corolla and hairy in lower half. Berry yellow-green, ovoid-ellipsoid, ca. 1.5 × 1 cm, long strigose and shortly glandular hairy, 5-locular; seeds numerous, yellowish brown, ovoid, small, ca. 1 mm. Fl. Mar–Sep, fr. May–Nov.

Margins of *Tsuga* forests; 1800–2600 m. SE Xizang [Bhutan, India, Myanmar, Nepal].

## 5. LONICERA Linnaeus, Sp. Pl. 1: 173. 1753.

忍冬属 ren dong shu

*Caprifolium* Miller; *Euchylia* Dulac; *Xylosteon* Miller.

Shrubs erect or dwarf, rarely small trees, sometimes climbers, deciduous or evergreen. Branches hollow or solid with white or brown pith; winter buds with 1 to several pairs of scales, rounded or acutely 4-angular, inner scales sometimes accrescent and reflexed. Accessory buds sometimes present, occasionally terminal buds reduced and substituted by 2 lateral buds. Leaves opposite, rarely whorled, margin entire, rarely dentate or divided; leaves usually estipulate, occasionally with interpetiolar stipules or a swollen interpetiolar line; sometimes 1 or 2 pairs of leaves below inflorescence connate and forming involucrel bracts. Inflorescence thyrsoid, terminal or axillary, cymes opposite and usually reduced to paired flowers, rarely 1-, sometimes 3-flowered. Inflorescence occasionally pedunculate; cymes sessile, sometimes forming a capitulum, or cymes pedunculate with a pair of bracts and 2 pairs of bracteoles; bracts usually small, sometimes leaflike; bracteoles usually free, sometimes ± fused and cupular occasionally enclosing ovaries, sometimes absent. Paired flowers with free or partially to completely fused ovaries. Calyx 5-lobed, rarely 4-lobed, sometimes truncate, base occasionally with a collarlike emergence. Corolla white, yellow, reddish, or purple-red, often changing color after anthesis, campanulate, funnelform, regularly or subregularly 5(or 4)-lobed, or bilabiate and upper lip 4-lobed; tube long or short, often shallowly to deeply gibbous on ventral side toward base, rarely spurred. Nectary of compact sessile glandular hairs on ventral side toward base of corolla tube, occasionally in 5 regular lines, rarely swollen at base of style. Stamens 5; anthers dorsifixed. Ovary 2 or 3(–5)-locular; style slender, hairy or glabrous; stigmas capitate. Fruit a berry, red, blue-black, black, green, or white sometimes pruinose, bracteoles occasionally accrescent in fruit and enclosing paired berries. Seeds 1 to numerous, smooth, pitted or granular, with rounded embryo.

About 180 species: N Africa, Asia, Europe, North America; 57 species (23 endemic) in China.

See Rehder, Rep. (Annual) Missouri Bot. Gard. 14: 27–232, t. 1–20. 1903.

The identities of *Lonicera confusa* var. *glabrocalyx* Miao & X. J. Liu (Acta Sci. Nat. Univ. Sunyatseni 28(4): 78. 1989), *L. fengkaiensis* Miao & X. J. Liu (Acta Sci. Nat. Univ. Sunyatseni 28(4): 78. 1989), *L. stenantha* Pojarkova var. *angustifolia* C. Y. Yang & J. H. Fan (J. Aug. 1st Agric. Coll. 18(2): 7. 1995), and *L. subrotundata* C. Y. Yang & J. H. Fan (J. Aug. 1st Agric. Coll. 18(2): 8. 1995) cannot be determined because of the unavailability of the type specimens for examination or the original publications. One North American species, *L. sempervirens* Linnaeus, is occasionally cultivated.

- 1a. Flowers in 3-flowered cymes forming whorls at ends of branches.
  - 2a. Involucrel bracts not connate; cymes pedunculate ..... 14. *L. hypoleuca*
  - 2b. Involucrel bracts usually connate; cymes sessile.
    - 3a. Corolla funnelform, lobes regular ..... 55. *L. subaequalis*
    - 3b. Corolla bilabiate.
      - 4a. Corolla 1.5–2.5 cm; bracts lanceolate ..... 56. *L. yunnanensis*
      - 4b. Corolla 5–9 cm; bracts ovate ..... 57. *L. tragophylla*
- 1b. Flowers paired (occasionally single), axillary, paniculate or forming thyrses at ends of branches; involucrel bracts not connate.
  - 5a. Shrubs; corolla actinomorphic, tube not gibbous and nectary of compact sessile glandular hairs in 5 regular lines; branches with solid pith; accessory buds absent.
    - 6a. Style as long as or longer than corolla tube.
      - 7a. Anthers and stigmas exerted; branches often with leafless spinelike apex; berries pale violet to white; dwarf shrubs 30–60 cm tall ..... 5. *L. spinosa*
      - 7b. Anthers and stigmas not exerted; branches not spinelike at apex; berries blue-black with glaucous bloom; shrubs 200–400 cm tall ..... 3. *L. tomentella*
    - 6b. Style ca. 1/2 length of corolla tube.

- 8a. Leaves sometimes whorled; flowers at bases of branches; branches often becoming spinelike at apex; stems sympodial; ovary 3-locular ..... 4. *L. rupicola*
- 8b. Leaves not whorled; flowers on short lateral branches or along monopodial stems; branches not spinelike at apex; ovary 2-locular.
- 9a. Ovaries fused above middle or throughout; corolla tubular-campanulate, lobes usually more than 1.5 mm; flowers 4- or 5-merous ..... 2. *L. angustifolia*
- 9b. Ovaries free; corolla narrowly tubular, lobes usually ca. 1.5 mm; flowers 5-merous ..... 1. *L. tubuliflora*
- 5b. Shrubs or climbers; corolla zygomorphic (sometimes only at base), tube gibbous at base or not and nectary of compact sessile glandular hairs on ventral side toward base of corolla tube; branches solid or hollow; accessory buds often present.
- 10a. Climbers, sometimes sprawling.
- 11a. Corolla with a ca. 12 mm spur toward base, neighboring 2 ovaries connate ..... 42. *L. calcarata*
- 11b. Corolla not spurred, sometimes shallowly gibbous, neighboring 2 ovaries free.
- 12a. Corolla less than 3 cm.
- 13a. Corolla tube broadly funnellform, shallowly gibbous toward base ..... 45. *L. acuminata*
- 13b. Corolla tube narrowly funnellform, not gibbous.
- 14a. Corolla densely yellow-brown strigose; leaves abaxially densely yellow-brown strigose, margins conspicuously ciliate ..... 46. *L. ferruginea*
- 14b. Corolla with spreading or adpressed hairs and minute glandular hairs, glabrous, or strigose; leaves abaxially not densely yellow-brown strigose, margins not conspicuously ciliate ..... 47–51. *L. macrantha* species complex
- 12b. Corolla more than 3 cm.
- 15a. Bracts leaflike.
- 16a. Bracts ovate to elliptic, 10–30 mm; leaves abaxially sparsely to densely hairy but not obscuring leaf surface ..... 44. *L. japonica*
- 16b. Bracts linear-lanceolate, 5–14 mm; leaves abaxially white velutinous with indumentum obscuring leaf surface ..... 47–51. *L. macrantha* species complex
- 15b. Bracts not leaflike, linear or subulate.
- 17a. Corolla 9–12 cm, tube broadly funnellform; berries green when ripe ..... 53. *L. hildebrandiana*
- 17b. Corolla 3–9 cm, tube narrowly funnellform; berries white, red, or black when ripe.
- 18a. Corolla 5–9 cm; leaves glabrous; berries white or black ..... 52. *L. longiflora*
- 18b. Corolla 3–7 cm; leaves abaxially hirsute mixed with short glandular hairs, pubescent, shortly white velutinous or glaucous with large sessile orange glands, occasionally subglabrous; berries white, red, or black.
- 19a. Corolla 3–4.5 cm, lip less than 1/5 as long as tube; berries red ..... 54. *L. bournei*
- 19b. Corolla 3–7 cm, lip more than 1/4 as long as tube; berries white or black ..... 47–51. *L. macrantha* species complex
- 10b. Upright shrubs, sometimes compact or prostrate with upright shoots.
- 20a. Branches with pith becoming brown and later hollow.
- 21a. Peduncles 10 mm or less.
- 22a. Calyx scarious and campanulate, splitting; corolla 1.2–1.5 cm; winter bud scales hairy inside ..... 41. *L. trichosantha*
- 22b. Calyx not scarious, tubular at base but lobed at apex; corolla ca. 2 cm; winter bud scales glabrous inside ..... 40. *L. maackii*
- 21b. Peduncle 10 mm or more.
- 23a. Inner winter bud scales densely hairy and ciliate outside, ovaries ± glandular hairy ..... 39. *L. chrysantha*
- 23b. Inner winter bud scales glabrous to sparsely hairy outside, ovaries glabrous.
- 24a. Upper corolla lip 4-lobed, 2 lateral lobes reaching base and spreading, tube shallowly gibbous toward base; leaf margin ciliate ..... 37. *L. tatarica*
- 24b. Upper corolla lip 4-lobed, 2 lateral lobes reaching 1/2–3/4 and slightly spreading, tube deeply gibbous toward base; leaf margin sometimes dentate ..... 38. *L. ruprechtiana*
- 20b. Branches with solid pith.
- 25a. Bracteoles fused into a cupule enclosing ovaries at anthesis (note that this can give appearance of fused ovaries and absent bracteoles); bracteoles sometimes accrescent and enclosing paired berries in fruit.
- 26a. Calyx forming a collarlike emergence at base; bracteoles not accrescent in fruit.
- 27a. Corolla bilabiate; style stiffly hairy to apex; leaves usually with tufted hairs at base of midvein abaxially ..... 11. *L. gynochlamydea*
- 27b. Corolla lobes regular; style villous at base only; leaves usually without tufted hairs at base of midvein abaxially ..... 12. *L. ligustrina*

- 26b. Calyx not forming a collarlike emergence at base; bracteoles accrescent in fruit sometimes enclosing paired berries.
- 28a. Inflorescence not terminal, paired flowers axillary; corolla lobes regular; cupule glabrous, tightly enclosing paired ovaries and forming a compound fruit ..... 10. *L. caerulea*
- 28b. Inflorescence terminal; corolla bilabiate; cupule pubescent, loosely enclosing paired berries, berries often exserted from cupule in fruit.
- 29a. Cupule usually glandular pubescent, accrescent to 1/2 length of berries; inflorescence terminal, of 3–8 whorls; winter buds glabrous inside; seeds shallowly pitted; leaf apex obtuse or rounded ..... 14. *L. hypoleuca*
- 29b. Cupule villous, enclosing paired berries, sometimes splitting at maturity; inflorescence terminal, of 1–3 whorls; winter buds densely villous inside; seeds deeply pitted with orange glands; leaf apex acuminate or acute ..... 13. *L. ferdinandi*
- 25b. Bracteoles absent or shorter than ovaries, free, fused in pairs, sometimes fused into a cupule but not enclosing ovaries.
- 30a. Winter bud acutely 4-angular.
- 31a. Ovaries free or fused only at base; bracteoles free or fused into a cupule; berries black ..... 31–33. *L. nigra* species complex
- 31b. Ovaries half to completely fused, bracteoles fused into a cupule; berries red or black.
- 32a. Peduncle to 7 mm; berries red ..... 30. *L. modesta*
- 32b. Peduncles 5–30 mm; berries red or black.
- 33a. Berries red; leaf blade ovate, 4–12 × 1.5–3.5 cm ..... 34–36. *L. maximowiczii* species complex
- 33b. Berries black; leaf blade usually obovate, 1–2.5 × 0.7–1.8 cm, abaxially often pruinose, apex retuse to obtuse ..... 31–33. *L. nigra* species complex
- 30b. Winter bud not acutely 4-angular.
- 34a. Ovaries connate to ca. 1/2 or more.
- 35a. Corolla with regular erect lobes; stamens inserted or partially exserted ..... 6–8. *L. tangutica* species complex
- 35b. Corolla bilabiate, lobes recurved; stamens fully exserted.
- 36a. Bracteoles present, free or sometimes fused into a cupule; inner winter bud scales long accrescent; peduncle 0.5–9 cm, usually thickened toward apex ..... 27–28. *L. alpigena* species complex
- 36b. Bracteoles absent; inner winter bud scales long accrescent or not; peduncle 0.5–1.5 cm, not thickened toward apex.
- 37a. Flowering Apr–Jun; inner winter bud scales not accrescent; berry globose ..... 9. *L. microphylla*
- 37b. Flowering Jan–Apr; inner winter bud scales long accrescent; berry oblong.
- 38a. Deciduous shrubs; leaves ovate to lanceolate, acute to acuminate, 3–8.5 cm ..... 15. *L. fragrantissima*
- 38b. Evergreen shrubs; leaves broadly obovate, obtuse and mucronate, 1–2 cm ..... 16. *L. mucronata*
- 34b. Ovaries free.
- 39a. Corolla hypocrateriform, densely hairy at mouth; style ca. 1/2 length of corolla tube; flowers appearing before leaves ..... 18. *L. setifera*
- 39b. Corolla not hypocrateriform; style subequaling or longer than corolla tube; flowers appearing before or after leaves.
- 40a. Corolla bilabiate.
- 41a. Bracteoles absent; bracts leaflike, ovate to lanceolate ..... 26. *L. humilis*
- 41b. Bracteoles present, free or fused in pairs or into a cupule; bracts linear-subulate.
- 42a. Prostrate shrubs with evergreen leathery leaves; corolla tube longer than lobes ..... 43. *L. crassifolia*
- 42b. Erect shrubs with deciduous leaves; corolla tube shorter than lobes.
- 43a. Bracteoles free or fused in pairs; peduncle 0.5–9 cm, usually thickened toward apex; leaves ovate-elliptic to ovate-lanceolate, longer than wide, apex apiculate to long acuminate ..... 27–28. *L. alpigena* species complex
- 43b. Bracteoles fused into a cupule shorter than ovaries; peduncle 0.7–1 cm, not thickened toward apex; leaves broadly rhombic, as long as wide, apex cuspidate and mucronate or obtuse ..... 29. *L. oblata*
- 40b. Corolla funnelform, lobes subregular.
- 44a. Cymes reduced to a single flower, sometimes with a second partially developed ..... 25. *L. subhispida*
- 44b. Cymes of paired flowers.
- 45a. Inner winter bud scales not accrescent and covered by a single outer pair of keeled scales; bracts usually 1 cm or more ..... 19–23. *L. hispida* species complex
- 45b. Inner winter bud scales accrescent; bracts usually 1 cm or less.

- 46a. Corolla lobes more than half as long as tube; anthers usually deep pink, exserted; berry globose ..... 17. *L. praeflorens*  
 46b. Corolla lobes less than half as long as tube; berry ellipsoid ..... 24. *L. elisae*

**1. *Lonicera tubuliflora*** Rehder in Sargent, Pl. Wilson. 1: 129. 1911.

管花忍冬 *guan hua ren dong*

Shrubs, deciduous, to 4 m tall. Branches with solid pith. Winter buds with several pairs of acute scales. Young branches puberulent and minutely glandular hairy. Petiole shorter than 1 mm; leaf blade glaucescent abaxially, oblong to oblong-ovate, 5–12 × 2–3 mm, base broadly cuneate to rounded, margin sparsely glandular ciliolate at base, apex obtuse. Paired flowers fragrant, axillary on upper or middle part of young branches; peduncle to 1 mm; bracts leaflike, linear-oblong, to 5 mm; bracteoles cupular, 1/2–2/3 as long as ovary, truncate. Neighboring 2 ovaries free, ca. 1.5 mm. Sepals triangular-ovate, less than 1 mm, glabrous or sometimes sparsely glandular ciliolate. Corolla white or yellowish, tubular; tube 8–10 mm, ca. 2 mm in diam., mouth slightly constricted at apex, inside villous and glandular at base; glandular hairs in 5 regular lines; lobes spreading, orbicular-ovate, ca. 1.5 mm. Filaments inserted in middle of corolla tube. Ovary 2-locular; style shorter than stamens and less than 1/2 length of corolla tube. Berry red or red-brown, ovoid or globose, ca. 4 mm in diam. Fl. Jun–Jul, fr. Sep.

- Scrub; 2100–3100 m. NW Sichuan.

This species seems more closely related to *Lonicera angustifolia* than to *L. rupicola* var. *syringantha* as suggested by Rehder (in Sargent, Pl. Wilson. 1: 129. 1911).

**2. *Lonicera angustifolia*** Wallich ex Candolle, Prodr. 4: 337. 1830.

狭叶忍冬 *xia ye ren dong*

Shrubs, deciduous to 3 m tall, branched. Branches with solid pith. Winter buds with several pairs of acute scales. Leaves, petioles, and bracts (sometimes bracteoles and calyx lobes) often sparsely red-brown glandular ciliolate. Petioles 1–3 mm; leaf blade obovate to elliptic or ovate, 0.5–4.5 cm × 2–13 mm, abaxially glaucous, glabrous to pubescent, base cuneate, apex acute or obtuse to rounded and sometimes mucronate. Inflorescences axillary, paired flowers, and on lateral short branches; peduncle 1–30 mm; bracts leaflike, often exceeding calyx lobes in length; bracteoles fused and cupular, ca. 1/2 as long as or equaling ovaries, apex truncate or shallowly dentate. Neighboring 2 ovaries fused above middle or throughout. Calyx shallowly cupular; lobes ovate-triangular, often unequal. Corolla white to pink, often tinged purple-red, tubular-campanulate, 6–10 mm, outside glabrous to pubescent, 4- or 5-lobed; tube inside densely hairy at throat and densely glandular below; glandular hairs in 5 regular lines; tube with 1–5 ± conspicuous pouches halfway up; lobes orbicular-ovate, 1/4–1/3 as long as tube. Stamens and style included; anthers ca. 1 mm; filaments inserted slightly below throat. Ovary usually 2-locular; style not exceeding anthers; stigmas green, globose, mucilaginous. Berry red, suborbicular, 4–6 mm in diam.; calyx persistent; seeds brownish, ovoid to oblong, compressed, 2–3 mm. Fl. May–Jul, fr. Aug–Sep.

Scrub, forests, stony places along river valleys; 2400–4500(–4700) m. SW Sichuan, Xizang, Yunnan [Afghanistan, Bhutan, India, Kashmir, N Myanmar, Nepal, Pakistan].

- 1a. Leaves 15–45 mm, apex acute or acuminate; peduncle 6–30 mm ..... 2a. var. *angustifolia*  
 1b. Leaves 5–15 mm, apex obtuse; peduncle to 5 mm ..... 2b. var. *myrtillus*

**2a. *Lonicera angustifolia* var. *angustifolia***

狭叶忍冬(原变种) *xia ye ren dong* (yuan bian zhong)

*Caprifolium angustifolium* (Wallich ex Candolle) Kuntze.

Leaves 15–45 mm, apex acute or acuminate. Peduncle 6–30 mm.  $2n = 18$ .

Forests, scrub; 2700–4500 m. S Xizang, Yunnan [Bhutan, N India, Kashmir, Nepal].

**2b. *Lonicera angustifolia* var. *myrtillus*** (J. D. Hooker & Thomson) Q. E. Yang, Landrein, Borosova & J. Osborne, **comb. nov.**

越桔叶忍冬 *yue ju ye ren dong*

Basionym: *Lonicera myrtillus* J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 2: 168. 1858; *Caprifolium parvifolium* Kuntze; *L. angustifolia* var. *rhododactyla* W. W. Smith; *L. minutifolia* Kitamura; *L. myrtillus* var. *cyclophylla* Rehder; *L. myrtillus* var. *depressa* Rehder.

Leaves 5–15 mm, apex obtuse. Peduncle to 5 mm. Fl. May–Jun(–Jul), fr. Aug–Sep.

Scrub, sparse forests, stony places along river valleys; 2400–4000 (–4700) m. SW Sichuan, Xizang, Yunnan [Afghanistan, Bhutan, India (Assam), Kashmir, N Myanmar, Pakistan].

**3. *Lonicera tomentella*** J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 2: 167. 1858.

毛冠忍冬 *mao guan ren dong*

Shrubs, deciduous, to 4 m tall. Branches with solid pith. Winter buds with several obtuse scales. Young branches lanate or villous. Petiole 1–3 mm; leaf blade gray-green or glaucous abaxially, ovate to lanceolate, 1–4 × 0.6–1.5 cm, abaxially pubescent or rarely subglabrous, more densely pubescent on midvein, sometimes with scattered orange-red minute glands abaxially, base cuneate to slightly cordate, margin revolute, apex obtuse to acute. Inflorescences axillary, paired flowers; peduncle 1–14 mm; bracts leaflike, ovate to linear-oblong, to 8 mm, longer than ovaries; bracteoles ± fused and cupular, up to 1/2 as long as ovary, glabrous. Neighboring 2 ovaries fused to more than half or free, ca. 2.5 mm, glabrous and glaucous. Sepals ovate, less than 1 mm, apex obtuse. Corolla white, tinged purplish red, tubular-funnelform, outside glabrous or pubescent; tube ca. 8 mm, inside pubescent and glandular at base; glandular hairs in 5 regular lines; lobes orbicular-ovate, ca. 2.5 mm.

Stamens inserted in upper part of corolla tube, unequal in length, not exerted. Ovary usually 3-locular; style as long as corolla tube; stigmas globose. Berry blue-black, with glaucous bloom, globose, ca. 6 mm in diam. Fl. Jun–Aug, fr. Sep.

Forests, scrub; 2000–3200 m. Xizang, NW Yunnan [Bhutan, NE India, Myanmar, Nepal].

- 1a. Leaves gray-green, densely pubescent;  
lateral veins usually 7 or 8 pairs ..... 3a. var. *tomentella*  
1b. Leaves glaucous, sparsely pubescent  
or glabrous; lateral veins usually  
4 or 5 pairs ..... 3b. var. *tsarongensis*

### 3a. *Lonicera tomentella* var. *tomentella*

毛冠忍冬(原变种) mao guan ren dong (yuan bian zhong)

*Caprifolium tomentellum* (J. D. Hooker & Thomson) Kuntze; *Lonicera tomentella* var. *conaensis* P. S. Hsu & Y. F. Huang.

Leaf blade gray-green abaxially, densely pubescent, lateral veins 7 or 8 pairs.

Forests, scrub; 2900–3000 m. Xizang, NW Yunnan [NE India].

**3b. *Lonicera tomentella* var. *tsarongensis*** W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 13: 168. 1921.

察瓦龙忍冬 cha wa long ren dong

Leaf blade often glaucous abaxially, sparsely pubescent or glabrous, lateral veins 4 or 5 pairs.

- Forests, scrub; 2000–3200 m. SE Xizang, NW Yunnan.

**4. *Lonicera rupicola*** J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 2: 168. 1858.

岩生忍冬 yan sheng ren dong

Shrubs, deciduous, erect or procumbent, to 2.5 m tall, sometimes only 10–20 cm tall at high elevations. Bark splitting. Branches with solid pith. Winter buds with several obtuse scales. Young branches white lanate or subglabrous, sometimes minutely glandular hairy; often leaves dropping at apex and leaving needlelike bare twigs. Leaves in whorls of 3 or opposite; petiole 1–3 mm; leaf blade linear-lanceolate to oblong, 0.5–3.7 × 0.1–1 cm, abaxially white lanate, sparsely pubescent, or glabrous, adaxially glabrous or rarely minutely glandular hairy, base cuneate to subcordate, margin revolute, apex acute to obtuse and slightly mucronate. Inflorescences axillary, paired flowers at bases of young branches; peduncle 0–3 mm; bracts, bracteoles, and margins of sepals minutely puberulent and glandular; bracts leaflike, linear-lanceolate, exceeding ovary; bracteoles cupular, sometimes lobed or rarely completely separate, ca. 1/2 as long as or equaling ovary. Neighboring 2 ovaries free, ca. 2 mm, glabrous. Sepals narrowly lanceolate to ovate-triangular, 2.5–3 mm. Flowers fragrant. Corolla white or pink to purple-red, tubular-funnelform; tube 8–10 mm, outside often puberulent and minutely glandular hairy, inside pubescent and glandular at base; lobes spreading, ovate, 2–4 mm. Stamens up to middle of corolla tube or slightly exceeding corolla tube, longer than style. Ovary usually 3-locular. Berry red, ellip-

soid, ca. 8 mm; seeds few, brownish, ellipsoid, compressed, ca. 4 mm. Fl. May–Aug, fr. Aug–Oct.

Alpine scrub and meadows, rock crevices, scree slopes, grasslands, forest margins, deserts; 2000–5000 m. Gansu, S Ningxia, Qinghai, Sichuan, Xizang, NW Yunnan [Bhutan, India, Nepal].

- 1a. Ecotype found in shifting sands, with short branches on long subterranean stems; young branches, petioles, and leaves minutely scabrid ..... 4c. var. *minuta*  
1b. Plants of alpine meadows, scree slopes, and forest margins, erect or procumbent.  
2a. Leaves abaxially usually white lanate, evergreen ..... 4a. var. *rupicola*  
2b. Leaves abaxially glabrous or sparsely lanate, deciduous ..... 4b. var. *syringantha*

### 4a. *Lonicera rupicola* var. *rupicola*

岩生忍冬(原变种) yan sheng ren dong (yuan bian zhong)

*Caprifolium rupicolum* (J. D. Hooker & Thomson) Kuntze; *Lonicera rupicola* subsp. *thibetica* (Bureau & Franchet) Y. C. Tang; *L. rupicola* var. *thibetica* (Bureau & Franchet) Zabel; *L. thibetica* Bureau & Franchet.

Plants erect or procumbent. Leaves evergreen, abaxially usually white lanate.

Alpine scrub and meadows, rock crevices, margins of scree slopes, grasslands at forest margins; 2100–5000 m. Gansu, S Ningxia, Qinghai, Sichuan, Xizang, NW Yunnan [India, Nepal].

**4b. *Lonicera rupicola* var. *syringantha*** (Maximowicz) Zabel in Beissner et al., Handb. Laubholzben. 462. 1903.

红花岗岩生忍冬 hong hua yan sheng ren dong

*Lonicera syringantha* Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 24: 49. 1878; *L. codonantha* Rehder; *L. rupicola* f. *glabrata* Suessenguth; *L. rupicola* subsp. *syringantha* (Maximowicz) Y. C. Tang; *L. syringantha* var. *minor* Maximowicz; *L. syringantha* var. *wolfii* Rehder; *L. wolfii* (Rehder) K. S. Hao.

Plants erect or procumbent. Leaves deciduous, abaxially glabrous or sparsely lanate.

Scrub, forest margins, alpine meadows, scree slopes; 2000–4600 m. Gansu, S Ningxia, E Qinghai, Sichuan, Xizang, NW Yunnan [India].

*Lonicera codonantha* appears to be an intermediate form between var. *rupicola* and var. *syringantha*, which has sessile, abaxially villous leaves, and brown villous stems.

**4c. *Lonicera rupicola* var. *minuta*** (Batalin) Q. E. Yang, Landrein, Borosova & J. Osborne, **comb. et stat. nov.**

矮生忍冬 ai sheng ren dong

Basionym: *Lonicera minuta* Batalin, Trudy Imp. S.-Peterburgsk. Bot. Sada 12: 170. 1892.

Ecotype with short branches on long subterranean stems; young branches, petioles, and leaves minutely scabrid. Fl. May–Jun, fr. Aug–Sep.

- Shifting sands of sand dunes; 3200–3800 m. W Gansu, Qinghai.

**5. *Lonicera spinosa*** (Decaisne) Jacquemont ex Walpers, Reper. Bot. Syst. 2: 449. 1843.

棘枝忍冬 *ji zhi ren dong*

*Xylosteon spinosum* Decaisne in Jacquemont, Voy. Inde 4(Bot.): 78. 1841; *Caprifolium spinosum* (Decaisne) Kuntze; *Lonicera albertii* Regel.

Shrubs, dwarf, to 60 cm tall, deciduous, often with spine-like, leafless branchlets. Bark splitting. Branches with solid pith. Winter buds with few scales. Leaves opposite; petiole ca. 1 mm; leaf blade linear to oblong, 4–15 × 1–2 mm, glabrous, base broadly cuneate to rounded, margin revolute, apex obtuse. Paired flowers fragrant, axillary at bases of lateral young branches; peduncle to 1 mm; bracts leaflike, longer than ovary; bracteoles cupular, more than 1/2 as long as ovary, apex subtruncate, often 2-lobed. Neighboring 2 ovaries free. Calyx cupular, ca. 1.5 mm; lobes ovate, apex obtuse. Corolla purplish red, later white, tubular-funneliform; tube ca. 10 mm, slender; lobes spreading, ovate-oblong, ca. 4 mm. Stamens inserted at mouth of corolla; anthers exserted. Style exserted. Berry pale violet to white, ellipsoid, ca. 5 mm. Fl. Jun–Jul, fr. Sep.

Scrub, scree slopes, often mixed with *Caragana* plants; 1700–4600 m. Xinjiang, Xizang [Afghanistan, India, Kashmir, Kazakhstan, Kyrgyzstan, Tajikistan].

#### 6–8. *Lonicera tangutica* species complex

Shrubs, deciduous, to 1–4 m tall. Branches with solid pith. Winter buds with 2–4 pairs of scales. Petiole 1–5 mm; leaf blade obovate to lanceolate, 0.5–8.5 × 0.2–2.5 cm, both surfaces glabrous or pubescent, base cuneate, apex obtuse to acute. Inflorescences axillary, paired flowers; peduncle usually nodding, 0–3 cm, slender, glabrous, rarely pubescent; bracts narrow, sometimes leaflike, usually exceeding or rarely shorter than ovaries; bracteoles sometimes present, separate or fused, minute to 1/4 as long as ovaries, often ciliate. Neighboring 2 ovaries fused completely or at least to middle, elliptic or oblong, ca. 2 mm, glabrous or occasionally pubescent. Calyx cupular, to 2 mm, truncate or with ovate to triangular lobes, glabrous to pubescent, sometimes ciliate. Corolla white, yellow, or pink, sometimes tinged purple, tubular-funneliform, 8–13 mm; tube glabrous, occasionally with sparse stiff hairs, nectary swollen or gibbous on ventral side at base of corolla tube, sometimes forming a spur shorter than ovaries; lobes suberect, orbicular-ovate, 1–2 mm; mouth glabrous or with sparse spreading stiff hairs. Stamens inserted at middle of corolla tube; anthers partially exserted, glabrous or ciliate. Style exserted by 1–3 mm. Berries orange, red, purple, or black, 5–6 mm in diam.; seeds brownish, ovoid or oblong, 2–2.5 mm, smooth. Fl. May–Aug, fr. Jul–Sep.

Forests, forest margins, grasslands, scrub, mountains; 800–4500 m. Anhui, Gansu, Guizhou, Hebei, Henan, W Hubei, W Hunan, Ningxia, E Qinghai, Shaanxi, Shanxi, Sichuan, Taiwan, Xizang, NW Yunnan [Bhutan, India (Sikkim), Nepal].

This is a highly variable species complex; further studies are needed for a satisfactory taxonomic treatment.

- 1a. Bracts ovate-lanceolate; berries black ..... 8. *L. kawakamii*  
 1b. Bracts subulate to lanceolate or linear-lanceolate; berries orange to red.

- 2a. Young branches, leaves, peduncle, bracts, and flowers glabrous; peduncle shorter than 1 cm ..... 7. *L. litangensis*  
 2b. Young branches, leaves, peduncle, bracts, and flowers ± hairy; peduncle longer ..... 6. *L. tangutica*

**6. *Lonicera tangutica*** Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 24: 48. 1878.

唐古特忍冬 *tang gu te ren dong*

*Caprifolium tanguticum* (Maximowicz) Kuntze; *Lonicera aemulans* Rehder; *L. chlamydata* W. W. Smith; *L. chlamydophora* W. W. Smith (1913), not K. Koch (1851); *L. cylindriflora* Handel-Mazzetti; *L. fangii* S. S. Chien; *L. flavipes* Rehder; *L. glandulifera* S. S. Chien; *L. guebriantiana* Handel-Mazzetti; *L. hopeiensis* S. S. Chien; *L. inconspicua* Batalin; *L. kungeana* K. S. Hao; *L. longa* Rehder; *L. penduliflora* Pax & K. Hoffmann; *L. saccata* Rehder; *L. saccata* f. *calva* Rehder; *L. saccata* var. *tangiana* (S. S. Chien) P. S. Hsu & H. J. Wang; *L. saccata* f. *wilsonii* Rehder; *L. schneideriana* Rehder; *L. serpyllifolia* Rehder; *L. serreana* Handel-Mazzetti; *L. shensiensis* (Rehder) Rehder; *L. stenosphon* Franchet; *L. szechuanica* Batalin; *L. taipeiensis* P. S. Hsu & H. J. Wang; *L. tangiana* S. S. Chien; *L. tangutica* var. *glabra* Batalin; *L. trichogyne* Rehder; *L. trichogyne* var. *aequipila* Handel-Mazzetti; *L. trichopoda* Franchet; *L. trichopoda* var. *shensiensis* Rehder; *L. wulingensis* Nakai.

For description see under species complex. Distinguishing characters for this species are as follows: Young branches, leaves, peduncle, bracts, and flowers ± hairy; peduncle longer than 1 cm. Bracts subulate to lanceolate or linear-lanceolate; berries orange to red. Fl. May–Aug, fr. Jul–Sep.

Forests, grasslands on mountain slopes, scrub at streamsides; 800–4500 m. Anhui, Gansu, Guizhou, Hebei, Henan, W Hubei, W Hunan, Ningxia, E Qinghai, Shaanxi, Shanxi, Sichuan, Taiwan, Xizang, NW Yunnan [Bhutan, India (Sikkim), Nepal].

**7. *Lonicera litangensis*** Batalin, Trudy Imp. S.-Peterburgsk. Bot. Sada 14: 173. 1895.

理塘忍冬 *li tang ren dong*

*Lonicera farreri* W. W. Smith; *L. oresbia* W. W. Smith; *L. rockii* Rehder.

For description see under species complex. Distinguishing characters for this species are as follows: Young branches, leaves, peduncle, bracts, and flowers glabrous; peduncle shorter than 1 cm. Bracts subulate to lanceolate or linear-lanceolate; berries orange to red. Fl. May–Jun, fr. Aug–Sep.

Scrub, grasslands, forests, forest margins; 3000–4500 m. Sichuan, Xizang, NW Yunnan [Bhutan, India (Sikkim), Nepal].

**8. *Lonicera kawakamii*** (Hayata) Masamune, J. Soc. Trop. Agric. 3: 246. 1931.

玉山忍冬 *yu shan ren dong*

*Coprosma kawakamii* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 30(1): 145. 1911.

For description see under species complex. Distinguishing characters for this species are as follows: Bracts ovate-lanceolate; berries black.

- Mountains; 3000–3900 m. Taiwan.

No specimens were seen; a photograph and illustration were seen in Fl. Taiwan (ed. 2, 4: 747, 1166: photo 376. 1998).

**9. *Lonicera microphylla*** Willdenow ex Schultes, Syst. Veg. 5: 258. 1819.

小叶忍冬 xiao ye ren dong

*Caprifolium microphyllum* (Willdenow ex Roemer & Schultes) Kuntze; *Lonicera oiwakensis* Hayata; *Xylosteon sieversianum* Ruprecht.

Shrubs, deciduous, 1–3 m tall. Branches with solid pith. Winter buds with 3–6 pairs of scales, rounded to acute. Petiole 1–2 mm; leaf blade abaxially often gray-white, sometimes with membranous domatia in vein axils, obovate to elliptic or oblong, 5–22 × 5–13 mm, both surfaces densely puberulent to subglabrous, base cuneate, apex obtuse or ± acute, sometimes mucronate. Inflorescences axillary, paired flowers; peduncles 5–12 mm, usually nodding; bracts subulate, exceeding ovaries, bracteoles absent. Neighboring 2 ovaries fused completely or at least to middle, glabrous. Calyx rimlike to lobed. Corolla bilabiate, white to yellow, sometimes tinged pink; tube 7–10 mm, outside hairy or glabrous, gibbous toward base on ventral side; lobes oblong, 3–7 mm, upper 4 lobes erect, lower one recurved. Stamens inserted at mouth of corolla, together with style exserted; filaments and style glabrous or with spreading hairs. Ovaries 3-locular, with 4 or 5 ovules per locule. Berry red or orange-yellow, globose, 5–6 mm in diam.; seeds yellowish brown, oblong or ovoid-ellipsoid, 2.5–3 mm, smooth. Fl. Apr–Jun(–Jul), fr. Jul–Aug(–Sep).  $2n = 18$ .

Rocky slopes, grasslands, thickets, sparse forests, forest margins; 1100–3600(–4100) m. Gansu, W Hebei, ?Henan, Nei Mongol, Ningxia, Qinghai, Shanxi, Taiwan, Xinjiang, Xizang [Afghanistan, NW India, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Russia].

**10. *Lonicera caerulea*** Linnaeus, Sp. Pl. 1: 174. 1753.

藍果忍冬 lan guo ren dong

*Lonicera caerulea* var. *altaica* Pallas; *L. caerulea* var. *edulis* Turczaninow ex Herder; *L. caerulea* var. *tangutica* Maximowicz; *Xylosteon caeruleum* (Linnaeus) Dumont de Courset.

Shrubs, deciduous, to 2.5 m tall. Branches with solid pith. Bark flaking. Buds divaricate, sometimes with accessory ones. Winter buds with several pairs of scales, outer pair long acuminate and obscuring inner ones. Interpetiolar stipules sometimes reniform and fused to 6 mm; leaf blade ovate to oblong or obovate, 1–6 × 1–3 cm, both surfaces with sparse short hairs, more densely so and spreading hairy on midvein, sometimes subglabrous, base rounded, apex acute to obtuse. Inflorescences axillary, paired flowers; peduncle 2–10 mm; bracts linear, 2–3 × as long as ovaries; bracteoles glabrous, fused into a cupule tightly enclosing free ovaries. Corolla tubular-funnelform, 10–15 mm, outside puberulent, shallowly gibbous at base; lobes regular, 2–3 mm. Stamens exserted from corolla. Ovaries 2-loc-

ular; style exserted and glabrous. Cupule tightly fused around 2 berries, blue-black, pruinose, forming an elliptic to oblong-elliptic compound fruit, ca. 1.5 cm. Seeds brown, globose to ellipsoid, ca. 1.5 mm. Fl. May–Jun, fr. Aug–Sep.

Deciduous forests, scrub; 2600–3500 m. S Gansu, Hebei, Heilongjiang, ?Henan, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shanxi, N Sichuan, Xinjiang, NW Yunnan [Japan, Korea, Mongolia, Russia; Europe, North America].

This is a very widely distributed and variable species. The berries are edible.

**11. *Lonicera gynochlamydea*** Hemsley, J. Linn. Soc., Bot. 23: 362. 1888.

蕊被忍冬 rui bei ren dong

*Caprifolium gynochlamydeum* (Hemsley) Kuntze.

Shrubs, deciduous, to 3–4 m tall. Branches with solid pith. Winter buds with several pairs of acute scales. Petiole 3–6 mm; leaf blade ovate to lanceolate, 5–11 × 1.5–3.5 cm, abaxially often densely white villous at base of midvein, occasionally with scattered dark purple glands at base, base rounded to cuneate, margin with short stiff hairs, apex long acuminate. Inflorescences axillary, paired flowers; peduncles 4–8 mm; bracts subulate, subequaling or exceeding ovaries; bracteoles fused, cupular, surrounding 2 neighboring free ovaries. Calyx forming a collarlike emergence at base; lobes triangular or lanceolate, glandular ciliate, apex obtuse to acute. Corolla bilabiate, white, pink, or purple-red, 8–12 mm, both sides with short hairs; tube slightly shorter than lobes, deeply gibbous at base. Stamens exserted; filaments sometimes hairy at base. Style shorter than stamens, stiffly hairy throughout. Cupule not accrescent; berries purple-red or white, 4–5 mm in diam., 1- or 2(–4)-seeded; seeds smooth. Fl. May, fr. Aug–Sep.

• Scrub, forests; 1200–1900(–3000) m. Anhui, Chongqing, Gansu, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Yunnan.

**12. *Lonicera ligustrina*** Wallich in Roxburgh, Fl. Ind. 2: 179. 1824.

女贞叶忍冬 nü zhen ye ren dong

Shrubs, evergreen, semievergreen, or deciduous, 1.5–2.5(–5) m tall. Winter buds with several pairs of acute scales. Young branches with stiff and upwardly curved hairs. Leaves ovate to lanceolate, 0.4–8 × 0.2–1.5 cm, leathery or papery, abaxially sometimes with minute black glands, adaxially usually shiny, glabrous or with sparse short hairs and reddish glandular hairs, midvein slightly impressed, flat or raised, sometimes stiffly hairy, base rounded to cuneate, apex acuminate to obtuse, sometimes mucronate. Inflorescences axillary, paired flowers; peduncle to 5 mm, pubescent; bracts lanceolate, 1.5–7 mm; bracteoles cupular, completely enclosing paired ovaries, sparsely glandular hairy. Neighboring 2 ovaries free. Calyx cupular, forming a collarlike emergence at base, overlapping apex of bracteoles; lobes ovate, glandular ciliate, apex obtuse. Corolla greenish yellow to white or occasionally purple-red, funnelform, 4–12 mm; tube shallowly gibbous at base, inside villous, outside glandular; lobes almost regular, ovate, 1–2 mm, apex obtuse. Anthers exserted. Style exserted, villous at base; stigmas

capitate, hemispherical. Fruit purple, red, or white, ± translucent, globose, 4–8 mm in diam.; seeds brownish, ovoid or subglobose, sometimes compressed, 1–2 mm, smooth. Fl. Apr–Jul, fr. Aug–Dec.  $2n = 18, 22$ .

Scrub, evergreen broad-leaved forests, sandy slopes along watersides, moist places in sparse forests; 300–3000 m. S Gansu, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Shaanxi, Sichuan, Yunnan [Bhutan, India, Nepal].

- 1a. Leaves with midvein raised adaxially, glabrous or sparsely hairy; berry purple or white ..... 12c. var. *pileata*
- 1b. Leaves with midvein slightly impressed or flat adaxially, often stiffly hairy; berry purple or red.
- 2a. Leaves (0.5–)1–4(–8) cm, adaxially densely stiffly hairy on midvein, apex usually acuminate or mucronate; corolla 7.5–12 mm .... 12a. var. *ligustrina*
- 2b. Leaves 0.4–1(–1.5) cm, apex usually rounded or obtuse, adaxially glabrous or sparsely stiffly hairy on midvein; corolla 4–7 mm ..... 12b. var. *yunnanensis*

### 12a. *Lonicera ligustrina* var. *ligustrina*

女贞叶忍冬(原变种) nǚ zhen ye ren dong (yuan bian zhong)

*Caprifolium ligustrinum* (Wallich) Kuntze; *Lonicera buxifolia* H. Léveillé; *L. missionis* H. Léveillé; *L. virgultorum* W. W. Smith; *Xylosteon ligustrinum* (Wallich) D. Don.

Leaves (0.5–)1–4(–8) cm, adaxially densely stiffly hairy on midvein, midvein slightly impressed or flat adaxially, apex usually acuminate or mucronate. Corolla 7.5–12 mm. Berry purple or red.

Scrub, evergreen broad-leaved forests; (600–)1000–2000(–3000) m. NW Guangxi, Guizhou, SW Hubei, NW Hunan, Sichuan, Yunnan [Bhutan, E India, Nepal].

**12b. *Lonicera ligustrina* var. *yunnanensis*** Franchet, J. Bot. (Morot) 10: 317. 1896.

亮叶忍冬 liang ye ren dong

*Lonicera ligustrina* subsp. *yunnanensis* (Franchet) P. S. Hsu & H. J. Wang; *L. nitida* E. H. Wilson; *L. pileata* Oliver f. *yunnanensis* (Franchet) Rehder.

Leaves 0.4–1(–1.5) cm, adaxially glabrous or sparsely stiffly hairy on midvein, midvein slightly impressed or flat adaxially, apex usually rounded or obtuse. Corolla 4–7 mm. Berry purple or red.

• Forests; (1600–)2100–3000 m. S Gansu, SW Shaanxi, Sichuan, Yunnan.

**12c. *Lonicera ligustrina* var. *pileata*** (Oliver) Franchet, J. Bot. (Morot) 10: 317. 1896.

蕊帽忍冬 rui mao ren dong

*Lonicera pileata* Oliver, Hooker's Icon. Pl. 16: t. 1585.

1887; *Caprifolium pileatum* (Oliver) Kuntze; *L. pileata* var. *linearis* Rehder; *L. tricalysioides* C. Y. Wu ex P. S. Hsu & H. J. Wang.

Leaves with midvein raised adaxially, glabrous or sparsely hairy. Berry purple or white.

• Sandy slopes along watersides, moist places in sparse forests, scrub on mountain slopes; (300–)600–1700(–2200) m. Guangdong, Guangxi, Guizhou, W Hubei, Hunan, S Shaanxi, Sichuan, Yunnan.

**13. *Lonicera ferdinandi*** Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 6: 31. 1883.

葱皮忍冬 cong pi ren dong

*Caprifolium ferdinandi* (Franchet) Kuntze; *Lonicera ferdinandi* f. *beissneriana* Zabel; *L. ferdinandi* f. *franchetii* Zabel; *L. ferdinandi* var. *induta* Rehder; *L. ferdinandi* f. *leycesterioides* (Graebner) Zabel; *L. ferdinandi* var. *leycesterioides* (Graebner) Rehder; *L. ferdinandi* f. *vesicaria* (Komarov) Zabel; *L. leycesterioides* Graebner; *L. vesicaria* Komarov.

Shrubs, deciduous, 1–4.5 m tall. Winter buds with a pair of boat-shaped outer scales; scales densely white tomentose inside. Young branches usually hirsute, often with stiff hairs and minute glands; bark verrucose, splitting; vigorous shoots with well-developed interpetiolar discoid stipules. Leaves ovate to lanceolate, 3–10 × 2–7 cm, abaxially usually hirsute, more densely so at base of midvein, sometimes with minute glands, adaxially sparsely hirsute or subglabrous, base rounded to subcordate, margin ciliate, entire or occasionally shallowly lobed, apex acute to acuminate. Inflorescence terminal with 1–3 whorls, cymes 2-flowered (occasionally 3-flowered); peduncle 1–2 mm, hirsute, glandular; bracts leaflike, lanceolate to ovate, to 1.5 cm; bracteoles fused into an urceolate cupule, completely surrounding 2 neighboring free ovaries, accrescent to 7–13 mm in diam. in fruit, outside densely villous when young, inside adpressed villous. Calyx pubescent; lobes triangular, ciliate. Corolla bilabiate, white, later yellowish, 1.3–1.7 cm, outside usually densely hirsute and glandular hairy, inside villous; tube shallowly gibbous toward base, slightly longer than or subequaling lobes; upper lip shallowly 4-lobed; lower lip recurved. Stamens and style exerted from corolla tube. Style pubescent toward base. Cupule loosely enclosing paired berries, sometimes splitting. Berries red, ovoid, to 1 cm, 2–7-seeded; seeds light brown, ellipsoid, compressed, 4–7 mm, densely rusty pitted. Fl. Apr–Jul, fr. Aug–Oct.  $2n = 36$ .

Forests, scrub, rocky slopes; (200–)1000–2700 m. Gansu, S Hebei, Heilongjiang, Henan, Liaoning, Nei Mongol, Ningxia, E Qinghai, W Shaanxi, Shanxi, Sichuan, Yunnan [N Korea].

**14. *Lonicera hypoleuca*** Decaisne in Jacquemont, Voy. Inde 4(Bot): 81. 1841.

白背忍冬 bai bei ren dong

Shrubs, deciduous, to 2 m tall. Winter buds with several pairs of acute scales. Young branches, petioles, and peduncles densely spreading white hispid, rarely glabrescent. Petiole 1–3 mm, slightly clasping at base; leaf blade ovate to oblong, 1–3 × 0.9–1.8 cm, abaxially glaucous and densely soft hairy, adaxially pubescent, base subtruncate to slightly cordate, apex obtuse to

rounded. Inflorescence terminal, with 3–8 whorls, sometimes branching; cymes 2-flowered (occasionally 3-flowered); peduncle to 10 mm, those in lower part of inflorescence longer; bracts leaflike, to 5 mm; bracteoles fused, shallowly cupular, usually equaling ovaries, surrounding 2 neighboring free ovaries, accrescent to 5–6 mm in diam. in fruit, outside densely glandular hairy, inside glabrous. Sepals triangular, to 1 mm, ciliate. Corolla bilabiate, creamy yellow, outside puberulent; tube ca. 7 mm, shallowly gibbous at base on ventral side, inside puberulent; upper lip shallowly 4-lobed; lower lip recurved, subequaling corolla tube. Stamens and style exerted from corolla tube; filaments and style white pubescent below middle; anthers linear, ca. 3 mm. Cupule accrescent to 1/2 length of berries; berries red, ellipsoid, ca. 5 mm, hairy. Fl. Jun–Jul, fr. Sep.

Scrub on mountain slopes; 2900–3100 m. Xizang [India, Kashmir, Nepal, Pakistan].

**15. *Lonicera fragrantissima*** Lindley & Paxton in Paxton, Fl. Gard. 3: 75. 1852.

郁香忍冬 *yu xiang ren dong*

Shrubs, deciduous, to 2 m tall. Winter buds with a pair of acute, cartilaginous outer scales covering membranous inner scales. Young branches usually with reflexed bristles. Petiole 2–5 mm, hirsute; leaf blade sometimes paler abaxially, variable in shape, obovate or ovate to lanceolate, 3–8.5 × 1–4.5 cm, glabrous to pubescent or hirsute, base subcordate to cuneate, margin ciliate or subglabrous, sometimes slightly revolute, apex rounded to acuminate. Inflorescences axillary with paired flowers at base of new shoots; flowers fragrant, opening early in spring; peduncle 1–15 mm, glabrous to hirsute; bracts leaflike to lanceolate, 7–10 mm; bracteoles absent. Paired ovaries fused to middle or above, 1–3 mm. Calyx cupular, truncate or minutely lobed, sometimes ciliate, not constricted at base. Corolla bilabiate, white to pink, 1–1.5 cm, outside glabrous to hirsute; tube 4–5 mm, inside densely puberulent, shallowly gibbous toward base; upper lip ca. 7 mm, lobed to middle; lower lip recurved, ca. 8 mm. Stamens and style exerted from corolla tube; filaments unequal in length. Style glabrous. Berries red, oblong, ca. 1 cm, partly united; seeds brown, slightly compressed, oblong, ca. 3.5 mm, with shallow pits. Fl. Jan–Apr, fr. Apr–Jun.

• Forests, scrub; 100–2700 m. Anhui, Gansu, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Zhejiang.

1a. Leaves ovate, 1–4.5 cm wide ..... 15a. var. *fragrantissima*

1b. Leaves lanceolate, 1–2 cm wide ..... 15b. var. *lancifolia*

**15a. *Lonicera fragrantissima* var. *fragrantissima***

郁香忍冬(原变种) *yu xiang ren dong (yuan bian zhong)*

*Caprifolium fragrantissimum* (Lindley & Paxton) Kuntze; *Lonicera fragrantissima* subsp. *standishii* (Carrière) P. S. Hsu & H. J. Wang; *L. mamillaris* Rehder; *L. phyllocarpa* Maximowicz; *L. proterantha* Rehder; *L. pseudoproterantha* Pampanini; *L. pseudoproterantha* var. *intermedia* Pampanini; *L. pseudoproterantha* var. *longifolia* Pampanini; *L. standishii* Carrière; *L. standishii* var. *monbeigii* W. W. Smith.

Shrubs, deciduous. Leaves ovate to lanceolate, 3–8.5 × 1–4.5 cm, acute to acuminate.

• Scrub on mountain slopes; 100–2700 m. Anhui, Gansu, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Shanxi, Sichuan, Zhejiang.

**15b. *Lonicera fragrantissima* var. *lancifolia*** (Rehder) Q. E. Yang, Landrein, Borosova & J. Osborne, **comb. et stat. nov.**

苦糖果 *ku tang guo*

Basionym: *Lonicera standishii* f. *lancifolia* Rehder, Rep. (Annual) Missouri Bot. Gard. 14: 82. 1903.

Shrubs, deciduous. Leaves ovate to lanceolate, 3–8.5 × 1–2 cm, acute to acuminate.

• Forests, scrub; 100–2700 m. Anhui, Hubei, Hunan, Sichuan.

**16. *Lonicera mucronata*** Rehder, Rep. (Annual) Missouri Bot. Gard. 14: 83. 1903.

短尖忍冬 *duan jian ren dong*

Shrubs, evergreen, to 2 m tall. Winter buds with a pair of acute, cartilaginous outer scales covering membranous inner scales. Young branches, petioles, and peduncles densely stiffly hairy. Leaves broadly obovate, to broadly elliptic or suborbicular, 1–2 × 1–1.5 cm, venation reticulate, glabrous or sparsely adpressed stiffly hairy on both surfaces, abaxially sometimes glaucous, margin slightly revolute, ciliate, apex obtuse and mucronate. Inflorescences axillary with paired flowers at base of new shoots; flowers fragrant, opening early in spring; peduncle to 6 mm, glabrous to hirsute; bracts ovate-oblong, slightly exceeding ovaries, margin ciliate; bracteoles absent. Paired ovaries fused to middle or above, 6–8 mm in diam. Corolla bilabiate, white to pink, 1–1.5 cm, outside glabrous to hirsute; tube 4–5 mm, inside densely puberulent, shallowly gibbous toward base; upper lip ca. 7 mm, lobed to middle; lower lip recurved, ca. 8 mm. Stamens and style exerted from corolla tube; filaments unequal in length. Style glabrous. Berries red, 5–10-seeded; seeds brownish, oblong-ellipsoid, ca. 2.5 mm, with minute shallow pits. Fl. Mar–Apr, fr. Apr–May.

• Scrub in mountain valleys; 800–1500 m. W Hubei, NE Sichuan.

**17. *Lonicera praeflorens*** Batalin, Trudy Imp. S.-Peterburgsk. Bot. Sada 12: 169. 1892.

早花忍冬 *zao hua ren dong*

Shrubs, deciduous, to 2 m tall. Winter buds with a pair of acute, cartilaginous outer scales covering membranous inner scales. Young branches usually with long spreading hairs. Petiole 3–5 mm, densely villous; leaf blade broadly ovate, 1–7.5 × 0.9–4.5 cm, both surfaces densely adpressed pubescent, base broadly cuneate to rounded, margin ciliate, apex acute to apiculate. Inflorescences axillary paired flowers and at base of new shoots, flowers opening early in season; peduncle very short, usually concealed by bud scales at anthesis, to 1.2 cm at fruiting stage, usually glabrous; bracts broadly lanceolate, 3–7 mm, margin often ciliate and glandular; bracteoles absent. Paired ovaries free, suborbicular, usually glabrous. Calyx cupular, sometimes shallowly lobed, ciliate. Corolla yellowish white to pink, subregular, funnelform, ca. 1 cm, outside glabrous, deeply lobed; lobes erect to recurved, oblong, 6–7 mm, apex obtuse. Stamens and style exerted; anthers dark pink; style glabrous. Berries

red, globose, 6–8 mm in diam.; seeds brownish, oblong, ca. 4.5 mm, smooth. Fl. Apr, fr. May–Jun.  $2n = 18$ .

Forests, scrub; 200–600 m. Heilongjiang, Jilin, Liaoning [Japan, Korea, Russia].

**18. *Lonicera setifera*** Franchet, J. Bot. (Morot) 10: 314. 1896.

齿叶忍冬 *chi ye ren dong*

*Lonicera fragilis* H. Léveillé; *L. scabrida* Franchet; *L. setifera* var. *trullifera* Rehder; *L. subdentata* Rehder.

Shrubs, deciduous, to 3 m tall. Terminal winter bud underdeveloped, substituted by 2 lateral buds. Winter buds with a pair of outer scales covering inner scales. Young branches and petioles usually densely bristly, interspersed with glandular hairs. Petiole 3–8 mm; leaf blade oblong to oblong-lanceolate, 3–12 × 1.5–6 cm, both surfaces stiffly strigose, base cuneate to rounded, margin usually undulate to shallowly lobed, and ciliate, apex acute to acuminate. Inflorescences axillary paired flowers and at base of new shoots; flowers opening early in season; peduncle very short, usually concealed by bud scales at anthesis, not accrescent in fruit; bracts broadly ovate, to 1 cm; bracteoles absent. Paired ovaries free. Calyx cupular, irregularly lobed; lobes rounded. Peduncle, bracts, ovaries, calyx, and corolla densely glandular hairy. Corolla white to purplish or pink, tubular-hypocrateriform, 1–1.4 cm, with spreading subregular lobes, densely hairy at mouth and inside tube; tube shallowly gibbous at base, concealed by bracts; lobes 3–6 mm. Stamens and style included, less than half as long as corolla tube. Style glabrous. Berries red, ellipsoid, 1–1.2 cm, glandular hairy; seeds brownish, oblong, ca. 5 mm, smooth. Fl. Mar–Apr, fr. May–Jun.

Forests, scrub; 2300–3800 m. Sichuan, Xizang, Yunnan [India].

**19–23. *Lonicera hispida* species complex**

Shrubs, deciduous, to 3 m tall, occasionally dwarf. Winter buds with a pair of narrow keeled outer scales, covering inner scales and sometimes longitudinally sulcate. Young branches often pruinose, minutely scabrid to stiffly hairy and glandular hairy, very rarely glabrous. Petiole 1.5–6 mm; leaf blade usually ovate to oblong, sometimes elliptic, 0.6–9 × 0.4–3.5 cm, subglabrous, with short stiff hairs or adpressed villous, base cuneate to slightly cordate, margin hirsute-ciliate, apex acute to obtuse and mucronulate. Inflorescences axillary paired flowers, and at base of new shoots; peduncle stout, sometimes slightly compressed, 0.5–2 cm; bracts broadly ovate, 1–4 cm; bracteoles absent. Paired ovaries free, glabrous to hirsute, often glandular hairy. Calyx cupular, 1–4 mm, to 5 mm at fruiting, truncate or lobed; lobes broad and hirsute-ciliate. Corolla yellow-green or dark purple, funnellform, subregular, 13–35 mm; tube shallowly to deeply gibbous toward base, glabrous to puberulent outside and inside at upper part; lobes erect, ovate, 5–10 mm. Stamens and style usually subequaling or longer than corolla, occasionally shorter. Style stiffly hairy on lower half. Berries red, black-brown, or blue-black and pruinose, ovoid, 1–1.5 cm, 3–8-seeded; seeds deep brown, irregularly triangular-oblong, 4–5 mm, smooth. Fl. May–Jul, fr. Jul–Sep.  $2n = 18^*$ .

Forests, scrub, alpine grasslands, rocky places, slopes, high mountains; 1700–4800 m. Gansu, Hebei, ?Henan, Ningxia, Qinghai, Shaanxi,

Shanxi, Sichuan, Xinjiang, Xizang, Yunnan [Afghanistan, Bhutan, India (Sikkim), Kashmir, Kazakhstan, Kyrgyzstan, Mongolia, Nepal, Pakistan; SW Asia (Iran)].

*Lonicera sublabiata* P. S. Hsu & H. J. Wang (Acta Phytotax. Sin. 17(4): 78. 1979), based on a type specimen collected in Lixian, Sichuan, by Z. He (12715) and kept in the Shanghai Museum of Natural History (SHM), could not be located; it has a short hispid style, a bilabiate corolla (though the 5 lobes are all located on the same side so it must be the result of a deliberate split of the corolla), and it seems to flower with the emerging leaves. Nevertheless, it does not seem to differ significantly from *L. hispida* species complex.

- 1a. Ovary glandular hairy, setose, or both, sometimes glabrous; nectary usually deeply gibbous; shrubs to 3 m.
- 2a. Ovary densely long setose; calyx broadly cupular, 4–5 mm in fruit, erect to reflexed ..... 20. *L. stephanocarpa*
- 2b. Ovary often glandular hairy and sometimes sparsely setose or glabrous; calyx inconspicuous or lobed and less than 4 mm in fruit .... 19. *L. hispida*
- 1b. Ovary glabrous; nectary usually shallowly gibbous; shrubs to 1 m.
  - 3a. Shrubs to 1 m; bracts to more than 1/2 length of corolla; berries blue-black ..... 21. *L. cyanocarpa*
  - 3b. Dwarf prostrate shrubs to 30 cm; bracts up to 1/2 length of corolla.
    - 4a. Leaf blade oblong-lanceolate, margin minutely denticulate with rigid hairs; corolla narrowly tubular, 1.5–3.2 cm; berries red, pruinose ..... 22. *L. semenovii*
    - 4b. Leaf blade oblong, margin not denticulate; corolla broadly funnellform, 2–2.5 cm; berries unknown ..... 23. *L. oreodoxa*

**19. *Lonicera hispida*** Pallas ex Schultes, Syst. Veg. 5: 258. 1819.

刚毛忍冬 *gang mao ren dong*

*Caprifolium hispidum* (Pallas ex Roemer & Schultes) Kuntze; *Lonicera anisocalyx* Rehder; *L. chaetocarpa* (Batalin ex Rehder) Rehder; *L. finitima* W. W. Smith; *L. hispida* var. *anisocalyx* (Rehder) P. K. Chou; *L. hispida* var. *chaetocarpa* Batalin ex Rehder; *L. hispida* var. *glabrata* Batalin; *L. hispida* var. *hirsutior* Regel; *L. hispida* var. *setosa* J. D. Hooker & Thomson; *L. montigena* Rehder.

For description see under species complex. Distinguishing characters for this species are as follows: Calyx inconspicuous to narrow and lobed. Ovary glandular hairy and sometimes sparsely setose or glabrous. Fl. May–Jun, fr. Jul–Sep.  $2n = 18^*$ .

Forests, scrub, alpine grasslands; 1700–4200(–4800) m. Gansu, W Hebei, S Ningxia, E Qinghai, S Shaanxi, Shanxi, W Sichuan, N Xinjiang, Xizang, NW Yunnan [Afghanistan, India (Sikkim), Kashmir, Kazakhstan, Kyrgyzstan, Mongolia, Nepal; SW Asia (Iran)].

**20. *Lonicera stephanocarpa*** Franchet, J. Bot. (Morot) 10: 316. 1896.

冠果忍冬 *guan guo ren dong*

For description see under species complex. Distinguishing characters for this species are as follows: Calyx broadly cupular, 4–5 mm in fruit, erect to reflexed. Ovary densely long setose. Fl. Jul–Aug, fr. Sep–Oct.

• Forests, scrub; 2000–3200 m. SE Gansu, S Ningxia, S Shaanxi, E Sichuan.

**21. *Lonicera cyanocarpa*** Franchet, J. Bot. (Morot) 10: 314. 1896.

微毛忍冬 *wei mao ren dong*

*Lonicera cyanocarpa* var. *porphyrantha* C. Marquand & Airy Shaw; *L. mitis* Rehder; *L. mitis* var. *hobsonii* Rehder; *L. nubigena* Rehder; *L. viridiflava* Handel-Mazzetti.

For description see under species complex. Distinguishing characters for this species are as follows: Shrubs to 1 m. Bracts to more than 1/2 length of corolla. Flowers yellow or dark purple. Berries blue-black. Fl. Jun–Jul, fr. Aug.

Scrub, rocky grasslands; 3500–4300 m. Sichuan, Xizang, Yunnan [India (Sikkim), Nepal].

**22. *Lonicera semenovii*** Regel, Trudy Imp. S.-Peterburgsk. Bot. Sada 5: 608. 1878.

藏西忍冬 *zang xi ren dong*

*Caprifolium semenovii* (Regel) Kuntze; *C. thomsonii* Kuntze; *Lonicera glauca* J. D. Hooker & Thomson.

For description see under species complex. Distinguishing characters for this species are as follows: Leaf blade oblong-lanceolate, margin minutely denticulate with rigid hairs. Corolla narrowly tubular, 1.5–3.2 cm. Berries red, pruinose. Fl. Jun–Jul, fr. Aug.

Rocky crevices of high mountains, rocky places; 4000–4300 m. W Xinjiang, W Xizang [Afghanistan, Kashmir, Kazakhstan, Kyrgyzstan; SW Asia (Iran)].

**23. *Lonicera oreodoxa*** Harry Smith ex Rehder, J. Arnold Arbor. 23: 381. 1942.

垫状忍冬 *dian zhuang ren dong*

For description see under species complex. Distinguishing characters for this species are as follows: Leaf blade oblong, margin not denticulate. Corolla broadly funnelform, 2–2.5 cm. Berries unknown.

• High mountains; 4700–4800 m. N Sichuan.

**24. *Lonicera elisae*** Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 6: 32. 1883.

北京忍冬 *bei jing ren dong*

*Caprifolium elisae* (Franchet) Kuntze; *C. praecox* Kuntze; *Lonicera infundibulum* Franchet; *L. infundibulum* var. *rockii* Rehder; *L. peginensis* Rehder; *L. praecox* (Kuntze) Rehder (1911), not K. Koch (1872).

Shrubs, deciduous, to 3 m tall. Winter buds with several pairs of scales, inner 1 accrescent and orbicular-ovate. Young branches glabrous, or setose, hirsute, and glandular hairy. Petiole 3–7 mm; leaf blade ovate to lanceolate, 2.5–7 × 1–4.5 cm, both surfaces adpressed stiffly hairy, more so abaxially, base rounded to cuneate, apex acute to acuminate. Inflorescences axillary paired flowers and at base of new shoots; flowers opening early in season; peduncle ca. 0.5 cm at anthesis; bracts broadly ovate to lanceolate, 6–10 mm, glabrous, pilose or glandular with few setose hairs; bracteoles none (original description with drawing of *Lonicera elisae* shows a pair of bracteoles; these not evident on type specimen). Neighboring 2 ovaries free, glandular hairy and hirsute, hirsute or glabrous. Calyx lobed to truncate, 2–3 mm, stiffly hairy and glandular ciliate or glabrous. Corolla white or pinkish, narrowly funnelform, 1.5–2 cm, outside stiffly hairy or glabrous, shallowly gibbous toward base; lobes subregular, ca. 1/3 as long as tube. Stamens slightly exerted and style long exerted, glabrous to hairy. Peduncle to 2.5 cm in fruit; berries orange to red, ellipsoid, ca. 1 cm, sparsely glandular hairy and hirsute or glabrous; seeds yellowish brown, slightly compressed, oblong or ovoid, 3.5–4 mm, smooth. Fl. Apr–May, fr. May–Jun.

• Forests, scrub; 500–1600(–2300) m. SW Anhui, SE Gansu, Hebei, Henan, W Hubei, S Shaanxi, S Shanxi, Sichuan, NW Zhejiang.

**25. *Lonicera subhispida*** Nakai, J. Coll. Sci. Imp. Univ. Tokyo 42(2): 92. 1921.

单花忍冬 *dan hua ren dong*

*Lonicera monantha* Nakai.

Shrubs, deciduous, 1–2 m tall. Winter buds with several pairs of scales, inner ones accrescent and orbicular-ovate. Branches glandular and slightly setose or subglabrous. Petiole 3–7 mm; leaf blade oblong to ovate, 4–7 × 2.2–5 cm, both surfaces adpressed hispid and sparsely setose, base rounded to cuneate, margin bristly ciliate, apex mucronate or acute. Inflorescence reduced to a single flower or sometimes with a second flower partially developed, axillary at base of new shoots; flowers opening early in season; peduncle 0.5–1.2 mm at anthesis, accrescent to 25 mm in fruit, sparsely spreading glandular hairy; bract usually 1, sometimes with an opposite reduced bract, ovate-lanceolate, 7–14 mm, stiffly hairy and glandular hairy; bracteoles absent. Ovary with sparse glands. Calyx 0.3–0.5 mm, margin truncate to toothed. Corolla yellow, funnelform, 1.5–2 cm; tube gibbous toward base; lobes regular, to 1/2 as long as tube, outside hairy and sparsely glandular. Stamens and style glabrous, subequaling corolla. Berry red, fusiform or ellipsoid, 8–14 mm, glabrous; seeds 3.5–4 mm. Fl. May, fr. Jun.

Forests; ca. 800 m. Jilin, ?Liaoning [Korea, Russia].

**26. *Lonicera humilis*** Karelin & Kirilov, Bull. Soc. Imp. Naturalistes Moscou 15: 370. 1842.

矮小忍冬 *ai xiao ren dong*

*Caprifolium altmannii* (Regel & Schmalhausen) Kuntze; *C. humile* (Karelin & Kirilov) Kuntze; *Lonicera altmannii* Regel & Schmalhausen; *L. cinerea* Pojarkova.

Shrubs, deciduous, to 2 m tall, sometimes dwarf and cushionlike. Winter buds with several pairs of scales, lowest pair nearly surrounding whole bud. Branches with persistent petiole bases, densely puberulent, later glabrous to densely setose-hairy and with mixed glandular hairs. Petiole 1.5–5 mm; leaf blade ovate or elliptic to oblong, 0.6–4.5 × 0.4–2.5 cm, both surfaces densely adpressed setose to glabrous, sometimes scattered verrucose and with mixed glandular hairs, base broadly cuneate to rounded, margin often ciliate, apex obtuse or acute to acuminate. Inflorescences axillary paired flowers and at base of new shoots; flowers opening early in season; peduncles 2–15 mm, usually puberulent and glandular hairy; bracts usually lanceolate, sometimes ovate, 5–12 mm, pubescent, outside glandular hairy and adpressed hairy, inside glandular hairy, margin ciliate; bracteoles absent. Neighboring 2 ovaries free, glabrous or glandular hairy. Calyx ca. 1 mm, subtruncate to shallowly lobed, sometimes sparsely long ciliate. Corolla bilabiate, yellow, 1.5–2 cm; tube shallowly to deeply gibbous toward base, outside sparsely spreading hairy, inside puberulent; lower lip slightly recurved; upper lip 4-lobed to middle. Stamens and style subequaling corolla, exerted; style sparsely stiff hairy at base. Berries red, sometimes pruinose, oblanceolate-ovoid, 5–8 mm; seeds yellowish brown, oblong or ellipsoid, 2.5–3 mm, smooth. Fl. Apr–Jun, fr. Jul–Aug.

Subalpine or alpine rocky slopes and crevices of steep cliffs, scrub of forest understories, grassy slopes; 1000–2500 m. Xinjiang [Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan].

### 27–28. *Lonicera alpigena* species complex

Shrubs, deciduous, to 4 m tall. Winter buds with 2–5 pairs of outer scales; inner scales accrescent, enlarged and sometimes reflexed. Branches glabrous to densely hairy with mixed glandular hairs. Petiole 3–20 mm; leaf blade obovate or ovate-elliptic to ovate-lanceolate, 1.5–17 × 0.8–6 cm, with dense or sparse stiff hairs and sparse glands or glabrous, base cuneate to subcordate, margin ciliate, apex apiculate to long acuminate. Inflorescences axillary, paired flowers; peduncle 0.5–9 cm, usually thickened toward apex; bracts linear-subulate, to 10 mm, or sometimes minute or leaflike and ovate-lanceolate, to 15 mm; bracteoles separate or sometimes fused into a cupule, ovate to oblong, to 1 mm, ciliate. Neighboring 2 ovaries free to fused, glabrous or densely glandular hairy. Calyx lobes ovate to orbicular, to 1 mm, sometimes forming a collarlike emergence at base, apex irregularly lobed, sometimes glandular ciliate. Corolla bilabiate, purple-red, very rarely white or turning from white to yellow, 1–1.5 cm, outside sparsely pubescent and glandular hairy or glabrous; tube 4–7 mm, inside puberulent, deeply gibbous above slender base; upper lip erect, 4-lobed to 1/4; lower lip recurved. Stamens subequaling corolla; filaments and style hirsute on lower part or glabrous. Berries red or black, globose, ca. 1 cm in diam.; seeds ellipsoid, 5–6 mm, shallowly pitted to smooth. Fl. Apr–Jun, fr. Jun–Oct.

Needle-leaved and broad-leaved mixed forests, scrub, grassy slopes; 900–4000 m. Anhui, S Gansu, W Henan, Hubei, Jiangxi, S Ningxia, E Qinghai, S Shaanxi, Shanxi, Sichuan, Xinjiang, Xizang, NW Yunnan, Zhejiang [Afghanistan, Bhutan, India, Kashmir, Myanmar, Russia; Europe].

*Lonicera alpigena* Linnaeus occurs in Europe; further studies are necessary to better understand the relationships within this species complex in Europe and Asia.

The type specimen of *Lonicera jilongensis* P. S. Hsu & H. J. Wang (Acta Phytotax. Sin. 17(4): 76. 1979) has suffered extensive insect damage, but it seems to belong here.

- 1a. Ovaries free (exceptionally fused  
1/2–2/3) ..... 27. *L. webbiana*  
1b. Ovaries completely fused ..... 28. *L. fargesii*

### 27. *Lonicera webbiana* Wallich ex Candolle, Prodr. 4: 336. 1830.

华西忍冬 hua xi ren dong

*Caprifolium hemsleyanum* Kuntze; *C. karelinii* Kuntze; *Lonicera adenophora* Franchet; *L. alpigena* Linnaeus var. *phaeantha* Rehder; *L. hemsleyana* (Kuntze) Rehder; *L. heteroloba* Batalin; *L. heterophylla* Decaisne; *L. heterophylla* var. *karelinii* (Bunge ex Kirilov) Rehder; *L. jilongensis* P. S. Hsu & H. J. Wang; *L. karelinii* Bunge ex Kirilov; *L. mupinensis* Rehder; *L. perulata* Rehder; *L. tatsienensis* Franchet; *L. webbiana* var. *lanpinensis* Y. C. Tang; *L. webbiana* var. *mupinensis* (Rehder) P. S. Hsu & H. J. Wang; *Xylosteon karelinii* Kuntze.

For description see under species complex. Distinguishing characters for this species are as follows: Ovaries free. Fl. May–Jun, fr. Aug–Sep.

Needle-leaved and broad-leaved mixed forests, scrub, grassy slopes; 1800–4000 m. S Gansu, W Hubei, Jiangxi, S Ningxia, E Qinghai, S Shaanxi, Shanxi, Sichuan, Xizang, NW Yunnan [Afghanistan, Bhutan, Kashmir].

### 28. *Lonicera fargesii* Franchet, J. Bot. (Morot) 10: 312. 1896.

粘毛忍冬 nian mao ren dong

For description see under species complex. Distinguishing characters for this species are as follows: Ovaries fused. Fl. May–Jun, fr. Sep–Oct.

• Forests, scrub; 1600–2900 m. Chongqing, S Gansu, W Henan, S Shaanxi, Shanxi, Sichuan.

- 1a. Bracts leaflike, 8–15 mm ..... 28a. var. *fargesii*  
1b. Bracts subulate to linear ..... 28b. var. *setchuenensis*

### 28a. *Lonicera fargesii* var. *fargesii*

粘毛忍冬(原变种) nian mao ren dong (yuan bian zhong)

*Lonicera vegeta* Rehder.

Bracts leaflike, 8–15 mm. Fl. May–Jun, fr. Sep–Oct.

• Forests, scrub; 1600–2900 m. S Gansu, W Henan, S Shaanxi, Shanxi, Sichuan.

### 28b. *Lonicera fargesii* var. *setchuenensis* (Franchet) Q. E. Yang, Landrein, Borosova & J. Osborne, **comb. nov.**

四川粘毛忍冬 si chuan nian mao ren dong

Basionym: *Lonicera orientalis* Lamarck var. *setchuenensis* Franchet, J. Bot. (Morot) 10: 311. 1896; *L. setchuenensis* (Franchet) Rehder.

Bracts subulate to linear. Fl. and fr. unknown.

- Chongqing.

**29. *Lonicera oblata*** K. S. Hao ex P. S. Hsu & H. J. Wang, *Acta Phytotax. Sin.* 17(4): 77. 1979.

丁香叶忍冬 *ding xiang ye ren dong*

Shrubs, deciduous, to 2 m tall. Winter buds with 2 pairs of ovate and apically long acute outer scales; inner scales accrescent, enlarged and reflexed. Branches subquadrangular; branches, petioles, and peduncles densely or sparsely glandular hairy. Petiole 1.5–2.5 cm; leaf blade broadly triangular-ovate to broadly rhombic-ovate, 2.5–5.3 × 2.5–5.3 cm, base broadly cuneate to truncate, apex cuspidate and mucronate or obtuse. Inflorescences axillary paired flowers; peduncle 7–10 mm; bracts subulate, to 1/2 as long as ovaries, glandular hairy; bracteoles fused into a cupule, 1/3–2/5 as long as ovaries, glandular ciliate. Neighboring 2 ovaries free, glabrous. Calyx cupular, inconspicuously dentate. Corolla bilabiate, yellowish, ca. 1.3 cm, outside sparsely puberulent and glandular hairy; tube ca. 0.7 cm, shallowly gibbous toward base, inside villous; lobes of upper lip ovate, lobed to ca. 1/3; lower lip reflexed. Stamens slightly exceeding corolla; filaments subequal, villous on lower part. Style slightly shorter than corolla, densely villous. Berries red, globose, ca. 6 mm in diam.; seeds brownish, suborbicular or ovoid-orbicular, slightly compressed, smooth, 3–4 mm. Fl. May, fr. Jul.

- Stony slopes; ca. 1200 m. Hebei (Neiqiu).

**30. *Lonicera modesta*** Rehder in Sargent, *Trees & Shrubs* 2: 49. 1907.

下江忍冬 *xia jiang ren dong*

*Lonicera graebneri* Rehder; *L. modesta* var. *lushanensis* Rehder.

Shrubs, deciduous, to 2 m tall. Winter buds with ca. 5 pairs of outer acute, keeled scales; inner scales sometimes accrescent and enlarged. Branches, petioles, and peduncles densely pubescent or glabrous. Petiole 2–5 mm; leaf blade elliptic to oblong, broadly ovate, obovate, or rhombic, 2–8 × 1.5–6 cm, abaxially pubescent, glabrous or sparsely pubescent only on veins, adaxially glabrous or pubescent often only on midvein and lateral veins, base cuneate to rounded, margin ciliate, apex obtuse, mucronate, or slightly emarginate. Inflorescences axillary, paired flowers; peduncle 1–7 mm; bracts subulate, 2–3 mm, ciliate; bracteoles fused into a cupule, ca. 1/3 as long as ovaries, ciliate, with sparse glands. Neighboring 2 ovaries half to completely fused. Calyx lobes linear-lanceolate, 2–2.5 mm, ciliate, sometimes with sparse glands. Corolla bilabiate, white, base reddish, later yellow, 1–1.2 cm, outside sparsely pubescent or subglabrous; tube ca. 5 mm, shallowly gibbous at base, inside densely hairy; upper lip 4-lobed, lobes 2–3 mm; lower lip recurved. Stamens and style exerted from corolla tube; filaments glabrous or hairy at base. Style hairy throughout. Berries turning from orange-red to red, 7–8 mm in diam.; seeds 1–4, yellowish brown, slightly compressed, ovoid or oblong, 4–6 mm, minutely granular-raised and coarse. Fl. May–Jun, fr. Jul–Oct.

- Mixed forests, scrub; 500–1700 m. Anhui, ?Fujian, SE Gansu, W Henan, Hubei, Hunan, Jiangxi, S Shaanxi, Zhejiang.

### 31–33. *Lonicera nigra* species complex

Shrubs, deciduous, to 4 m tall. Winter buds with several pairs of outer acute, keeled scales; inner scales sometimes accrescent and enlarged. Branches with white or sometimes brown pith. Young branches and peduncles often puberulent and glandular hairy. Petiole 2–10 mm; leaf blade oblong to elliptic-lanceolate, 1.5–10 × 1–3 cm, glabrous throughout but abaxially often white hairy on midvein, base cuneate to rounded, apex acute to acuminate. Inflorescences axillary, paired flowers; peduncle 0.5–3 cm; bracts lanceolate-linear, ca. 2 mm; bracteoles free, fused into 2 pairs or into an entire or lobed cupule, 1/3 to almost as long as ovaries, glandular ciliate. Neighboring 2 ovaries free, fused in lower half or completely fused. Calyx lobes triangular or linear-lanceolate, 1–2 mm, sometimes with a collar emergence at base, glandular ciliate. Corolla bilabiate, purplish, purple-red, or white becoming yellow, 9–13 mm; tube ca. 5 mm, shallowly gibbous at base, outside puberulent or glabrous, inside puberulent; upper lip crenulate; lower lip reflexed. Stamens and style exerted from corolla tube; filaments glabrous or hairy at base. Style hairy below middle part or throughout. Berries black, often pruinose, globose, 5–7 mm in diam.; seeds oblong or ovoid, 3–7 mm, granular-raised and coarse. Fl. Apr–Jul, fr. Aug–Oct.  $2n = 18$ .

Forests, scrub, coniferous forests, forest margins, grasslands; 1500–4000 m. W Anhui, Gansu, NE Guizhou, W Henan, W Hubei, Jilin, Ningxia, Qinghai, Shaanxi, S Shanxi, Sichuan, Xizang, Yunnan [Bhutan, India, Korea, Nepal; Europe].

*Lonicera govaniana* Wallich ex Candolle (*Prodr.* 4: 337. 1830) and *L. orientalis* Lamarck (*Encycl.* 1: 731. 1785) belong to *L. caucasica* Pallas (*Fl. Ross.* 1(1): 57. 1784). Further studies are necessary to determine if *L. caucasica*, predominantly from Asia Minor and S Asia, differs from *L. nigra* in Europe and China.

- 1a. Leaf blade usually obovate, 1–2.5 × 0.7–1.8 cm, abaxially often pruinose, apex retuse to obtuse; ovaries completely fused or sometimes free in upper part; corolla white with reddish base, later yellow ..... 33. *L. retusa*
- 1b. Leaf blade oblong to elliptic-lanceolate, 1.5–10 × 1–3 cm, glabrous throughout but abaxially often white hairy on midvein; ovaries free or fused only at base.
  - 2a. Corolla purplish or purple-red ..... 31. *L. nigra*
  - 2b. Corolla white, later yellow ..... 32. *L. nervosa*

**31. *Lonicera nigra*** Linnaeus, *Sp. Pl.* 1: 173. 1753.

黑果忍冬 *hei guo ren dong*

*Caprifolium decipiens* (J. D. Hooker & Thomson) Kuntze; *C. nigrum* (Linnaeus) Kuntze; *Lonicera acrophila* H. Léveillé; *L. barbinervis* Komarov; *L. decipiens* J. D. Hooker & Thomson; *L. lanceolata* Wallich; *L. nigra* var. *barbinervis* (Komarov) Nakai; *L. wardii* W. W. Smith.

For description see under species complex. Distinguishing characters for this species are as follows: Leaf blade oblong to

elliptic-lanceolate, 1.5–10 × 1–3 cm, glabrous throughout but abaxially often white hairy on midvein. Corolla purplish or purple-red. Ovaries free or fused in lower half. Fl. Apr–Jul, fr. Aug–Oct.  $2n = 18$ .

Forests, scrub, coniferous forests, forest margins; 1500–3900 m. W Anhui, NE Guizhou, W Hubei, Jilin, Sichuan, Xizang, Yunnan [Bhutan, India, Korea, Nepal; Europe].

**32. *Lonicera nervosa*** Maximowicz, Bull. Acad. Imp. Sci. Saint-Petersbourg 24: 38. 1877.

红脉忍冬 hong mai ren dong

*Caprifolium nervosum* (Maximowicz) Kuntze; *Lonicera lanceolata* Wallich subsp. *nervosa* (Maximowicz) Y. C. Teng.

For description see under species complex. Distinguishing characters for this species are as follows: Leaf blade elliptic to ovate-oblong, 2.5–6 × 1–3 cm. Corolla white, later yellow. Ovaries free. Fl. Jun–Jul, fr. Aug–Sep.

• Scrub of forest understories, grasslands; 2100–4000 m. Gansu, W Henan, Ningxia, Qinghai, Shaanxi, S Shanxi, Sichuan.

**33. *Lonicera retusa*** Franchet, J. Bot. (Morot) 10: 313. 1896.

凹叶忍冬 ao ye ren dong

*Lonicera kachkarovii* (Batalin) Rehder; *L. limprichtii* Pax & K. Hoffmann; *L. orientalis* Lamarck var. *kachkarovii* Batalin.

For description see under species complex. Distinguishing characters for this species are as follows: Leaf blade obovate, obovate-spatulate, or elliptic to broadly ovate, 1–2.5 × 0.7–1.8 cm, abaxially often pruinose, puberulent and glandular dotted, base cuneate to broadly cuneate, apex retuse, truncate or sometimes obtuse. Corolla white with reddish base, later yellow. Ovaries completely fused or sometimes free in upper part. Fl. May–Jun, fr. Sep–Oct.

• Scrub; 2000–3300 m. S Gansu, S Shaanxi, SW Shanxi, W Sichuan.

### 34–36. *Lonicera maximowiczii* species complex

Shrubs, deciduous, to 2 m tall. Winter buds with several pairs of outer acute, keeled scales; inner scales sometimes accrescent and enlarged. Branches sparsely puberulent to glabrescent. Petiole 2–8 mm; leaf blade ovate or broadly ovate to oblong-lanceolate, 4–12 × 1.5–3.5 cm, abaxially sparsely strigose, minutely tomentose, or glabrous, adaxially sparsely strigose or glabrous, base cuneate to rounded, margin often ciliate, apex acute to acuminate. Inflorescences axillary, paired flowers; peduncle 1–2.5 cm, glabrous or sparsely hairy; bracts subulate, 1–3 mm; bracteoles fused into a cupule, 1/3 to as long as ovaries. Neighboring 2 ovaries more than half to completely fused, very rarely completely free. Calyx lobes triangular to linear, 1–1.5 mm. Corolla bilabiate, dark purple to purple-red or white becoming yellow, ca. 1 cm, outside glabrous; tube slightly gibbous toward base, ca. 4 mm, inside densely hairy; upper lip 4 lobed, lobes 1–2 mm; lower lip recurved. Stamens and style exserted from corolla tube; filaments hairy at base. Style hairy throughout. Berries red, ovoid-orbicular; seeds yellowish brown, oblong, 4–5 mm, granular and coarse. Fl. May–Jul, fr. Aug–Sep.

Forests, forest margins, scrub; 400–2400 m. S Gansu, Hebei, Heilongjiang, ?Henan, Jilin, Liaoning, ?Nei Mongol, Ningxia, Shaanxi, Shandong, N Sichuan [Japan, Korea, Russia].

1a. Corolla white, later yellow ..... 36. *L. kansuensis*

1b. Corolla dark purple or purple-red.

2a. Corolla purple-red; leaves sparsely strigose or glabrous abaxially ..... 34. *L. maximowiczii*

2b. Corolla dark purple; leaves minutely tomentose abaxially ..... 35. *L. tatarinowii*

**34. *Lonicera maximowiczii*** (Ruprecht) Regel, Gartenflora 6: 107. 1857.

紫花忍冬 zi hua ren dong

*Xylosteon maximowiczii* Ruprecht, Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg 15: 136. 1857; *Caprifolium maximowiczii* (Ruprecht) Kuntze; *Lonicera maximowiczii* var. *sachalinensis* F. Schmidt.

For description see under species complex. Distinguishing characters for this species are as follows: Leaves sparsely strigose or glabrous abaxially. Corolla purple-red. Fl. Jun–Jul, fr. Aug–Sep.  $2n = 18, 36$ .

Forests, forest margins; 800–1800 m. ?Hebei, Heilongjiang, Jilin, Liaoning, ?Nei Mongol, Shandong [Japan, Korea, Russia].

**35. *Lonicera tatarinowii*** Maximowicz, Mém. Acad. Imp. Sci. St.-Petersbourg Divers Savans 9 [Prim. Fl. Amur.]: 138. 1859.

华北忍冬 hua bei ren dong

*Caprifolium tatarinowii* (Maximowicz) Kuntze; *Lonicera leptantha* Rehder; *L. tatarinowii* var. *leptantha* (Rehder) Nakai.

For description see under species complex. Distinguishing characters for this species are as follows: Leaves minutely tomentose abaxially. Corolla dark purple. Fl. May–Jun, fr. Aug–Sep.

• Mixed forests, scrub; 400–1800 m. NW Hebei, ?Henan, Liaoning, ?Nei Mongol, E Shandong.

**36. *Lonicera kansuensis*** (Batalin ex Rehder) Pojarkova in Schischkin, Fl. URSS 23: 540. 1958.

甘肃忍冬 gan su ren dong

*Lonicera orientalis* Lamarck var. *kansuensis* Batalin ex Rehder, Rep. (Annual) Missouri Bot. Gard. 14: 119. 1903.

For description see under species complex. Distinguishing characters for this species are as follows: Leaves abaxially adpressed puberulent, more densely hairy on both sides of midvein. Corolla white, becoming yellow. Fl. Jun, fr. Sep.

• Sparse forests; 1800–2400 m. S Gansu, Ningxia, Shaanxi, N Sichuan.

**37. *Lonicera tatarica*** Linnaeus, Sp. Pl. 1: 173. 1753.

新疆忍冬 xin jiang ren dong

Shrubs, deciduous, to 3 m tall, ± pruinose. Winter buds small, with ca. 4 pairs of ovate scales. Branches with pith be-

coming brown and later hollow. Petiole 2–5 mm; leaf blade ovate or ovate-oblong, sometimes oblong, 2–5 × 1–2 cm, both surfaces glabrous or sparsely pubescent, sometimes prominently pubescent, base rounded or slightly cordate, margin ciliate, apex acute or obtuse. Inflorescences axillary paired flowers; peduncle 1–2 cm; bracts linear to obovate-lanceolate, 2–7 mm; bracteoles free in 2 pairs, orbicular-ovate, to 1 mm, sometimes as long as ovaries and ciliate. Neighboring 2 ovaries free. Calyx lobes triangular-lanceolate, to 1 mm. Corolla bilabiate, pale pink to carmine-red, sometimes white or pink fading to yellow, ca. 1.5 cm; tube 5–6 mm, shallowly gibbous at base; upper lip 4 lobed, 2 lateral lobes lobed to base and spreading, middle lobes shallowly lobed; lower lip recurved. Stamens and style exerted from corolla tube. Style pubescent throughout. Berries red or yellow, globose, 5–6 mm in diam.; seeds 2–2.3 mm, smooth with concave dots. Fl. May–Jun, fr. Jun–Sep.

Forest margins, scrub; 700–1600 m. ?Hebei, Heilongjiang, Liaoning, N Xinjiang [Japan, Korea, Kyrgyzstan, ?Mongolia, Russia].

- 1a. Corolla white, or pink, not fading to yellow ..... 37a. var. *tatarica*  
 1b. Corolla white or pink fading to yellow ..... 37b. var. *morrowii*

### 37a. *Lonicera tatarica* var. *tatarica*

新疆忍冬(原变种) xin jiang ren dong (yuan bian zhong)

*Caprifolium micranthum* (Trautvetter) Kuntze; *Lonicera micrantha* (Trautvetter) Trautvetter ex Regel; *L. tatarica* var. *micrantha* Trautvetter; *L. tatarica* var. *puberula* Regel & Winkler.

Corolla white, or pink, not fading to yellow. Fl. May–Jun, fr. Jul–Aug.  $2n = 18$ .

Forest margins, scrub; 700–1600 m. ?Hebei, Heilongjiang, Liaoning, N Xinjiang [Kyrgyzstan, ?Mongolia, Russia].

**37b. *Lonicera tatarica* var. *morrowii*** (A. Gray) Q. E. Yang, Landrein, Borosova & J. Osborne, **comb. et stat. nov.**

淡黄新疆忍冬 dan huang xin jiang ren dong

Basionym: *Lonicera morrowii* A. Gray in Perry, Narr. Exped. China Japan 2: 313. 1856; *Xylosteon morrowii* (A. Gray) Moldenke.

Corolla white, or pink fading to yellow. Fl. May, fr. Jun–Sep.

Forest margins, scrub. Heilongjiang, Liaoning [Japan, Korea; introduced and invasive in North America].

“*Lonicera insularis* Nakai var. *mandshurica*” and “var. *lutescens*” (Skvortsov, China J. 13: 389. 1935) both belong to *L. tatarica* var. *morrowii* but were not validly published because no Latin description or diagnosis was provided (*Vienna Code*, Art. 36.1).

**38. *Lonicera ruprechtiana*** Regel, Index Sem. Hort. Petrop., Suppl. 19. 1869.

长白忍冬 chang bai ren dong

*Caprifolium ruprechtianum* (Regel) Kuntze; *Lonicera brevisepala* P. S. Hsu & H. J. Wang; *L. chrysantha* Turczaninow ex Ledebour var. *subtomentosa* (Ruprecht) Maximowicz; *L. ru-*

*prechtiana* var. *lanceolata* Skvortsov; *L. ruprechtiana* var. *xanthocarpa* Zabel; *Xylosteon gibbiflorum* Ruprecht & Maximowicz var. *subtomentosum* Ruprecht.

Shrubs, deciduous, to 3 m tall. Winter buds with several pairs of ovate and acute scales; inner scales often accrescent. Branches with pith becoming brown and later hollow. Branches and petioles tomentose-pubescent to sparsely pubescent, minutely yellow-brown glandular hairy, or subglabrous; petiole 3–8 mm; leaf blade ovate-oblong to oblong-lanceolate, 2–8 × 0.7–2.5 cm, abaxially densely strigose to villous or sparsely pubescent, adaxially sparsely pubescent or subglabrous, base rounded to cuneate, margin sometimes dentate, apex acute to acuminate. Inflorescences axillary paired flowers; peduncle 10–16 mm, sparsely pubescent to tomentose and minutely glandular hairy; bracts linear, 1–8 mm, pubescent and glandular ciliate; bracteoles free in 2 pairs, orbicular-ovate to ovate-lanceolate, to 1 mm. Neighboring 2 ovaries free. Calyx lobes triangular-lanceolate, ca. 1 mm. Corolla bilabiate, white, later yellow, 12–16 mm, outside glabrous; tube short, 4–5 mm, inside densely pubescent, deeply gibbous toward base; upper lip 4-lobed; 2 lateral lobes of upper lip usually lobed 1/2–3/4 and slightly spreading, middle lobes shallowly lobed; lower lip recurved. Stamens and style exerted from corolla tube; style pubescent throughout; stigmas capitate, large. Berries yellow, orange-red, or red, globose, 5–7 mm in diam.; seeds brown, ellipsoid, ca. 3 mm, with minute concave dots. Fl. May–Jun, fr. Jul–Aug.  $2n = 18$ .

Broad-leaved forests, forest margins; 300–1100 m. Heilongjiang, Jilin, Liaoning [N Korea, Russia].

*Lonicera ruprechtiana* var. *calvescens* Rehder (Mitt. Deutsch. Dendrol. Ges. 1912: 194. 1913) was described from a cultivated specimen at the Arnold Arboretum, grown from seed collected near Vladivostock.

**39. *Lonicera chrysantha*** Turczaninow ex Ledebour, Fl. Ross. 2(1): 388. 1844.

金花忍冬 jin hua ren dong

Shrubs, deciduous, to 4 m tall. Winter buds ovoid-lanceolate, with several pairs of scales; outer scales triangular, sparsely puberulent; inner scales accrescent, lanceolate, densely pubescent and white long ciliate outside. Branches with pith becoming brown and later hollow. Branches and petioles spreading pubescent with interspersed minute glands. Petiole 4–10 mm; leaf blade ovate to rhombic or oblong to lanceolate, 3–10 × 1–5 cm, abaxially densely strigose to villous or sparsely pubescent, adaxially sparsely pubescent or subglabrous, base cuneate to rounded, margin ciliate, apex rounded or acute to acuminate or caudate. Inflorescences fragrant, axillary paired flowers; peduncle 1.5–3 cm; bracts linear or narrowly linear-lanceolate, 2.5–8 mm, often exceeding ovaries; bracteoles of each flower fused or separate, ovate to suborbicular, ca. 1 mm, long ciliate. Neighboring 2 ovaries free, ± glandular, glabrous or densely hairy. Calyx lobes ovate, with rounded apex, ciliate and glandular, sometimes with a collarlike emergence at base. Corolla bilabiate, white at first, later yellow, sometimes tinged orange-red, 1–1.5 cm, outside sparsely to densely hairy; tube 2–5 mm, pubescent inside, deeply or sometimes inconspicuously gibbous toward base; upper lip shallowly 4-lobed; lower lip re-

curved. Stamens and style exerted from corolla tube; filaments densely hairy below middle; connectives sometimes pubescent; style hairy throughout. Berries red, orbicular, ca. 5 mm in diam.; seeds brown-red, ellipsoid, ca. 3 mm, with minute concave dots and sometimes with red glands. Fl. May–Jun, fr. Jul–Sep.  $2n = 18$ .

Forests, scrub at forest margins; 200–3000(–3800) m. Anhui, Gansu, Guizhou, Hebei, S Heilongjiang, W Henan, Hubei, Jiangsu, Jiangxi, E Jilin, S Liaoning, S Nei Mongol, Ningxia, E Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xizang, Yunnan, Zhejiang [Japan, N Korea, Mongolia, Russia; Europe].

*Lonicera chrysantha* is from the *L. xylosteum* species complex and is the only species in the complex occurring in China. *Lonicera xylosteum* Linnaeus occurs in Europe and Russia; further studies are necessary to better understand the relationships within this complex.

- 1a. Ovary glandular hairy; leaves abaxially sparsely strigose ..... 39a. var. *chrysantha*  
 1b. Ovary pilose and glandular hairy; leaves abaxially tomentose-pubescent ..... 39b. var. *koehneana*

### 39a. *Lonicera chrysantha* var. *chrysantha*

金花忍冬(原变种) jin hua ren dong (yuan bian zhong)

*Caprifolium chrysanthum* (Turczaninow ex Ledebour) Kuntze; *Lonicera chrysantha* f. *crassipes* (Nakai) S. L. Tung; *L. chrysantha* var. *crassipes* Nakai; *L. chrysantha* var. *linearifolia* S. W. Liu & T. N. Ho; *L. chrysantha* var. *longipes* Maximowicz; *L. chrysantha* f. *villosa* Rehder; *Xylosteon chrysanthum* (Turczaninow ex Ledebour) Ruprecht.

Leaves abaxially sparsely strigose. Ovary glandular hairy.

Forests, scrub at forest margins; 200–2000(–3000) m. S Gansu, Hebei, S Heilongjiang, W Henan, Hubei, Jiangsu, Jiangxi, E Jilin, S Liaoning, S Nei Mongol, Ningxia, E Qinghai, Shaanxi, Shandong, Shanxi, Sichuan [Japan, N Korea, Russia].

**39b. *Lonicera chrysantha* var. *koehneana*** (Rehder) Q. E. Yang, Landrein, Borosova & J. Osborne, **comb. in stat. nov.**

须蕊忍冬 xu rui ren dong

Basionym: *Lonicera koehneana* Rehder in Sargent, *Trees & Shrubs* 1: 41. 1902; *L. chrysantha* subsp. *koehneana* (Rehder) P. S. Hsu & H. J. Wang; *L. gynopogon* H. Léveillé; *L. koehneana* var. *chrysanthoides* Rehder; *L. koehneana* var. *intecta* Rehder; *L. koehneana* var. *palescens* Rehder; *L. koehneana* var. *pogonantha* Handel-Mazzetti; *L. vestita* W. W. Smith.

Leaves abaxially tomentose-pubescent. Ovary pilose and glandular hairy.

• Forests, scrub at forest margins; 700–3000(–3800) m. Anhui, Gansu, Guizhou, W Henan, W Hubei, Jiangsu, Shaanxi, Shandong, SW Shanxi, Sichuan, Xizang, Yunnan, Zhejiang.

**40. *Lonicera maackii*** (Ruprecht) Maximowicz, *Mém. Acad. Imp. Sci. St.-Petersbourg Divers Savans* 9 [Prim. Fl. Amur.]: 136. 1859.

金银忍冬 jin yin ren dong

Shrubs, deciduous, to 6 m tall; trunk to 10 cm in diam. Winter buds ovoid, with several pairs of scales; outer scales tri-

angular, sparsely puberulent; inner scales accrescent, lanceolate, outside pubescent. Branches with pith becoming brown and later hollow. Branches and petioles spreading pubescent with interspersed minute glands. Petiole 2–9 mm; leaf blade green or purplish when young, usually ovate-lanceolate, 2.5–8 × 1.5–4 cm, abaxially sparsely strigose, adaxially sparsely pubescent or subglabrous, base broadly cuneate to rounded, margin ciliate, apex acute to long acuminate. Inflorescence fragrant, axillary paired flowers; peduncle 1–3 mm, shorter than petioles; bracts linear, sometimes leaflike, 3–7 mm; bracteoles of each flower ± fused, green or purplish, ca. 1 mm, apex truncate and ciliate. Neighboring 2 ovaries free, glabrous or sparsely minutely glandular hairy. Calyx campanulate, 2–3 mm, scarious between lobes; lobes broadly triangular, unequal, apex acute. Corolla bilabiate, purplish, or white at first, later yellow, ca. 2 cm, outside shortly adpressed hairy or glabrous; tube 4–5 mm, shallowly gibbous toward base, inside puberulent or glabrous; upper lip 4-lobed; lower lip recurved. Stamens and style exerted from corolla tube; filaments and style with minute hairs below middle. Berries dark red, orbicular, 5–6 mm in diam.; seeds with minute shallow concave dots. Fl. May–Jun, fr. Aug–Oct.  $2n = 18$ .

Forests, scrub; 100–1800(–3000) m. Anhui, Gansu, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jilin, Liaoning, ?Nei Mongol, Shaanxi, Shandong, S Shanxi, NE Sichuan, Xizang, Yunnan, N Zhejiang [Japan, Korea, Russia; introduced and invasive in North America].

*Lonicera quinquelocularis* Hardwicke has been cited in China (*A. Henry* 3853); it is possibly not distinct from *L. maackii* except for the translucent berries with dark colored seeds.

- 1a. Corolla white at first, later yellow; bracteoles and young leaves green ..... 40a. var. *maackii*  
 1b. Corolla, bracteoles, and young leaves purplish ..... 40b. var. *erubescens*

### 40a. *Lonicera maackii* var. *maackii*

金银忍冬(原变种) jin yin ren dong (yuan bian zhong)

*Xylosteon maackii* Ruprecht, *Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg* 15: 369. 1857; *Caprifolium maackii* (Ruprecht) Kuntze; *Lonicera maackii* f. *podocarpa* Franchet ex Rehder.

Corolla white at first, later yellow. Bracteoles and young leaves green.

Forests, scrub; 100–1800(–3000) m. Anhui, SE Gansu, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jilin, Liaoning, Shaanxi, Shandong, S Shanxi, NE Sichuan, Xizang, Yunnan, N Zhejiang [Japan, Korea, Russia].

**40b. *Lonicera maackii* var. *erubescens*** (Rehder) Q. E. Yang, Landrein, Borosova & J. Osborne, **stat. nov.**

红花金银忍冬 hong hua jin yin ren dong

Basionym: *Lonicera maackii* f. *erubescens* Rehder, *Mitt. Deutsch. Dendrol. Ges.* 22: 263. 1913.

Corolla, bracteoles, and young leaves purplish.

• Forests, scrub; 100–300 m. Anhui, Gansu, Henan, Jiangsu, ?Liaoning.

**41. *Lonicera trichosantha*** Bureau & Franchet, J. Bot. (Morot) 5: 48. 1891.

毛花忍冬 mao hua ren dong

Shrubs, deciduous, 3–5 m tall, occasionally prostrate. Winter buds with 5 or 6 pairs of scales; outer scales triangular, sparsely puberulent; inner scales sometimes accrescent, lanceolate, inside pubescent. Branches with pith becoming brown and later hollow. Branches horizontally spreading; together with petioles and peduncles densely or sparsely pubescent and minutely glandular hairy to subglabrous. Petiole 1–7 mm; leaf blade greatly varied in shape, obovate, ovate, oblong-elliptic, or ovate-lanceolate, 1–10 × 0.5–3.5 cm, both surfaces pubescent, abaxially densely pubescent or only on midvein, base rounded or broadly cuneate, rarely truncate or shallowly cordate, margin ciliate, apex obtuse and mucronate or acute to acuminate. Inflorescence axillary paired erect flowers; peduncle 1–10 mm; bracts linear-lanceolate, 3–5 mm, early withering; bracteoles suborbicular-ovate, ca. 2 mm, 1/3–1/2 as long as ovaries, ± fused at base and cupular, apex slightly truncate to lobed. Neighboring 2 ovaries free, glabrous. Calyx campanulate, 1.5–2(–4) mm, scarious, lacinate or split to base into 1 to several lobes; bracts, bracteoles, and calyx glabrous to sparsely pubescent and glandular. Corolla bilabiate, yellow, 1.2–1.5 cm, outside strigose and glandular hairy; tube ca. 4 mm, often shallowly gibbous toward base, inside densely puberulent; upper corolla lip shallowly 4-lobed; lower lip recurved, oblong, 8–11 mm. Stamens and style exerted from corolla tube; filaments inserted at throat of corolla, puberulent at base; style slightly curved, pubescent throughout; stigmas discoid, large. Berries turning from orange-yellow to yellow-red and red, globose, 6–8 mm in diam.; seeds ca. 1.5 mm, smooth. Fl. May–Jul, fr. Aug–Sep.

• Forests, forest margins, scrub; 2400–4600 m. S Gansu, ?Qinghai, S Shaanxi, W Sichuan, E and S Xizang, NW Yunnan.

- 1a. Leaves usually obovate, ovate, oblong, or elliptic, apex obtuse and mucronate, or shortly acuminate ..... 41a. var. *trichosantha*  
 1b. Leaves usually ovate-lanceolate to lanceolate, apex acuminate ..... 41b. var. *deflexicalyx*

**41a. *Lonicera trichosantha* var. *trichosantha***

毛花忍冬(原变种) mao hua ren dong (yuan bian zhong)

*Lonicera ovalis* Batalin; *L. prostrata* Rehder; *L. trichosantha* f. *acutiuscula* Rehder; *L. trichosantha* f. *glabrata* Rehder.

Leaves usually obovate, ovate, oblong, or elliptic, apex obtuse and mucronate, or shortly acuminate.

• Forests, forest margins, scrub; 2700–4100 m. S Gansu, S Shaanxi, W Sichuan, E and S Xizang, NW Yunnan.

**41b. *Lonicera trichosantha* var. *deflexicalyx*** (Batalin) P. S. Hsu & H. J. Wang, Acta Phytotax. Sin. 17(4): 79. 1979.

长叶毛花忍冬 chang ye mao hua ren dong

*Lonicera deflexicalyx* Batalin, Trudy Imp. S.-Peterburgsk. Bot. Sada 12: 173. 1892; *L. deflexicalyx* var. *xerocalyx* (Diels)

Rehder; *L. trichosantha* var. *xerocalyx* (Diels) P. S. Hsu & H. J. Wang; *L. xerocalyx* Diels.

Leaves usually ovate-lanceolate to lanceolate, apex acuminate.

• Forests, forest margins, scrub; 2400–4600 m. S Gansu, ?Shaanxi, W Sichuan, NW Yunnan.

**42. *Lonicera calcarata*** Hemsley, Hooker's Icon. Pl. 27: t. 2632. 1900.

长距忍冬 chang ju ren dong

Climbers, glabrous throughout. Branches becoming hollow. Winter buds with several pairs of broad scales. Accessory buds often present. Petiole 1–2 cm; leaf blade ovate or elliptic to oblong, 8–13 × 2.5–8 cm, leathery, base rounded to broadly cuneate, apex acuminate. Inflorescence axillary paired flowers; peduncle erect, 1.7–3 cm; bracts leaflike, ovate to orbicular-ovate, 1.5–2.5 cm; bracteoles fused in 2 pairs, apex rounded or retuse. Neighboring 2 ovaries fused to more than half. Calyx minute. Corolla bilabiate, white at first, later yellow to orange-red, ca. 3 cm; tube ca. 10 mm, funnellform, spurred toward base, spur ca. 12 mm, curved forward and often hidden within bracts; upper lip erect, 4-lobed, lobes unequal in shape to 8 mm; lower lip recurved. Stamens and style exerted from corolla tube; filaments and style pubescent in lower half; stigmas globose and lobed. Ovaries 5-locular. Berries yellow to red, ca. 1.5 cm in diam., subtended by persistent bracts; seeds numerous, compressed, with 2 grooves on concave side, margin thickened. Fl. May, fr. Jun–Jul.

• Forests, forest margins, scrub along streamsides; 1200–2500 m. Guangxi, SW Guizhou, SW Sichuan, Xizang, Yunnan.

**43. *Lonicera crassifolia*** Batalin, Trudy Imp. S.-Peterburgsk. Bot. Sada 12: 172. 1892.

匍匐忍冬 pu fu ren dong

*Lonicera rhododendroides* Graebner.

Shrubs, evergreen, with long prostrate branches sometimes rooting, axillary shoots short and erect with persistent petioles. Branches solid, with crisped golden hairs; winter buds with several pairs of lanceolate and ciliate scales. Petiole 3–8 mm, grooved adaxially, ciliate; leaf blade broadly elliptic, 1–4.5 × 0.7–3 cm, leathery, both surfaces glabrous but adaxially hirsute on midvein, margin ciliate and revolute, both ends rounded to acute, apex sometimes cuspidate or retuse. Inflorescence axillary paired flowers at apices of short branches; peduncle 2–10 mm, glabrous to hirsute; bracts lanceolate, to 1 mm; bracteoles free, ovate, ca. 1/2 as long as bracts. Ovaries free, oblong, glaucous. Calyx lobes narrowly lanceolate to ovate-triangular, to 1 mm, margin ciliate, apex obtuse. Corolla bilabiate, ca. 1.4 cm, white, becoming yellow with reddish tube ca. 0.9 cm, outside glabrous, inside hirsute; tube shallowly gibbous toward base; upper lip 4-lobed, lobes ovate, ca. 1 mm; lower lip recurved. Stamens and style exerted from corolla tube; filaments and style sparsely stiffly hairy in lower part; stigmas globose. Berries black, glaucous, globose, 5–6 mm in diam.; seeds few, brownish, ellipsoid, compressed, 3–4 mm, shallowly reticulate. Fl. Jun–Jul, fr. Oct–Nov.

• Streamsides, rocky cliffs, crevices of moist forest margins; 900–1700(–2300) m. Guizhou, SW Hubei, NW Hunan, Sichuan, Yunnan.

**44. *Lonicera japonica*** Thunberg in Murray, Syst. Veg., ed. 14, 216. 1784.

忍冬 ren dong

Climbers, semievergreen. Branches becoming hollow. Branches, petioles, and peduncles with dense, yellow-brown spreading stiff hairs, interspersed with long glandular hairs. Petiole 3–8 mm; leaf blade ovate or oblong to lanceolate, 3–8 × 1.5–4 cm, abaxially sparsely to densely hairy, adaxially hairy along veins, base rounded to subcordate, margin ciliate, occasionally sinuate, apex acute to acuminate. Flowers fragrant, paired and axillary toward apices of branchlets; peduncle 2–40 mm, shorter toward apex of branchlets; bracts leaflike, ovate to elliptic, 1–3 cm; bracteoles ca. 1 mm, pubescent, apex rounded or truncate and ciliate. Neighboring 2 ovaries free; ovary ca. 2 mm, glabrous. Calyx lobes triangular, ca. 1 mm, densely hairy abaxially and along margin, apex acute. Corolla bilabiate, white, becoming yellow, or purple outside and white inside, 3–5 cm, spreading hairy with interspersed long glandular hairs outside; tube 1.5–3 cm, not gibbous at base; upper lip irregularly 4-lobed, lobes 2–8 mm; lower lip recurved. Stamens and style glabrous, subequaling to exceeding corolla. Berries black when mature, glossy, globose, 6–7 mm in diam.; seeds brown, ovoid or ellipsoid, ca. 3 mm, shallowly pitted. Fl. Apr–Jun, fr. Oct–Nov.  $2n = 18^*$ .

Scrub, sparse forests, mountain slopes, stony places, roadsides; (800–)1500 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, Korea; widely cultivated in SE Asia; introduced and invasive in North America].

1a. Corolla white, later yellow-white ..... 44a. var. *japonica*  
1b. Corolla purple outside, white inside ..... 44b. var. *chinensis*

**44a. *Lonicera japonica* var. *japonica***

忍冬(原变种) ren dong (yuan bian zhong)

*Caprifolium japonicum* (Thunberg) Dumortier; *Lonicera brachypoda* Candolle var. *repens* Siebold; *L. fauriei* H. Léveillé & Vaniot; *L. japonica* f. *macrantha* Matsuda; *L. japonica* var. *repens* (Siebold) Rehder; *L. japonica* var. *sempervillosa* Hayata; *L. shintenensis* Hayata.

Corolla white, later yellow-white.

Scrub or sparse forests on mountain slopes, stony places, roadsides; ca. 1500 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, Korea].

**44b. *Lonicera japonica* var. *chinensis*** (Watson) Baker in Saunders, Refug. Bot. 4: t. 224. 1871.

红白忍冬 hong bai ren dong

*Lonicera chinensis* Watson, Dendrol. Brit. 2: t. 117. 1825;  
*L. japonica* f. *chinensis* (Watson) H. Hara.

Corolla purple outside, white inside.

• Mountain slopes; ca. 800 m. Anhui, ?Guizhou, ?Zhejiang.

**45. *Lonicera acuminata*** Wallich in Roxburgh, Fl. Ind. 2: 176. 1824.

淡红忍冬 dan hong ren dong

*Caprifolium fuchsoides* (Hemsley) Kuntze; *C. henryi* (Hemsley) Kuntze; *Lonicera acuminata* var. *depilata* P. S. Hsu & H. J. Wang; *L. affinis* Hooker & Arnott var. *angustifolia* Hayata; *L. alseuosmoides* Graebner; *L. apodantha* Ohwi; *L. buddleioides* P. S. Hsu & S. C. Cheng; *L. fuchsoides* Hemsley; *L. giraldii* Rehder; *L. henryi* Hemsley; *L. henryi* var. *angustifolia* (Hayata) Ohwi; *L. henryi* var. *fulvovillosa* Ohwi; *L. henryi* var. *setuligera* W. W. Smith; *L. henryi* var. *subcoriacea* Rehder; *L. henryi* var. *transarisanensis* (Hayata) Yamamoto; *L. henryi* var. *trichosepala* Rehder; *L. pampaninii* H. Léveillé; *L. transarisanensis* Hayata; *L. trichosepala* (Rehder) P. S. Hsu.

Climbers, semievergreen. Branches usually becoming hollow. Branches, petioles, and peduncles with dense curved or spreading brown-yellow stiff hairs, sometimes interspersed with long glandular hairs, sometimes glabrescent or becoming glabrous. Leaves occasionally 3-whorled; petiole 2–15 mm; leaf blade ovate or oblong to linear-lanceolate, 2.5–13 × 1.3–4.5 cm, both surfaces brown-yellow hirsute at least on midvein or glabrescent, base rounded to cordate, margin often ciliate, apex acuminate to caudate. Flowers paired, axillary at apices of branchlets, sometimes paniculate; peduncle 0–23 mm, shorter toward apex of branchlets; bracts subulate, occasionally leaflike, 2–4 mm, pubescent and ciliate; bracteoles ovate, ca. 1 mm, glabrous to densely ciliate. Neighboring ovaries free, ca. 2 mm, glabrous, occasionally sparsely hairy, sometimes pruinose. Calyx lobes ovate to narrowly triangular, to 1.5 mm, margin ciliate, sometimes glabrous or glandular. Corolla bilabiate, white tinged red, becoming yellow tinged orange or purple, 1.5–2.4 cm, outside glabrous to densely pubescent; tube funnelliform, 9–12 mm, diam. at throat 2–5 mm, inside hirsute, broadly and shallowly gibbous toward base; upper lip irregularly 4-lobed and erect, lobes orbicular-ovate, 1–2 mm; lower lip recurved. Stamens longer or subequaling corolla; filaments hirsute at base. Style exerted, hirsute at least in lower half or glabrous. Berries blue-black and pruinose, ovoid, 6–7 mm in diam.; seeds ellipsoid to oblong, slightly compressed, 4–4.5 mm, shallowly pitted. Fl. May–Jul, fr. Oct–Nov.

Forests, scrub; 100–3200 m. S Anhui, Fujian, SE Gansu, Guangdong, Guangxi, W Guizhou, ?Henan, Hubei, NW Hunan, Jiangxi, S Shaanxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Bhutan, India, Myanmar, Nepal, Philippines].

This is a highly variable species. Further studies are needed for a satisfactory taxonomic treatment.

**46. *Lonicera ferruginea*** Rehder in Sargent, Trees & Shrubs 1: 43. 1902.

锈毛忍冬 xiu mao ren dong

*Lonicera fulva* Merrill; *L. giraldii* Rehder f. *nubium* Handel-Mazzetti; *L. nubium* (Handel-Mazzetti) Handel-Mazzetti.

Climbers. Branches becoming hollow. Branches, petioles, and peduncles covered with ± dense yellow-brown stiff curved

hairs, and with minute glandular hairs on young parts. Petiole 4–10 mm; leaf blade ovate to lanceolate, 5–14 × 2–5 cm, abaxially densely yellow-brown strigose with raised veins, adaxially glabrescent and densely hairy on midvein, veins slightly impressed adaxially, base rounded to subcordate, margin ciliate with ciliae to 1 mm, apex acute to caudate. Flowers paired in short or contracted racemes, racemes paniculate toward apex of branchlets with subulate involucre bracts; inflorescence peduncle to 7 cm; involucre bract filiform, 4–12 mm; peduncle of paired flowers 0–5 mm; bracts narrowly linear, 2–4 mm; bracteoles ovate, ca. 1 mm; bracts and bracteoles densely strigose. Neighboring 2 ovaries free, ca. 2 mm, densely strigose at least in upper half or glabrous. Calyx lobes lanceolate, to 2 mm. Corolla bilabiate, white at first, later yellow, 1.8–2.8 cm; tube 1.2–2.2 cm, outside strigose, inside hirsute, not gibbous at base; upper lip 4-lobed, lobes 2–3 mm; lower lip linear-oblong. Stamens longer or subequaling corolla; filaments sparsely hirsute on lower part. Style glabrous or hirsute in lower half. Berries black, ovoid-orbicular, ca. 8 mm in diam.; seeds ovoid and slightly compressed, ca. 3.5 mm, shallowly pitted. Fl. May–Jul, fr. Aug–Oct.

Sparse and dense forests, scrub; 600–2000 m. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Sichuan, Yunnan [India, N Thailand].

#### 47–51. *Lonicera macrantha* species complex

Climbers, semievergreen to deciduous. Branches solid, often becoming hollow. Branches, petioles, and peduncles with ± dense spreading, yellow-brown long stiff hairs and minute glandular hairs, grayish pubescent, yellow-brown velutinous, or sometimes glabrous. Petiole 3–15 mm; leaf blade ovate or oblong to lanceolate, 2–14 × 1–5 cm, abaxially hirsute mixed with short glandular hairs, pubescent, shortly white velutinous, glaucous with large sessile orange glands, or occasionally subglabrous, veins reticulate and raised, adaxially hirsute-hairy on veins and midvein, veins conspicuously impressed, sometimes wrinkled, base rounded to subcordate, occasionally broadly cuneate, margin ciliate and revolute, apex acute to acuminate, sometimes obtuse and mucronate. Flowers fragrant, paired and in racemes toward apex of branchlets, often paniculate with leaflike to subulate involucre bracts; peduncle 1–15 mm, sometimes to 40 mm in lower part of inflorescence; peduncle, bracts, bracteoles, and calyx lobes stiffly hairy and glandular hairy; bracts lanceolate to linear, 2–7 mm, occasionally leaflike to 14 mm; bracteoles orbicular-ovate, ca. 1 mm. Neighboring 2 ovaries free, ca. 2 mm, glabrous or sometimes sparsely to densely hirsute or with sessile glands. Calyx lobes lanceolate, 1–2 mm, ciliate. Corolla bilabiate, white, later yellow, (1.5–)3–7 cm, outside with spreading hairs and minute glandular hairs, glabrous, or strigose; tube (1–)2–5 cm, inside densely puberulent, not gibbous at base; upper lip 4-lobed, lobes ca. 5 mm; lower lip recurved. Stamens and style slightly exceeding corolla, glabrous or sometimes pubescent at base. Berries white or black, sometimes pruinose, 1 of paired ovaries sometimes aborting, globose or ellipsoid, 7–12 mm; seeds few, ovoid, compressed, 5–7 mm, shallowly pitted and furrowed. Fl. Mar–Jul, fr. Jul–Dec.

Forests of mountain valleys or slopes, scrub, riversides, stream-

sides, roadsides; 200–2900 m. S Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hubei, Hunan, Jiangxi, Shaanxi, Shanxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Bhutan, India, Japan, ?Kashmir, Myanmar, Nepal, N Vietnam].

These species have long been used medicinally in China.

- 1a. Ovaries densely hirsute ..... 49. *L. confusa*
- 1b. Ovaries glabrous to sparsely hirsute.
  - 2a. Stems with spreading, yellow-brown long stiff hairs and minute glandular hairs.
    - 3a. Leaves abaxially hirsute mixed with minute glandular hairs .... 47. *L. macrantha*
    - 3b. Leaves abaxially white velutinous obscuring leaf surface, mixed with stiff hairs ..... 48. *L. similis*
  - 2b. Stems yellow-brown velutinous to tomentose or grayish pubescent, occasionally glabrous.
    - 4a. Stems yellow-brown velutinous to tomentose.
      - 5a. Leaves abaxially white-yellow velutinous with conspicuously raised veins ..... 51. *L. reticulata*
      - 5b. Leaves abaxially hirsute mixed with minute glandular hairs ..... 47. *L. macrantha*
    - 4b. Stems grayish pubescent or occasionally glabrous.
      - 6a. Leaves abaxially glabrous to pubescent, without large sessile orange glands ..... 49. *L. confusa*
      - 6b. Leaves abaxially glaucous, with large sessile orange glands ..... 50. *L. hypoglauca*

**47. *Lonicera macrantha*** (D. Don) Sprengel, Syst. Veg. 4(2): 82. 1827.

大花忍冬 da hua ren dong

*Caprifolium macranthum* D. Don, Prodr. Fl. Nepal. 140. 1825; *Lonicera esquirolii* H. Léveillé; *L. fulvotomentosa* P. S. Hsu & S. C. Cheng; *L. guillonii* H. Léveillé & Vaniot; *L. hirtiflora* Champion ex Benth; *L. inodora* W. W. Smith; *L. macrantha* var. *calvescens* Chun & F. C. How; *L. macranthoides* Handel-Mazzetti; *L. strigosiflora* C. Y. Wu ex X. W. Li.

For description see under species complex. Distinguishing characters for this species are as follows: Stems with spreading, yellow-brown long stiff hairs and minute glandular hairs or yellow-brown tomentose. Leaves abaxially hirsute mixed with minute glandular hairs. Ovaries glabrous to sparsely hirsute. Berries white to black. Fl. Apr–May, fr. Jul–Aug.

Forests of mountain valleys or slopes, scrub; 300–1800 m. S Anhui, Fujian, Guangdong, Guangxi, Guizhou, ?Hainan, Hubei, Hunan, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Bhutan, India, Nepal].

**48. *Lonicera similis*** Hemsley, J. Linn. Soc., Bot. 23: 366. 1888.

细毡毛忍冬 xi zhan mao ren dong

*Caprifolium simile* (Hemsley) Kuntze; *Lonicera buchana-*

*anii* Lace; *L. delavayi* Franchet; *L. macrantha* (D. Don) Sprengel var. *biflora* Collett & Hemsley; *L. macrantha* var. *heterotricha* P. S. Hsu & H. J. Wang; *L. macranthoides* Handel-Mazzetti var. *heterotricha* (P. S. Hsu & H. J. Wang) B. K. Zhou; *L. omeiensis* (P. S. Hsu & H. J. Wang) B. K. Zhou; *L. similis* var. *delavayi* (Franchet) Rehder; *L. similis* var. *omeiensis* P. S. Hsu & H. J. Wang.

For description see under species complex. Distinguishing characters for this species are as follows: Stems with spreading, yellow-brown long stiff hairs and minute glandular hairs. Leaves abaxially white velutinous obscuring leaf surface, mixed with stiff hairs. Bracts sometimes leaflike, linear-lanceolate, 5–14 mm. Corolla sometimes less than 3 cm. Ovaries glabrous to sparsely hirsute. Berries black. Fl. May–Jun(–Jul), fr. Sep–Oct.

Streamsides in mountain valleys, scrub and forests on sunny mountain slopes; 400–1600(–2200) m. ?Anhui, S Fujian, S Gansu, Guangxi, Guizhou, W Hubei, W Hunan, ?Shaanxi, Shanxi, Sichuan, Yunnan, Zhejiang [Myanmar].

**49. *Lonicera confusa*** Candolle, Prodr. 4: 333. 1830.

水忍冬 shui ren dong

*Lonicera dasystyla* Rehder; *L. multiflora* Champion ex Benth; *L. telfairii* Hooker & Arnott.

For description see under species complex. Distinguishing characters for this species are as follows: Stems grayish pubescent or glabrous. Leaves abaxially glabrous to pubescent without large sessile orange glands. Ovaries densely to sparsely hirsute or glabrous. Berries black. Fl. Mar–May, fr. Aug–Oct.

Mountain slopes, mixed forests, scrub, roadsides of plains, riversides; 300–800 m. Guangdong, Guangxi, Hainan, Yunnan [Nepal, N Vietnam].

**50. *Lonicera hypoglauca*** Miquel, Ann. Mus. Bot. Lugduno-Batavi 2: 270. 1866.

菰腺忍冬 gu xian ren dong

*Caprifolium hypoglaucum* (Miquel) Kuntze; *C. mollissimum* (Blume ex Maximowicz) Kuntze; *Lonicera affinis* Hooker & Arnott var. *hypoglauca* (Miquel) Rehder; *L. affinis* var. *mollissima* Blume ex Maximowicz; *L. affinis* var. *pubescens* Maximowicz; *L. hypoglauca* subsp. *nudiflora* P. S. Hsu & H. J. Wang; *L. rubropunctata* Hayata.

For description see under species complex. Distinguishing characters for this species are as follows: Stems grayish pubescent. Leaves abaxially glaucous with large sessile orange glands. Ovaries glabrous to sparsely hirsute. Berries black. Fl. Apr–May(–Jun), fr. Oct–Nov.

Scrub, sparse forests; 200–700(–1800) m. S Anhui, Fujian, Guangdong, Guangxi, Guizhou, SW Hubei, Hunan, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, ?Kashmir, ?Nepal].

**51. *Lonicera reticulata*** Champion, Hooker's J. Bot. Kew Gard. Misc. 4: 167. 1852.

皱叶忍冬 zhou ye ren dong

*Caprifolium reticulatum* (Champion) Kuntze; *Lonicera rhytidophylla* Handel-Mazzetti.

For description see under species complex. Distinguishing characters for this species are as follows: Stems yellow-brown velutinous. Leaves abaxially white-yellow velutinous with conspicuously raised veins. Berries black. Fl. Jun–Jul, fr. Oct–Nov.

• Scrub, forests; 400–1100 m. Fujian, Guangdong, NE Guangxi, ?Guizhou, S Hunan, SW Jiangxi.

**52. *Lonicera longiflora*** (Lindley) Candolle, Prodr. 4: 331. 1830.

长花忍冬 chang hua ren dong

*Caprifolium longiflorum* Lindley, Edwards's Bot. Reg. 15: t. 1232. 1829; *Lonicera longituba* H. T. Chang ex P. S. Hsu & H. J. Wang.

Climbers, subglabrous throughout but young branches and petioles sometimes slightly yellow-brown hairy. Branches solid or becoming hollow. Petiole 5–10 mm, interpetiolar line raised; leaf blade ovate or elliptic to lanceolate, 4–8.5 × 1.5–5 cm, leathery, venation pinnate or occasionally triplinerved, veins raised abaxially, base rounded to cuneate, apex acute to acuminate. Flowers paired, often clustered at apices of branchlets into lax racemes; peduncle 3–14 mm; bracts linear-lanceolate, 1–5 mm; bracteoles orbicular-ovate, ca. 1 mm, glabrous. Neighboring 2 ovaries free, oblong, ca. 3 mm, glabrous. Calyx lobes broadly triangular or lanceolate, to 1.5 mm, sometimes ciliate. Corolla bilabiate, white, later yellow, 5–9 cm, outside glabrous or with few scattered, spreading, long, glandular hairs or with stiff hairs; tube 3–6 cm, 2–3 mm in diam., inside pubescent, base not gibbous; upper lip 4-lobed to 2 mm; lower lip recurved to coiled. Stamens and style long exerted from corolla tube. Style hairy at base. Berries white to black. Fl. Mar–Sep, fr. Oct.

• Sparse forests, sunny places along roadsides on mountains; 1200–1700 m. Guangdong, Guangxi, Hainan, Yunnan.

**53. *Lonicera hildebrandiana*** Collett & Hemsley, J. Linn. Soc., Bot. 28: 64. 1891.

大果忍冬 da guo ren dong

*Lonicera braceana* Hemsley.

Climbers, evergreen to semievergreen, glabrous throughout. Branches solid, glabrous, sometimes with bristles. Winter buds with several pairs of broad, shortly acuminate scales. Petiole 1–2.5 cm; leaf blade elliptic to oblong, 7–15 × 4–7.5 cm, leathery, base broadly cuneate to rounded, sometimes slightly decurrent, apex acute to acuminate. Flowers fragrant, paired, axillary, toward apices of branchlets, sometimes shortly paniculate; peduncle 4–15 mm; bracts triangular, ca. 1.5 mm; bracteoles ovate-triangular, 0.5–1 mm. Neighboring 2 ovaries free. Calyx cupular; lobes triangular, 0.5–2 mm. Corolla bilabiate, white, becoming yellow and tinged with pink, 7.5–12 cm; tube 4.5–7 cm, ca. 4 mm in diam., not gibbous at base; upper lip 4-lobed, 2 lateral ones split to middle, middle ones only slightly lobed. Stamens and style exerted from corolla tube; filaments pubescent; anthers linear, 7–8 mm. Style and stamens shorter to equaling corolla, pubescent. Berries green, globose to pyriform, large, ca. 2.5 cm; seeds few, ca. 8 mm. Fl. Mar–Jul, fr. May–Aug.

Forests, scrub in moist places of forest margins; 1000–2300 m. Guangxi, Yunnan [Myanmar, Thailand].

A specimen of *Lonicera leiantha* Kurz was noted by Rehder (Rep. (Annual) Missouri Bot. Gard. 14: 163. 1903) as occurring in China: Yunnan, Poneshee, *D. J. Anderson s.n.* This specimen is not from the type location (Myanmar: Ava). It has no flowers and appears to be of *L. hildebrandiana*.

**54. *Lonicera bournei*** Hemsley, J. Linn. Soc., Bot. 23: 360. 1888.

西南忍冬 xi nan ren dong

*Caprifolium bournei* (Hemsley) Kuntze; *Lonicera obscura* Collett & Hemsley.

Climbers. Branches hollow. Branches, petioles, and peduncles densely yellow pubescent and sometimes glandular. Petiole 2–8 mm; leaf blade ovate to elliptic, 2–7.5 × 1.5–4 cm, leathery, both surfaces sometimes pubescent on midvein, veins raised abaxially, base rounded to cordate, apex acute to acuminate. Flowers fragrant, paired and axillary toward apices of branchlets, forming racemes; involucre bracts large, peduncle 1–10 mm; bracts, bracteoles, and calyx lobes pubescent; bracts lanceolate, 0.5–3 mm; bracteoles minute, orbicular-ovate. Neighboring 2 ovaries free, elliptic, ca. 2 mm, glabrous. Calyx cupular; lobes triangular, ca. 0.5 mm, apex acute. Corolla bilabiate, white, later yellow, 3–4.5 cm, outside glabrous to pubescent; tube narrowly funnellform, slightly curved, 2.5–4 cm, 1–2 mm in diam., not gibbous at base; upper lip 4-lobed, 2 lateral lobes split to middle, middle ones only slightly lobed. Stamens and style slightly exerted from corolla tube. Style sparsely puberulent. Berries red, globose, ca. 5 mm in diam. Fl. Feb–Apr, fr. May.

Forests; 800–2000 m. Guangxi, Yunnan [Myanmar].

**55. *Lonicera subaequalis*** Rehder, Rep. (Annual) Missouri Bot. Gard. 14: 172. 1903.

川黔忍冬 chuan qian ren dong

*Lonicera carnosifolia* C. Y. Wu ex P. S. Hsu & H. J. Wang.

Climbers. Branches solid or becoming hollow. Branchlets and leaves glabrous. Petiole 2–10 mm; leaf blade elliptic to oblong or obovate, 4.5–11 × 3–6 cm, abaxially glaucous, base attenuate and decurrent to petiole, opposite leaves sometimes slightly fused and perfoliate, margin cartilaginous, apex obtuse. Inflorescence sessile at apices of branchlets with an involucre bract of 1 pair of perfoliate leaves 4–6 cm across, apex acute; flowers sessile and verticillate, 6 per whorl; whorls 1 or 2 clustered into a capitulum; internode below involucre bract 3–6 cm; bracts minute; bracteoles suborbicular, ca. 1 mm, glandular hairy. Ovaries glabrous, sometimes glandular hairy at apex. Calyx lobes broadly ovate, ca. 1 mm, glandular and sometimes sparsely ciliate. Corolla yellow, sometimes red inside, funnellform, 2–4 cm, outside with sparse long stiff hairs and glands, sometimes glabrous, inside puberulent; tube shallowly gibbous at base; lobes subregular, slightly unequal, ovate, 4–8 mm, apex rounded. Stamens inserted slightly below base of corolla lobes. Style exerted, glabrous to puberulent toward base. Berries red,

subglobose, ca. 7 mm in diam.; seeds whitish, ellipsoid, ca. 2 mm, pitted. Fl. May–Jun, fr. Jul–Oct.

• Shaded places in forests on mountain slopes; 1500–2500 m. Guizhou, Sichuan.

**56. *Lonicera yunnanensis*** Franchet, J. Bot. (Morot) 10: 310. 1896.

云南忍冬 yun nan ren dong

*Lonicera ciliosissima* C. Y. Wu ex P. S. Hsu & H. J. Wang; *L. mairei* H. Léveillé; *L. yunnanensis* var. *linearifolia* C. Y. Wu ex X. W. Li; *L. yunnanensis* var. *tenuis* Rehder.

Climbers. Branchlets glabrous, occasionally with long spreading stiff hairs. Branches solid or becoming hollow. Leaves elliptic to lanceolate or obovate, 2–10 × 1–5 cm, abaxially glaucous and glabrous or adpressed puberulent, occasionally strigose and glandular hairy, adaxially glabrous, base obtuse to rounded and decurrent to short petiole and sometimes slightly united with opposite leaf blade, margin cartilaginous, occasionally ciliate, apex obtuse and mucronulate. Inflorescence fragrant, shortly pedunculate at apices of branchlets with 1 or 2 involucre bracts of perfoliate leaves 2.5–9 cm across, apex acute to acuminate; flowers sessile and verticillate, 6 per whorl; whorls 1–3 clustered into a capitulum; internode below involucre bract 1–6 cm; bracts lanceolate, to 2 mm; bracteoles suborbicular, ca. 1 mm, glabrous. Ovaries glabrous or occasionally with long stiff hairs and minute glandular hairs. Calyx lobes triangular, minute, glabrous. Corolla bilabiate, white or yellow, 1.5–2.5 cm, outside glabrous to sparsely pubescent with minute glandular hairs; tube shallowly gibbous toward base, 10–20 mm, inside puberulent; upper lip shallowly 4-lobed; lower lip narrowly oblong. Stamens and style exerted. Berries red, black when mature. Fl. Apr–Jul, fr. Sep–Oct.

• Forests on mountain slopes, scrub; 1700–3000 m. SW Sichuan, NW Yunnan.

**57. *Lonicera tragophylla*** Hemsley, J. Linn. Soc., Bot. 23: 367. 1888.

盘叶忍冬 pan ye ren dong

*Caprifolium tragophyllum* (Hemsley) Kuntze; *Lonicera harmsii* Graebner.

Climbers, deciduous. Branches solid or becoming hollow. Branchlets glabrous. Leaves sessile or petiole to 3 mm; leaf blade elliptic to lanceolate or ovate, 4–12 × 2–3 cm, abaxially glaucous, shortly white hispid, sometimes with dense, stiff, yellow hairs on lower part of midvein, very rarely glabrous, adaxially glabrescent, midvein and margin sometimes purple-red-dish at base, base attenuate and decurrent to petiole, margin cartilaginous, apex obtuse or ± acute. Inflorescence at apices of branchlets, shortly pedunculate; peduncle 3–11 mm; involucre bract of 1 pair of perfoliate leaves 4–10 cm across, apex acute; flowers sessile and verticillate, 6 per whorl; whorls 2–4 clustered into a capitulum; internode below involucre bract 3–7 cm; bracts narrowly ovate, ca. 1 mm; bracteoles minute, glabrous. Ovaries pyriform, glabrous. Calyx lobes minute, triangu-

lar or ovate. Corolla bilabiate, yellow to orange-yellow, reddish outside in upper part, 5–9 cm, outside glabrous; tube not gibbous at base, 4–7 cm, inside sparsely puberulent; upper lip shallowly 4-lobed; lower lip narrowly oblong. Stamen and style exerted, glabrous. Style with swollen nectary at base. Berries turning from yellow to red-yellow when mature, eventually

deep red, subglobose, ca. 1 cm in diam.; seeds whitish, ellipsoid, ca. 2 mm, pitted. Fl. May–Jul, fr. Jul–Oct.

- Forests, scrub, rocky crevices at riversides; (700–)1000–2000(–3000) m. Anhui, S Gansu, N Guizhou, SW Hebei, NW Henan, Hubei, S Ningxia, Shaanxi, S Shanxi, Sichuan, Zhejiang.