

26. HYDRANGEA Linnaeus, Sp. Pl. 1: 397. 1753.

绣球属 xiu qiu shu

Wei Zhaofen (卫兆芬 Wei Chao-fen); Bruce Bartholomew

Subshrubs, shrubs, or small trees, erect or climbing, deciduous or evergreen. Branchlets, leaves, and inflorescences variously hairy. Leaves opposite, rarely verticillate, exstipulate; leaf blade simple, margin entire, serrate, or rarely pinnately lobed. Inflorescence terminal, occasionally axillary, a corymbose cyme, umbellate cyme, or thyrse; bracts deciduous. Flowers fertile or sterile. Sterile flowers few (more numerous in cultivated varieties), sometimes absent, borne at margin of inflorescence, with sepals 2 or 5, petaloid, and enlarged. Fertile flowers usually very numerous, bisexual, small; pedicel short. Calyx tube adnate to ovary, 4- or 5-dentate, persistent. Corolla lobes 4 or 5, free, rarely connate and forming a calyptra, ovate or spatulate, valvate. Stamens (8 or) 10 (or 25), inserted on disc; filaments linear; anthers oblong to subglobose, apex subrounded to obtuse. Ovary inferior to 2/3 superior, imperfectly or perfectly 2–4 (or 5)-loculed; placentation parietal or axile; ovules numerous. Styles 2–4 (or 5), free or basally connate, persistent; stigmas terminal or decurrent along style adaxially. Fruit a capsule, dehiscing apically among styles, hemispheric to turbinate, small, apex projected or truncate. Seeds numerous, small, winged or wingless; seed coat thin, with reticulate or striate veins.

About 73 species: mainly in E Asia, a few species in SE Asia and the New World; 33 species (25 endemic) in China.

The Japanese species *Hydrangea macrophylla* (Thunberg) Seringe is cultivated as an ornamental. Records of *H. macrophylla* var. *macrophylla* from China (e.g., in FRPS) are probably all from cultivated plants. One of the present authors (Bartholomew) believes that records of *H. macrophylla* var. *normalis* E. H. Wilson from China (e.g., in FRPS) are probably referable to related taxa such as *H. caudatifolia*, *H. chungii*, or *H. stylosa*. However, Wei believes that wild-growing *H. macrophylla* occurs in Guangdong, Guizhou, and Sichuan, with var. *normalis* in Zhejiang.

One of the present authors (Bartholomew) feels that the three species complexes in *Hydrangea* would be better treated as the widespread, variable species *H. chinensis* (to include *H. davidii*, *H. linkweiensis*, and *H. mangshanensis*), *H. heteromalla* (to include *H. bretschnideri*, *H. dumicola*, *H. hypoglauca*, *H. macrocarpa*, *H. sungpanensis*, and *H. xanthoneura*), and *H. aspera* (to include *H. coacta*, *H. kawakamii*, *H. longipes* var. *fulvescens*, and *H. longipes* var. *lanceolata*). Bartholomew believes that, with the recognition of these three species in the broader sense, as well as a number of other reductions (*H. coenobialis* to include *H. candida* and *H. gracilis*, *H. chungii* to include *H. caudatifolia*, and *H. robusta* to include *H. longipes* var. *longipes*), there are probably about 18 recognizable species of *Hydrangea* (nine endemic) in China; Wu Zhengyi (editor's note) agrees.

1a. Ovary completely inferior; capsule apex truncate.

2a. Petals apically connate and forming a calyptra; seed wing encircling seed 33. *H. anomala*

2b. Petals free; seeds winged at both ends.

3a. Leaf blade margin entire; bracts closely enveloping inflorescence in bud, ovate-orbicular; vines climbing 32. *H. integrifolia*

3b. Leaf blade margin serrate; bracts not enveloping inflorescence in bud, lanceolate; shrubs or small trees.

4a. Branchlets with branched hairs.

5a. Branchlets, petiole, and peduncle with translucent hairs; leaf blade ovate, oblong-ovate, or elliptic, submembranous or thinly papery 30. *H. sargentiana*

5b. Branchlets, petiole, and peduncle without translucent hairs; leaf blade lanceolate, papery or subleathery 31. *H. longifolia*

4b. Branchlets glabrous or with simple hairs.

6a. Seeds with transverse veins between striate veins 29. *H. kawakamii*

6b. Seeds without transverse veins.

7a. Branchlets 4-angled; petiole long and thick 28. *H. robusta*

7b. Branchlets terete or obscurely 4-angled; petiole usually long and thin or short and thick.

8a. Fertile flowers white; petiole long and thin, leaf blade membranous to thinly papery .. 26. *H. longipes*

8b. Fertile flowers rose, purple-red, or purple-blue; petiole short and thick; leaf blade papery or thickly so.

9a. Leaf blade abaxially strigose 25. *H. strigosa*

9b. Leaf blade abaxially densely felty tomentose and hirsute, or densely pubescent or villous.

10a. Leaf blade abaxially densely felty tomentose and hirsute 27. *H. coacta*

10b. Leaf blade abaxially densely pubescent or villous 24. *H. aspera*

1b. Ovary 1/3–2/3 superior; capsule apex projected up calyx tube.

11a. Projected apical part of capsule conical; free part of petal base truncate; seeds longitudinally striate veined,

long winged at both ends; stamens unequal, longer ones inflexed in bud.

12a. Cymes thyrseoid; leaves opposite or 3-verticillate 16. *H. paniculata*

12b. Cymes corymbose; leaves opposite.

- 13a. Leaf blade abaxially densely tomentose or velutinous.
14a. Leaf blade abaxially densely velutinous; capsule 2.5–3.5 mm in diam. 17. *H. heteromalla*
14b. Leaf blade abaxially densely tomentose; capsule 3–4 mm in diam. 23. *H. macrocarpa*
- 13b. Leaf blade abaxially glabrous, subglabrous, pubescent, villous, or acerose hairy.
15a. Leaf blade abaxially glandular granular or glandular papillate.
16a. Leaf blade abaxially glandular granular; styles subulate or not in fruit 18. *H. hypoglauca*
16b. Leaf blade abaxially glandular papillate; styles clavate in fruit 19. *H. sungpanensis*
- 15b. Leaf blade eglandular on both surfaces.
17a. Anthers purple-blue 22. *H. dumicola*
17b. Anthers yellow.
18a. First and 2nd year's branchlets without lenticels; leaf blade abaxially gray-white villous or glabrescent 20. *H. bretschnideri*
18b. Second and sometimes 1st year's branchlets with conspicuous lenticels; leaf blade abaxially glabrous except grayish pubescent to densely slightly crisped villous along veins 21. *H. xanthoneura*
- 11b. Projected apical part of capsule not conical; free part of petal base clawed; seeds net veined, wingless or sometimes very shortly winged; stamens subequal, longer ones not inflexed in bud.
19a. Ovary less than 1/2 superior; seeds wingless or sometimes very shortly winged at one or both ends.
20a. Leaf blade lanceolate, margin slightly reflexed, entire or sparsely serrulate distally; inflorescence branches unequal 11. *H. kwangsiensis*
20b. Leaf blade elliptic to broadly so or obovate to obovate-orbicular, margin not reflexed, serrate or roughly long dentate; inflorescence branches subequal.
21a. Leaf blade densely roughly villous or pubescent on both surfaces, hairs erect, spread along veins.
22a. Leaf blade densely roughly villous on both surfaces especially abaxially; capsule 2.5–3 mm in diam. 12. *H. chungii*
22b. Leaf blade pubescent on both surfaces; capsule 1.5–2 mm in diam. 13. *H. caudatifolia*
- 21b. Leaf blade glabrous on both surfaces or sparsely crisped pubescent along veins.
23a. Capsule oblong-ovoid; styles short and thick, ca. 1 mm in fruit; anthers yellow 14. *H. zhewanensis*
23b. Capsule subglobose; styles slender, 2.5–3 mm in fruit; anthers blue 15. *H. stylosa*
- 19b. Ovary at least 1/2 superior; seeds wingless.
24a. Inflorescence with sterile flowers.
25a. Second year's or older branchlets gray-white, bark not peeled off.
26a. Leaf blade elliptic to suboblong, membranous, adaxially sparsely villous and pubescent; lowest inflorescence branch subtended by a leaf; petals elliptic-rhomboid, 2–2.5 × ca. 1 mm 4. *H. mangshanensis*
26b. Leaf blade linear-lanceolate to lanceolate, papery, adaxially glossy and glabrous; lowest inflorescence branch not subtended by a leaf; petals elliptic to narrowly so, 3–4 × 1–1.5 mm 5. *H. stenophylla*
- 25b. Second year's or older branchlets purplish, red-brown, or brown, bark peeled off into irregular fragments.
27a. Inflorescence with a 3–5 cm peduncle, branches 3, central branch usually shorter and thinner 3. *H. linkweiensis*
27b. Inflorescence without a peduncle, branches 3 or 5, equal or central one longer and thicker.
28a. Styles erect or slightly spreading in fruit; inflorescences umbellate or subcorymbose; petals yellow 1. *H. chinensis*
28b. Styles curved outward in fruit; inflorescences corymbose; petals deep blue 2. *H. davidii*
- 24b. Inflorescence without sterile flowers.
29a. Leaf blade dark purple-red to dark brown and glossy on both surfaces when dry, or abaxially pearly gray and adaxially yellowish, both surfaces glabrous or abaxially sparsely appressed pubescent along midvein and secondary veins.
30a. Leaf blade usually dark purple-red to dark brown and glossy on both surfaces when dry, narrowly elliptic to lanceolate, papery, both surfaces glabrous; stigmas not curved outward, not or slightly decurrent along style adaxially 6. *H. lingii*
- 30b. Leaf blade abaxially pearly gray and adaxially yellowish when dry, elliptic to oblong, membranous, both surfaces glabrous or abaxially sparsely appressed pubescent along midvein and secondary veins; stigmas curved outward, decurrent along style adaxially 7. *H. candida*

- 29b. Leaf blade neither dark purple-red on both surfaces when dry nor abaxially pearly gray, one or both surfaces densely villous, sparsely pubescent, or puberulous.
- 31a. Leaf blade densely villous 10. *H. kwangtungensis*
- 31b. Leaf blade sparsely pubescent or puberulous.
- 32a. Leaf blade 3–8.5 × 1–3 cm, membranous or thinly papery, both surfaces sparsely pubescent or abaxially subglabrous; branchlets slender; inflorescence 2–6 cm wide, branches slender 8. *H. gracilis*
- 32b. Leaf blade 9–20 × 2.5–5 cm, papery to thickly so, abaxially sparsely puberulent except along veins; branchlets thick; inflorescence 7–12 cm wide, branches thick 9. *H. coenobialis*

1. *Hydrangea chinensis* Maximowicz, Mém. Acad. Imp. Sci. Saint Pétersbourg, Sér. 7, 10(16): 7. 1867.

中国绣球 zhong guo xiu qiu

Hydrangea angustipetala Hayata; *H. angustipetala* var. *major* W. T. Wang & M. X. Nie; *H. chloroleuca* Diels; *H. jiangxiensis* W. T. Wang & M. X. Nie; *H. macrosepala* Hayata; *H. obovatifolia* Hayata; *H. scandens* (Linnaeus f.) Seringe subsp. *chinensis* (Maximowicz) E. M. McClintock; *H. umbellata* Rehder. Shrubs 0.5–4 m tall. First and 2nd years' branchlets red-brown to brown, pubescent when young, glabrescent. Petiole 0.5–2 cm, glabrous or pubescent; leaf blade lanceolate, narrowly elliptic, or obovate, 5–12 × 1.5–4 cm, papery to thinly so, both surfaces sparsely pubescent or glabrous except along veins, abaxially usually barbate at vein axils, secondary veins 4–7 on both sides of midvein, abaxially slightly elevated, base cuneate to subacute, margin subentire to roughly serrate, apex caudate-acuminate to acute. Inflorescences umbellate or subcorymbose, 3–7 cm, 10–14 cm wide in fruit, apex flat or slightly arcuate; branches 3 or 5, equal or central one longer and thicker, pubescent. Sterile flowers with sepals 3 or 4, elliptic, obovate, ovate-orbicular, or broadly orbicular, 1.1–3 × 1–3 cm in fruit, margin entire, undulate, or few denticulate. Fertile flowers with calyx tube cupular to campanulate, 0.5–1.5 × 1.5–2 mm; teeth lanceolate to triangular-ovate, 0.5–2 mm. Petals yellow, elliptic to oblanceolate, 2.5–3.5 × 1–1.2 mm, base with a claw ca. 0.5 mm, apex subacute. Stamens 8–11, subequal, 2–4.5 mm; anthers oblong, 0.6–1 mm. Ovary ca. 1/2 or more superior. Styles 3 or 4, erect or slightly spreading, 1–2 mm in fruit; stigmas usually enlarged, decurrent along both sides of style. Capsule fusiform to ovoid-globose, 3.5–5 × 2.4–3.5 mm, projected apical part 1.5–2.5 mm, equaling or slightly longer than calyx tube. Seeds brownish, ellipsoid, ovoid, or subglobose, slightly compressed, 0.5–1 × 0.4–0.5 mm, wingless; seed coat net veined. Fl. Mar–Aug, fr. May–Oct.

Sparse to dense forests on mountain slopes, mountain tops, or in valleys; 300–2000 m. Anhui, Fujian, Guangxi, Hunan, Jiangxi, Taiwan, Zhejiang [Japan].

Hydrangea chinensis is a very common and widespread taxon that forms a species complex out of which a number of segregate species have been recognized. One of the present authors (Bartholomew) feels that species nos. 2–4 below all fall within the pattern of

variation found in *H. chinensis*, in the synonymy of which they would be better treated.

2. *Hydrangea davidii* Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 8: 227. 1885.

西南绣球 xi nan xiu qiu

Hydrangea arborescens H. Léveillé; *H. yunnanensis* Rehder.

Shrubs 1–3 m tall. First year's branchlets brown to dark red-brown, densely yellowish pubescent when young, glabrescent. Second year's branchlets yellowish brown; bark peeled off into irregular fragments. Petiole 1–1.5 cm, slightly crisped pubescent to long pilose; leaf blade abaxially yellow-green and adaxially yellow-brown when dry, oblong to narrowly elliptic, 7–15 × 2–4.5 cm, papery, abaxially subglabrous except pilose along veins and fasciculate pubescent at vein axils, adaxially sparsely minutely strigose with hairs denser and slightly crisped along veins, base cuneate to subacute, margin roughly serrate to serrulate, apex caudate-acuminate. Inflorescences corymbose cymes, 7–10 cm wide, to 14 cm wide in fruit, apex slightly arcuate to truncate; branches 3, unequal with central one usually longer and thicker, densely yellow-brown pubescent. Sterile flowers with sepals 3 or 4, broadly ovate, triangular-ovate, or broadly orbicular, unequal, larger ones 1.3–2.3 × 1.1–3 cm, margin entire or few denticulate, apex subrounded to subacute. Fertile flowers with calyx tube cupular, ca. 1 × 1.5 mm; teeth narrowly lanceolate to triangular-ovate, 0.5–1.5 mm. Petals deep blue, narrowly elliptic to obovate, 2.5–4 × ca. 1 mm, base with a claw 0.5–1 mm, apex obtuse to acuminate. Stamens 8–10, subequal, 1.5–2.5 mm, longer ones not inflexed in bud; anthers broadly oblong to subglobose, 0.5–0.8 mm. Ovary ca. 1/2 superior. Styles 3 or 4, curved outward, 1.5–2 mm in fruit; stigmas enlarged, decurrent along style adaxially. Capsule subglobose, 2.5–3.5 mm in diam., projected apical part 1.2–2 mm, equaling calyx tube. Seeds brownish, obovoid to ellipsoid, 0.5–0.6 mm, wingless; seed coat net veined. Fl. Apr–Jun, fr. Sep–Oct.

• Mixed forests on mountain slopes or in valleys; 1400–2400 m. SC Guizhou, SC Sichuan, Yunnan.

3. *Hydrangea linkweiensis* Chun, Acta Phytotax. Sin. 3: 125. 1954.

临桂绣球 lin gui xiu qiu

Hydrangea angustipetala Hayata var. *subumbellata* W.

T. Wang; *H. linkweiensis* var. *subumbellata* (W. T.

Wang) C. F. Wei.

Shrubs to 3 m tall. Branchlets dark purple-brown, sparsely pubescent when young, glabrescent; bark peeled off into irregular fragments. Petiole 4–10 mm, densely villous; leaf blade dark red-brown on both surfaces or lighter abaxially when dry, lanceolate to ovate-lanceolate, slightly asymmetric, 5–14 × 1.7–4 cm, thinly papery, abaxially glabrous or sparsely puberulent with hairs denser along veins, adaxially glabrous or subglabrous, base broadly cuneate to obtuse, margin sparsely denticulate to serrate, apex caudate-acuminate to falcate acuminate. Inflorescences corymbose cymes, apex truncate; peduncle 3–5 cm; branches 3, unequal with central one shorter and lateral ones longer, 5–8 cm, spreading and appressed pubescent. Sterile flowers with sepals 3, triangular-ovate to broadly ovate, unequal, 1.5–2.5 × 1.5–2.7 cm in fruit, margin entire. Fertile flowers with calyx tube cupular, ca. 1 × 1.5 mm, slightly pilose; teeth ovate-lanceolate, 1.5–2.5 mm. Petals yellow, oblanceolate to oblong-obovate, 3.5 × 1.2–1.7 mm, with 1 midvein, base with a claw ca. 0.5 mm. Stamens subequal; anthers oblong, 1–1.2 mm. Ovary ca. 1/2 superior. Styles 3 or 4, slightly spreading, 1.5–2 mm in fruit; stigmas enlarged, decurrent along style adaxially. Capsule ovoid to ellipsoid, 3–4.5 × 2.3–4 mm, projected apical part ca. 1.5 mm, equaling calyx tube. Seeds brown, oblong, obovoid, or subglobose, ca. 0.6 × 0.3–0.5 mm, wingless; seed coat net veined. Fl. May–Jun, fr. Aug–Oct.

• Dense to sparse forests or thickets on mountain slopes or in valleys; 700–1100 m. E Guangxi, SW Hubei.

4. *Hydrangea mangshanensis* C. F. Wei, Guihaia 14: 106. 1994.

莽山绣球 mang shan xiu qiu

Shrubs 1–2 m tall. First year's branchlets purplish brown, densely crisped pubescent. Second year's branchlets gray-white, glabrous; bark not peeled off. Petiole 1–2 cm, adaxially densely crisped pubescent along both sides of channel; leaf blade abaxially greenish, adaxially deep green, elliptic to suboblong, 7–11 × 2.5–4 cm, membranous, abaxially glabrous, adaxially pubescent and long hairy, hairs denser and crisped along veins, secondary veins ca. 6 on both sides of midvein, abaxially slightly elevated, base broadly cuneate, margin distally serrate, apex shortly to long acuminate. Inflorescences corymbose cymes, 4–7 cm wide, densely crisped pubescent, apex truncate to slightly arcuate; branches 3, thin. Sterile flowers with sepals 3 or 4, rhomboid-elliptic to triangular-ovate, 1.5–2 mm in fruit, margin entire. Fertile flowers with calyx tube cupular, ca. 0.7 × 1.5 mm; teeth triangular, ca. 0.5 mm. Petals elliptic-rhomboid, 2–2.5 × ca. 1 mm, membranous, base shortly clawed, apex slender acuminate. Stamens 10, subequal, 1.5–2.5 mm; anthers oblong, less than 1 mm. Ovary nearly 1/2 superior. Styles 3 or 4, slightly spreading, ca. 1 mm in fruit; stigmas hemispheric in fruit, enlarged. Capsule

subglobose, 2.5–3 mm in diam., projected apical part 1.2–1.5 mm, subequaling calyx tube. Seeds brownish, subglobose to obovoid, slightly compressed, ca. 0.5 × 0.5 mm, wingless; seed coat net veined. Fl. May–Jun, fr. Oct–Nov.

• Dense to sparse forests in valleys, on mountain slopes, or on trailsides; 300–1500 m. N Guangdong, SE Hunan.

5. *Hydrangea stenophylla* Merrill & Chun, Sunyatsenia 1: 58. 1930.

柳叶绣球 liu ye xiu qiu

Shrubs 0.8–2 m tall. First year's branchlets purplish, brownish when dry. Second year's branchlets usually white, glabrous, without lenticels; bark not peeled off. Petiole 1–2 cm, glabrous; leaf blade abaxially usually purple-red, purplish green when dry, adaxially yellow-green when dry, lanceolate to narrowly so, 8–20 × 1–2.7(–4.5) cm, abaxially sparsely appressed puberulous, adaxially glabrous, secondary veins 7–10 on both sides of midvein, slightly conspicuous on both surfaces, base narrowly cuneate to subacute, margin slightly reflexed, sparsely serrulate, apex obtusely acuminate.

Inflorescences corymbose cymes, 5–12 wide, apex truncate to slightly arcuate; peduncle 4–12 cm; branches 3, pubescent. Sterile flowers with sepals 3 or 4, ovate, broadly so, or suborbicular, unequal, 1–1.8 × 0.9–1.5 cm, margin entire or few denticulate. Fertile flowers with calyx tube shallowly cupular, ca. 1 × 2 mm, pilose; teeth lanceolate to ovate-lanceolate, 1.5–2.5 mm. Petals green-white, elliptic to narrowly so, 3–4 × 1–1.5 mm, base with a claw ca. 0.5 mm, apex subacute. Stamens 8–10, subequal, 2.5–3 mm; anthers broadly oblong, 1–1.5 mm. Ovary nearly 1/2 superior. Styles 3 or 4, erect or slightly spreading, 1.5–2 mm in fruit; stigmas capitate, small. Capsule broadly ellipsoid, 2.5–4 mm in diam., projected apical part 2–2.5 mm, slightly longer than calyx tube. Seeds brownish, ovoid-globose to ellipsoid, 0.6–0.8 mm, wingless; seed coat net veined. Fl. May–Jun, fr. Sep–Oct.

• Dense to sparse forests or thickets in valleys or on mountain slopes; 700–800 m. N and W Guangdong, SW Jiangxi.

6. *Hydrangea lingii* G. Hoo, Acta Phytotax. Sin. 1: 195. 1951.

狭叶绣球 xia ye xiu qiu

Dichroa tristyla W. T. Wang & M. X. Nie; *Hydrangea minnanica* W. D. Han; *H. vinicolor* Chun.

Shrubs 0.7–2.5 m tall. Branchlets dark purple-brown, terete, glabrous or slightly crisped pubescent when young; bark peeled off into fragments when old. Petiole 5–10 mm, sparsely pubescent or glabrous; leaf blade dark purple-red to dark brown on both surfaces when dry, adaxially glossy, lanceolate to narrowly elliptic, 5–9(–18) × 1.5–2.5(–4.5) cm, papery, both surfaces glabrous, secondary veins 5–7 on both sides of midvein, abaxially slightly elevated, adaxially inconspicuous, base cuneate to obtuse, margin sparsely serrulate, apex caudate-acuminate. Inflorescences corymbose cymes, 5–7 cm wide, densely pubescent. Sterile flowers absent.

Fertile flowers few. Calyx tube cupular, ca. 1 mm; teeth ovate-triangular to lanceolate, 0.5–2 mm. Petals yellowish, narrowly elliptic, obovate, or broadly so, 2.5–3 mm, with 1 midvein and sometimes 2 secondary veins, base with a claw ca. 1 mm. Stamens 8–10, subequal, 2.5–4 mm; anthers oblong, ca. 1.5 mm. Ovary ca. 1/2 superior. Styles 3, erect or slightly spreading, 1.5–2 mm in fruit; stigmas not to slightly decurrent along style adaxially. Capsule cupular, 3–4 mm in diam., projected apical part 1.5–2 mm, subequaling calyx tube. Seeds brown, ellipsoid, obovoid, or subglobose, 0.5–0.7 × 0.4–0.5 mm, wingless; seed coat net veined. Fl. Apr–May, fr. Aug–Nov.

• Dense to sparse forests or thickets in valleys or on mountain slopes; 200–900 m. W Fujian, EC Guangdong, E Guangxi, Guizhou, Hunan, Jiangxi.

7. *Hydrangea candida* Chun, Acta Phytotax. Sin. 3: 128. 1954.

珠光绣球 *zhu guang xiu qiu*

Shrubs ca. 1.5 m tall. Branchlets terete; bark white, peeled off into fragments when old. Petiole thin, 0.5–1 cm, abaxially appressed pilose; leaf blade abaxially slightly glossy and pearly gray when dry, adaxially yellowish, ovate to elliptic, 5–12 × 2.5–5 cm, membranous, both surfaces glabrous or sparsely appressed pubescent along veins, secondary veins 7–9 on both sides of midvein, thin, abaxially elevated, base broadly cuneate to obtuse, margin sparsely serrulate, apex shortly caudate-acuminate. Inflorescences corymbose cymes, ca. 7 cm wide, apex slightly arcuate; peduncle present; branches thick, densely crisped pubescent. Sterile flowers absent. Fertile flowers unknown. Capsule subglobose, 3–4 mm in diam., projected apical part longer than calyx tube; persistent calyx tube shallowly cupular, 1–2 mm, teeth lanceolate to triangular, 0.8–1.5 mm; persistent styles 3, ca. 1.5 mm, stigmas curved outward, decurrent. Seeds brownish, wingless; seed coat net veined. Fr. Jul–Aug.

• Dense forests in valleys; ca. 1000 m. S Guangxi (Shiwan Dashan).

One of the present authors (Bartholomew) believes that this species is not distinct from *Hydrangea coenobialis*.

8. *Hydrangea gracilis* W. T. Wang & M. X. Nie, Bull. Bot. Res., Harbin 1(1–2): 49. 1981.

细枝绣球 *xi zhi xiu qiu*

Shrubs 0.3–1 m tall. Branchlets purple-red to red-brown, slender, terete, sparsely crisped pubescent when young, glabrescent; bark peeled off into fragments when old. Petiole 3–12 mm, sparsely pubescent; leaf blade abaxially pale to purplish, adaxially yellow-green, lanceolate, ovate-lanceolate, or elliptic, 3–8.5 × 1–3 cm, membranous to thinly papery, both surfaces sparsely pubescent or glabrescent, secondary veins 4–6 on both sides of midvein, thin, abaxially slightly conspicuous, base cuneate to subacute, margin irregularly serrate from base or middle to distal part or sometimes subentire, apex shortly caudate-acuminate.

Inflorescences corymbose cymes, 2–6 × 2–6 cm; peduncle short or absent; branches (1–)3, slender, sparsely pubescent. Sterile flowers absent. Fertile flowers few. Calyx tube shallowly cupular, ca. 1 mm; teeth ovate-lanceolate to ovate, 1–1.5 mm. Petals yellow-green, narrowly elliptic to oblanceolate, 3–4 × 0.7–1 mm, base shortly clawed. Stamens 10, subequal, slightly shorter than petals; anthers oblong, ca. 1.5 mm. Ovary ca. 1/2 superior. Styles 3 or 4, erect or slightly spreading, 1–1.5 mm in fruit; stigmas capitate, enlarged. Capsule cupular, 3–4 mm in diam., projected apical part 1.5–2.5 mm, equaling or slightly longer than calyx tube. Seeds yellowish, oblong to obovoid, ca. 0.5 × 0.3–0.5 mm, wingless; seed coat net veined. Fl. May, fr. Oct.

• Dense forests or thickets in valleys or on mountain slopes; 400–700 m. Hunan, Jiangxi.

One of the present authors (Bartholomew) believes that this species is not distinct from *Hydrangea coenobialis*.

9. *Hydrangea coenobialis* Chun, Acta Phytotax. Sin. 3: 131. 1954.

酥醪绣球 *su lao xiu qiu*

Hydrangea coenobialis var. *acutidens* Chun; *H. stenophylla* Merrill & Chun var. *decorticata* Chun.

Shrubs 1–3 m tall. Branches purple-red to dark purple-red, terete, thick, glabrous; bark peeled off into fragments when old. Petiole thick, 1–2 cm, glabrous; leaf blade abaxially greenish, adaxially dark green, ovate-lanceolate, lanceolate, or elliptic, 9–20 × 2.5–5 cm, papery to thickly so, abaxially sparsely appressed puberulous, adaxially glabrous, secondary veins 8–11 on both sides of midvein, abaxially elevated, base obtuse to broadly cuneate, margin serrulate to long sharply serrate, apex acuminate to caudate-acuminate. Inflorescences corymbose cymes, 7–12 cm wide, apex truncate to slightly arcuate; branches 3, thick, densely pubescent. Sterile flowers absent. Fertile flowers with calyx tube funnelform, ca. 1.5 × 2 mm; teeth ovate to ovate-triangular, ca. 1 mm. Petals yellowish, oblanceolate to obovate-oblanceolate, 2.5–4 × 1–1.2 mm. Stamens 8, subequal, ca. 3 mm; anthers oblong, 1–1.5 mm. Ovary ca. 1/2 superior. Styles 3, erect or slightly spreading, ca. 2 mm in fruit; stigmas hemispheric, enlarged. Capsule cupular, 3.5–4 mm in diam., projected apical part 2–2.5 mm, subequaling calyx tube; pedicel 0.6–1.4 cm. Seeds brownish, obovoid to subglobose, ca. 0.5 × 0.4–0.5 mm, wingless; seed coat net veined. Fl. May, fr. Sep.

• Stream banks in dense to sparse valley forests, trailsides on mountain slopes; 200–800 m. NC Guangdong, E Guangxi.

10. *Hydrangea kwangtungensis* Merrill, J. Arnold Arbor. 8: 7. 1927.

广东绣球 *guang dong xiu qiu*

Hydrangea kwangtungensis var. *elliptica* Chun; *H. scandens* (Linnaeus f.) Seringe subsp. *kwangtungensis* (Merrill) E. M. McClintock; *H. shaochingii* Chun.

Shrubs 1–2 m tall. Branchlets brown to red-brown, terete, densely translucent yellow-green villous,

glabrescent. Petiole 4–13 mm, villous; leaf blade abaxially gray-green, adaxially dark yellow-green, oblong to elliptic, 5–13.5 × 1.5–4 cm, thinly papery to submembranous, both surfaces densely villous or adaxially glabrous, secondary veins 6 or 7 on both sides of midvein, abaxially slightly elevated, base cuneate to obtuse, margin sparsely serrate to serrulate or sometimes subentire, apex caudate-acuminate. Inflorescences terminal, corymbose cymes, ca. 8 cm wide, apex slightly arcuate or truncate. Sterile flowers absent. Fertile flowers with pedicel slender. Calyx tube shallowly cupular, 0.5–1 mm, pilose; teeth oblong-ovate to lanceolate, 1.4–2 mm, abaxially sparsely villous, apex subacute. Petals white, elliptic to oblanceolate, 2.5–4 × 1–1.4 mm, base with a claw 0.5–1 mm, apex obtuse to acuminate. Stamens 10, unequal or subequal, 1.5–3 mm; anthers broadly oblong, less than 1 mm. Ovary 1/2 or more superior. Styles 3 or 4, erect or slightly spreading, 1.5–2 mm in fruit; stigmas enlarged or not, slightly decurrent along styles adaxially. Capsule subglobose, 3–3.5 mm in diam., projected apical part 1.5–1.7 mm, equaling calyx tube. Seeds yellow, ellipsoid, wingless; seed coat net veined. Fl. Apr–May, fr. Nov.

• Dense to sparse forests in valleys, on mountain tops, or along streams; 700–1100 m. NE Guangdong, SW Guangxi, S Jiangxi.

11. *Hydrangea kwangsiensis* Hu, J. Arnold Arbor. 12: 152. 1931.

粤西绣球 yue xi xiu qiu

Hydrangea brevipes Chun; *H. hedyotide* Chun; *H. kwangsiensis* var. *hedyotide* (Chun) C. M. Hu ex C. F. Wei.

Shrubs 1–3 m tall. Branchlets brownish, terete, glabrous. Petiole 1–3 cm, base enlarged and enveloping stem; leaf blade lanceolate to broadly so, slightly asymmetric, 9–20 × 1.5–5.5 cm, papery, abaxially slightly appressed puberulous, adaxially glabrous, secondary veins 6–8(–11) on both sides of midvein, thin, abaxially conspicuous, margin slightly reflexed and subentire or sparsely denticulate, apex caudate-acuminate. Inflorescences corymbose cymes, apex truncate; peduncle 6–12 cm; branches 3, spreading with central one much shorter than others, densely appressed pubescent or glabrous. Sterile flowers with sepals (3 or)4(or 5), white, ovate, unequal, 1–3 × 1–2 cm, margin entire, apex rounded to emarginate. Fertile flowers with calyx tube long turbinate, pubescent; teeth ovate to ovate-lanceolate, 0.7–2 × 1–1.2 mm. Petals reflexed after flowering, blue to purple-red, long elliptic, 3–3.5 × 1.5–2 mm. Stamens 10, equaling or slightly longer than petals; anthers oblong, 1–1.5 mm. Ovary ca. 1/5 superior. Styles 3, spreading to suberect, subulate, 2–2.5 mm in fruit; stigmas capitate, small. Capsule long turbinate, 3–4.3 × 2–3 mm, projected apical part 0.5–0.8 mm. Seeds brown-yellow, ovoid, obovoid, or ellipsoid, 0.4–0.5 mm, wingless or sometimes shortly winged at one or both ends; seed coat net veined. Fl. May–Jul, fr. Aug–Nov.

• Dense to sparse forests in valleys, trailsides on mountain slopes; 600–1500 m. N Guangdong, N Guangxi, SE Guizhou, SE Hunan.

This species is very close to *Hydrangea stenophylla*; the relationship between the two species needs further study.

12. *Hydrangea chungii* Rehder, J. Arnold Arbor. 12: 69. 1931.

福建绣球 fu jian xiu qiu

Hydrangea macrophylla (Thunberg) Seringe subsp. *chungii* (Rehder) E. M. McClintock.

Shrubs small, 0.3–0.7 m tall. Branchlets densely spreading, terete, translucent roughly villous when young, glabrescent; bark pale, easily peeled off. Petiole thick, 1–4 cm; leaf blade elliptic to oblong-elliptic, 12–20 × 4.5–8.5 cm, membranous, both surfaces densely roughly villous, abaxially more densely so, secondary veins 8–10 on both sides of midvein, slightly prominent on both surfaces, base narrowly to broadly cuneate, margin roughly serrate, apex acuminate. Inflorescences corymbose cymes, 11–15 cm wide, densely roughly villous; peduncle short; branches 3, subequal. Sterile flowers with sepals 3 or 4, suborbicular to broadly orbicular, 1.5–1.7 × 1.5–2 cm in fruit, apex rounded to emarginate. Fertile flowers with calyx tube ca. 1.5 mm, pubescent; teeth triangular, ca. 1 mm. Petals blue-purple, elliptic, ca. 2 mm in bud. Stamens 10, subequal. Ovary less than 1/2 superior. Styles 3 or 4, spreading, 1–1.5 mm in fruit; stigmas subcapitate to nearly hemispheric. Capsule subglobose, 2.5–3 mm in diam., projected apical part 0.7–1 mm, shorter than calyx tube. Seeds brown, broadly obovoid to broadly ellipsoid, 0.3–0.4 mm, wingless or sometimes shortly winged at both ends; seed coat net veined. Fl. Jun–Jul, fr. Sep–Oct.

• Dense forests or thickets on mountain slopes or on trailsides; 200–800 m. NW Fujian.

13. *Hydrangea caudatifolia* W. T. Wang & M. X. Nie, Bull. Bot. Res., Harbin 1(1–2): 54. 1981.

尾叶绣球 wei ye xiu qiu

Shrubs ca. 1 m tall. Young branchlets, petioles, peduncles, and pedicels densely yellowish pubescent. Branchlets yellowish, terete, glabrescent. Petiole thick, 2–3 cm; leaf blade elliptic to obovate-oblong, 7–19.5 × 2.5–8.5 cm, membranous, both surfaces pubescent, more densely so abaxially, secondary veins 7–9 on both sides of midvein, slender, abaxially slightly prominent, base broadly cuneate, margin roughly long serrate, apex caudate-acuminate. Inflorescences corymbose cymes, to 13 cm wide in fruit, apex slightly arcuate; peduncle short; branches 3, subequal. Sterile flowers with sepals (3 or)4(or 5), suborbicular to broadly orbicular, 1.2–1.7 × 1.1–2 cm, margin entire or apically few denticulate. Fertile flowers small. Calyx tube ca. 1 mm; teeth triangular, 0.5–0.8 mm. Petals purple, long ovate, 3–3.5 mm. Stamens 10, 3–5 mm. Ovary less than 1/2 superior. Capsule subglobose, 1.5–2 mm in diam., projected apical part 0.5–0.7 mm, ca. 1/3 as long as capsule body. Seeds brownish, oblong to globose, 0.4–0.5 × 0.3–0.4

mm, wingless or sometimes shortly winged at one or both ends; seed coat net veined. Fl. Jun, fr. Oct.

• Bamboo forests; 600–700 m. E Jiangxi (Lichuan Xian).

One of the present authors (Bartholomew) believes that this species is not distinct from *Hydrangea chungii*.

14. *Hydrangea zhewanensis* P. S. Hsu & X. P. Zhang, *In-vestig.* Stud. Nat. Mus. Hist. Nat. Shanghai. 9: 12. 1987.

浙皖绣球 zhe wan xiu qiu

Shrubs small, 0.7–1.5 m tall. Branchlets brownish, terete or slightly 4-angled, densely crisped pubescent when young, glabrescent; bark peeled off into fragments. Petiole 1–4 cm, crisped pubescent; leaf blade brownish on both surfaces when dry or adaxially darker, elliptic to rhomboid-elliptic, 6–19 × 3–8 cm, thinly papery, both surfaces glabrous, glabrescent, or crisped pubescent only along veins, secondary veins 6–8 on both sides of midvein, arcuate, slender, abaxially plane, base cuneate to broadly so, margin serrate, apex caudate-acuminate. Inflorescences corymbose cymes, 8–14 cm wide, apex slightly arcuate; peduncle and branches short, densely crisped pubescent. Sterile flowers with sepals 3 or 4, bluish, ovate to broadly so, unequal, 1–2 × 1–1.8 cm in fruit, margin entire or apically few denticulate. Fertile flowers with calyx tube campanulate, 1.2–1.5 mm, glabrous; teeth ovate-triangular, ca. 2.5 mm. Petals reflexed after flowering, blue, oblong-ovate, 2.5–3 mm. Stamens 10, 3–5 mm; anthers yellow, broadly oblong, ca. 0.6 mm. Ovary less than 1/2 superior. Styles (2 or)3(or 4), thick, ca. 1 mm in fruit; stigmas slightly enlarged. Capsule oblong-ovoid, ca. 3 mm in diam., projected apical part 1.2–1.5 mm, ca. 1/3 as long as capsule body. Seeds brown, ellipsoid to oblong, compressed, 0.5–0.7 mm, shortly winged at both ends; seed coat net veined. Fl. Jun–Jul, fr. Oct–Nov.

• Sparse forests or thickets along stream banks in valleys or on mountain slopes; 600–1500 m. SE Anhui (She Xian), N Zhejiang. One of the present authors (Bartholomew) believes that this species needs further study. It is close to *Hydrangea macrophylla* (Thunberg) Seringe and *H. stylosa*, and may belong to either of these species.

15. *Hydrangea stylosa* J. D. Hooker & Thomson, *J. Proc. Linn. Soc., Bot.* 2: 75. 1858.

长柱绣球 chang zhu xiu qiu

Hydrangea macrophylla (Thunberg) Seringe subsp. *stylosa* (J. D. Hooker & Thomson) E. M. McClintock; *H. taronensis* Handel-Mazzetti.

Shrubs ca. 1.5 m tall. First year's branchlets sparsely pubescent. Second year's branchlets gray-white. Petiole 1.5–3 cm, brownish pubescent; leaf blade elliptic, 6–14 × 3–7 cm, papery, both surfaces glabrous or midvein crisped pubescent, secondary veins 6–8 on both sides of midvein, abaxially slightly prominent, base cuneate to subrounded, margin serrate, apex shortly acuminate. Inflorescences corymbose cymes, 5–10 cm wide, apex truncate; peduncle 3–7 cm; branches 3, subequal, brownish pubescent. Sterile flowers with sepals 3 or 4, broadly ovate to broadly elliptic, unequal, 0.5–2 cm, margin few denticulate. Fertile flowers with calyx tube

campanulate; teeth ovate to suborbicular, 1–1.5 mm, apex obtuse. Petals reflexed after flowering, blue, oblong, slightly unequal, 2.5–3.5 mm. Stamens 10, subequal, longer ones longer than petals; anthers blue, oblong, ca. 1 mm. Ovary ca. 1/3 superior. Styles 3–5, spreading, slender, 2.5–3 mm in fruit; stigmas capitate, small. Capsule subglobose, ca. 2.7 mm in diam., projected apical part ca. 1 mm, ca. 1/3 as long as capsule body. Seeds brown, ellipsoid to oblong, 0.5–0.8 mm, shortly winged at one or both ends; seed coat net veined. Fl. Jun–Jul, fr. Sep–Oct.

Dense forests; 2700–3000 m. W Yunnan [Bhutan, Myanmar, Sikkim].

16. *Hydrangea paniculata* Siebold, *Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur.* 14(2): 691. 1829.

圆锥绣球 yuan zhui xiu qiu

Hydrangea verticillata W. H. Gao.

Shrubs or small trees, 1–5 m tall. Branchlets dark brown to gray-brown, pilose, glabrescent, with orbicular lenticels. Leaves 2-opposite or 3-verticillate; petiole 1–3 cm; leaf blade ovate to elliptic, 5–14 × 6–6.5 cm, papery, abaxially appressed villous along veins, adaxially glabrous or sparsely strigose, secondary veins 6 or 7 on both sides of midvein, erect proximally, base rounded to broadly cuneate, margin serrulate, apex acute to acuminate. Inflorescences paniculate cymes, pyramidal, to 26 cm; peduncle and branches densely pubescent. Sterile flowers with sepals 4, white, broadly elliptic to suborbicular, unequal, 1–1.8 × 0.8–1.4 cm in fruit, margin entire. Fertile flowers with calyx tube turbinate, ca. 1.1 mm; teeth triangular, ca. 1 mm. Petals white, ovate to ovate-lanceolate, 2.5–3 mm. Stamens unequal, longer ones ca. 4.5 mm, others slightly shorter than petals; anthers subglobose, ca. 0.5 mm. Ovary ca. 1/2 superior. Styles 3, subulate, ca. 1 mm; stigmas capitate, small. Capsule ellipsoid, 3–3.5 mm in diam., projected apical part conical, 2–2.7 mm, equaling calyx tube. Seeds brown, fusiform, compressed, narrowly winged at both ends; wings 2.5–3 mm; seed coat striate veined. Fl. Jul–Aug, fr. Oct–Nov.

Sparse forests or thickets in valleys or on mountain slopes or tops; 300–2100 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Sichuan, Yunnan, Zhejiang [Japan, Russia (Sakhalin)].

17. *Hydrangea heteromalla* D. Don, *Prodr. Fl. Nepal.* 211. 1825.

微绒绣球 wei rong xiu qiu

Hydrangea heteromalla var. *parviflora* C. Marquand & Airy Shaw; *H. khasiana* J. D. Hooker & Thomson; *H. mandarinorum* Diels; *H. vestita* Wallich.

Shrubs or small trees, 2–5 m tall or more. Branchlets red-brown to brownish, pubescent, glabrescent, with a few elliptic lenticels. Petiole purplish red, 2–4 cm, pilose; leaf blade elliptic, broadly ovate, or oblong-ovate, 6–15 × 3–8 cm, papery or at base of inflorescence membranous, abaxially densely gray-

white velutinous, adaxially yellow-brown strigose to subglabrous, secondary veins 7–9 on both sides of midvein, base shallowly cordate, obtuse, or truncate, margin densely serrulate or doubly serrate, apex acute to acuminate. Inflorescences corymbose cymes, 15–20 cm wide, to 27 cm wide in fruit, apex arcuate; peduncle present; branches 3, pubescent; bracts and bracteoles lanceolate to linear. Sterile flowers with sepals 4, white or yellowish, elliptic, broadly ovate, or broadly orbicular, 0.7–1.6 × 0.5–1.4 cm, base rounded to shallowly cordate, margin entire. Fertile flowers with calyx tube nearly funnelform to campanulate, 1–1.5 mm; teeth triangular, 0.5–1.5 mm. Petals white or yellowish, oblong-ovate, 1.8–2 mm. Stamens 10, unequal; anthers subglobose, ca. 0.6 mm. Ovary up to 1/2 superior. Styles 3 or 4, erect, subulate, 1–1.3 mm in fruit; stigmas small. Capsule ovoid-globose to subglobose, 2.5–3.5 mm in diam., projected apical part conical, 0.8–1.2 mm, ca. 1/3 as long as capsule body. Seeds yellow-brown, ellipsoid to oblong, slightly compressed, 0.7–1 mm, winged at both ends; wings 0.2–0.5 mm; seed coat striate veined. Fl. Jun–Jul, fr. Sep–Oct.

Forests or thickets on mountain slopes or tops; 2400–3400 m. Sichuan, S Xizang, Yunnan [Bhutan, NE India, Nepal, Sikkim]. *Hydrangea heteromalla* forms a species complex out of which a number of segregate species have been recognized. One of the present authors (Bartholomew) feels that species nos. 18–23 below all fall within the pattern of variation found in *H. heteromalla*, in the synonymy of which they would be better treated.

18. *Hydrangea hypoglauca* Rehder in Sargent, Pl. Wilson. 1: 26. 1911.

白背绣球 bai bei xiu qiu

Hydrangea bretschneideri Dippel var. *girdalii* (Diels) Rehder; *H. girdalii* Diels; *H. hypoglauca* var. *girdalii* (Diels) C. F. Wei; *H. hypoglauca* var. *obovata* Chun. Shrubs 1–3 m tall. Branchlets red-brown, glabrous or sparsely shortly and thickly hairy when young; bark peeled off into fragments when old. Petiole thin, 1.5–3 cm; leaf blade abaxially gray-white, ovate or oblong-ovate or oblong-obovate, 7–12 × 2.8–6.5 cm, papery, abaxially densely glandular granular and roughly long hairy, glabrous, or subglabrous except pubescent along veins, adaxially glabrous or sparsely appressed shortly and thickly hairy along veins, secondary veins 7 or 8 on both sides of midvein, erect and obliquely ascending, abaxially elevated, base rounded to subacute, margin serrulate, apex acuminate. Inflorescences corymbose cymes, 10–14 cm wide, apex slightly arcuate; branches 3, sparsely appressed long hairy. Sterile flowers with sepals 3 or 4, white, obovate, broadly ovate, or broadly orbicular, ca. 1.1 × 2 cm. Fertile flowers with calyx tube campanulate, ca. 1 mm; teeth ovate-triangular, 0.5–1 mm. Petals white, oblong-ovate, 2–2.5 mm. Stamens unequal, longer ones inflexed in bud, ca. 3 mm; anthers subglobose, less than 0.5 mm. Ovary up to 1/2 superior. Styles 3, basally connate, subulate or not, 1–

1.5 mm; stigmas not enlarged to subcapitate. Capsule ovoid-globose, ca. 3 mm in diam., projected apical part conical, ca. 1.5 mm, subequaling calyx tube. Seeds brownish, fusiform, winged at both ends; wings 0.5–0.7 mm; seed coat striate veined. Fl. Jun–Jul, fr. Sep–Oct.

• Dense to sparse forests on mountain slopes or tops, thickets in valleys or on mountain slopes; 200–4000 m. NE Guizhou, W Hubei, NW Hunan, SW Shaanxi, E Sichuan, NW Yunnan.

19. *Hydrangea sungpanensis* Handel-Mazzetti, Symb. Sin. 7: 444. 1931.

松潘绣球 song pan xiu qiu

Shrubs or small trees, 3–10 m tall. Branchlets brown to gray-brown, thick, strigose, glabrescent, with lenticels; bark thick, peeled off into fragments. Petiole 2–6 cm; leaf blade abaxially dark yellow-green and adaxially brownish when dry, oblong-elliptic, oblong-ovate, or broadly ovate, 9–19 × 4–14 cm, papery to thickly so, abaxially densely glandular papillate and and crisped pilose, adaxially shortly strigose along veins, secondary veins 8–10 on both sides of midvein, erect or slightly curved near margin, plane on both surfaces, base broadly cuneate, rounded, or subtruncate, margin serrulate, apex acute to shortly acuminate. Inflorescences corymbose cymes, 12–25 cm wide; peduncle short; branches 3, thick, pubescent. Sterile flowers with sepals 3–5, pinkish to yellowish, ovate, obovate, or suborbicular, subequal, 1.2–2.5 × 1.2–2.4 cm, margin entire or apically few denticulate. Fertile flowers with calyx tube campanulate, ca. 1.2 mm; teeth triangular, ca. 1 mm. Petals greenish, oblong-ovate, 2.5–3 mm. Stamens 10, unequal; anthers subglobose, ca. 0.7 mm. Ovary almost 1/2 superior. Capsule ovoid-globose, ca. 3.5 mm in diam., projected apical part conical, ca. 1.5 mm, slightly shorter than calyx tube; persistent styles 3 or 4, clavate, ca. 1 mm. Seeds brown, narrowly ellipsoid to fusiform, slightly compressed, 1.5–2 mm including long wings at both ends; seed coat striate veined. Fl. Jul, fr. Sep.

• Dense to sparse forests on mountain slopes or tops; 2300–3500 m. Sichuan, Yunnan.

20. *Hydrangea bretschneideri* Dippel, Handb. Laubholz. 3: 320. 1893.

东陵绣球 dong ling xiu qiu

Hydrangea bretschneideri var. *glabrescens* Rehder; *H. xanthoneura* Diels var. *glabrescens* (Rehder) Rehder. Shrubs 1–3(–5) m tall. First year's branchlets red-brown to brown, long pilose, glabrescent. Second year's branchlets lighter in color, without lenticels; bark thin, peeled off into fragments. Petiole 1–3.5 cm, pilose; leaf blade ovate, ovate-oblong, obovate-oblong, or elliptic-oblong, 7–16 × 2.5–7 cm, papery, abaxially densely gray-white crisped to suberect villous, glabrescent, adaxially glabrous except shortly pilose along veins, secondary veins 7 or 8 on both sides of midvein, erect

and obliquely ascending, abaxially slightly prominent, base broadly cuneate to subrounded, margin serrate, apex acuminate. Inflorescences corymbose cymes, 8–15 cm wide, apex truncate to slightly arcuate; branches 3, slightly unequal with central one usually shorter than others, densely pubescent. Sterile flowers with sepals 4, elliptic, ovate, obovate, or suborbicular, 1.3–1.7 × 1–1.6 cm, margin entire. Fertile flowers with calyx tube cupular, ca. 1 mm; teeth triangular, 1–1.5 mm. Petals white, ovate-lanceolate to oblong, 2.5–3 mm. Stamens 10, unequal; anthers subglobose, 0.5–0.6 mm. Ovary less than 1/2 superior. Styles 3, 1–1.5 mm in fruit. Capsule ovoid-globose, 3–3.5 mm in diam., projected apical part conical, ca. 1.5 mm, slightly shorter than calyx tube. Seeds brownish, narrowly ellipsoid, winged at both ends; wings 0.5–0.6 mm; seed coat striate veined. Fl. Jun–Jul, fr. Sep–Oct.

• Dense to sparse forests along stream banks in valleys or on mountain slopes; 1200–2800 m. Gansu, Hebei, Henan, Ningxia, Qinghai, Shaanxi, Shanxi.

21. *Hydrangea xanthoneura* Diels, Bot. Jahrb. Syst. 29: 373. 1900.

挂苦绣球 *gua ku xiu qiu*

Hydrangea pubinervis Rehder; *H. xanthoneura* var. *lancifolia* Rehder; *H. xanthoneura* var. *setchuenensis* Rehder; *H. xanthoneura* var. *sikangensis* Chun; *H. xanthoneura* var. *wilsonii* Rehder.

Shrubs or small trees, 1–7 m tall. First year's branchlets black-brown to gray-brown, glabrous or pilose, glabrescent, sometimes with lenticels. Second year's branchlets with lenticels; bark thick, not easily peeled off. Petiole 1.5–5 cm, pilose; leaf blade abaxially greenish, adaxially yellowish green, elliptic, oblong-ovate, or oblong-obovate, 8–18 × 3–10 cm, papery to thickly so, abaxially glabrous except grayish pubescent to densely slightly crisped villous along veins, adaxially strigose along veins, secondary veins 7 or 8 on both sides of midvein, erect and obliquely ascending, yellowish, base broadly cuneate to subrounded, margin densely serrate, apex acute to shortly acuminate. Inflorescences corymbose cymes, 10–20 cm wide, apex arcuate; branches 3, unequal with central one usually longer than others, pubescent. Sterile flowers with sepals 4 (or 5), yellowish green, broadly elliptic to suborbicular, 1–3.5 × 1–2.5 cm. Fertile flowers with calyx tube shallowly cupular, ca. 1 mm; teeth triangular, equaling calyx tube. Petals white to greenish, oblong-ovate, ca. 2.5 mm. Stamens 10–13, unequal; anthers subglobose, ca. 0.5 mm. Ovary less than 1/2 superior. Styles 3 or 4, ca. 1 mm in fruit; stigmas narrowly ellipsoid, slightly enlarged. Capsule ovoid-globose, ca. 3 mm in diam., projected apical part conical, ca. 1 mm, ca. 1/3 as long as capsule body. Seeds brown to brownish, narrowly ellipsoid, ca. 2 mm, winged at both ends; wings ca. 0.5 mm; seed coat striate veined. Fl. Jun–Jul, fr. Sep–Oct.

• Dense to sparse forests or thickets on mountain slopes or tops or trailsides; 1600–3200 m. Guizhou, NW Hubei, Sichuan, Yunnan.

22. *Hydrangea dumicola* W. W. Smith, Notes Roy. Bot. Gard. Edinburgh 10: 39. 1917.

银针绣球 *yin zhen siu qiu*

Shrubs 2.5(–5) m tall. Branchlets black-brown, terete, glabrous or sparsely acicular hirsute, with elliptic lenticels. Petiole 2–4.5 cm, long pilose; leaf blade narrowly elliptic, ovate-lanceolate, or broadly ovate, slightly asymmetric, 13–16 × 4–5 cm, papery, abaxially sparsely appressed white acicular hirsute along veins, more densely so along midvein and secondary veins, adaxially sparsely strigose, secondary veins 7 or 8 on both sides of midvein, abaxially prominent, base cuneate to subacute, margin densely serrulate, apex acute to shortly acuminate. Inflorescences corymbose cymes, ca. 19 cm wide; peduncle short; branches 3, roughly long hairy; bracteoles linear. Sterile flowers with sepals 4, yellowish, broadly elliptic, broadly ovate, or broadly orbicular, 1–1.6 × 1–1.9 cm, margin entire. Fertile flowers with calyx teeth triangular, less than 1 mm in bud, slightly longer in fruit. Petals deep yellow, oblong, ca. 2 mm in bud. Stamens 10, unequal; anthers purple-blue. Ovary less than 1/2 superior. Styles 3, ca. 1 mm in fruit, apex subacute. Capsule ovoid-globose, ca. 2.5 mm in diam., projected apical part conical, ca. 1 mm, ca. 1/3 as long as capsule body. Seeds brown, fusiform, long and narrowly winged at both ends; seed coat striate veined. Fl. Jun–Jul, fr. Sep.

• Sparse forests or thickets in valleys or on mountain slopes; 1900–2500 m. W Yunnan.

23. *Hydrangea macrocarpa* Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 62: 144. 1925.

大果绣球 *da guo xiu qiu*

Hydrangea heteromalla D. Don var. *mollis* Rehder; *H. mollis* (Rehder) W. T. Wang.

Shrubs or small trees, 3–4 m tall. Young branchlets, petioles, and inflorescences slightly yellowish brown to gray-white tomentose. Second year's branchlets dark gray-brown, thick, glabrescent, with oblong lenticels. Petiole thick, 2–8 cm; leaf blade adaxially dark yellow-brown when dry, oblong-ovate to elliptic, 9–22 × 5–11 cm, papery to thinly so, abaxially densely gray-white long tomentose, adaxially sparsely strigose with denser hairs along veins, secondary veins 7–9 on both sides of midvein, base shallowly cordate, broadly truncate, or obtuse, margin densely serrulate, apex acuminate. Inflorescences corymbose cymes, 10–16 cm wide, to 28 cm wide in fruit, apex truncate; branches thick; bracts lanceolate, ca. 2 cm, abaxially densely yellow-brown tomentose. Sterile flowers with sepals 4, broadly ovate to suborbicular, 1.4–2.5 × 1–2 cm in fruit. Fertile flowers with calyx tube campanulate, ca. 1.5 mm, pilose; teeth acutely triangular, 1.5–2 mm. Petals oblong-ovate, ca. 2 mm, base truncate. Stamens 10, unequal; anthers subglobose. Ovary less than 1/2 superior. Styles 3 or 4, erect to slightly spreading, subulate, 1–1.5 mm in fruit; stigmas small. Capsule ovoid-globose to subglobose, 3–4 mm in diam.,

projected apical part conical, 1.5–2 mm, shorter than calyx tube; persistent calyx teeth narrowly triangular, 1.5–2 mm; persistent styles 3(–5), erect, thick, ca. 1.5 mm, stigmas decurrent. Seeds red-brown to dark brown, narrowly ellipsoid to fusiform, compressed, 1–2 mm, winged at both ends; seed coat striate veined. Fl. Jun–Jul, fr. Sep–Oct.

• Mixed forests or thickets along stream banks in valleys or on mountain slopes; 2500–3500 m. S Sichuan, N Yunnan.

24. *Hydrangea aspera* D. Don, Prodr. Fl. Nepal. 211. 1825.

马桑绣球 ma sang xiu qiu

Hydrangea aspera f. *emasculata* Chun; *H. aspera* var. *strigosior* Diels; *H. aspera* var. *velutina* Rehder; *H. glabripes* Rehder; *H. villosa* Rehder; *H. villosa* var. *delicatula* Chun; *H. villosa* f. *sterilis* Rehder; *H. villosa* var. *strigosior* (Diels) Rehder; *H. villosa* var. *velutina* (Rehder) Chun.

Shrubs or small trees, 1–4(–10) m tall. Branchlets terete or obscurely 4-angled, densely yellow- to gray-white shortly strigose, pubescent, and villous; bark brown. Petiole 1–4.5 cm, densely strigose or glabrous; leaf blade lanceolate, ovate-lanceolate, ovate-oblong, ovate, or elliptic-oblong, 5–25 × 2–8 cm, papery, abaxially densely gray-white pubescent to long villous, adaxially sparsely to densely strigose, secondary veins 6–10 on both sides of midvein, base broadly cuneate to rounded, margin serrate to doubly so, apex long acuminate. Inflorescences corymbose cymes, 8–25 cm wide, apex arcuate; branches densely gray-yellow pubescent. Sterile flowers with sepals 4 or 5, greenish white, pinkish, or red, broadly ovate, obovate-orbicular, or orbicular, 1–3.3 × 0.9–2.7 cm, margin acutely dentate, crenulate, or entire. Fertile flowers with calyx tube campanulate to cupular, 1–1.5 mm; teeth broadly triangular to ovate-triangular, 0.5–1 mm. Petals purple-blue or purple-red, oblong-ovate to ovate, 1.5–2.5 mm, base truncate. Stamens 10, unequal; anthers subglobose, ca. 0.5 mm. Ovary inferior. Styles 2 or 3, recurved, ca. 1–2 mm in fruit; stigmas slightly enlarged. Capsule urn-shaped, 3–3.5 mm in diam., base subacute, apex truncate. Seeds brown, fusiform, ellipsoid, or subglobose, slightly compressed, 0.4–0.5 mm, winged at both ends; wings ca. 0.2 mm; seed coat striate veined. Fl. Jul–Sep, fr. Sep–Nov.

Dense forests or thickets in valleys or on mountain slopes; 700–4000 m. SE Gansu, Guangxi, Guizhou, SW Hubei, SW Hunan, Jiangsu, Shaanxi, Sichuan, Yunnan [NE India, Nepal, Sikkim, Vietnam].

25. *Hydrangea strigosa* Rehder in Sargent, Pl. Wilson. 1: 31. 1911.

蜡莲绣球 la lian xiu qiu

Hydrangea aspera D. Don var. *angustifolia* Hemsley; *H. aspera* var. *macrophylla* Hemsley; *H. aspera* var. *sinica* Diels; *H. aspera* subsp. *strigosa* (Rehder) E. M. McClintock; *H. strigosa* var. *angustifolia* (Hemsley) Rehder; *H. strigosa* var. *macrophylla* (Hemsley) Rehder; *H. strigosa* var. *purpurea* C. C. Yang; *H.*

strigosa var. *sinica* (Diels) Rehder; *H. strigosa* f. *sterilis* Rehder.

Shrubs 1–3 m tall. Branchlets gray-brown, terete or obscurely 4-angled, densely strigose; bark usually peeled off into fragments. Petiole 1–7 cm, strigose; leaf blade abaxially sometimes purplish red to reddish when fresh but gray-brown to gray-green when dry, adaxially black-brown, oblong, ovate-lanceolate, or obovate-oblong, 8–28 × 2–10 cm, papery, abaxially densely gray-brown glandular granular and gray-white strigose, adaxially sparsely strigose to subglabrous, secondary veins 7–10 on both sides of midvein, abaxially prominent, base obtuse, cuneate, or rounded, margin serrulate, apex acuminate. Inflorescences corymbose cymes, to 28 cm wide, apex slightly arcuate; branches spreading, gray-white strigose. Sterile flowers with sepals 4 or 5, white to purplish red, broadly ovate, broadly elliptic, suborbicular, or broadly orbicular, margin entire to denticulate. Fertile flowers with calyx tube campanulate, ca. 2 mm; teeth triangular, ca. 0.5 mm. Petals purplish red, oblong-ovate, 2–2.5 mm. Stamens 10, unequal, 3–6 mm; anthers oblong, ca. 0.5 mm. Ovary inferior. Styles 2, erect to recurved, slightly clavate, ca. 2 mm in fruit. Capsule urn-shaped, 3–3.5 mm in diam., apex truncate. Seeds brown, broadly ellipsoid, 0.3–0.5 mm, winged at both ends; wings 0.2–0.3 mm; seed coat striate veined. Fl. Jul–Aug, fr. Oct–Dec.

• Dense to sparse forests or thickets in valleys, trailsides on mountain slopes; 500–1800 m. NW Guizhou, W Hubei, NW Hunan, S Shaanxi, Sichuan.

26. *Hydrangea longipes* Franchet, Nouv. Arch. Mus. Hist. Nat., sér. 2, 8: 227. 1885.

蕤兰绣球 chun lan xiu qiu

Shrubs 1–3 m tall. Branchlets yellowish to brown, terete, pubescent. Petiole 3–15 cm, sparsely pilose to subglabrous; leaf blade usually greenish on both surfaces when dry, lanceolate, oblong-ovate or -obovate, broadly ovate, or broadly obovate, 4–22 × 3–12 cm, membranous to papery, abaxially sparsely appressed pubescent, or densely tomentose-villous with hairs spreading, brown, longer, and thicker along secondary veins and especially midvein, adaxially sparsely strigose, secondary veins 6–8 on both sides of midvein, abaxially elevated, base broadly cuneate, truncate, or shallowly cordate, margin irregularly roughly serrate, apex acute to acuminate. Inflorescences corymbose cymes, 7–20 cm wide, apex truncate to slightly arcuate; branches short, densely shortly hairy, hairs thick. Sterile flowers with sepals 4, white, obovate, broadly so, or suborbicular, 0.8–2.2 × 0.9–2.2 cm, margin entire or few denticulate. Fertile flowers with calyx tube cupular; teeth triangular, ca. 0.5 mm. Petals white, oblong-ovate. Stamens 10, unequal; anthers broadly oblong to subglobose. Ovary inferior. Styles 2, usually recurved, 0.5–1.5 mm in fruit. Capsule cupular, 2.5–3.5 mm in diam., apex truncate. Seeds brownish, narrowly

ellipsoid to oblong-obovoid, rarely subglobose, compressed, shortly winged at both ends; seed coat striate veined. Fl. Jul–Aug, fr. Sep–Oct.

• Dense to sparse forests or thickets along stream banks, in valleys, or on mountain slopes; 1300–2800 m. Gansu, Guizhou, Hebei, Henan, Hubei, Hunan, Shaanxi, Sichuan, Yunnan.

One of the present authors (Bartholomew) believes that *Hydrangea longipes* var. *longipes* is not distinct from *H. robusta* and that var. *fulvescens* and var. *lanceolata* are not distinct from *H. aspera*.

1a. Leaf blade lanceolate 26c. var. *lanceolata*

1b. Leaf blade oblong-ovate or -obovate, broadly ovate, or broadly obovate.

2a. Leaf blade abaxially densely tomentose-villous, secondary veins and especially midvein with spreading, brown, long, thick hairs 26b. var. *fulvescens*

2b. Leaf blade abaxially sparsely appressed pubescent, veins without spreading, brown, long, thick hairs 26a. var. *longipes*

26a. *Hydrangea longipes* var. *longipes*

蕤兰绣球(原变种) chun lan xiu qiu (yuan bian zhong)

Hydrangea aspera D. Don var. *longipes* (Franchet) Diels; *H. discocarpa* C. F. Wei; *H. hemsleyana* Diels; *H. hemsleyana* var. *pavonliniana* Pampanini.

Leaf blade oblong-ovate or -obovate, broadly ovate, or broadly obovate, abaxially sparsely appressed pubescent, veins without spreading, brown, long, thick hairs. Fl. Jul–Aug, fr. Sep–Oct.

• Dense to sparse forests or thickets in valleys or on mountain slopes; 1300–2800 m. Gansu, Guizhou, Hebei, Henan, Hubei, Hunan, Shaanxi, Sichuan, Yunnan.

26b. *Hydrangea longipes* var. *fulvescens* (Rehder) W. T. Wang ex C. F. Wei, Guihaia 14: 116. 1994.

绣毛绣球 xiu mao xiu qiu

Hydrangea fulvescens Rehder in Sargent, Pl. Wilson. 1: 39. 1911; *H. fulvescens* var. *rehderiana* (C. K. Schneider) Chun; *H. rehderiana* C. K. Schneider.

Leaf blade oblong-ovate or -obovate, broadly ovate, or broadly obovate, abaxially densely tomentose-villous, secondary veins and especially midvein with spreading, brown, long, thick hairs. Fl. Jul–Aug, fr. Sep–Oct.

• Dense to sparse forests along stream banks in valleys or on mountain slopes; 1500–2700 m. Gansu, Henan, Hubei, Shaanxi, Sichuan.

26c. *Hydrangea longipes* var. *lanceolata* Hemsley in F. B. Forbes & Hemsley, J. Linn. Soc., Bot. 23: 274. 1887.

披针绣球 pi zhen xiu qiu

Leaf blade lanceolate, 2–22 × 3–4.8 cm. Fr. Sep–Oct.

• Forests; ca. 1800 m. W Hubei, SW Shaanxi.

27. *Hydrangea coacta* C. F. Wei, Guihaia 14: 116. 1994.

毡毛绣球 zhan mao xiu qiu

Shrubs. Young branchlets, petioles, and inflorescences densely gray-white to slightly yellow hirsute.

Branchlets red-brown, longitudinally striate, glabrescent. Petiole thick, 0.5–1.5 cm; leaf blade oblong-ovate to ovate-lanceolate, 9–14.5 × 3.5–6 cm, thickly papery, abaxially densely gray-white hirsute and brownish tomentose with both types of hairs felted together and carpetlike, secondary veins 6 or 7 on both sides of midvein. Inflorescences corymbose cymes, lax, ca. 15 cm wide, apex arcuate. Sterile flowers with sepals 4, purplish red, suborbicular, 1–1.5 cm, margin obtusely denticulate. Fertile flowers unknown. Capsule cupular, ca. 2.5 × 3 mm, apex truncate; persistent calyx teeth obtusely triangular, ca. 0.5 mm; persistent styles 2, reflexed, stigmas hemispheric. Seeds brownish, oblong to broadly ellipsoid, compressed, winged at both ends; wings ca. 0.3 mm; seed coat striate veined. Fr. Sep.

• Barren areas on mountain slopes; ca. 1300 m. SW Shaanxi (Nanzheng Xian).

One of the present authors (Bartholomew) believes that this species is not distinct from *Hydrangea aspera*.

28. *Hydrangea robusta* J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 2: 76. 1858.

粗枝绣球 cu zhi xiu qiu

Hydrangea aspera D. Don subsp. *robusta* (J. D. Hooker & Thomson) E. M. McClintock; *H. longialata* C. F. Wei; *H. maximowiczii* H. Léveillé; *H. rosthornii* Diels; *H. rotundifolia* C. F. Wei.

Shrubs or small trees, 2–3(–6) m tall. Branchlets, petioles, and inflorescences densely yellow-brown shortly hispid to spreading hirsute. Branchlets brown, usually 4-angled, glabrescent. Petiole thick, 3–15 cm; leaf blade elliptic, broadly so, or oblong-ovate to broadly ovate, 9–35 × 5–22 cm, papery, abaxially densely gray-white pubescent to sparsely brownish hispidulous, hairs sometimes longer and thicker along veins especially midvein, adaxially strigose, secondary veins 8–13 on both sides of midvein, base obtuse, truncate, rounded, or subcordate, margin irregularly doubly serrate, apex acute to acuminate. Inflorescences corymbose cymes, lax, long, to 30 cm wide in fruit; peduncle thick, 4-angled. Sterile flowers with sepals 4(or 5), purplish to white, broadly ovate, orbicular, or broadly orbicular, 1.2–3.8 × 1.3–3.5 cm, margin entire, dentate, or serrate. Fertile flowers with calyx tube cupular, 1–1.5 mm; teeth ovate-triangular, 0.5–1 mm. Petals purple, ovate-lanceolate, 2–3 mm. Stamens 10–14, unequal, longer ones 6–6.5(–10) mm. Ovary inferior. Styles 2, spreading to recurved, 1–2 mm in fruit. Capsule cupular to campanulate, 3–4.5 × 3.5–5 mm, apex truncate; persistent styles spreading to recurved. Seeds red-brown, fusiform, ellipsoid, or

subglobose, 0.4–0.6 mm; wings 0.1–0.6 mm; seed coat striate veined. Fl. Jul–Aug, fr. Sep–Feb.

Dense to sparse forests or thickets in valleys, along stream banks, or on mountain slopes or tops; 700–2800 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Sichuan, SE Xizang, Yunnan, Zhejiang [Bangladesh, Bhutan, N India, Myanmar, Sikkim].

29. *Hydrangea kawakamii* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 25: 90. 1908.

蝶萼绣球 die e xiu qiu

Shrubs climbing. Young branchlets, petioles, and inflorescences densely yellow-brown pubescent. Branchlets dark gray, terete, glabrescent. Petiole 2–9 cm; leaf blade oblong-ovate to elliptic, 9–12 × 4.5–10 cm, papery, abaxially densely slightly crisped pubescent, adaxially sparsely strigose, secondary veins 6 or 7 on both sides of midvein, abaxially prominent, base broadly cuneate to rounded, margin irregularly doubly serrate, apex acute to shortly acuminate. Inflorescences corymbose cymes, lax, 10–14 cm wide, apex truncate to slightly arcuate. Sterile flowers with sepals 3 or 4, suborbicular, 1–2 cm, margin acutely dentate. Fertile flowers with calyx tube cupular, ca. 1.5 mm; teeth broadly triangular, ca. 1 mm. Petals oblong-ovate, ca. 2 mm. Stamens 10, unequal, longer ones ca. 5 mm; anthers subglobose, ca. 0.5 mm. Ovary inferior. Styles 2 (or 3), ca. 1.5 mm in fruit. Capsule hemispheric, 2–3 × 3–4 mm, apex truncate. Seeds fusiform, shortly winged at both ends; seed coat striate veined with thin, transverse veins in-between. Fl. Jul, fr. Oct–Nov.

• Dense forests; 2200–2300 m. Taiwan.

One of the present authors (Bartholomew) believes that this species is not distinct from *Hydrangea aspera*.

30. *Hydrangea sargentiana* Rehder in Sargent, Pl. Wilson. 1: 29. 1911.

紫彩绣球 zi cai xiu qiu

Hydrangea aspera D. Don subsp. *sargentiana* (Rehder) E. M. McClintock.

Shrubs 2–3 m tall. Branchlets, petioles, and peduncles with dense, purple, semitranslucent, long, apically forked and acute hairs. Branchlets thick. Petiole thick, 3–9 cm; leaf blade abaxially gray-green to slightly purple when fresh, adaxially dark green, elliptic, oblong-ovate, or broadly ovate, 9–30 × 6–16 cm, submembranous to thinly papery, abaxially densely slightly curved villous, adaxially densely translucent strigose, secondary veins 8–11 on both sides of midvein, abaxially prominent, base rounded to shallowly cordate, margin irregularly triangular dentate to denticulate, apex acuminate. Inflorescences corymbose cymes, 10–16 cm wide, apex arcuate; branches numerous, crowded together at apex of peduncle. Sterile flowers with sepals 4, white, obovate-orbicular to broadly

orbicular, 0.9–1.4 × 0.8–1.7 cm in fruit, margin entire. Fertile flowers with calyx tube campanulate, ca. 1 mm; teeth triangular, ca. 0.5 mm. Petals purplish blue, ovate, ca. 2 mm. Stamens unequal, some of shorter ones equaling petals, longer ones ca. 4 mm. Ovary inferior. Styles 2, ca. 1.5 mm in fruit; stigmas capitate, small. Capsule hemispheric, 3–4 mm in diam., apex truncate. Seeds brown, ellipsoid, slightly compressed, winged at both ends; seed coat striate veined. Fl. Jul, fr. Sep.

• Dense forests in valleys or on mountain slopes; 700–1800 m. W Hubei.

31. *Hydrangea longifolia* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 25: 91. 1908.

长叶绣球 chang ye xiu qiu

Hydrangea involucrata Siebold var. *longifolia* (Hayata) Y. C. Liu; *H. strigosa* Rehder var. *longifolia* (Hayata) Chun.

Shrubs erect. Branchlets, petioles, leaf blades, and inflorescences densely appressed hairy with both simple and 2-branched hairs. Branchlets dark brown-red, terete or slightly obtusely angled near apex. Petiole thin, 1.5–2 cm; leaf blade lanceolate, 10–20 × 3–4.5 cm, papery, adaxially with more 2-branched hairs than simple hairs, abaxially with fewer 2-branched hairs than simple hairs, secondary veins 8–10 on both sides of midvein, slender, abaxially prominent, base obtuse to cuneate, margin aristate serrulate, apex caudate-acuminate. Inflorescences corymbose cymes, ca. 9 × 11–14 cm; bracts ovate, ca. 2 × 1.5 cm, densely puberulous and enveloping immature inflorescence before falling. Sterile flowers with sepals 4, elliptic to broadly ovate, 1.5–1.8 × 1.1–1.5 cm in fruit. Fertile flowers unknown. Capsule campanulate, ca. 3 × 3.5–4 mm, with simple hairs and a few 2-branched hairs, apex truncate; persistent calyx teeth triangular, ca. 0.5 mm; persistent styles 2, erect to recurved, 1.5–2 mm, distally enlarged. Seeds brown, ellipsoid, compressed, ca. 0.5 mm, winged at both ends; wings 0.2–0.4 mm; seed coat striate veined. Fl. Jan.

• Forests in high mountains. Taiwan.

This species is closely related to *Hydrangea involucrata* Siebold, from Japan. However, the distinctive, 2-branched hairs of *H. longifolia* easily differentiate the two species.

32. *Hydrangea integrifolia* Hayata, J. Coll. Sci. Imp. Univ. Tokyo 22: 131. 1906.

全缘绣球 quan yuan xiu qiu

Hydrangea integra Hayata.

Shrubs climbing. Branchlets brown-red, subglabrous. Petiole 1.5–4.5 cm, subglabrous; leaf blade elliptic, oblong-elliptic, or obovate, 7–22 × 3.5–8 cm, leathery, both surfaces glabrous, secondary veins 7–10 on both sides of midvein, curved, abaxially prominent, base subacute to cuneate, margin slightly reflexed, entire, apex acuminate. Inflorescences terminal, corymbose cymes, 8–10 cm wide, to 17 cm wide in fruit, apex subtruncate; peduncle and branches densely yellow-brown stellate hairy and pilose; branches crowded together at apex of peduncle. Sterile flowers with sepals

2–4, suborbicular to broadly orbicular, 1–1.5 × 0.8–2 cm, margin entire to sinuate. Fertile flowers with calyx tube cupular, ca. 1 mm; teeth 4 or 5, broadly ovate, less than 1 mm. Petals oblong, ca. 2.5 mm. Stamens 10, subequal, 3.5–4 mm in fruit; anthers subglobose, ca. 0.5 mm. Ovary inferior. Styles 2(or 3), reflexed, ca. 1.5 mm in fruit; stigmas not enlarged. Capsule campanulate, ca. 2.5 × 2.5–4 mm, apex truncate. Seeds brown, ellipsoid to oblong, ca. 0.5 mm, very shortly and slightly obliquely winged at both ends; seed coat striate veined. Fl. Jul, fr. Oct–Dec.

Dense forests on rocky mountain slopes; 1000–2800 m. Taiwan [Philippines].

33. *Hydrangea anomala* D. Don, Prodr. Fl. Nepal. 211. 1825.

冠盖绣球 *guan gai xiu qiu*

Hydrangea altissima Wallich; *H. anomala* var. *sericea* C. C. Yang; *H. glabra* Hayata; *H. glaucophylla* C. C. Yang; *H. glaucophylla* var. *sericea* (C. C. Yang) C. F. Wei.

Shrubs climbing, 2–4 m tall or more. Branchlets gray-brown, robust, glabrous; bark thin, loose, peeled off into fragments when old. Petiole 2–8 cm, glabrous or pilose; leaf blade yellow-brown on both surfaces when dry, elliptic, oblong-ovate, or ovate, 6–17 × 3–10 cm, papery, both surfaces glabrous or abaxially sometimes sparsely brownish pubescent along veins and barbate at vein axils, secondary veins 6–8 on both sides of midvein, abaxially prominent, base cuneate, sub-rounded, or sometimes shallowly cordate, margin densely serrulate, apex acuminate. Inflorescences corymbose cymes, to 30 cm wide in fruit, pubescent, apex arcuate. Sterile flowers with sepals 4, broadly obovate to suborbicular, 1–2.2 × 1–2.2 cm, margin entire except for a few obtuse teeth. Fertile flowers with calyx tube campanulate, 1–1.5 mm; teeth broadly ovate to triangular, 0.5–0.8 mm. Petals apically connate and forming a calyptra, apex rounded to subacute. Stamens 9–18, subequal; anthers subglobose, small. Ovary inferior. Styles 2(or 3), recurved, ca. 1.5 mm in fruit. Capsule urn-shaped, 3–4.5 mm in diam., apex truncate. Seeds brownish, ellipsoid to oblong, compressed, 0.7–1 mm; wing encircling seed. Fl. May–Jun, fr. Sep–Oct.

Dense to sparse forests in valleys, along stream banks, or on rocky mountain slopes; 500–2900 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Bhutan, India, Myanmar, Nepal, Sikkim].

The leaves are used medicinally.

Flora of China 8: 411–422. 2001.